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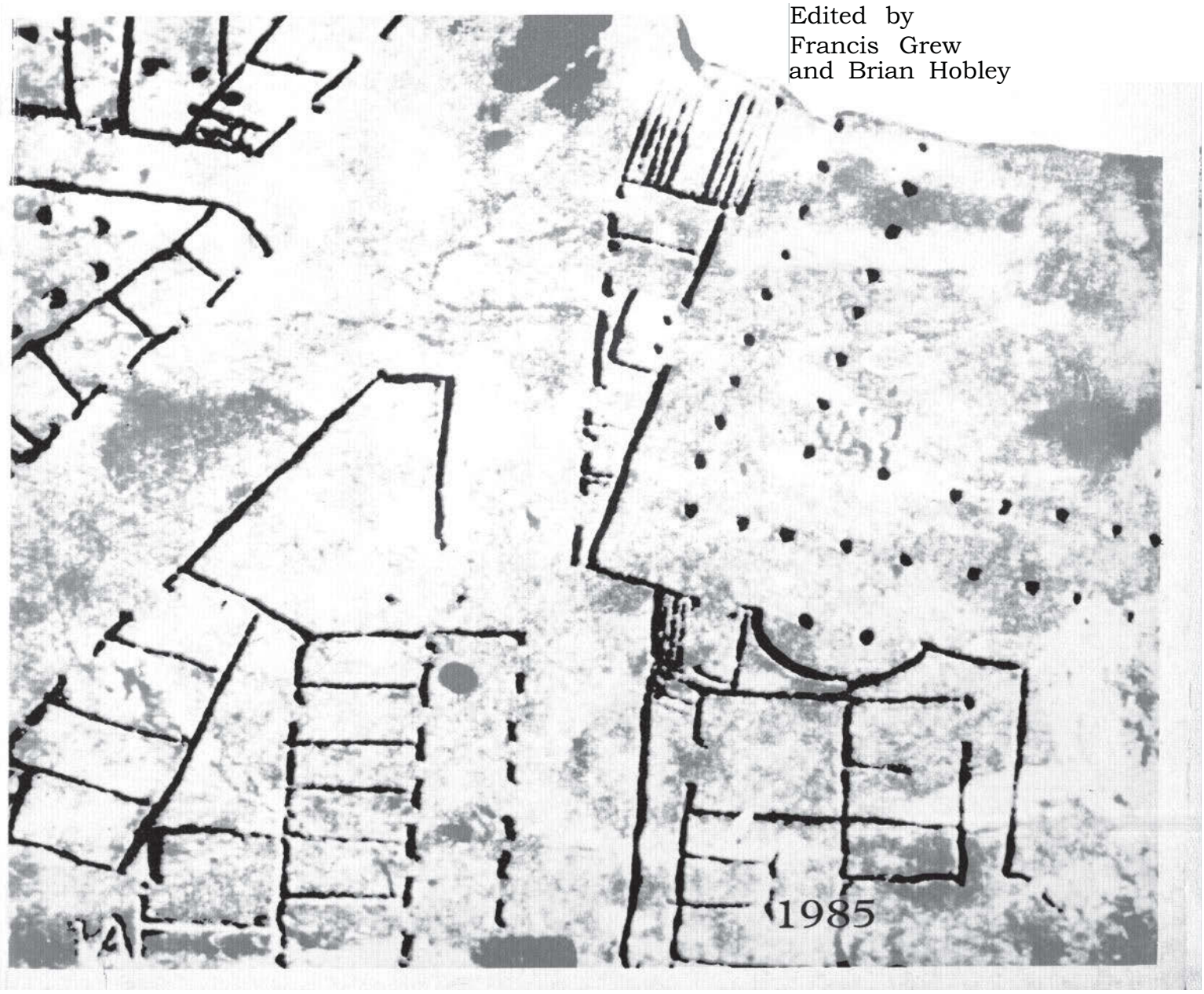
ROMAN URBAN TOPOGRAPHY in Britain and the western Empire

Edited by
Francis Grew
and Brian Hobley



Roman urban topography in Britain and the western Empire

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Illustrations

Contributors

P A Barker, Department of Extramural Studies, University of Birmingham, P 0 Box 363, Birmingham B15 2TT
J Casey, Department of Archaeology, University of Durham, Saddler Street, Durham DH1 3NU
P Crummy, Director, Colchester Archaeological Trust, Camulodunum, 12 Lexden Road, Colchester CO3 3NF
B W Cunliffe, Professor of European Archaeology, Institute of Archaeology, 36 Beaumont Street, Oxford OX1 2PG
0 A W Dilke, Emeritus Professor of Latin, University of Leeds, School of Classics, Leeds LS2 9JT
J Drinkwater, Department of Ancient History and Classical Archaeology, University of Sheffield, Sheffield S10 2TN
R P Duncan-Jones, Gonville and Caius College, Cambridge CB2 1TA
A S Esmonde Cleary, Department of Ancient History and Archaeology, University of Birmingham, P 0 Box 363, Birmingham B15 2TT
S S Frere, Professor of the Archaeology of the Roman Empire, Institute of Archaeology, 36 Beaumont Street, Oxford OX1 2PG
F 0 Grew, Department of Urban Archaeology, Museum of London, London Wall, London EC2Y 5HN
B Hobley, Chief Urban Archaeologist, Museum of London, London Wall, London EC2Y 5HN
M J Jones, Director, Lincoln Archaeological Trust, Sessions House, Lindum Road, Lincoln LN2 1PB
R Ling, History of Art Department, University of Manchester, Manchester M13 9PL
P Marsden, Department of Urban Archaeology, Museum of London, London Wall, London EC2Y 5HN
D Perring, Department of Urban Archaeology, Museum of London, London Wall, London EC2Y 5HN
R Reece, Institute of Archaeology, University of London, 31-34 Gordon Square, London WClH 0PY
P Salway, Professor of the Archaeology and History of Roman Britain, The Open University, 66-68 High Street, Harborne, Birmingham B17 9NB
M Todd, Professor of Archaeology, University of Exeter, Queen's Building, The Queen's Drive, Exeter EX4 4QH
J S Wacher, Professor of Archaeology, University of Leicester, University Road, Leicester LEl 7RH

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Introduction: the study of Classical urban topography

Francis Grew and Brian Hobley

In Britain the comprehensive study of Graeco-Roman town planning began in 1910 when Haverfield gave a paper on the subject to the London Conference of Town Planning, itself in its infancy and much concerned with social reforms. This new discipline sought the benefits of parallels from antiquity, and Haverfield clearly identified the adoption of the straight line and right angle as the most definite principle of Classical town planning, which 'separated the simplest civilization from barbarism' (Haverfield 1913, 14).

During the past 73 years much more has been learnt, both through aerial photography and through major excavations in urban centres, and many important studies have appeared (von Gerkan 1924; Congress 1958; Pounds 1969; Castagnoli 1972; Ward-Perkins 1974; Chevallier 1974; Frere 1977; Goudineau 1980). Yet many of the themes are the same as in 1910. At the 1983 conference Cunliffe, while recognizing certain characteristics of 'proto-urbanism' in the nucleated settlements of late barbarian Europe, clearly still placed with ancient Athens and 7th-century Rome the beginnings in Europe of uniform town planning as it is generally accepted today (this volume, pp l-5). And, in particular, he called the attention of archaeologists to the importance of studying cities as socio-economic political systems, not simply as artefacts (this volume, p 1).

The location of Roman cities is a matter dealt with by many Classical writers, but principally by Vitruvius. After military requirements, trade and the need for sites on safe and navigable rivers and shorelines were major determinants, as the Peutinger map shows (Miller 1962); but, in the choice between several possible sites, a factor which should not be forgotten was the Roman reliance on favourable omens as pronounced by the livers of sacrificed animals, particularly of those who had lived on the site and which thus might reflect healthy living conditions, not least the presence of pure water (Salway, this volume, p 67). The ownership of land was highly prized in the Roman world, not only for the status it conferred but as a sound investment, as was the ownership of urban properties. In the provinces, however, the Roman authorities ignored ownership rights of native peoples at their peril, as Tacitus recognized in his examination of the causes of the Boudican revolt *(Annals,* xiv.31; *Agricola,* 15).

Once the site for a town was chosen its layout or planning would commence. There was, of course, a wide range and hierarchy of urban settlement, and there is general agreement between contributors that those below the rank of *colonia* have far greater irregularity of layout. As Drinkwater states, 'Individual cities did not in the end emerge as identical, all reflecting some overriding master plan' (this volume, p 51). Rather, as investigations have recently shown in Britain, there was an infinite variety of sizes and shapes, with or without defences or suburbs (Rodwell & Rowley 1975). The more important settlements, *coloniae, municipia,* and *civitas* capitals, showed the highest degree of planned layout, and this was achieved principally by means of an orthogonal street grid. Drinkwater correctly observes that once the main grid had been laid down every structure had to respect it (p 53) - although sometimes there were small encroachments by houses and especially by porticoes (Frere 1977, 97 and fig 8) - and it is clear that whenever possible, contours were ignored, for the grid concept was based on horizontality. This was the reason for the importance of the *mensores* (Dilke, this volume, pp 613).

It is indeed with the orthogonal grid that many recent studies have been concerned, and these have shown that in this, as in many other cultural affairs, Britain and the western Roman provinces - the subject of this volume - are a small but distinctive part of a developing tradition which extends, temporally, back to the early 1st millennium BC and, spatially, as far as the Euphrates. There can be little doubt that throughout antiquity itself the grid was widely recognized as the chief instrument of town planning, and almost invariably it was regarded with approval, comparing favourably with haphazard growth - this was considered old-fashioned. Aristotle, for example, writing in the 4th century BC and describing the ideal city, seems to have it in mind when he explains that 'the arrangement of private houses is more pleasant and convenient for general purposes if it is clear-cut, in the modern "Hippodamean" fashion' *(Politics,* vii. 10.4); the only drawback is that in the event of attack and street-fighting the regular layout may assist the attackers no less than the defenders. Similarly, Pausanias, writing about 500 years later and observing with his antiquarian eye the city of Elis in the Peloponnese, notes that 'the agora is not like those of the Ionian cities or of the Greek cities near Ionia; it is built in the older style with stoas separated from each other and with streets passing through them' (vi.24.2).

The credit for inventing the 'modern' planning system to which these writers allude has generally been given to Hippodamus of Miletus (eg Aristotle, *loc cit).* Recent commentators have, with some justification, questioned the extent of his personal contribution (Burns 1976; Segal 1978), but the fact remains that in the Greek and Roman worlds orthogonal planning came to maturity during Hippodamus's lifetime, that is, the 5th century BC. Two factors may have combined to bring this about. In the first place, it was a time when many cities were built or rebuilt *de novo.* Some were ancient foundations razed during the Persian Wars, others new colonies founded for political and commercial reasons by Athens in particular. Many of the former are the sites in Asia Minor to which *Pausanias* refers. This factor, the need to build many complete, new

towns, often in recently-acquired territory, is one which at other periods also led to the adoption of the orthogonal street grid: in Italy in the 3rd and 2nd centuries BC, in Gaul and Britain in the 1st century AD (Drinkwater, this volume, pp 53-4), and, as noticed by Reece (this volume, p 38), in Europe in the kiddle Ages. The reasons, presumably, are simplicity - provided that skilled surveyors can be found - and, very often, the need to apportion the land in a number of regular-sized holdings.

The second factor was the influence of contemporary philosophy and politics. Early Greek thinkers and orthogonal planners had very comparable concerns - to analyse all things in terms of a few basic elements and to provide a single, all-embracing explanation for the whole (Guthrie 1965, 119-20). Hippodamus himself may have been more of a philosopher than an architect or surveyor, to judge from Aristotle's description of him as 'eccentric, long-haired' and a man 'who wished to be learned in the whole field of natural science' *(Politics,* ii.5. l), and it is perhaps no coincidence that in the 6th century Miletus was the centre of the earliest, and ultimately one of the most influential, schools of Greek philosophy; one of its members, Anaximander, plotted a map of the world where the proportions were expressed in multiples of three (Guthrie 1962,219). There is nothing to suggest that Hippodamus combined mathematics with town planning, but his interest in the theoretical aspects of the subject can be seen from the fact that he apparently devised a political system whereby the population of the town was divided into three classes - craftsmen, farmers, and soldiers -

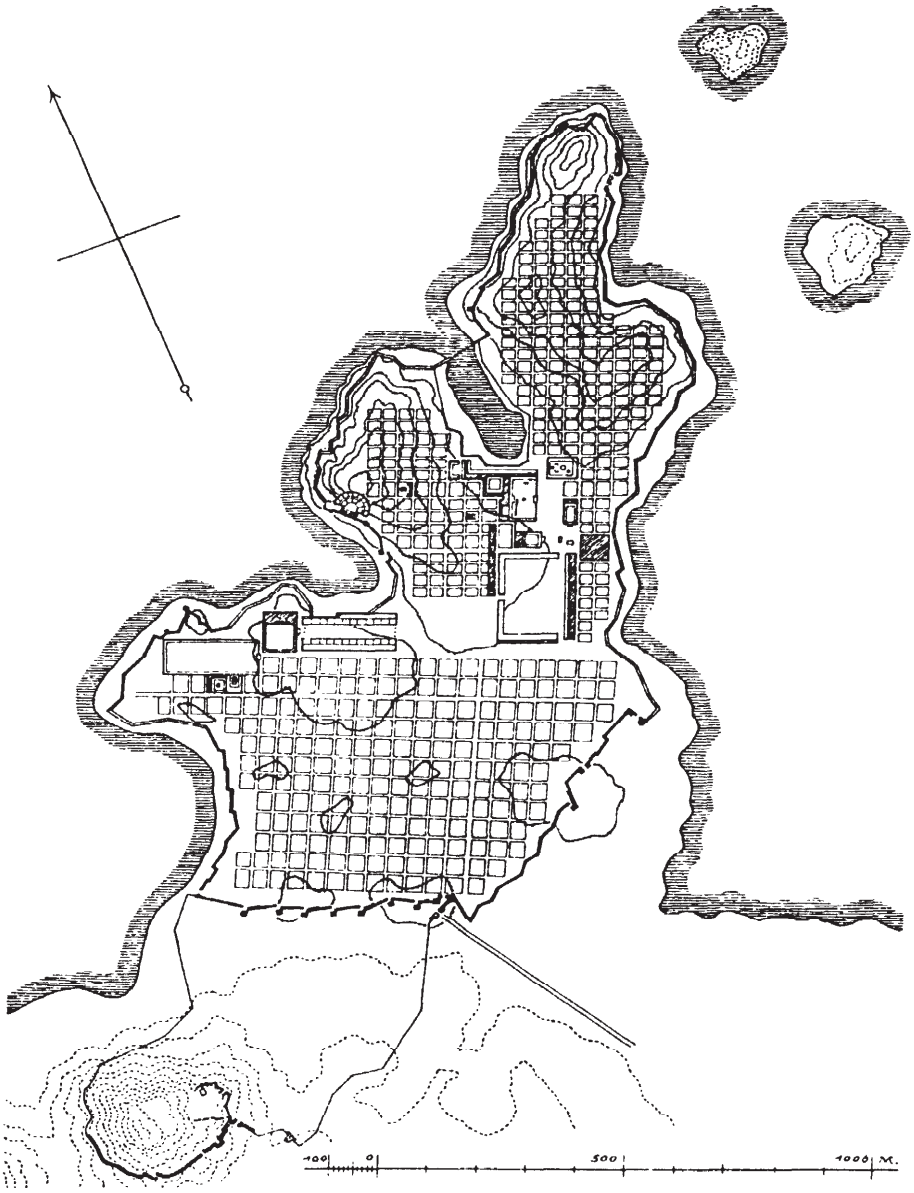

Fig 1 Miletus: the layout dates in essence from the early 5th century BC (Adapted from von Gerkan 1924, Abb 6)

and the land divided into three portions, the first sacred, the second public (to support the soldiers), and the third private (to be owned by the farmers). Whether or not this scheme was ever tried, rudimentary zoning can be seen in the plans of many early Greek cities - Miletus itself, for example (Fig 1) - and it is clear that the orthogonal grid was widely regarded as the symbol of the new democratic constitutions emerging at the time (Aristotle, *Politics,* vii.10.4). The wide open spaces at the centre of the town were designed for public gatherings and popular government, whereas isolated hilltop sites were normally associated with the fortresses of tyrants *(ibid).*

To the Greeks, therefore, the perfection of the orthogonal grid lay in the fact that it represented a simple, logical, and consistent solution to the basic problem of how to plan a town. Unusual features or novelties of design would seem unnecessary, rather than praise worthy. Besides, as Arnold Toynbee has pointed out (1971, 84-7), western minds often fail to appreciate that the grid was regularly imposed on terrain that was quite unsuited to it, and thus represented a triumph of Man over Nature; to appreciate something of the effects which could be created, we can today visit the city of Edinburgh, built around three parallel streets on a steep hillside with a castle at the summit.

Although both Greeks and Romans used the orthogonal grid, Greek towns of the 5th century BC differed considerably from Roman towns of the western empire. In general the Greeks made much greater use of natural terrain. Many cities were built on promontories, thus facilitating seaborne trade between them, and when a city was built on a hillside it was normal to reserve the highest and most dominant crags for the acropolis, accommodating the chief gods of the state. Some cities indeed lay on such steep slopes that in effect they were designed in strips rather than blocks. At Priene, the streets in one direction were little more than stairs between terraces, and it is likely that, even though the main means of transport would have been porter or pack animal, those which followed the contours would have been much more important in terms of communication. The most distinguishing characteristic of Greek cities, however, was that they were seldom unitary, but generally consisted of several quite distinct blocks laid out in accordance with the orthogonal grid. Again this might be a constraint imposed by the natural terrain, but often the intention was clearly to distinguish areas which had different functions. At Miletus, for example, a 'public' area was laid out in the valley between two low hills, each of which carried a 'residential' area laid out in the orthogonal manner (Fig 1). The public buildings were not completed until the 2nd century BC (Ward-Perkins 1974, 14-15), but space for them seems to have been reserved from the start.

The early Italian colonies of the 3rd and 2nd centuries BC conformed closely to the Greek model. Cosa, founded in 280 BC, is typical (Brown 1980; Fig 2). The city wall followed an irregular course along the natural contours. The *arx* lay at the highest point, in the south-west, and in the north, also on high ground, lay another large building, possibly a *horreum;* between these dominant features was an area laid out with an orthogonal grid and presumably used for private housing. The forum was placed in the most level and low-lying spot, conveniently near the south gate. Cosa was a seaport, and this was the point to which goods would have been brought from the harbour about 500m away. As pointed out by Dilke (this volume, p 10), Vitruvius recommends that in coastal towns the forum should be sited on the side nearest the sea.

Most of the later Italian colonies and the major towns of the western empire diverged considerably from these precepts. There was considerably more emphasis on a crossroads at the centre of the town, and the two main streets leading to it - commonly, but sometimes inaccurately (Dilke, this volume, p 11), known as the *kardo* and the *decumanus* - were often wider than the others. Where walls were provided from the start, as was normal in the case of colonies, the circuit was often square or rectangular, producing a rigid effect which be seen at its most extreme in the surviving remains of Timgad, Algeria (Fig 3). In towns such as these the forum was almost invariably placed at the centre, where it was often combined with the Capitolium, as in north Italian and some Gallic cities (Todd, this volume, pp 59-65), or with another major public building - at Leicester or Wroxeter, for example, the public baths. This produced a far more unitary plan than in any Greek city. All these changes were made possible by a much more rigorous application of the orthogonal grid itself, often overriding the natural terrain. At the colony of Ordona, for example, founded in the 2nd century BC, the forum was sited at the head of a shallow valley, but the architects built up the piazza floor so that the hollow was hidden and the building oriented quite differently from the valley itself (Mertens 1977; Fig 4).

Of the factors which modified the Roman application of the orthogonal grid the development of military planning may have been one of the most important. Hardly anything is known about army camps in republican Italy and their relationship wirh the colonies, but the growth of a professional army, stationed permanently overseas, led to the establishment of a standardized fort plan, whose true influence on the building of provincial cities during the late 1st century BC and the 1st century AD is only slowly being recognized. A major recent discovery has been that in Britain the three military colonies - Colchester, Gloucester, and Lincoln - were converted directly from preceding fortresses, retaining the same street alignments and often the same buildings and defences (Crummy, this volume, p 78); even more remarkably, underlying fortresses exerted a similar influence at the *civitas* capitals of Exeter (Bidwell 1980) and, possibly, Wroxeter (Barker, this volume, Fig 76). The centralized planning of fortresses also had its effect on many other provincial towns, but the similarity must not be taken too far, for often there were important differences in detail, not least in the relative positions of the forum and the *principia,* buildings of similar plan and function: the *principia* invariably lay at the head of a main street, the forum normally beside two streets at the crossroads. Moreover, it was often necessary to accommodate in a city buildings which had no counterpart in a fortress. The most important of these was perhaps the Capitolium, the building which embodied the politico-religious aspects of a truly Roman city. (Capitolia have not yet been located in Britain (Todd, this volume, p 65) and indeed would not be expected in the *civitas* capitals.)

The possibility of imposing a repetitive, standardized plan was enhanced by the geographical placing of many Roman cities. Much of north-western Europe is compara-

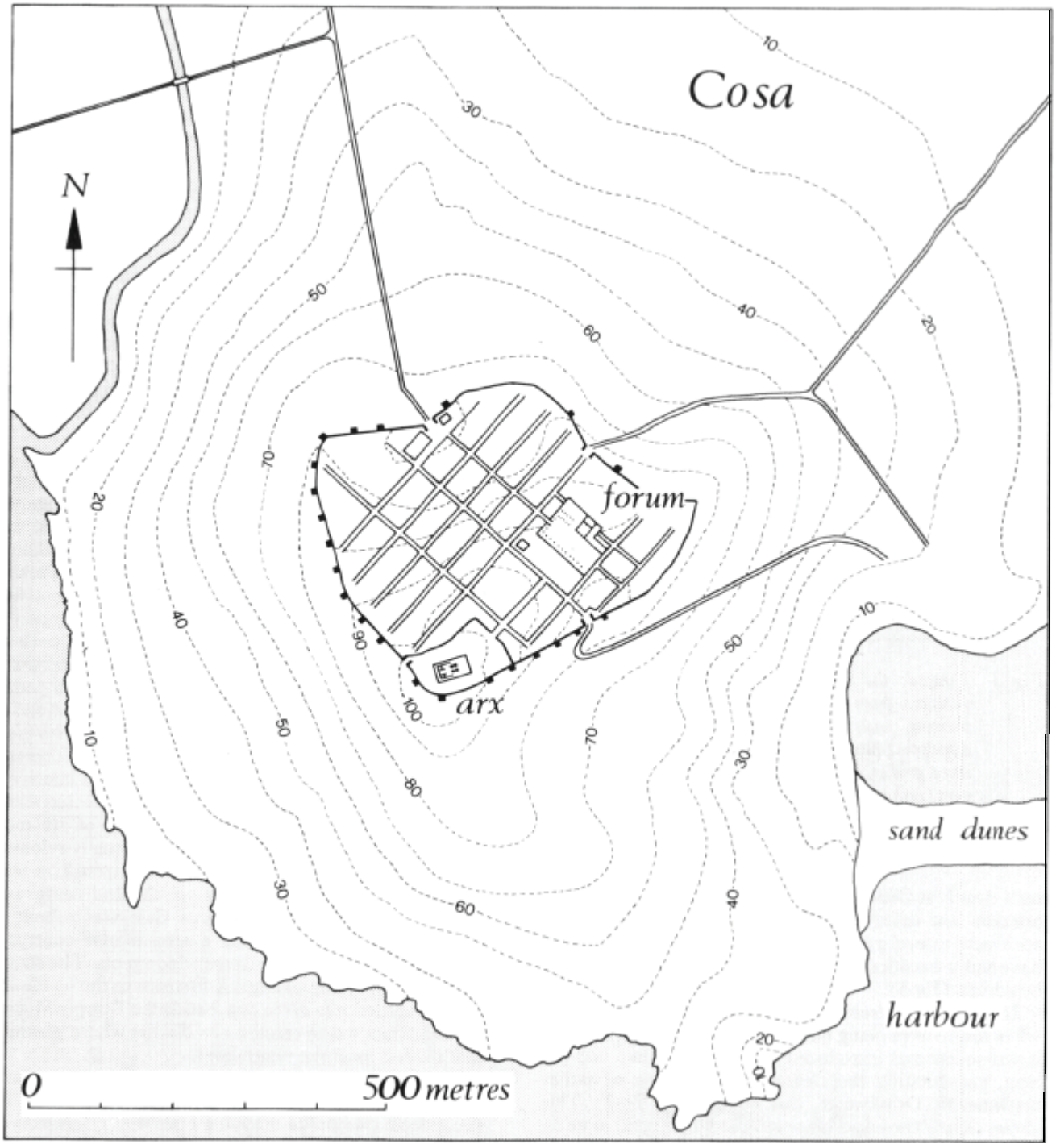

Fig 2 Cosa: the colony was founded in 280 BC on the summit of a rocky promontory. The Capitolium (cf Fig39) was built on the highest point, the forum in a slight valley (After Brown 1980)

tively flat and low-lying, and as the empire expanded beyond the Mediterranean, much greater emphasis was put on long-distance communication by road and river. The main roads were usually built with quite gentle gradients and the towns they linked were, in turn, laid out on level ground, often at a major river crossing. In Britain, Verulamium and the *civitas* capitals all lie on valley slopes where there are hardly any natural features to influence the planning of the town and the siting of individual buildings. A grid based on blocks, rather than strips, where both axes were equally important, became the norm, and improvements in the techniques of civil engineering, particularly in vault construction, allowed local topographical obstacles to be overcome. This can be

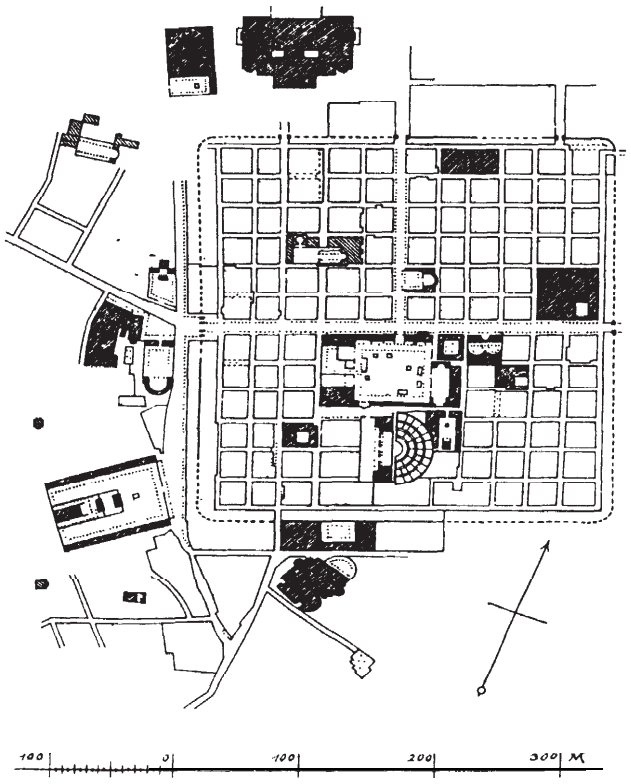

Fig 3 Timgad: the colony was founded in AD 100 for veterans from Legio III Augusta. *Although a thriving settlement, with major public buildings, developed outside, no attempt was made to extend the street grid or perpetuate its alignment (Adapted from von Gerkan 1924, Abb 19)*

seen clearly at Ordona, where the ability to build crypto-porticus and cellars supporting great loads enabled the architects to level a natural feature which otherwise would have had a considerable impact on the siting of individual buildings (Fig 5).

In Britain the street grid was introduced immediately, when towns were being built for the first time, but in Gaul it was sometimes introduced later in the Roman occupation, necessitating the clearing and levelling of earlier settlements (Drinkwater, this volume, pp 52-3). This shows clearly the importance attached to the grid as being the symbol of a true Classical city, but it seems not to have been used extensively in the development of London. Here Frere (1977, 103; cf Perring, this volume, Fig 64) has recognized an eye for the ground in the siting of the forum at the crest of its hill, facing the road and the bridge across the Thames. This, he argues, was the work of a first-class architect, rather than the army engineers who were usually employed to build the early provincial centres. The reason may have been the unique character of the early city: a centre for wealthy merchants and seat of the Governor and Procurator, but never a military colony or an organ of tribal administration.

London is almost unique in the north-western provinces, but examples of similar planning can be found elsewhere in the empire; in fact it is noticeable that whenever very large sums were expended on building or rebuilding, particularly when they were contributed by a single benefactor, the orthogonal grid was rarely applied – or, if it was, it was applied imaginatively. At Lepcis Magna, for example, Severus's reconstruction of the city in the early 3rd century (Fig 6) involved the building of a new forum along the sea front, which connected two areas laid out previously with separate orthogonal street grids on slightly different alignments. The architect's solution was to build a semicircular *nymphaeum* at the junction of the main streets, thereby turning into ornament a potentially ugly change of direction. At the same time, since shortage of space prevented the basilica from following the same alignment as the forum piazza, it was provided with two projecting semicircular entrances which tended to draw attention away from the irregularity of the main wall. Devices such as these were commonly used in the imperial fora of Rome itself, where again the presence of standing buildings prohibited a truly rectangular plan.

In the east many more cities were planned in an irregular but inspired manner, both in Hellenistic and in imperial Roman times. At Pergamum, for example, mainly built in the 2nd century BC, remarkable use was made of natural terrain, as temples and other buildings were ranged in tiers up a very steep hillside (Ward-Perkins 1974, 18-19 and figs 14-15). Besides creating a fine prospect for the traveller approaching from a distance, the position of the buildings opened up unexpected vistas as the visitor turned corners or moved from one terrace to another. An important innovation in the imperial period in the eastern provinces was to plan cities around one or more major thoroughfares which were dignified with great colonnades, themselves no doubt embellished with statuary (Lyttleton 1974, 22-3). This can be seen at Lepcis (Fig 6), itself probably designed by east Mediterranean architects (Ward-Perkins 1948), and one of its most striking applications was at Jerusalem, virtually refounded by Hadrian after the Bar Kochba rebellion and renamed Aelia Capitolina. Here, in the 2nd century or later (Chen 1982), the Damascus Gate was rebuilt in monumental form to include a semicircular courtyard from which radiated three colonnaded streets. The streets connected the camp of *Legio X Fretensis* in the south and another settled area in the east, beside the Temple Mount, but the effect was to create a new district whose planning was neither axial nor centralized.

The key factor in many of these cases may have been that resources were sufficient to employ an architect for the specific purpose of resolving a problem or creating an original design. In most towns such opportunities would not have arisen, for although they continued acquiring public buildings over a long period, often by private gift (Duncan-Jones, this volume, pp 28-33), the town plan seems to have been laid out from the start and was presumably the responsibility of the founders - normally, in the north-western provinces, the *civitas* authorities or the emperor or his representatives as part of a wider administrative policy. In this respect there is a clear contrast with the sanctuaries and major rural sites of Gaul (Drinkwater, this volume, pp 54-5), which were built by local notables who wished to show their pretensions by

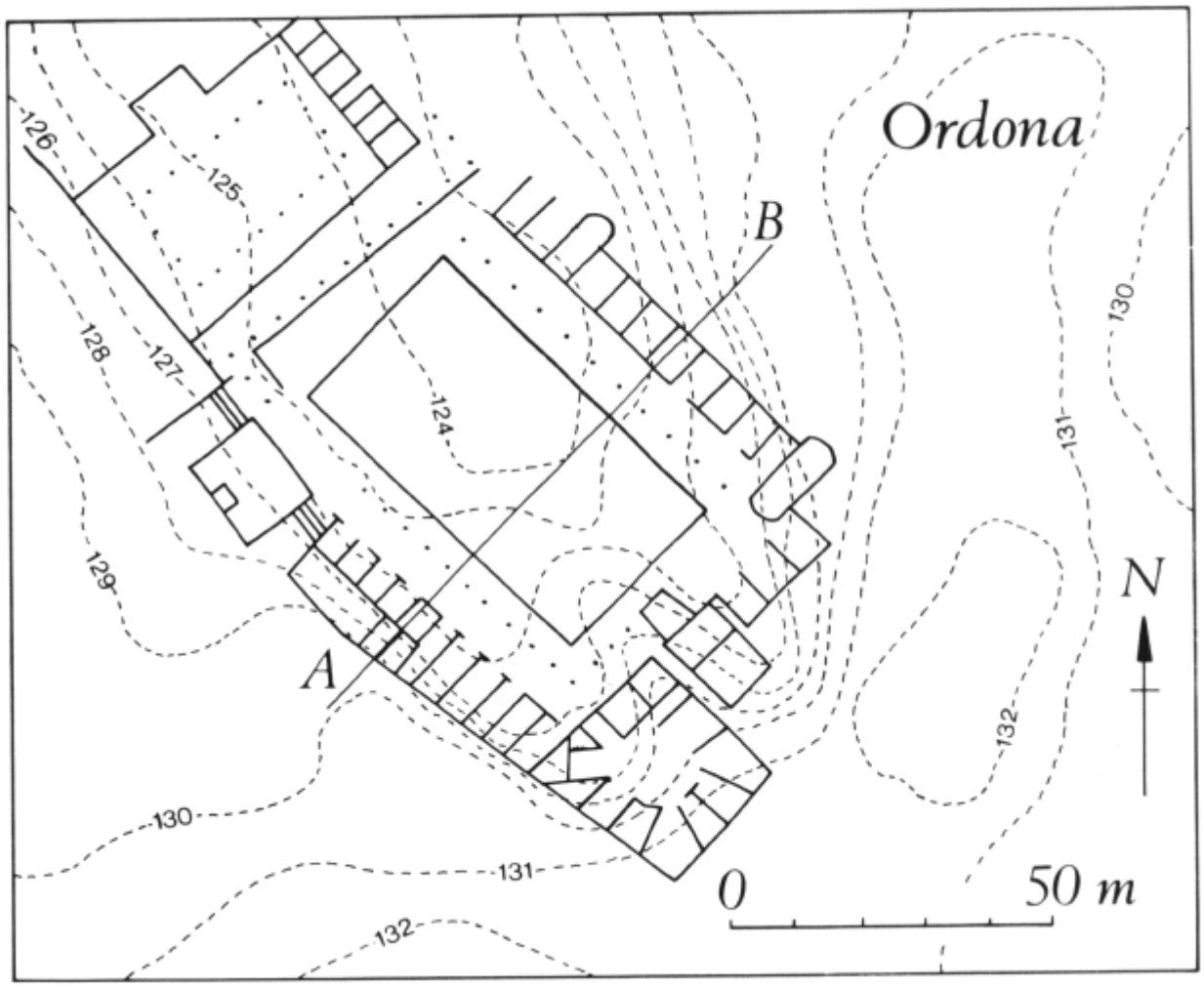

Fig 4 Ordona: the layout of the forum area (After Mertens 1977)

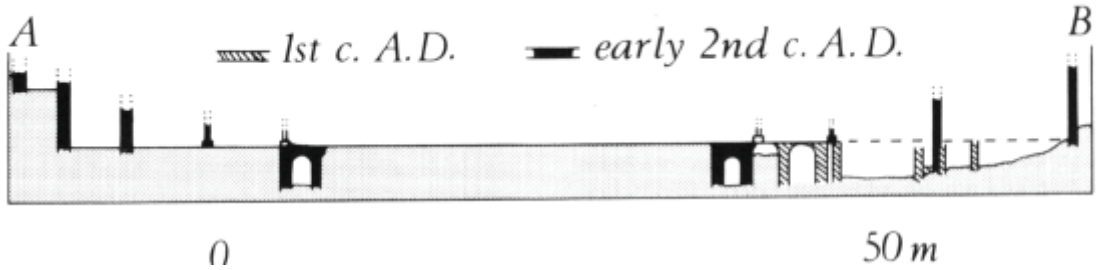

Fig 5 Ordona: section through the forum (for the position see Fig 4), showing the methods used to level and prepare the ground (After Mertens 1977)

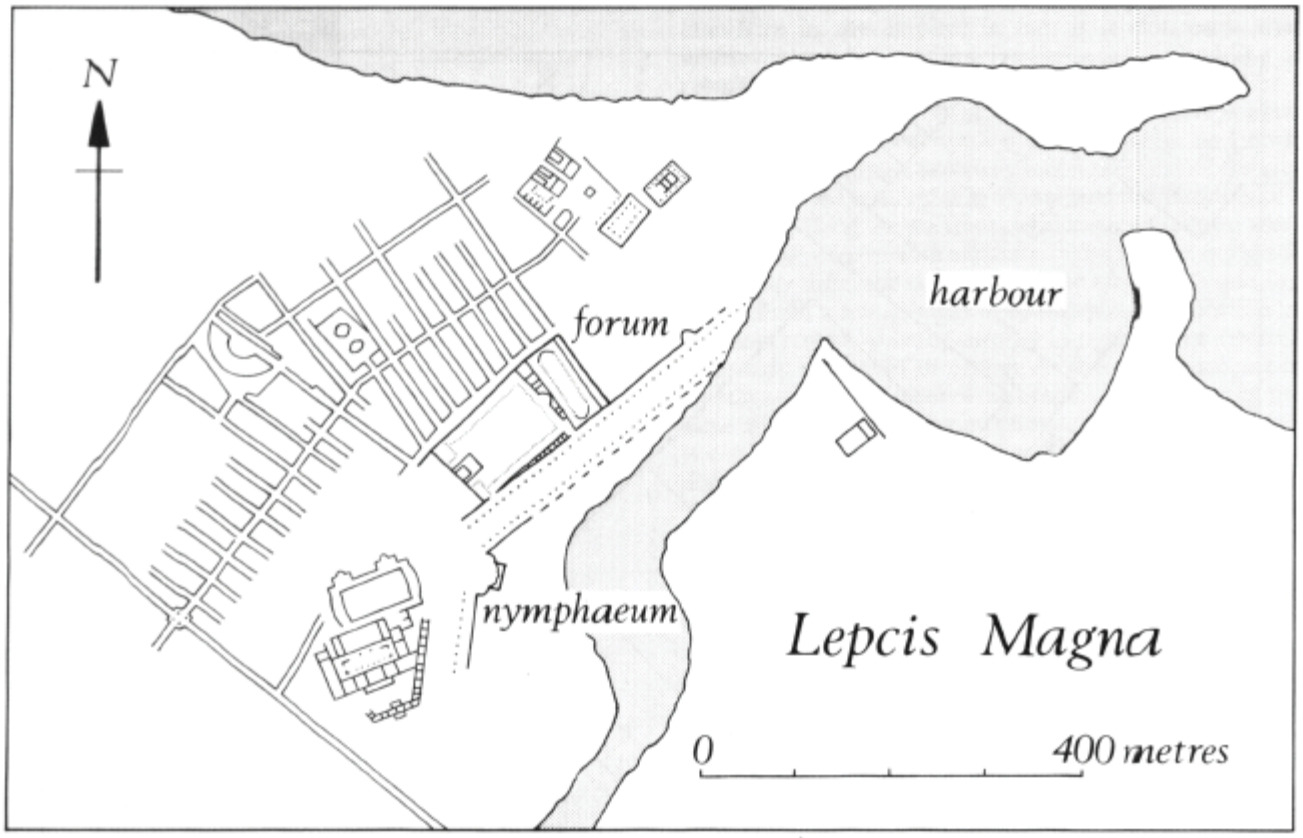

Fig 6 Lepcis Magna: the Severan buildings (shown in bold) were skilfully designed to unite a scheme which had developed piecemeal over many centuries (After Ward-Perkins 1948 and Lyttleton 1974)

achieving some originality of layout and design - usually by the arrangement and massing of buildings in the style of Lepcis Magna, rather than by a skilful use of natural terrain in the 'eastern' tradition epitomized by Pergamum or Priene.

The attention of archaeologists is inevitably directed towards ground plans and street patterns, but it is important to remember that the inhabitants of ancient towns would have been impressed principally by the appearance of buildings above ground. Variations in local building materials, architectural traditions, and vegetation could produce strikingly different effects from the same basic plan. Few western towns emulated the grandeur of the colonnaded streets of Palmyra or Aelia Capitolina but, as Frere has suggested (1977, 103), when porticoes even of wood were built they gave some unity to the facades of otherwise diverse buildings and provided a vista along the street. By the provision of a water supply with overhead water channels, towers, and public outlets a visual element in the town's layout was also created. Wacher draws further attention to the Roman skyline and the dominance here of public buildings (this volume, p 41). This is certainly apt when comparing provincial centres with Rome, where in the heart of the Antonine city, close to the Pantheon and Column of Marcus Aurelius, a giant skyscraper was built in the insula of Ficula at the beginning of the reign of Septimius Severus. Tertullian *(Adv Val, 7)* and other writers commented upon its great height and upon the fact that surrounding it were monumental blocks of flats some five or six storeys high of more or less identical appearance, It is possible that cities in the north-western provinces also had buildings with at least two storeys and indeed this has now been suggested for one site in London.

Public open spaces are considered vital in modern cities and in ancient Rome too as many as 40 parks and gardens stretched along the Esquiline, the Pincian, and both banks of the river Tiber. In major provincial cities public open spaces may have been provided officially or become available accidentally because of delays in building. The provision of public gardens as such is not attested, but the Elder Pliny described how balconies were decorated with climbing plants while windows displayed pots of flowers *(Nat Hist,* xix.59; cf Martial, xi.18). Such planned vegetation would enhance and soften the sharp building lines and street vistas.

The beautifying of cities often requires official direction but, as Haverfield observed (1913, 137), '(although) a system of town planning that is distinctive and so widely used could reasonably have enacted a series of building laws - this did not in general occur'. The Lex Ursonensis lays down that streets are public property *(ILS* 6087,

section 78), but rarely do the lawyers or even the land surveyors tell us of any legal rules relating to planning as distinct from surveying in general. The rate at which cities were built, and who paid for public buildings, was individual to each city and a highly complex matter (Duncan-Jones, this volume, p 31), as was the organization of the building trade, discussed by Ling (this volume, pp 14-27). Duncan-Jones has calculated that in north Africa, depending on the status and wealth of the town, it could take up to 140 years to provide essential buildings. The financial resources employed were imperial, municipal, and private, the labour voluntary, compulsory labour by the citizens themselves *(perpopulum),* or forced labour by criminals *(damnatio ad opus publicum).* In practice, though, the development of cities owed much to civic pride, both private and communal, as reflected in acts of benevolence towards the city (Frere, this volume, pp 34-6); the emperor Antoninus Pius made no secret of the fact that he preferred long-term investment in public building to expenditure on impermanent public festivals, games, and shows.

Though planning and building controls were few in respect of founding a city, both municipal charters and imperial laws protected the townscape from destruction. The unroofing or speculative demolition of urban buildings was not permitted unless they were to be replaced immediately by a building at least as good (Mommsen, *Ephem Epigr,* ix; *ILS* 6086). Many emperors – Augustus, Claudius, and Nero, for example – were concerned about the physical aspects of cities because they believed that the image of a reign could be tarnished or enhanced by the character of town buildings. But, as Casey shows (this volume, p 44), notwithstanding the need for fine buildings, citizens were at great risk of losing their homes from collapse, since building standards were very poor and many private buildings were far too flimsy. In addition, the risk of fire was high, outbreaks being frequent and extensive; Ulpian informs us that in imperial Rome not a day passed without several fires *(Digest,* i. 15.2; cf Strabo, v.3.7; Aulus Gellius, *Noctes Atticae,* xv. 1.1-3). Speedy rebuilding was encouraged in Rome by making contractors' carts the one exception to Caesar's edict which prohibited the entrance of wheeled transport into the city during daylight *(CIL,* 1, 206). Whether rebuilding was always so rapid may be doubted, however, for in London at least reconstruction after the Boudican and Hadrianic fires seems to have been protracted.

These factors created constant topographic change within a city, a theme which is especially clear in the papers on London and Wroxeter. Marsden presents evidence for an 'Antonine decline' in London and for a substantially lower population in the 3rd and 4th centuries (this volume, pp 99-102). In the late 2nd or early 3rd century an oak quay ¼ mile long and a defensive perimeter 3 miles long was constructed to enclose 330 acres (134 ha), a remarkably extensive area with scattered built-up regions but much open ground, recognized archaeologically by 'dark earth' deposits which were probably laid down by extensive horticultural processes. In spite of these restoration projects, which were intended both to stem decline and to stimulate growth by providing security and improved facilities for waterborne trade, the reduction in long-distance trading in the north-western provinces meant that from the 3rd century London's role was primarily that of provincial administration. At Wroxeter, however, development took a rather different course. The imposing public buildings of the early city underwent major changes of plan and, as in London, were finally completed in the early 2nd century when a planned extension was made on the northern side of the city. A major recent discovery, however, has been that in the late Roman period large-scale replanning was still underway and possibly continued up to 500, beyond the end of the Roman period. [1]

In 1910 the evidence examined by Haverfield for the survival of Roman topography and continuity through the medieval period seemed as rare as it does today. He was principally concerned with the continuity of the unaltered grid system and saw 'that Roman town plans have far oftener vanished than endured' and that 'only here and there its vestiges lingered on in the streets of scattered cities' (Haverfield 1913,140-l). Seventy-three years later, in 1983, Reece (this volume, p 37) and others have commented that even the intensive investigations in recent decades have not caused Haverfield's diagnoses to be revised either in Rome, Italy, or the provinces. Today, as in 1910, the major challenge of European urban studies is to understand how Roman town planning – both in its 'chessboard' and organic forms – perished and the medieval pattern emerged. For early in the 13th century the rectangular gridiron plan returned to Europe, including England, whence it spread worldwide to reach America in 1682 with the founding of Philadelphia. If it can be shown that this movement was a revival of the Roman system, then a significant historical link is made between the Old World and the New.

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Note

1 This vital aspect was covered in the conference in a paper by Professor Martin Biddle, entitled 'The inference of Romano-British town planning into the 5th century and beyond'. Regrettably the paper was never submitted for publication.

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PART I PRE-ROMAN

Aspects of urbanization in northern Europe

Barry Cunliffe

The theme of urbanization is one which has generated a very considerable literature among geographers (Herbert & Thomas 1982). In view of the central importance of the subject this is only to be expected. What is more surprising is the large area of general agreement that exists about the processes and meaning of urbanization, especially in more recent publications, and the fact that many archaeologists dealing with urban themes appear to be largely ignorant of it. The geographer's prime concern is with the processes leading to the creation of urban complexes and the systems which maintain them. Most archaeologists, on the other hand, seem to concern themselves with urban form and the typology of the physical manifestations of urbanization - city walls, basilicas, and bath buildings, for example. While by no means decrying this latter approach - which, properly synthesized, can be of great value in providing a very necessary chronological perspective - one is left with the feeling that many archaeologists are content to examine the city as an artefact when what they should be doing is using their particular skills to study it as the material manifestation of socio-economic and socio-political systems. In order to redress the balance a little, let us begin not with the specific but with the general.

Urban settlements are the result of the coming together at a particular location (or within a defined area) of a group of functional activities required in the service of the community. As Mark Jefferson (1931, 227) put it more than 50 years ago, 'Cities do not grow up of themselves, countrysides set them up to do tasks that must be performed in central places. ' The concept of the city as a 'central place' (the term was first used by Jefferson) was soon taken up by Christäller (1933) and others in the 1930s. Using southern German evidence Christäller developed the now well-known model of the city as a regional service centre, a model which has found some popularity among archaeologists in recent years (Hodder & Orton 1976). Various implications embedded in this broad definition need to be spelt out a little more fully. Implicit are three assumptions:

a that complex societies require foci (in place and time) at which certain social, economic, religious, and political functions are enacted
b that the coming together of these foci, within a circumscribed territory, marks the first stage in urban genesis
c that the degree of intensification of the service function carried out at such a place will give rise to styles of urban settlement which differ both functionally and physically

It follows that in some areas it may be possible to recognize a continuum from pre-urban to fully urban. The rate of change, however, will vary from region to region: a catalyst may cause sudden acceleration, while alien urban forms may be imposed as the result of invasion. These are themes to which we shall return.

So far we have concentrated on functions, but functions usually manifest themselves in form and it is this which gives urban settlements their tangible quality. In physical terms a city is composed of an agglomeration of functional nodes - cultural, administrative, economic, residential - each frequently recognizable by its distinctive architectural form. These are bound together within a spatial system - the city plan. But vital to the definition of 'urban' are two other characteristics: a well-defined relationship with a productive hinterland and the existence of developed mechanisms for long-distance communication .

Structures and their spatial arrangement, regional settlement patterns, and trade are all matters well within the scope of archaeological investigation. So too is the creation of a chronological perspective. In theory, then, there is no inherent reason why the archaeological study of urbanization should not share the same methodology as that developed by the geographer to the mutual benefit of both disciplines. Without a broadly based theoretical background, however, archaeological studies are in danger of becoming sterile.

Mediterranean urbanism

Perhaps the most dramatic model for Mediterranean urbanism is provided by Athens, where the well-defended strongpoint of the acropolis provided a natural focus for development. The region was settled as far back as the late Neolithic (before 3000 BC), and throughout the 3rd and 2nd millennia the intensity of occupation increased, the acropolis eventually becoming a fortified Mycenaean palace. The transition from Mycenaean monarchy through Dark Age chieftainship to aristocratic rule, though not attested in any detail, is echoed in signs of continuous occupation. It was during this time that the disparate communities of Attica came together to create a unified state with Athens at the head. This coming together *(synoikismos)* thrust upon the territory of Athens the demand for a range of centralized services which, by the 6th century BC, we find being institutionalized in architecture. Within the fortifications of the acropolis the old shrines were replaced by two Doric temples, a group of treasuries, and a *propylon* (all destroyed by the Persians in 480 BC), while to the north-west, in the time of the lawgiver Solon, a large area was designated the city square *(agora)* and was cleared of domestic buildings.

The new agora, replacing a smaller assembly space close to the entrance to the acropolis, served a variety of

communal functions: the large open space provided a place for casual and organized assembly; it was crossed by a processional route (the Panathenaic Way) along which, every four years, the greatest of Athens' religious assemblies progressed and which at other times was used for races (until the stadium was built in the 4th century BC); and it created a focus for the complex of buildings within which the affairs of state were organized. By the beginning of the 5th century a series of structures can be identified: the council chamber, law courts, and shrines. As time progressed they increased in number and complexity causing a degree of reorganization. The political assembly of citizens *(ekklesia)* was soon moved away from the bustle of the agora to a new meeting-place on the Pnyx Hill to the south-west, while at the same time drama festivals were transferred to a new site on the southern side of the acropolis where special provision was made, culminating, in the late 4th century, in the reconstruction of the theatre in stone. Thenceforth the *ekklesia* also chose to meet in the theatre. Another assembly - the council of ex-archons - met on the Areopagus, a hill just south of the agora.

The example of early Athens, so briefly outlined here, is highly illuminating. We see the urban form emerging gradually around a natural and traditional focus as the political and economic systems evolved. Unification brought with it the demand for centralized services - religious, administrative, and social - which were gradually formalized in architecture. Though there were changes, as the pace of urbanization built up, the twofold division between the acropolis - the fortified religious centre - and the agora - the open place of assembly, administration, and commerce - remained.

The emergence of Rome provides another example of urban genesis, but of a somewhat different kind. Occupation of the hills of what was later to become Rome had begun by about 800 BC. The next century was one of expansion, the settlement areas spreading down the valley slopes until some time around the middle of the 7th century buildings were being put up in the hitherto marshy valley bottom, destined to become the Forum Romanum. It was during this period that the disparate hilltop villages were beginning to grow together as a single community. Hints of this unification are embedded in Roman tradition. Livy's reference to the *geminata urbs* ('twofold city') (i. 13.4), together with a dualism evident in certain archaic institutions, very probably reflects the fusion of the Palatine and Quirinal settlements (graphically illustrated in the tradition of the Rape of the Sabines). Another example of this growing together is the religious festival of the *Septimontium,* at which the village communities made their sacrifices separately, but on the same day (11 December). Such a religious federation can reasonably be regarded as an early step towards subsequent unification.

The establishment of Etruscan control (traditionally in 616 BC) seems to have been the catalyst which transformed Rome, during the course of the 6th century, from its pre-urban to its urban status. The volume of trade increased dramatically and traditional huts were replaced by rectangular houses built of mudbrick and stucco on stone foundations, but more important, the institutions of the early city were monumentalized in architecture: the forum was cleared and cobbled, while on the Capitoline Hill the monumental temple of Jupiter Optimus Maximus was erected to house the shrines of the triad Jupiter, Juno, and Minerva (see Todd, this volume, pp 56-66).

Although early Rome is far less well understood than Athens, certain similarities stand out - the coming together of pre-urban communities (for political or demographic reasons), the development of common institutions, and, finally, the creation of structures within which the urban functions could be enacted. The only significant difference was that Rome's growth was stimulated by the proximity of the Etruscans.

Athens and Rome serve as convenient models for studying European urbanization, and indeed have coloured much of the writing on the subject, but it ought perhaps to be stressed that they represent only one physical response to urban processes - one that we may call *nucleated urbanism,* referring to the fact that urban functions were carried out in close proximity within a closely circumscribed territory. In the case of both Athens and Republican Rome the urban area defined by the city wall was no more than 2km across. Within this space all functions were enacted and a considerable population resided. But this is not the only form which an urban complex may take. Elsewhere in the world, for example in Middle America and China, quite different forms are found. In China the 14th-century BC Great City Shang, which comprised the ceremonial precinct of Hsiao T'un and a number of dependent settlements and workshop centres, stretched in a wide band for 6km along the Yuan River. The rather more ordered 6th-century AD town of Lo-Yang, with its markets, residential areas, monasteries, military parade-grounds, and ceremonial and palace complexes, spread across an area measuring 10km by 10km! In both these examples (Wheatley 1970) we are dealing with a landscape within which are scattered the various functional locations comprising the urban complex. This type of pattern we may call *dispersed urbanism.* There is no inherent reason why such a phenomenon should not occur in Europe. Simply raising the question will guard us against accepting too readily the nucleated Mediterranean model as the only possibility.

Nucleated settlements in barbarian Europe 700-100 BC

Evidence for higher-order settlements in Europe, away from the direct influence of Mediterranean culture, is not plentiful, largely because of the absence of suitable excavation strategies, but sites like Biskupin, Poland (Kostrewski 1950), Smolnice, Czechoslovakia (Dusek 1966; 1967), and Wittnauer Horn, Switzerland (Bersu 1945) give some idea of the organization of defended sites in the middle centuries of the 1st millennium. Smolnice and Wittnauer Horn, though of different size and topographical situation, both had well-organized interiors with rectangular houses arranged in long terraces behind the ramparts, along the flanks of the scarp (in the case of Wittnauer Horn), and on platforms within the interior. The implication is of an ordered layout conditioned by a high degree of social organization. Much the same picture, though in far more vivid detail, is given by the waterlogged lake-edge settlement of Biskupin dating broadly to the 6th-5th centuries BC. The serried ranks of uniform houses, 80-100 in number, which cover the interior and

are separated by streets paved with a corduroy of logs, speak of rigorous social control perhaps under some kind of coercive power. While there is nothing to suggest that these sites should be regarded as 'urban', they show that substantial communities were now living together in well-ordered settlements exhibiting a high degree of planning, and with a social structure sufficient to galvanize the occupants into producing communally beneficial works such as streets and defences.

Even greater complexity is shown by the well-known site of the Heuneburg, south Germany (Kimmig 1975; Kimmig & Gersbach 1971; Gersbach 1976), where in the late 6th century BC the defences were rebuilt on a monumental scale with mudbrick set on a drystone foundation, and were adorned with rectangular bastions. Heuneburg differs from the other three sites mentioned because of its evident link with the Mediterranean world (amply demonstrated by the mudbrick and stone-based architecture, and by imports of Greek and Massiliot pottery). The usual interpretation of the site - as the seat of a local chieftain indulging in a complex prestige-goods economy - has much to commend it. The importance of the Heuneburg to the present discussion is in the regional functions which it performed. In addition to the administration which the chiefs court may have been expected to undertake, it is clear that the site served both as a manufacturing centre for pottery, brooches, and other goods, and as a redistribution centre for luxury items brought in from outside the territory. Although redistribution within a system of social obligation is some remove from the market economy of a fully urban community, it is a stage of complexity one might expect to find in the pre-urban phases of an advanced barbarian society.

While it is true that Heuneburg owed its position in the late 6th century to its relationship with the Mediterranean socio-economic systems, the emergence of redistribution centres serving central-place functions appears to be attested a few centuries later in Britain, as exemplified in the excavation of Danebury in Hampshire (Cunliffe 1984b). The writer has argued elsewhere that Danebury, and no doubt other 'developed hillforts', occupied central positions in defined territories, and that through them the exchange of commodities (albeit embedded within the social system) was manipulated. The very considerable storage capacity of Danebury, the regular layout and maintenance of its roads, the presence of numerous crafts, and the existence of prominently-placed shrines suggest the wide range of services that the fort could have offered to the farming communities dispersed about its territory. On any check list of urban attributes a site like Danebury scores high; indeed, it could be seen as possessing proto-urban characteristics.

The problems of assessing the socio-economic complexity of nucleated settlements, when using only archaeological evidence, are very considerable. We cannot be sure what percentage, if any, of the resident population was engaged full-time in non-agrarian pursuits; the processes by which commodities were disseminated among the population are beyond certain recovery; and the structure of government, administration, and law can seldom be glimpsed. In other words one strongly suspects that archaeological evidence alone will rarely be adequate for complex settlements like Danebury, which clearly provided some central-place functions, ever to be assigned to the 'pre-urban' or 'urban' category with any degree of assurance. At most we can suggest that it was well along the road towards urbanism, but - because there was no evidence of extensive or regular long-distance trade - had not yet crossed the threshold which preceded advance to the fully urban state. It is unfortunate, but inevitable, that we are forced by the present inadequacies of our data-set to rely on such intangibles as the absence, rather than the presence, of positive evidence.

Nucleated settlements of the western Mediterranean litoral: 700-120 BC

The Mediterranean coasts of France and north-eastern Spain were densely settled in the latter part of the 1st millennium BC and developed a network of fortified nucleated settlements. The establishment of the Greek ports, at Massilia in c 600 BC, and at Emporion a few decades later, brought these native communities into direct contact with advanced Mediterranean civilization, providing them with models of urbanization, technology, art, and literacy. The careful work of French archaeologists at sites such as Cayla de Mailhac (Taffanel & Taffanel 1949), Ensérune (Jannoray 1955), Nages (Py 1978), and Entremont (Benoit 1968) is providing a wealth of precise evidence about the development of these places in the shadow of the Classical world. At Ensérune, for example, an ordered plan, with ramparts, houses, and extensive storage facilities, was established early in the 4th century BC; writing, using a local script, was widely practised. Nages rose to dominance in its territory a little later (after 250 BC). Its regularly laid-out streets, flanking rows of uniform-sized houses, were maintained over several centuries as were those of Entremont in the Rhone valley to the east. In terms of size, storage capacity, defensive strength, and internal planning, these southern French sites have much in common with their more northerly counterparts, such as Biskupin and Danebury. Their architecture may have been of stone instead of wood, some part of their population was literate, and they were evidently in direct trading contact with the Mediterranean ports, but otherwise there was little difference. Can they reasonably be regarded as urban centres? Certainly their economy depended in part on long-distance trade and it may well have been as a response to this that writing developed. Some, like Entremont and Roquepertuse, housed important cult centres formalized in quite sophisticated architecture. The southern French settlements would thus seem to possess all those attributes of urban centres that might reasonably be expected to be recognized in the archaeological record.

The effects of the Roman conquest

The establishment of Provincia Transalpina in the last decades of the 2nd century BC and the subsequent annexation of much of Europe to the Roman Empire provided a complex of stimuli which deflected, and in many cases hastened, progress towards the urban state. The century between 120 and *c* 20 BC (by which time Rome was taking direct control of the affairs of the conquered territories) is a period of considerable interest

in the study of urban processes in western Europe. Before 120 native developments had proceeded largely unhindered; after 20 deliberate attempts were made to impose the Roman urban model over large territories. Between those two dates the stimulus of impending Romanization had widespread repercussions, some of which are beginning to be recognized in the archaeological record.

In France the archaeological evidence is still somewhat ill-focused. Settlements at crucial route nodes, such as Vienne (Chapotat 1970) on the Rhône route northwards, and Toulouse on the westerly route, are of particular potential interest, since as 'gateway' communities they are likely to have been the first to experience the effects of long-distance trade stimulated by the Roman presence in Transalpina. As early as the 4th century BC a settlement had been established in the valley at Vienne. Strabo (iv. 1.11) tells us that it developed very rapidly under Roman encouragement, particularly in the period 120-60 BC, when it was the most northerly town in the province. Archaeological evidence is still sparse, but the collections of La Tène III metalwork from the nearby hill of Ste Blandine are a reminder that the settlement spread over a very considerable area and may have been polyfocal.

Much the same impression is given by the recent work at Aulnat (Collis 1980) and Levroux (Buchenschutz & Ralston 1975). Together these three settlements raise the very interesting possibility that one of the urban forms developing in Gaul in the late 2nd and early 1st centuries BC may have been that which we have designated *dispersed urbanism* (above, p 2). Clearly, far more evidence will need to be amassed before the suggestion can be tested, but posing the question at this stage frees the mind from the preconception that all urban complexes must be nucleated.

Further north, in Germany and Czechoslovakia, beyond the immediate influence of Rome, urban centres developed rather different forms. Manching, with its massive defensive circuit 7km in circumference and ordered settlement area, is well known (Kramer 1960; 1962). Few would doubt that its size, layout, and productive capacity (including the minting of coins) require it to be considered fully urban - the capital of the Vindelici. Much the same can be said of Staré Hradisko in Czechoslovakia, where a 38 ha enclosure has been shown to contain a planned and maintained settlement of timber buildings (Meduna 1970). In the same general categories may be placed the enormous defended sites of Zavist (170 ha) in Czechoslovakia (Jansová 1966; 1971; Motyková *et al* 1977) and Kelheim (650 ha) in southern Germany (Herrmann 1973).

Together these four sites typify a north European response to the emergence of urban systems. Each is strategically placed in relation to route nodes and was thus able to command the long-distance movement of commodities. Sites of this kind may be regarded as tribal capitals and thus would have functioned as the central places serving very considerable hinterlands. The processes which brought them into being are obscure. Zavist was occupied as early as the Hallstatt period and Manching originates in the 2nd century BC. Thus in origin they cannot be ascribed to the effects of Roman expansion, but there can be little reasonable doubt that the massive intensification of long-distance trade with northern Europe, following the initial Roman annexations in the south, will have been instrumental in their rapid development during the 1st century BC.

In Gaul the Roman conquest did not immediately bring native developments to an end. At Mont Beuvray (Bibracte) the population, both aristocratic and artisan, remained within the old defences for several decades until in *c* 12 BC the new city of Augustodunum (Autun) was founded 20km away in a more convenient valley location. In the Aisne valley we have a somewhat more complex development. The old native capital of Noviodunum (Pommiers) seems to have been abandoned at, or soon after, the conquest in favour of a fortified river promontory at Villeneuve-St-Germain, which in turn was replaced by the Roman town of Augusta Suessionum (Soissons), probably in the Augustan period (Debord 1978). There is, therefore, in the urbanization of Gaul a potentially informative interlude between the Caesarian conquest and the reorganization of the territory by Augustus, during which time native urban traditions continued little changed.

Britain in the 1st century BC and early 1st century AD

The proximity of the Roman consumer market after the creation of Transalpina in the 120s BC had a direct effect on Britain in that long-established trade routes were now revitalized and trade was intensified in the interests of the Roman entrepreneurs. The details have been discussed at length elsewhere (Tchernia 1983; Cunliffe 1982). The immediate effect on the British Isles was the creation of a substantial port-of-trade on Hengistbury Head, a sea-girt promontory overlooking Christchurch Harbour and commanding major riverine routes into the densely populated Wessex hinterland (Cunliffe 1978). The *oppidum,* or more correctly *emporion,* of Hengistbury appears to be the first such site to have developed in Britain and remained in active use throughout much of the first half of the 1st century BC. Imports of Italian wine, north-western French pottery (or its contents), and raw purple glass were exchanged for metals and no doubt for less archaeologically tangible commodities such as hides and slaves.

Hengistbury was short-lived, probably because Caesar's conquest of northern Gaul made it possible to develop more convenient and shorter crossings from the estuaries of the Seine, Somme, and eventually the Rhine (Cunliffe 1984a). Thus from the middle of the 1st century BC south-east Britain was brought more directly into the Roman economic orbit, causing extensive dislocation to the traditional socio-economic systems.

One of the changes to take place at this time was the emergence of large defended enclosures usually sited at route nodes; Quarry Wood, Loose in Kent, close to the Medway crossing, and Dyke Hill in Oxfordshire, on one of the major crossing-points on the Thames, are examples (Cunliffe 1976). None of these sites has yet been adequately excavated, but by virtue of their size, location, and what little is known of their dates, it is tempting to see them as a local development consequent upon the emergence of extensive long-distance trade networks, which in turn were brought into existence by Roman consumer demand. The chain of causes is admittedly tenuous, but must remain so until suitable excavation strategies have been

designed to test the problem. At present all we can say is that these *enclosed oppida* offer the best prospect of being the earliest urban settlements in Britain.

A second category of settlements deserves attention: the *territorial oppida,* essentially complex dyke systems defining considerable areas of land. Camulodunum, Verulamium, Selsey/Chichester, and the North Oxfordshire Grim's Ditch are the most notable examples. That several of them contained areas of intensive occupation and were subsequently chosen to become the sites of Roman towns is well known. What is less clear is their exact nature in the immediately pre-Roman period. Work at Camulodunum, however, has suggested the existence of a number of functionally different locations: a burial area, a manufacturing region, a religious complex, and possibly a chieftain's residence. In other words, the territorial *oppida* appear to be polyfocal settlements of some complexity. In view of the extensive areas which the dykes enclose it may be that they conform to the model of *dispersed urbanism* outlined above. Once more, while it is a question worth asking, only further excavation and fieldwork will allow the problem to be pursued.

Concluding remarks

This review has necessarily been brief, since the subject is vast and the data fragmentary, but several general points emerge which deserve some stress.

First and foremost is the fact that the processes leading to urbanization are long and complex. There is no one course, and the rate of development is seldom consistent, but at its simplest the process involves the coming together at one location of a number of social, economic, and administrative functions for the service of the inhabitants of the hinterland. At some stage during this progression the community passes from a pre-urban to an urban state. In those cases in which we have to rely solely on archaeological evidence it is very doubtful whether this threshold will be recognizable with any degree of precision; the intricacies of the problem and the inadequacy of archaeological data combine to create obscurity. One useful indicator, however, is the intensification of long-distance exchange systems. The commercial relations of Athens developed rapidly in the mid 9th century at about the time of urban genesis and much the same process can be recognized at Rome in the early 6th century when it is generally accepted that the community took its first steps toward urbanism.

If the intensification of long-distance trade at already complex nucleated service centres can be regarded as an indicator of incipient urbanization, the imposition of such systems upon suitably advanced settlements could indeed provide the stimulus for sudden urban growth. There are sufficient data accumulating from barbarian Europe to suggest that the proximity of the Roman consumer society encouraged the rapid development of trade beyond the frontiers, and this may well have been the catalyst needed to transform many of the barbarian fringe economies into urban systems.

The very complexity of the problem, and the variety of its manifestations should provide a warning against over-simplification. To judge the status of prehistoric communities against a narrow definition of urbanism based on a generalized Roman model is, to say the least, unwise. So too is the assumption that pre-Roman means pre-urban. It is to provide a perspective against which these generalizations, heard all too often, may be assessed that these brief remarks have been offered.

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PART II THE PLANNING AND BUILDING OF ROMAN TOWNS

Ground survey and measurement in Roman towns

O A W Dilke

It is not possible to consider urban survey separately from rural survey, nor Roman Britain in isolation from other parts of the Empire. The town was, among other things, a place of residence for many of the farmers, who went out daily to work their fields. The Romans were in origin, and remained for many purposes, an agricultural and pastoral people, and there are numerous links between their organization of urban and rural areas.

We can, nevertheless, divide Roman surveying into four main branches: military, agricultural, services, and architectural. If we take, for example, a colony with centuriated land, such as is common in the western Mediterranean, the army was concerned with the fortifications (in consultation with the architect) and the settlement of its veterans. A military surveyor, who might be an *evocatus* (veteran volunteer), would be even more concerned if the colony was a recycled legionary fortress. A land surveyor, however, supervised the allocation of land holdings. This was done by drawing lots, and the position of the holding-whether near or far from a town-could have a significant effect on the subsequent fortunes of the *colonus.* The land surveyor would have his office in a town, and his records would be lodged in the *tabularium* there. Services essential to all towns, such as water supply, sewage, transport, and street type and pattern, would be controlled by the appropriate urban surveyor, subordinate to the *ordo* of decurions. The overall plan for a new town or for considerable modification to an old town would lie with an architect, who would employ surveyors.

Whereas we possess a corpus of treatises of the Roman land surveyors (Blume *et al* 1848-52; Corpus 1970; Thulin 1971; Dilke 1971; Hinrichs 1974; Carder 1978), we are not so well informed about other types of surveyor. On the military side we have only the incomplete ps-Hyginus, *De castrorum metatione.* On the services side we have a splendid work by Frontinus on one set of aqueducts, those of the Rome area (Ashby 1935) (cf Fig 7). But there are no manuals on road-making, on canals, or on *cloacae.* As to

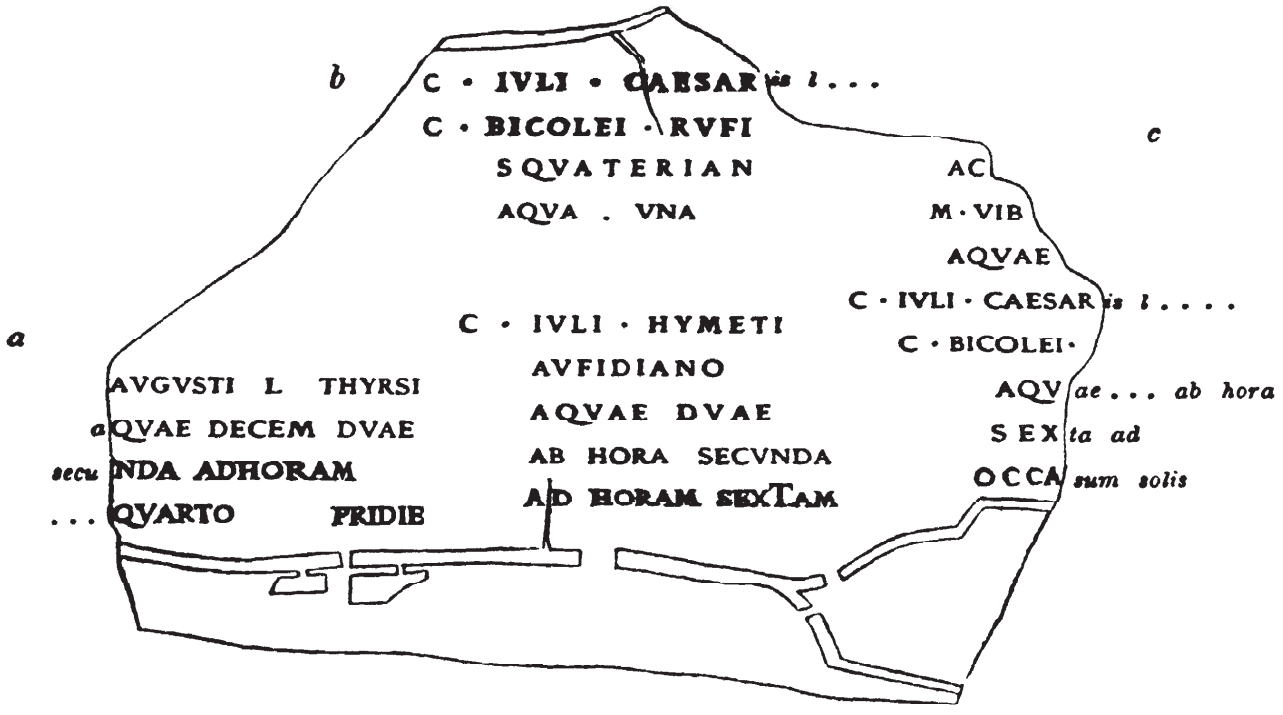

Fig 7 Plan of an aqueduct near Tusculum, showing the number of outlets and the times at which individual landowners-among them C Iulius Caesar-could draw off water (CIL, 6, 1261)

Fig 8 *Tombstone of T Statilius Aper in the Musei Capitolini, Rome. It was set up by his parents, and the epitaph records that he died suddenly and undeserved& in the prune of life, not at all in the circumstances of the mythical aper (boar) killed in the hunt by Meleager and Diana. The same museum has three other reliefs showing* normae *and other surveying instruments*

buildings, our Roman source is Vitruvius, who wrote from the point of view of an architect and engineer.

One monument survives which defines the occupation of an urban surveyor and shows us him and his equipment. The tombstone of T Statilius Aper *(CIL,* **6,** 1975; Jones 1912, **1,** 76-7; **2,** pl 15) is in the Capitoline Museums, Rome (Fig 8). He was a building surveyor, *mensor aedificiorum,* and died aged 22 in *c* AD 50-75. He is shown wearing a toga and carrying a short measuring rod; alongside are a roll of papyrus and a rectangular box, and he is accompanied by a young slave. On the left side is a *decempeda.* The only surveyor recorded by name in Britain, Attonius Quintianus, was a military surveyor. He is described, in a lost inscription from near Piercebridge with a dedication to Mars Condates, as *MEN EX CC (RIB* 1024 = *CIL,* **7,** 420) (Fig 9). This means *mensor ex ducenario,* a surveyor who had been a *ducenarius* in the army, a late Empire term for *primus hastatus* (Vegetius ii.8), not an *eques* earning 200,000 *denarii* (Hinrichs 1974, 160-1).

In practice, though, not only could all the surveyors mentioned be called *mensores,* measurers, but their functions overlapped to some extent. The whole of the extensive land division in what is now southern Tunisia (Atlas 1954) was carried out by *Legio III Augusta.* It was common for *evocati* to carry out centuriation, which the *agrimensores* considered properly their own work. Both urban and rural surveyors were involved in questions concerning public thoroughfares and had to know the legal aspects of these. Hyginus Gromaticus (Blume *et al* 1848-52, **1,** 179) reminds us that in some colonies the *decumanus maximus* coincides with the *via consularis,* as at Tarracina-Anxur (Dilke & Dilke 1961). In the *libri coloniarum we* regularly find the phrase *iter populo debetur,* followed by a number of feet from 10 to 120. This has been correctly explained (Saumagne 1928; Herzig 1974) as a legal servitude on main thoroughfares and was clearly the concern of both urban and rural surveyors. At Orange (Piganiol 1962, 329-36) we find the same archive *(tabularium)* housing cadastral plans relating to centuriation and records of- the letting of *merides,* literally lots. Although these could be attached to a farm, they were almost certainly urban in that colony, owing to the high rentals mentioned, and were presumably market stalls. There are also among the Orange tablets *solaria* (ground rents) levied on those who had encroached on public *areae.*

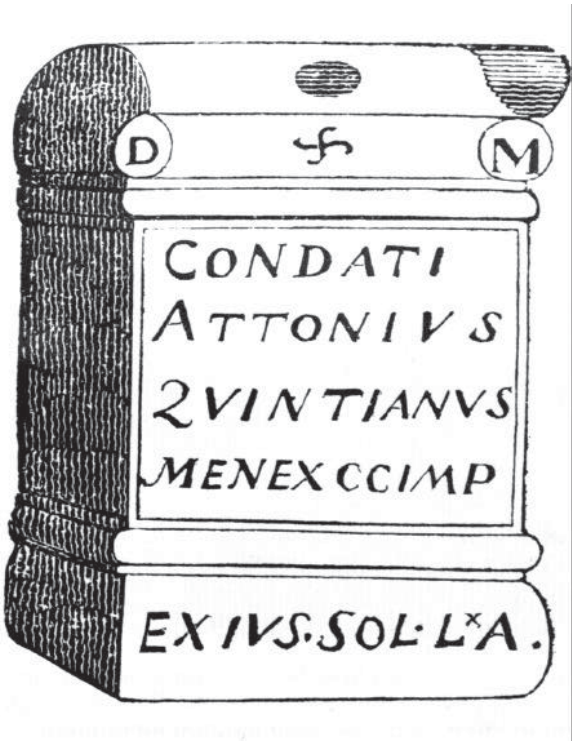

Fig 9 *Altar (now lost) from Piercebridge, Co Durham, dedicated by Attonius Quintianus*

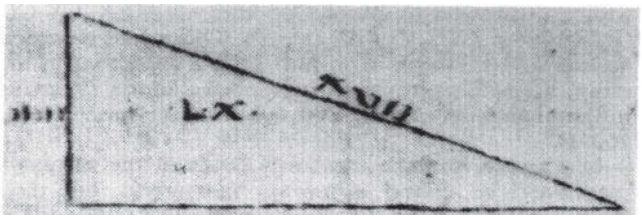

Fig 10 Exercise using right-angled triangle, from a land surveyors' manual. Given the area (60 square feet), the hypotenuse (17 feet), and the sum of the other two sides (23 feet), the task is to find the length of each side separately (Answer: 15 and 8 feet)

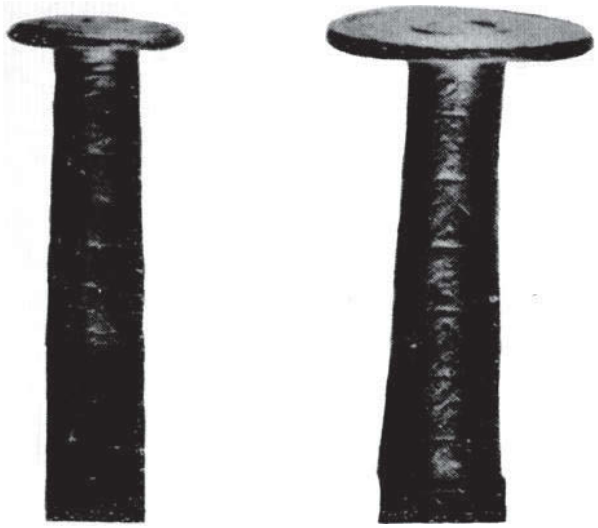

Fig 12 Iron decempeda *ends from Enns, Austria, each measuring 85mm in length; the remainder of the* decempeda *will have been made of wood*

Fig 11 Boys of Silcoates School, near Wakefield, using a model groma *made by the Wakefield Schools Museum Service. It is a copy of the* groma *found in the workshop of Verus at Pompeii, and the exercise demonstrated its reliability, except in strong winds*

The training of surveyors involved, in particular, a knowledge of arithmetic and geometry. On the whole they worked with squares and rectangles. Yet the application of triangles was also taught (Fig 10), not for surveying by triangulation, but for ascertaining areas, for resurvey by similar triangles, and possibly for calculating height (Dilke 1974b); also for finding the width of a river without crossing it (Nipsus in Blume *et al* 1848-52, 1, 285-6). They needed to be able to establish south (Dilke 1967, 17-18; 1971, index *sv* orientation) so as to orientate buildings or streets by the compass points if required, and to understand town foundation procedure, including the religious ritual involved (Salmon 1969, 19-25; Rykwert 1976). Apart from the mathematical background, the chief subject taught was the law, particularly with reference to the trainees' own type or types of surveying.

It appears from the correspondence between Trajan and the Younger Pliny that competent architects and surveyors were available in most provinces of the Empire, but that at the same time there was some centralization of their work. In answer to a request from Pliny, then special commissioner in Bithynia, the emperor replied (Pliny, *Epistulae,* x. 18.3): 'I hardly have enough *mensures* even for the works being carried out in Rome and its neighbourhood; but reliable ones can be found in every province, so I do not think you will be without, as long as you are willing to search carefully.' Likewise, on an architect for the baths at Claudiopolis, Trajan comments (Pliny, *Epistulae,* x.40.3): 'You cannot be short of architects. Every province has men of experience and ability. Do not imagine it is quicker to get them from Rome, when they usually come to us from Greece.'

The instruments used by the various categories of *mensor* were similar. The land surveyors in their treatises frequently mention the *groma* as their chief instrument (Fig 11). But we should remember that an area of a

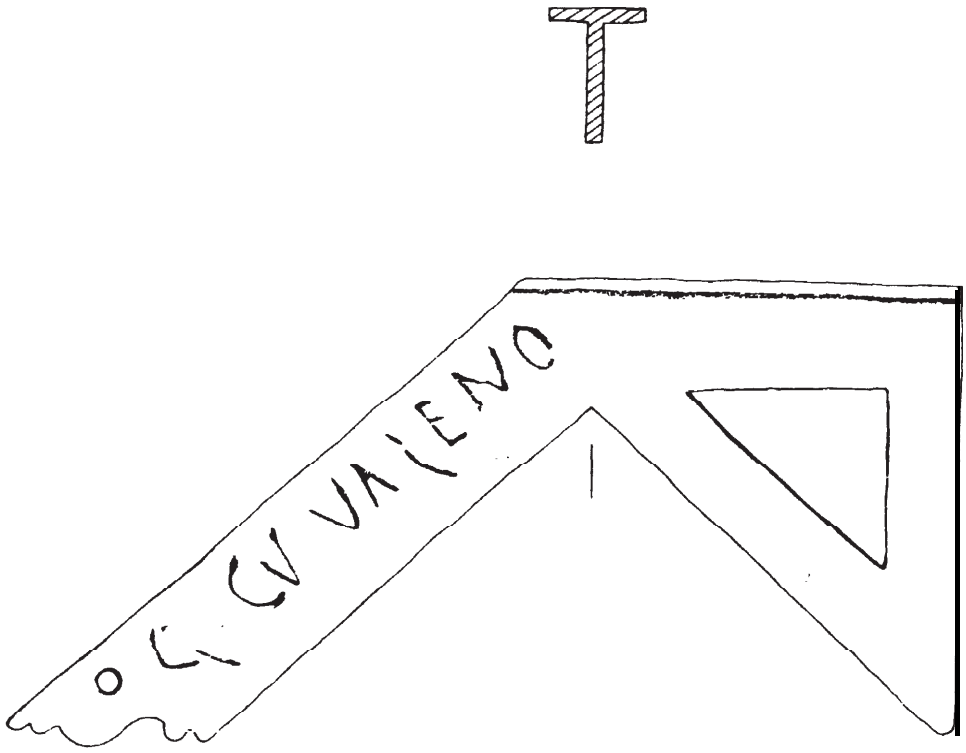

Fig 13 Bronze mitre square (norma) *found in Watling Street, Canterbuy, in 1978, probably 2nd-century (Width: 162 mm)*

military camp was called *gromae locus* (ps-Hyginus), and that the only undoubted *groma* extant is the one whose metal parts were found in the workshop of Verus at Pompeii (Della Corte 1922). This particular *groma* might, therefore, have been used either for urban or for rural survey. The *decempeda* (Fig 12), measuring ten *pedes monetales,* would be of use for all types of survey, while the *chorobates* served certainly for aqueduct- and probably for road-survey. The *norma,* set square, similar to the mitre square of which an inscribed specimen was found at Canterbury (Hassall & Tomlin 1979, 350-l; Chapman 1979) (Fig 13), was of most use to the architect and building surveyor. The *dioptra,* a complicated astronomical or surveying instrument described by Heron of Alexandria, does not seem to have been in general use, but it is probable that the portable sundial (Price 1969; Dilke 1971, 70-2) was useful for orientation as well as time-keeping. The model in the Oxford Museum of the History of Science includes Britain among the provinces whose latitudes are recorded on the reverse (Fig 14).

Units of measurement were affected by two factors: (a) size and type of survey, and (b) local usage. Roads were normally measured in miles, and may in some cases have been surveyed in 1 -mile lengths. Distances on Hadrian's Wall were measured in some areas in feet, in others in *passus.* Centuriation schemes were measured in *actus* of 120 feet, and the sides of 'centuries' are always quoted in integral numbers of *actus,* most commonly 20 (Fig 15). But the width of *limites* between the 'centuries' is always quoted in feet, again in integral numbers, such as 8, 12, 20; and we may take it that this applied also to town streets. For building- or room-measurements too, feet were used, and on plans they appear as integral numbers. The same is true of burial plots, mostly just outside towns and normally in round numbers of feet. The *merides,* 'lots', in Orange (see above) were in feet, including half feet, and the total of *merides* III-VI comes to a round number, 200 feet (Piganiol 1962, 333). *Solaria* were calculated in square feet.

Examples of local usage in ancient metrology are numerous (Hultsch 1882). In Gaul roads were measured not in miles but in leagues, 1 league being 1½ Roman miles. We are also told by Columella (v.1.6) that 'the Gauls call a length of 100 feet in urban areas a *candetum,* and in rural areas a length of 150 feet'; to which Isidore *(Origines,* xv. 15.6) adds that in rural areas a square with sides of 150 feet is called a *iustum candetum.* Likewise there was a local Italic variant, the *vorsus* of 100 feet. Moreover, the basic unit, the foot, varied appreciably, the Ptolemaic foot of Egypt and Cyrenaica being 12½ inches and the *pes Drusianus* 13½ inches of the *pes monetalis.* The *pes Drusianus* was used in Germany and parts of Gaul, but

Fig 14 Portable sundial in the Oxford Museum of the History of Science, probably 3rd century AD. This type was designed for use at all latitudes, and has those of many provinces inscribed on the reverse (Britain is at 57°)

recent attempts to prove its use elsewhere have not, as shown by Duncan-Jones (1980) and Millett (1982), been entirely conclusive. Frere (1977, 92; cf Walthew 1981 b) has rightly pointed out that the outer *insulae* at Amiens measure 4 by 4 *actus in pedes Drusiani;* though if at Vetera I, near Birten, the *insula* south of the *principia* is 375 by 330 *pedes Drusiani*, should we not leave it at that, rather than convert it to 3⅛ by 2¾ *actus* (Frere 1977)? Similarly, it does not follow that for the 'proto-forum' in London the overall exterior length envisaged by the Romans was 3 *actus in pedes Drusiani (ibid,* 101-2). The measurement given is 106.7m, which comes to 355 rather than 360 *pedes Drusiani*, and even that only if we include projections. Round numbers in Roman buildings seem on the whole to refer to inside measurements wall to wall, but the application of *actus* to buildings is a doubtful proposition in any case, hardly proved by a house at Cambodunum (Kempten) adduced by Walthew (1978, 342).[1]

How then were Roman towns planned and surveyed? Detailed instructions are provided by Vitruvius, some of which would chiefly concern the architect, some the surveyor. For a new town, he writes (i.4), first a good site should be selected, aspect, health, and defence being considered (see Salway, this volume, pp 67-8). For defence, town walls should not be square or with projections, but should have a circuit wide enough for two men to pass (i.5.2-3). Before building them, the architect should see that 'roads duly laid out, convenient rivers, or supplies by sea through harbours ensure adequate building material for the ramparts' (i.5.1). We may note that nearby water was not indispensable, as aqueducts could be built (viii.5-6).

Both the architect and the surveyor should master *ichnographia* (i.2.2), the drawing, presumably on papyrus, parchment, or wax tablets, by rule and compasses, of a ground plan. Town streets should be planned first, then the forum (i.7). In a seaside town the forum should be by the harbour; elsewhere it should be central. Next the theatre site should be chosen (v.3). Temple sites should be fixed with due consideration for the deity involved (i.7.1-2). For baths as warm a site as possible is advocated (v. 10.1).

As preparations for his *ichnopaphia* Vitruvius gives certain ideal proportions. The forum should not be square, like the Greek agora (this of course is a generalization), but rectangular (v.3), his prescription being a proportion of 3:2. He prefers to adhere to the traditional layout of many Roman towns by siting gladiatorial shows in the forum, rather than by constructing an amphitheatre, which he barely mentions. The basilica, he says, should adjoin the forum on as warm a side as possible, its breadth being from a third to a half its-length. He had himself designed one, perhaps in c 30 BC, at Fanum Fortunae (Fano), with a nave measuring 120 by 60 Roman feet between the columns and a *porticus* 20ft wide between the columns and the wall (v. 1.6). Vitruvius also gives proportions for the *caldarium* of baths, 3:2 excluding the apse, and for the *triclinium,* 2:l.

Since the basilica measurements, evidently actual as well as theoretical, involve round numbers, one might imagine that this would be true of rooms in houses too. In fact this is not so, since Vitruvius gives a series of ratios, depending on the length of the *atrium,* for the widths of the *alae* and *tablinum* (vi. 3.3-S). Thus for *atrium* lengths of 35, 45,55,70, and 90 Roman feet, the widths of the *alae* will be 11.67, 12.86, 13.75, 15.56, and 18 Roman feet respectively. These figures are only theoretical, but they show that, even though an architect may have liked to start

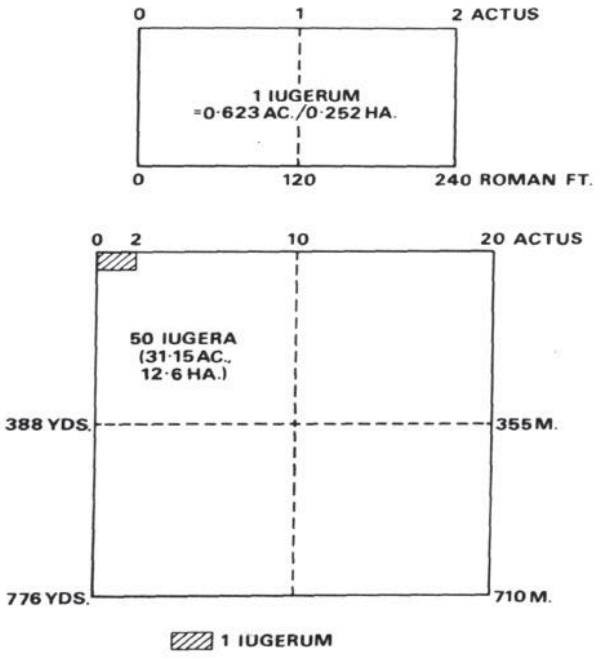

Fig 15 Units of area measurement in Roman land surveying. Above: 1 iugerum = *2* actus quadrati = 2 x *1 lineal* actus; *1 lineal* actus = *120 Roman feet.* Below: *1* centuria = *200* iugera = *400* actus quadrati = *20 X 20 lineal* actus

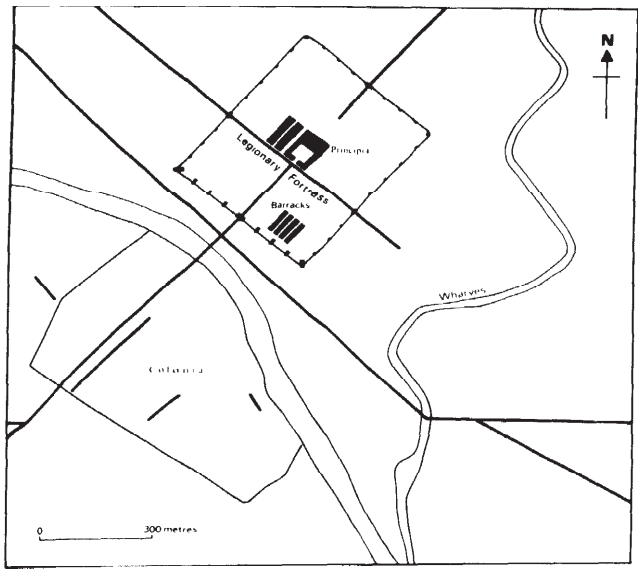

Fig 16 Simplified plan of Roman York, showing how one of the two roads from the north-west led straight to the fortress principia, *while the other bypassed the fortress and led to the bridge joining it with the civilian settlement*

with round numbers, to obtain his correct proportions it was frequently necessary to depart from integral, let alone round numbers.

For sizes of urban *insulae* we have only modern figures, obtained from remains, but unfortunately too often imprecise (Castagnoli 1956). These suggest that round numbers of Roman feet were not always achieved. At Thamugadi (Timgad, Algeria), where many *insulae* are well preserved, the figure of about 70m does correspond roughly with 2 *actus* (= 240 Roman feet). But for *insulae* in Italian colonies, possible round numbers in *pedes monetales* of 200, 210, 270, and 280 do not suggest measurement in *actus.* A theory that *passus* were involved in urban planning comes from a study of distances between the Roman bridges of Padua (Galliazzo 1971, 162). We cannot disprove this, since either 100 and 200 *passus* or 500 and 1000 Roman feet are round numbers.

When we turn from general matters to study the role of surveyors in Romano-British town planning it is necessary to take account of (a) the different types of settlement, and (b) comparisons with other parts of the Roman Empire, within the perspective of the whole history of ancient town planning (Castagnoli 1956; Chevallier 1974; Ward-Perkins 1974; Rykwert 1976). We can perhaps classify urban settlement thus: (i) colonies; (ii) other newly-planned towns, especially *civitas* capitals (Wacher 1966); (iii) minor settlements (Rodwell & Rowley 1976).

The three early *coloniae,* Colchester, Lincoln, and Gloucester, were all adapted from existing legionary fortresses on exactly the same site, as were the *civitas* capitals of Exeter and, probably, Wroxeter (Crummy 1982). Centuriation is unexpectedly absent, as far as we know, round the British *coloniae,* though more may be discovered; north-north-west of Colchester there are interesting traces of roads at right-angles and significant 'street' names (A Syme, pers comm), and Roman field patterns, difficult to interpret, have been observed round Gloucester (Rawes 1979).

We may compare and contrast the colonies in Britain with a typical colony in the Po valley. At Parma (Tozzi 1974), founded in 183 BC, the Via Aemilia goes through the town and the surrounding land was all centuriated. The *kardo maximus* and *decumanus maximus* appear to meet outside the ancient town centre, in an area where there was a Bronze Age settlement. Such an intersection is regarded as most common, even if not most perfect, in the *Corpus Agrimensorum;* as a result, one needs to be careful before speaking of the main streets of a town as the *kardo maximus* and *decumanus maximus.* The roads leading directly north and south from the colony corresponded to the *limites* of the centuriation. In Parma itself and to the west the *decumanus maximus* coincided with a long straight stretch of the Via Aemilia, whereas to the east this road diverged from the orientation of the centuriated land. Nevertheless, although the Via Aemilia was planned in 187 BC and the colony four years later, it is possible that the two were considered together as part of the same overall plan (Tozzi 1974,47, n5; read 'da SSO a NNE').

By way of new towns, Britain was well supplied with *civitas* capitals (Wacher 1966; 1975), often built on new sites as part of a policy of 'Romanization'. Such a site is Cirencester (McWhirr 1981, 11,21; McWhirr & Wacher 1982,65-6), set up in c AD 70 for the Dobunni, who had been at Bagendon and elsewhere. The forum lay immediately north-west of a preceding fort, while the amphitheatre was to the west, its entrance some 650m west-south-west of the nearest part of the forum. When the amphitheatre was made, evidently out of disused quarries, the Fosse Way may have had to be slightly rerouted. Cirencester was a road junction, and on the east side of the town was a bypass which joined the Silchester road with the northward continuation of the Fosse Way, without crossing the river Churn. This provision is likely to have been made before the foundation of the town.

Few towns remained unchanged throughout their history, and the skill of Roman surveyors can often be seen in the major replanning of an existing settlement to take account of a change in circumstances. Thus when in the early 3rd century York became a *colonia* and, evidently, the capital of Britannia Inferior, it was clearly redesigned (Fig 16). The place had a strong military function and so the town planners conceived it as a double city divided by the Ouse, the left bank containing the base for Legio *VI* and docks along the river Foss, the right bank the imperial palace and the civilian settlement. From the point of view of planning an interesting feature is that between the legionary fortress and the river there was a road, so that civilians had no need to enter the military area. The line of this useful bypass was not exactly parallel to the wall of the fortress. It has also been noted (Wacher 1975, 156) that the baths and other buildings of the imperial palace were on a slightly different alignment from the civilian settlement. For different functions on opposite sides of a river we may compare a Greek city, Megalopolis (Dilke & Dilke 1973).

As an example of adaptation and replanning, the layout of Silchester (Boon 1974; Wacher 1975, 255-77) differs

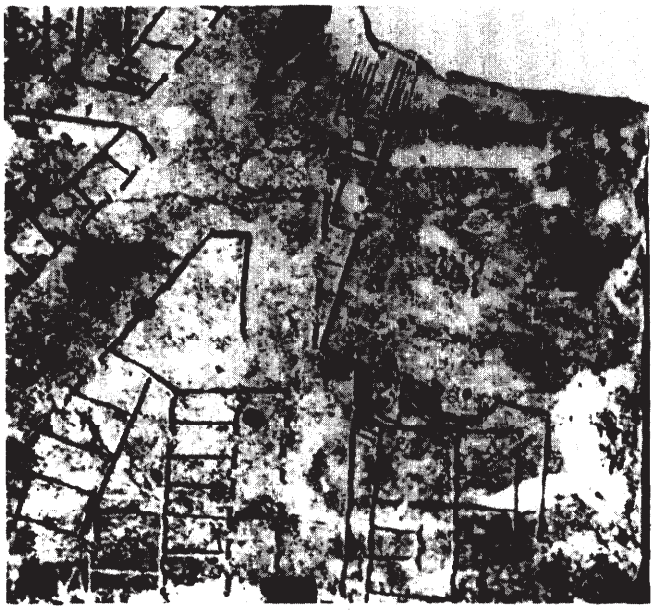

Fig 17 The Forma Urbis Romae, *compiled soon after AD 200; this fragment shows part of the porticus of Livia and adjacent buildings*

from that of most other Roman towns because it originated as a British *oppidum*. Part at least of the Outer Earthwork may be of pre-Roman date, but it seems to have been succeeded in the middle of the 1st century AD by the Inner Earthwork, enclosing a smaller area (Fulford 1983,85). One can perhaps see here the hand of Cogidubnus, not merely from what is known historically, but from a comparison of the polygonal pattern of the Inner Earthwork with the layout of Chichester, likewise polygonal. The initial Roman planning of the *civitas* capital of Silchester has notable irregularities. The street leading eastwards from the forum is not parallel to the two adjacent streets, nor does any of these, perhaps because of a pre-existing shrine, lead directly to the east gate. Some of these features may point to a realignment of an earlier street grid, as suggested by Aileen Fox (1948). The square and rectangular *insulae,* many containing buildings quite differently orientated, are of different sizes. But the main hall of the basilica seems to have been intended to measure *240* by *60 pedes monetales.* Moreover, the central core of *insulae,* as recently pointed out by Crummy (1982; this volume, p 80) can be expressed in terms of 250 and 400 *pedes monetales* in one direction, and 275 and 400 *pedes monetales* in the other; though not all internal features fit such a scheme.[2] One may doubt whether the selected measurements given in Walthew's appendix (1978, 349-50) justify the supposition that the *pes Drusianus* was adopted at Silchester.

As a civilian site only partly planned from pre-Roman antecedents, Silchester is *sui generis;* an exact parallel is difficult to find. But Rome itself in the early Empire (Platner 1929; Dudley 1967; Ward-Perkins 1974, 40–2) needed frequent replanning on a site whose natural features caused and still cause difficulties. Agrippa planned new public buildings on the previously inviolate Campus Martius. The imperial palaces gave a new look to Rome and there was limited replanning after the Neronian fire. But perhaps the most significant redevelopment was the area of the imperial fora. The fora of Julius Caesar and Augustus, Vespasian's Temple of Peace, Nerva's forum, and Trajan's forum-basilica were all on the same axis, based on that of the Curia. Trajan's was the only occurrence in Rome of the forum-basilica, a form of architecture first found in Cisalpine Gaul. But despite these developments, much of Rome remained as it had grown, increasing merely in height. The skill of urban surveyors in coping with such a heterogeneous ground plan is shown by the *Forma Urbis Romae* (Carettoni *et al* 1960), whose intricate detail, if we ignore certain inaccuracies of scale, could not have been executed without their very expert help (Figs 17 and 18). But when we come to an outlying province like Britain, not quite the same skill is always visible. True, sometimes we are surprised at the accuracy and even wonder how it could have been achieved; more often, perhaps, we feel it is practical enough, but not perfect enough.

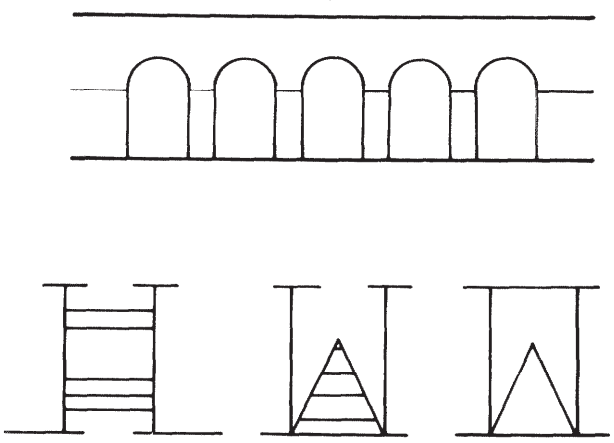

Fig 18 Conventional symbols used on the Forma Urbis Romae. *Above: aqueduct arches. Below: three ways of representing a staircase*

Notes

1 For 'Kempton House' read 'Kempten, Bavaria'.

2 Two other sites mentioned by Crummy, Winchester and Caistor-by-Norwich, in fact show irregularities, Winchester because earlier excavation reports make the street plan seem more regular than it was, and Caistor because it would appear from excavation that the Roman surveyor did not achieve exact right-angles. Moreover, at the latter there is some difference between 'a convincing series of dimensions of 150 and 300 Roman feet' and 'where detectable, the intended dimensions as devised by the urban planner' (Crummy 1982, 132, cf 134, fig 6).

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The mechanics of the building trade[1]

Roger Ling

There is virtually no direct information about the organization of the building trade in Roman Britain beyond the evidence of the building remains themselves. From these we can work out something of the pattern of distribution of materials or, in the case of fine carved stonework, something of the movements and mutual influences of masons. From the analysis of fabrics and classification of stamps on tiles we can deduce, as recent research has demonstrated, something about the production and marketing of one particular building element. The plans of buildings too may reveal regional peculiarities and thus shed light on the movements or sources of inspiration of architects. Otherwise we have very little to go on. In the case of military installations we know from quarry marks and building inscriptions what we could have guessed anyway, that the army was generally responsible both for cutting the stone and for the actual building. In the civilian sphere we occasionally learn from inscriptions who was the initiator of a building project. We even know the names of two architects who worked in Britain, a slave or *peregrinus* called Amandus who dedicated an altar to Brigantia at Birrens *(RIB* 2091), and a Roman citizen named Quintus who dedicated an altar to Minerva at Carrawburgh *(RIB* 1542), as well as that of a mason, Priscus, son of Toutius, an immigrant from Gaul, who set up an altar to Sulis at Bath *(RIB* 149). But on the day-to-day operation of the building trade our information is nil.

I make no apologies, therefore, for treating the subject in more general terms, firstly by taking into account evidence from Italy and other parts of the Empire, and secondly by considering how buildings were put up rather than merely how the industry was organized. This enables us to use the evidence not only of archaeological remains and inscriptions but also of literary sources, especially the legal codes, and of artistic representations of builders at work. The following account will review the different stages in the execution of a building, from conception to completion, drawing upon the different kinds of evidence as appropriate.

Commissioning buildings

The first stage was obviously to initiate or commission a building. Here we must distinguish between military and civil works. For military works and roads the initiative almost always lay with the emperor; he acted through his legates and the work was supervised by the local military commander (or sometimes the imperial procurator). Thus when Gordian restored the headquarters building and arsenals in the fort at Lanchester it was done through the agency of the propraetorian legate Maecilius Fuscus and under the direction of the prefect of a cohort stationed there *(RIB* 1092). Such exceptions as occur seem to be late in date and due to abnormal circumstances. Probably in the 4th century, for instance, and perhaps as a result of pressures on the imperial exchequer, sections of Hadrian's Wall were restored by the civil authorities in the form of individual *civitates,* while named individuals (architects? contractors? sponsors?) took the credit for specific lengths of walling *(RIB* 1629,1672-3,1843-4, 1962,2022,2053).

Apart from these exceptional cases military building would normally have been administered within the army and carried out by soldiers. Civilian building followed a much more varied range of patterns, and the rest of my remarks will deal largely with that sphere. Here, broadly speaking, the initiative could have come from four main sources: the emperor or his representatives (especially the provincial governors), the Roman Senate, the local senate or magistrates, and private citizens. The last-named were, ef course, active especially in the field of private houses and tombs, though a private individual would frequently endow the community, or a religious group of which he or she was a member, with a public or semi-public structure. A case in point is the commercial building at Pompeii, probably a kind of stock exchange, endowed by the priestess Eumachia during the reign of Tiberius *(CIL,* 10, 810-11). Another is the temple of Isis, also at Pompeii, rebuilt from its foundations after the earthquake of AD 62 by N Popidius Ampliatus in the name of his infant son Celsinus *(CIL,* 10, 846).

The organization of the building industry

To construct his building the patron could proceed in various ways. An early stage would have been to decide upon the exact form and dimensions. For this, as nowadays, he would engage an architect, who might subsequently act as supervisor of the building work in progress. Alternatively the patron could act as his own architect; Vitruvius, after condemning unscrupulous, uneducated, money-grubbing architects who vie for contracts, praises wealthy householders who build for themselves, because they will know that their money is being spent as they would wish it (vi. *praef* 5-6).

The actual building work, if not supervised directly by a public or imperial official, could have been put in the hands of a contractor, or again, in the case of a well-to-do householder, entrusted to his own freedmen or slaves. For private work there is information to be gleaned from Roman writers such as Cicero, who in a letter of September, 54 BC, reports to his brother Quintus on building operations in progress on a family villa *(Ad Quintum fratrem,* iii. 1.1-2): 'On the Manilius estate I found Diphilus being slower than ever; but there was nothing left to do except the baths, the promenade, and the aviary. I was pleased with the villa; the paved portico is most impressive now that it has been fully opened up and the columns have been surfaced. Everything depends on the plasterwork being in keeping; I shall see to it myself. The pavements seemed to be coming on nicely. I disapproved of one or two vaults and ordered them to be altered.'

Cicero goes on to object to Quintus's proposed *atriolum* (mini- *atrium)* because there is not enough space. He has moved a sweat-bath to the other corner of the *apodyterium* (changing-room) to avoid having the steam-pipe underneath the bedrooms. He approves of one large bedroom and another for winter use. But Diphilus has failed to set the columns straight and in correct alignment; they will have to be taken down. 'Some day he'll learn how to use a plumb-bob and a line', comments Cicero tersely; but he adds, 'I have every hope that Diphilus's work will be finished in a few months. For Caesius, who was with me at the time, is keeping a careful eye on him. ' The tenor of this passage suggests an architect or master-builder who was a slave or freedman of the family and who was supervising operations under direct orders from Cicero and his brother; the Caesius who was keeping an eye on him was evidently a neighbouring landowner and trusted friend of Quintus. But the work-force under Diphilus's supervision was probably not permanent staff. Another letter, written ten years later, implies that Cicero was employing casual labour on a building project at Tusculum, since he refers to his *structores* going off to buy corn *(AdAtticum,* 14.3.l). If they were his general slaves or employees, he would hardly have called them *structures;* and if, on the other hand, he had his own full-time *structures,* he would probably not have sent them to get corn.

In imperial times the emperor himself could act like a rich householder, though obviously on a grand scale; the *columbaria* of the Julio-Claudian family have yielded the names of architects, *fabri,* and *mensores,* who were doubtless employed directly on the building of imperial villas and palaces. But the emperor's position was such that his patronage often passed- over the dividing line between private and public works. Both Augustus and Claudius had their own private gangs of slaves for the maintenance of Rome's aqueducts and water-supply (Frontinus, *de aquis,* ii. 98 & 116), and Hadrian is said to have organized corps of architects, surveyors, and builders, military fashion, for the work of restoration in the provincial cities which he visited (pseudo-Aurelius Victor, *Epitome de Caesaribus,* 14.5).

A situation in which a private patron might use commercial labour is envisaged by Cato in the 2nd century BC, when he gives specifications for the building of farmhouses *(de re rustica,* 14). The owner is to hire a builder or contractor, but he must supply the timber, a saw and a level, the building stone, lime, sand, water, straw and earth for cob-work. One imagines that this sort of arrangement would have continued for the majority of small-scale private operations throughout the Roman period.

On the nature of building contracts we have a fair amount of information in the *Digest* of Justinian and in various inscriptions. The contractor *(redemptor* or *conductor optis),* who hired out his services on the principle of *locatio conductio,* would give an estimate somewhat in the modern manner and would sometimes name a completion date. Once agreed the contract might be for a lump sum to be paid on completion or for a series of sums to be paid in stages on the basis of quantity surveys of the amounts completed. An interesting early example of a contract is provided by the inscription relating to the building of a wall and porch on a main street at Puteoli (Pozzuoli) in 105 BC *(CIL,* 1^2, 524-6, no 698 = 1, no 577). Here the contractor was obliged to give financial sureties and to pledge properties at the discretion of the duumvirs as a guarantee of good faith; he would receive half his payment as soon as the pledges were signed and the other half on completion and approval of the work. The contract also gives detailed specifications for the building, including measurements, and appends clauses regarding the plastering of the porch and the cleaning up of the site afterwards. That careful specifications were essential is indicated not only by the hypothetical situations recorded *in* the *Digest,* but also by the words of Vitruvius (i. 1.10): 'In drawing up contracts careful attention should be paid to the interests of both the owner *(locator)* and the contractor *(conductor);* for, if the contract is skilfully worded, either party may be released from his obligations to the other without a dispute arising.'

In both private and public works the contractor, or indeed any other building overseer, would deal with suppliers of materials and the various specialized craftsmen in much the same way as his modern counterpart. For example, Dio Chrysostom relates in a speech of AD 101 how, in sponsoring a public building programme in his native city of Prusa in Bithynia, he went up into the mountains, almost certainly to inspect and order stone from the quarries (xl. 7). Elsewhere we hear of small firms of free labourers hired or subcontracted to do specific jobs. An inscription of Miletus, dated to the 2nd century AD, reveals that the building firm of a certain Epigonus was engaged to put up arches and vaults over a colonnade in the upper tier of the theatre; the building overseer is named as Ulpianus Heros and the architect as Menophilus (Buckler 1923, 34-6, no 3). All did not go well, because the builders considered going on strike and seeking other work; but good advice from the oracle of Apollo apparently led to the dispute being settled. At Pergamum, again in the 2nd century, it seems that firms were fined for failing to complete work on time; they were charged interest on the advance payments made to them *(ibid, 334,* no 2). From later times (AD 459) we have a record of a trade union agreement binding the builders of Sardis to specific terms of labour involving indemnities in the case of non-completion *(ibid,* 36-45, no 4 & pl III). This sort of arrangement presupposes the developing role of trade guilds both in protecting the interests of their members and in 'carrying the can' for their members' lapses. For the building industry, inscriptions mention *collegia* not only of *structores* (builders in general), but also of *fabri tignari* (woodworkers), *sectores serrarii* (sawyers, primarily, one imagines, of marble veneer), *mamrorarii* (workers in marble), *pavimentarii* (paviers), and even of *subrutores* (demolition men). Some of the craftsmen could themselves attain sufficient prestige and wealth to take on public contracts. An imperial freedman named Ti Claudius Onesimus describes himself in his epitaph both as *redemptor operum Caesar(is)* ('contractor for imperial works') and as chief magistrate of the woodworkers' guild (CIL, 6, 9034).

The planning of buildings

So much for the organization of the building industry. What about the mechanics of actually putting up a building?

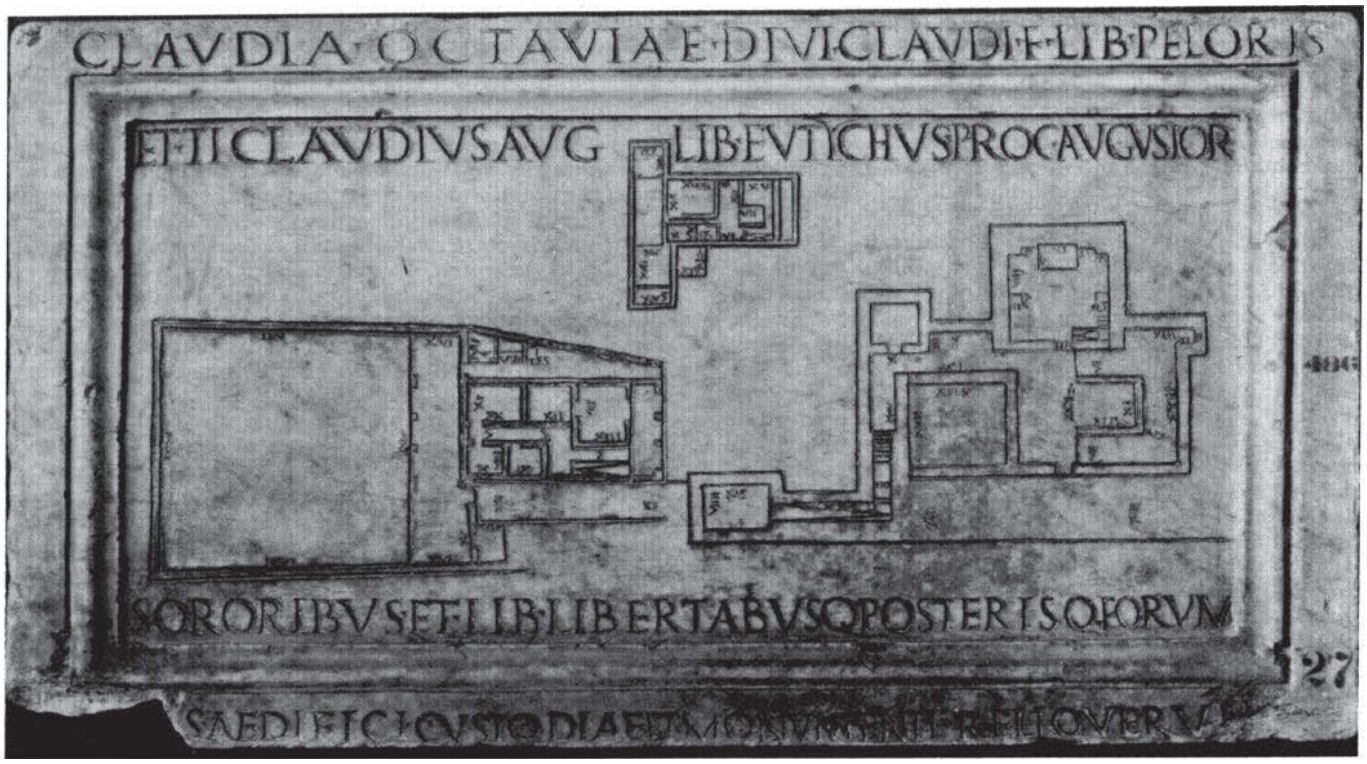


Fig I9 Architect's plan, now in Perugia, of funerary buildings (Photo: G Lucarini, courtesy Archaeological Superintendency of Umbria)

In the planning stage we straightway come to a difference in approach between Roman architecture and that of the Greeks which preceded it. Greek buildings, at least before Hellenistic times, had all tended to conform to certain basic stereotypes and could, therefore, to some extent be improvised; general instructions would be given in advance, but detailed adjustments could be made by a supervising architect as the building actually went up. The nearest thing to a 'plan' to have survived from Greek times is the inscription recording Philo's specifications for an arsenal at the Piraeus (late 4th century BC); here all the relevant information is given in written form *(IG,* 2, 1054). By the Roman period, however, the situation had changed, largely because of the greater complexity and variety of buildings. There is now good evidence that some sort of drawn plans and elevations (Vitruvius's *ichnographia* and *orthographia;* i.2.2) were prepared in advance. These were not necessarily highly accurate scale drawings; such would have been impracticable, given the limited size of the available writing surfaces (wooden tablets, papyrus, parchment). But a general guide-drawing with written measurements, probably accompanied by a written description and specifications in the Greek style, would have been feasible and indeed highly desirable. A papyrus from Ptolemaic Egypt, dating from as early as the 3rd century BC, combines specifications for an irrigation system with a sketch-plan; and from Roman times we have two plans on stone which almost certainly reproduce the working plans of architects. One, now in Perugia, shows the plans of a funerary monument and of the guardian's house, the latter at both ground-floor and first-floor level (Fig. 19); the other, now in Urbino, is incomplete, but appears to have represented a large funerary garden in Rome containing a monumental mausoleum. Neither drawing is to scale; in each case there is a clear disparity between the measurements written on the plan and the actual proportions of the elements illustrated. This did not matter; however approximate in scale, the visual guide was still an eminently more clear

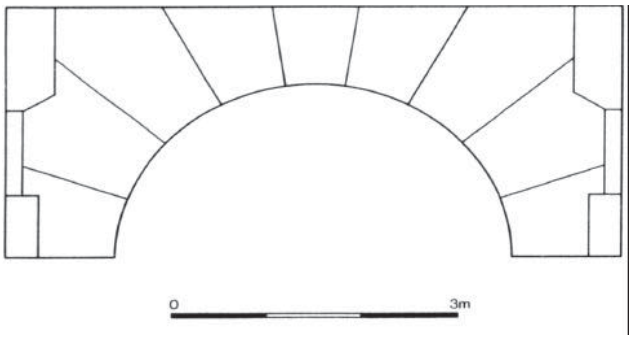


Fig 20 Incised elevation of an arch, used to guide masons constructing the amphitheatre at Capua (Drawn by R Lea, after A De Francis)

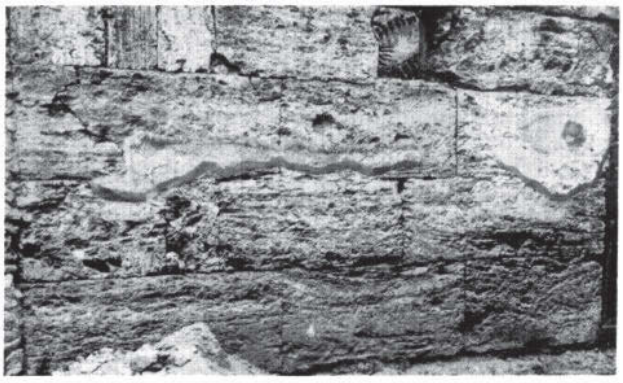


Fig 21 Ashlar construction in Sarno stone at Pompeii (Photo: author)

and concise way of presenting the architect's instructions to the builder than was the written word.

A related practice was the use of drawings actually incised on pavements beside or inside buildings. These enabled the architect to work out structural or decorative problems at full scale, and at the same time could act as templates for the masons. More and more examples have come to light in recent years. At Pergamum the outline of a column was found inscribed on the theatre terrace; at Capua an elevation of an archway was used to guide masons working on the amphitheatre (Fig 20); and in Rome more complicated drawings have recently been identified outside the mausoleum of Augustus. The same practice continued in the medieval period. It is found,' for example, in Wells Cathedral, and a recent survey by Bryan Ward-Perkins and Sheila Gibson in the cathedral at Trogir (Jugoslavia) has resulted in a full analysis of 15th- or 16th-century trial drawings in the pavement above the aisles.

Such full-scale drawings were used mainly in connection with masonry construction. For concrete it would have been more useful to have drawings on a reduced scale. Indeed, the need for such advance planning was much greater in concrete construction, which was less bound by convention and thus more susceptible of innovative design. More important, unlike masonry, concrete did not rely upon a continuing process of skilled craftwork and fine adjustment during construction; the skill was mostly focused on the preparatory stages (for example, determining the general layout and dimensions, fixing the form and span of vaults, and building the centering), while the actual building process employed unskilled or only partially skilled work-forces - bricklayers, concrete-mixers, shovellers, and the like.

Construction processes

To look at the processes of construction we must consider

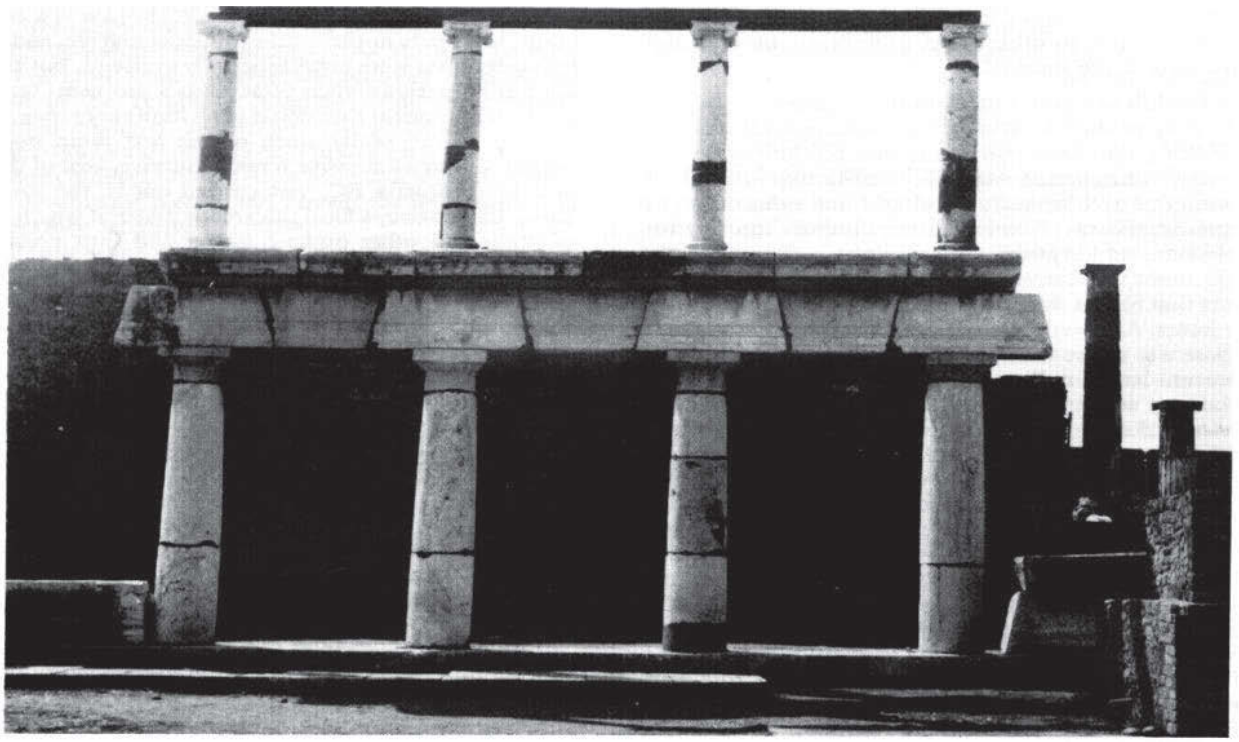


Fig 22 Limestone colonnade in the Forum at Pompeii. Note the 'flat-arch' principle of construction in the architrave (Photo: author)

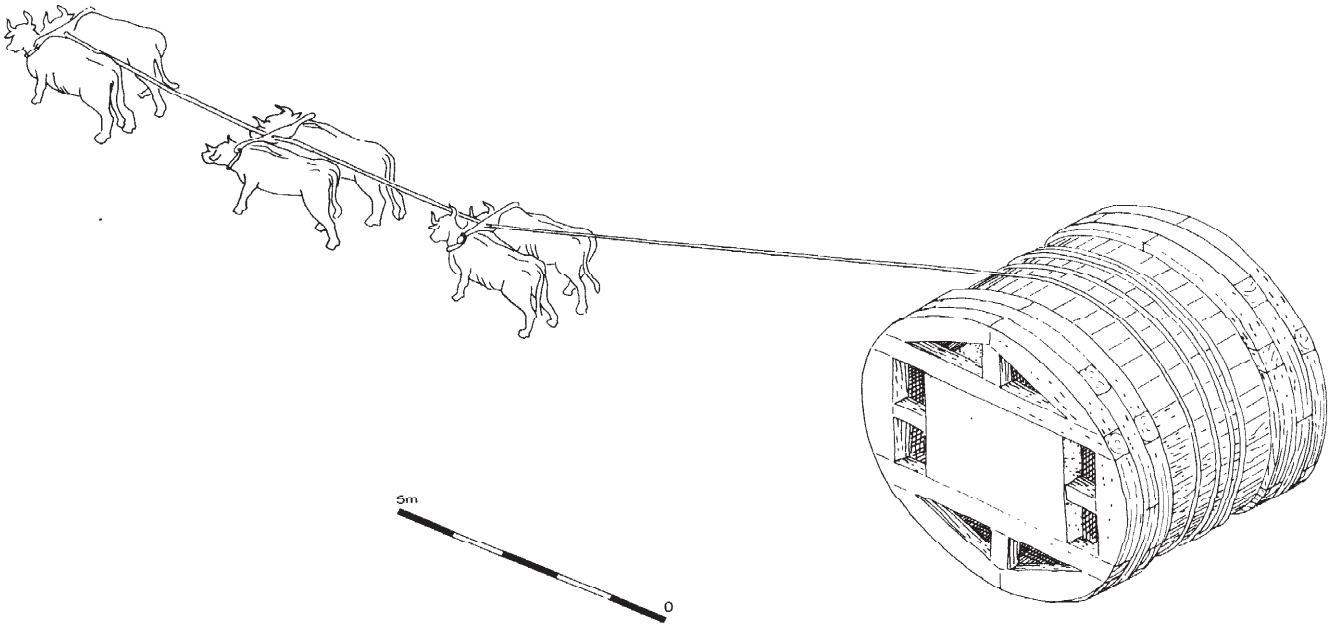


Fig 23 Method of transporting stone devised by Paconius, a 1st-century BC engineer, and described by Vitruvius (x.2.13-14) (Drawn by R Lea, after A K Orlandos)

the two main media (masonry and concrete) separately. Other less permanent building materials and techniques, such as timber, mud-brick, and *pisé,* obviously played a major role in the building industry of Roman Britain, but I must leave these to others and concentrate here on the 'upper end of the market' .

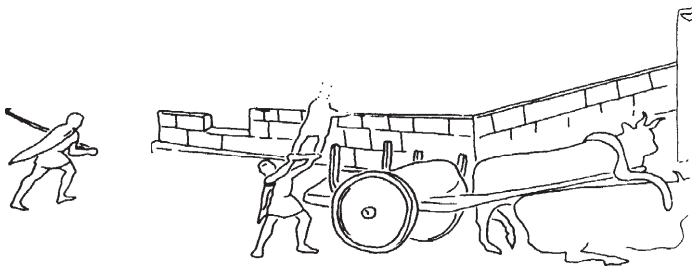
Masonry

Masonry construction was the traditional method of monumental architecture, developed and refined by the Egyptians and the Greeks. It required no mortar, for blocks were held in position by their own weight; the main requirement was extremely careful cutting and fitting to ensure that blocks were firmly lodged and squarely placed over joints. Although cramps and dowels were used, their purpose was not so much to hold the building together as to prevent lateral movement resulting in an uneven face.

Masonry was regarded as the form of construction *par* excellence, durable and aesthetically attractive; thus many buildings, such as theatres and amphitheatres (including the Colosseum), were supplied with a facing of ashlar even when much of the internal structure was of concrete. The ideal materials were the hardest: granite, obtained primarily from Egypt, and the various kinds of marble, obtained chiefly from the Greek world, Anatolia, and (from the time of Julius Caesar onwards) the Italian quarries at Luni. Marble was particularly prized because of its fine, close-granted surface and its ability to take a polish. Normally blocks used in a structural role were white and left unpolished; but in the imperial period there was an increasing fondness for elements in coloured materials, such as columns of green-veined Carystian marble *(cipollino),* pink granite, or porphyry, while the marble wall-veneers which became popular as early as the 1st century BC made full play of interesting colour-effects and highly polished surfaces.

Not all parts of the Roman world (Britain is a case in point) had ready or plentiful supplies of marble, and since transport costs were high (especially overland, but also by sea during periods when piracy was a problem) builders used such stones as they could get within easy range. Take Pompeii. Here ashlar work of the first main building period of which extensive remains survive, that of the 4th and 3rd centuries BC, was carried out in the so-called Sarno Limestone, a local calcareous material which is full of shells and other organic matter and thus presents a

Fig 24 Painting from Stabiae showing builders at work (Drawn by R Lea, after Adam & Varène 1980)



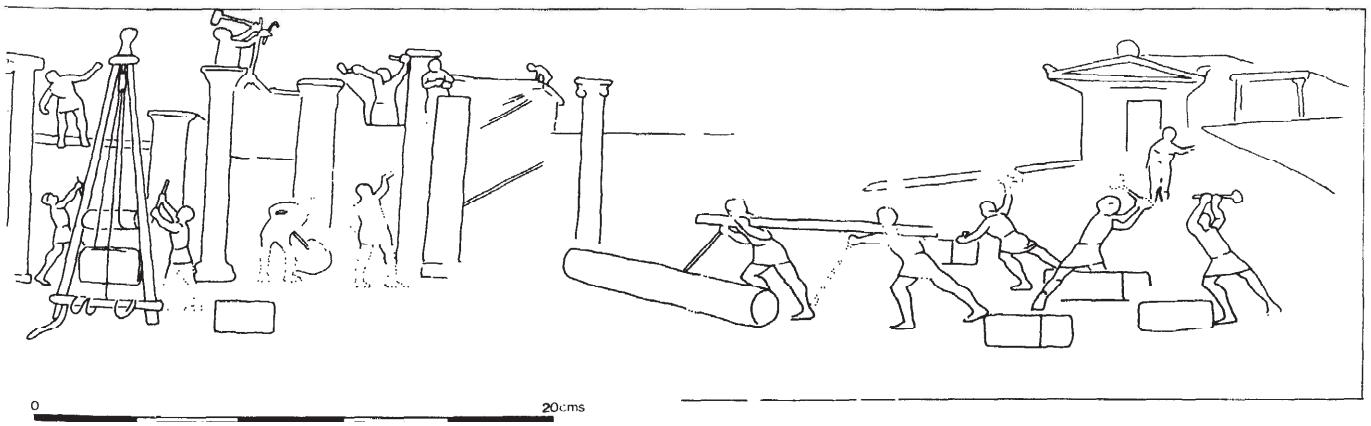
rather unpleasant finished surface (Fig 21). In the 2nd century this gave way to the brown or grey volcanic tuff from nearby Nuceria. Tuff was much favoured in central Italy before the time of Caesar and Augustus because it was readily available and had the dual advantages of being easy to cut in the quarry and then hardening on exposure to the air. The main snags were that it did not have the same aesthetic appeal as the hard white stones and that some varieties, especially the yellow tuff from the Campi Phlegraei, north of Naples, suffered badly in due course from the effects of weathering. Eventually, even in central Italy, the hard white stones became normal for masonry that was to remain visible, while tuff was often retained in foundations and other hidden parts. Standard work, for instance the porticoes of the Pompeian forum (Fig 22), was executed in limestone, especially the so-called *lapis Tiburtinus* (travertine) quarried near Tivoli, while for the more lavish buildings, especially temples, and for carved decorative detail architects used white marble.

The situation in Roman Britain has been partially examined by various writers, notably by Williams (1971) for the south and east of the province. Much of the masonry was cut in the most accessible varieties of limestone, but other materials were used locally; for example, red sandstone at Chester and greensand in parts of Kent, Sussex, and Norfolk, and in London. Williams points out that the regions where greensand was employed outside its native area were those which could be served by boar from a possible source or depot on the Medway, a theory which is supported by the presence of building stone of Kentish origin in the cargo of the Blackfriars boat. Rarely in Britain does stone seem to have been used far from its source; exceptions were made only where the stone was of good quality and the building project of a prestigious nature. For example, if Williams is correct, Ham Hill stone from Somerset was brought to Colchester for use in the Temple of Claudius. The most highly-renowned material in Britain, the so-called Purbeck marble from Dorset, occurs only in shallow strata and was therefore confined to small-scale work, such as inscription slabs, ornamental pieces, and veneer; the largest items in its repertory are carved capitals.

The techniques of handling and working good-quality building stone varied little throughout antiquity, or indeed in more recent times before the advent of mechanization.

Quarrying is the first stage. Remains of various quarries, both Greek and Roman, show that normally the workers would cut into a face, proceeding from top to bottom, so that for any given block only two main faces, the rear and the underside, had to be freed from the living rock. This was a natural way of economizing on labour. At the same time care had to be taken to avoid fault-lines, the devastating effects of which are attested by numerous half-finished and abandoned pieces, both architectural and sculptural. But, provided that all was well, a roughly rectangular block would generally be procured. This was done by cutting grooves or, alternatively, by drilling a series of parallel holes along the proposed edges, then using chisels and wedges to split the stone.

The next stage was transport. Some preliminary dressing of the blocks could be undertaken by masons in the quarry and certain elements, notably columns, were even roughly shaped, as can be seen from the numerous half-finished columns in the quarries of Carystus, but all pieces were transported in an unfinished state to avoid damage. Many examples of quarry blocks have been found at Ostia, where they were doubtless awaiting transfer from sea- to river-craft on their voyage to the marble-yards of Rome; among them is a *cipollino* column-shaft with a raised band at the end to protect the main part from contact with the ground, and a series of blocks with a curious arrangement of different-sized steps and offsets. These bear no relation to any intended architectural role and are best explained as a device to convert an irregular shape, perhaps dictated by fault-lines in the quarry, into one which could be more easily stored and at the same time more easily measured for accounting purposes. Transport, as the Ostian finds demonstrate, would be conducted as far as possible by water; but there was always an overland component, sometimes a long and difficult one, between the quarries and the nearest river or port. This was inevitably the most expensive and time-consuming part of the journey. Small blocks were presumably carried by ox-cart, but such methods were cumbersome and the axles would have been hard put to stand the strain, especially as the surfaces can rarely have been smooth; one has only to read Carl Humann's graphic account of his



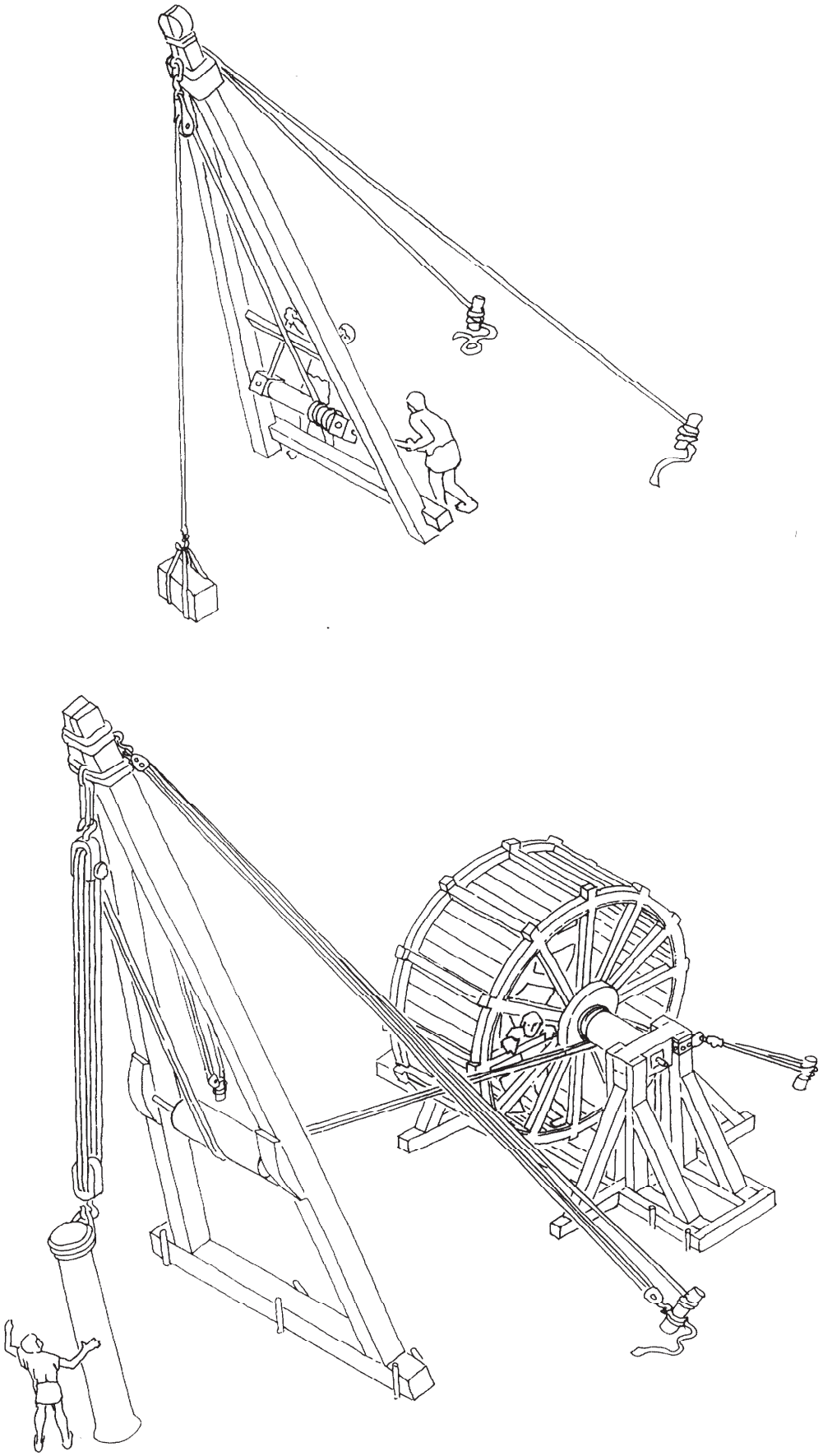


Fig 25 Reconstruction of Roman derricks, based on (above) the painting from Stabiae (cf Fig 24) and (below) a relief from Capua (Drawn by R Lea, after Adam & Varène 1980)

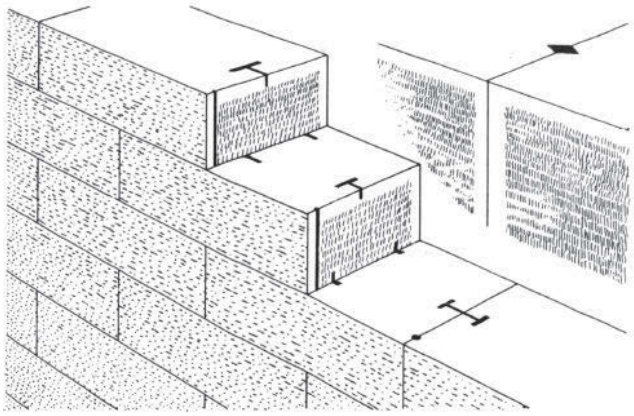


Fig 26 Stone wall construction using anathyrosis (rebating to make unmortared edges fit tightly) and clamps and dowels (Drawn by R Lea, after Coulton 1977, fig 8)

experiences in carrying the Pergamene marbles down to the coast at Dikili, a distance of only eleven miles, to realize the enormous logistical problems faced by ancient hauliers. To deal with larger blocks other methods had to be devised-sledges, rollers, even the building of blocks into huge wooden drums which could be drawn directly by teams of oxen (Fig 23).

The next stage is the dressing of the masonry on the actual building-site (Fig 24). Most of the preparation of the blocks would inevitably be carried out here; one has only to think of the knapping floors excavated in the vicinity of ancient masonry structures and to compare modern practice as exemplified by the restoration work on the Athenian Acropolis. The main task was to ensure that contiguous surfaces would join tightly when the blocks were bedded, or rather that the visible edges would join tightly; the hidden parts would often be slightly hollowed. Exposed faces, however, were frequently left rough in order to receive a final working when the blocks were in position, and there might also be projecting bosses to facilitate lifting and levering during construction. Sometimes these rough surfaces and projecting bosses still survive because buildings were never completed; sometimes, as in the Porta Maggiore and other architecture of the emperor Claudius in Rome, they were deliberately retained to produce the effect known as rustication. But in all cases the outer margins of the visible face were chiselled smooth to allow the use of a chalk-line and plumb-line to check the horizontal and vertical during construction.

Once the masonry was dressed it had to be lifted into position. Roman builders, like the Greeks before them, were conversant with block-and-tackle systems, and examples are illustrated in art of the imperial period, as on a painting found in the Villa San Marco at Stabiae (Figs 24 and 25). This shows a small derrick operated by two workmen turning a drum by hand, one half a turn ahead of the other. That surprisingly simple contraptions could be used to hoist quite heavy blocks is demonstrated again by the modem equivalents operated by the restorers on the Athenian Acropolis. Much more powerful and more elaborate, however, were the cranes operated by treadwheels which are represented on reliefs from the amphitheatre at Capua (Fig 25) and from the tomb of the Haterii in Rome. The latter is depicted in association with some of the major Flavian monuments erected in the capital, such as the Arch of Titus and the Colosseum, and there is little doubt that it is the kind of machine used by the leading construction companies of the time. The actual blocks lifted by such machines often bear the marks of the means by which they were attached, including wedge-shaped holes in the upper surface for a lewis. The projecting bosses already mentioned were probably not strong or large enough in themselves for lifting and were intended rather to prevent ropes from slipping or to help in the task of manoeuvring a block once it was more or less in position. Small holes for levers testify to the same final process of manipulation. How the builders managed in the case of the largest blocks is a matter for speculation. In Greek and Egyptian work the huge architraves of the great stone temples were slid up purposely constructed ramps, and something of the same sort may have happened in Roman times too, as in the podium of the great temple of Jupiter at Baalbek, some of whose blocks weighed almost 1000 tons.

Methods of fastening again followed the Greek tradition. In normal coursed masonry holes for horizontal cramps and vertical dowels would probably be cut across joints after the blocks were in position (Fig 26); visible examples of cramps (Fig 27) show a variety of shapes, including the double T or H, the double swallow-tail, and a straight bar with arms descending vertically at each end (ie, seen in profile, a Greek letter π). The cramps were of iron, or more rarely bronze, and, after they had been inserted into the holes, were secured with an infusion of molten lead. The treatment of column-drums was different, because no fastening-device could be inserted after the drums were in position; here carefully centred square holes (chuck-holes) were cut in the upper and lower surfaces and a wooden plug inserted before each drum was lowered into position.

The final stages in the construction of an ashlar building (apart from the roof, which is common to structures in other media too) are those of adjustment and surface dressing. The final dressing had to be carried out after the blocks were in position, because a thin layer of stone had hitherto been left to protect surfaces from damage during

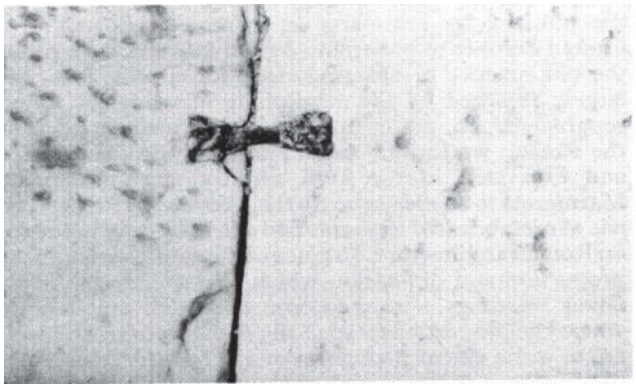


Fig 27 Bronze clamp, set in lead in a dovetail socket, joining two blocks of a door-sill; on Delos (Photo: L A Ling)

Fig 28 Mortared rubble work with tile bonding-courses in a bath building at Oenoanda in Lycia (Photo: author)

lifting. Moreover, in the case of column-drums, the central plug prevented fine adjustment, so that any overlapping or other misalignment could only be put right by trimming the surface. The tools employed have been amply discussed by various writers including, with reference to Roman Britain, Tom Blagg (1976). A rough dressing would be achieved with a pick-hammer, more accurate dressing with a hammer and punch, fine dressing with a hammer and various chisels, both smooth and toothed, and the surface finish with a rasp and abrasives. We may also mention some of the implements used for measuring and adjusting: the plumb-bob, the A-shaped level, and large squares of wood or bronze. All are known from surviving examples, artistic portrayals, or literary sources.

As for the marketing and distribution of fine building stone, literary sources provide very little information, but archaeology does something to fill the gap and various papers by J B Ward-Perkins on the marble trade have made major contributions to the analysis of this evidence. He has argued repeatedly that in imperial times production and distribution of fine stone was put on a systematic, world-wide basis. Under Tiberius many of the best-known quarries were nationalized and by about AD 100 the bulk of the commerce in marbles originated in a limited number of imperially-owned quarries. As a result the old practice of ordering stone for specific jobs was largely replaced by the stockpiling of ready-cut, often roughly-shaped, pieces in depots at the main emporia of the Roman world: one such, known in the' Renaissance and excavated in the 19th century, gave the name Marmorata to an area beneath the Aventine in Rome. The use of prefabricated elements had a fundamental influence on Roman architecture. In place of the subtle variations of proportion and dimension which characterize the finest Greek buildings, we are confronted with an architecture where the proportions, especially of the columnar orders, are to some extent predetermined. Thus the columns of the Pantheon in Rome were evidently prefabricated to the set lengths of 50 Roman feet in the porch and 40 feet internally; and the columns of the Severan building programme at Lepcis Magna conform to three sizes, 16, 20, and 24 feet. The commemorative column of Antoninus Pius, set up in the Campus Martius in Rome soon after 161, even carries the signature of a Trajanic architect who had apparently supervised its extraction from the quarry in about 106, long before its final purpose could ever have been conceived. With the practice of prefabrication and stockpiling went an imperially-controlled accounting system, operating both in the quarries and after shipment; the inscription on Antoninus's column is an aspect of this, as are numerous quarry-marks and control-marks found on half-worked blocks at Ostia and elsewhere.

Another feature of the marble trade was the movement of the marble-workers. As modern masons will confirm, each type of stone requires a special expertise and each craftsman prefers to work with the one to which he is accustomed; the carving of the coarse-grained Thasian marble, for example, demands an entirely different technique from the fine-grained Parian. A vivid demonstration of this in the Roman period is supplied by the capitals in the Severan forum at Lepcis Magna, where those in Proconnesian marble follow a completely different tradition from those in Pentelic, the former being linked with Asiatic work, the latter with Attic. The carvers had evidently travelled with the marble and brought their styles with them.

Concrete

We may now turn to concrete construction.[2] This involved a radically new approach to building, since it dispensed with the fine craftsmanship of the best masonry tradition; the element of skill was transferred to the planning stage and to the building of centering for elaborate vaults and domes, more an exercise in engineering than in fine craftwork. At the same time concrete was eminently adaptable, lending itself to the creation of new shapes and to a vast enlargement of interior space; and it was immensely economical, not only because it absorbed masons' chippings, brick fragments, and other builders' waste, but also because the bulk of the work could be entrusted to mass unskilled work-forces, readily available

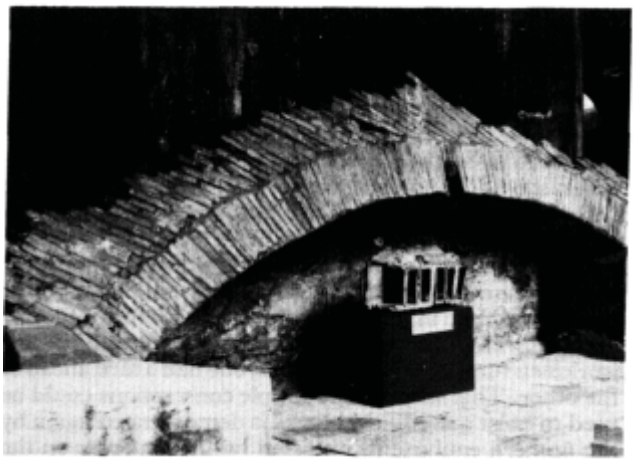


Fig 29 Brick rib from the vault of the Great Bath at Bath (Photo: author)

Fig 30 'Temple of Janus' at Autun, showing putlog holes in regular courses (Photo: author)

in the form of slaves and prisoners of war. It was also a relatively speedy method of building; the main delaying factor would have been the time required for the concrete to set.

Work in concrete, known to Vitruvius as *structura caementicia* or simply *caementicium* (ii.4.1; 7.5; 8.16, etc), evolved in central Italy during the 2nd century BC and achieved its greatest successes there. Its invention was probably a spontaneous outcome of experiments with a *pisé* technique of the type familiar in Punic Africa; it is perhaps no accident that the first tentative examples appeared in the late 3rd century BC, as at Terracina, in the wake of Hannibal's invasion of Italy. Progress was rapid, especially after the discovery that lime-mortar made with *pulvis puteolanus* (pozzolana) and other volcanic earths readily available in the Rome and Naples areas possessed extraordinary cohesive strength and hydraulic properties (ie the ability to set under water and in damp conditions). The result was a material whose quality has rarely been equalled before modern times. The standard of the concrete in the Roman provinces was certainly inferior to that of the best work in Italy; in fact, when used to describe the mortared rubblework of Asia Minor (Fig 28) and certain other areas, the term 'concrete' is something of a misnomer. That is partly why provincial architects resorted to frequent bonding-courses of brickwork in their concrete walls, and why, in Asia Minor and the east, they even constructed brick vaults or all-brick, as opposed to brick-faced, walls. In Britain the vault of the Great Bath at Bath (Fig 29), composed entirely of bricks and box-tiles, may be a witness to the same lack of confidence in local mortar.

Walls of *caementicium* were built up in stages roughly equivalent to the height of one stage of scaffolding: that is the height that a man could conveniently handle from a given position. Examination of surviving walls in Pompeii and elsewhere, for instance in the so-called Temple of Janus at Autun, will show either horizontal breaks in the fabric (building-lines) or series of putlog holes at regular intervals of about 1 to 1.50 m (Fig 30). In brick-faced walls there is often a levelling- and capping-course of extra-large bricks, generally 'two-footers' *(bipedales),* above each stage of work (every three or four Roman feet in Domitianic buildings). The purpose here was not so much to provide a bond through the thickness of the wall, for builders in Italy were by now more confident of the strength of their material, as to compartmentalize the areas of concrete and thus prevent settling within the wall.

The actual method of construction (Fig 31) was to shovel the concrete mixture, which was rather stiffer than its modern counterpart, into the cavity between two purpose-built faces. In the foundations this was formed by timber shuttering which was removed as soon as the concrete had set, but above ground it was formed by the actual surface dressing of the wall, carried out in stone or brick. This would be built up first and could be sustained by a minimum of planking while the concrete was inserted and left to harden. It is this facing which is the most characteristic feature of the wall and which, though structurally otiose once the concrete had set, still tends to dominate the historical study of Roman wall construction — not least because of its value as a dating tool. Three principal techniques were used (Fig 32). The earliest, *incertum* ('irregular work'), was a carefully constructed patchwork of pieces of rubble roughly as big as a human

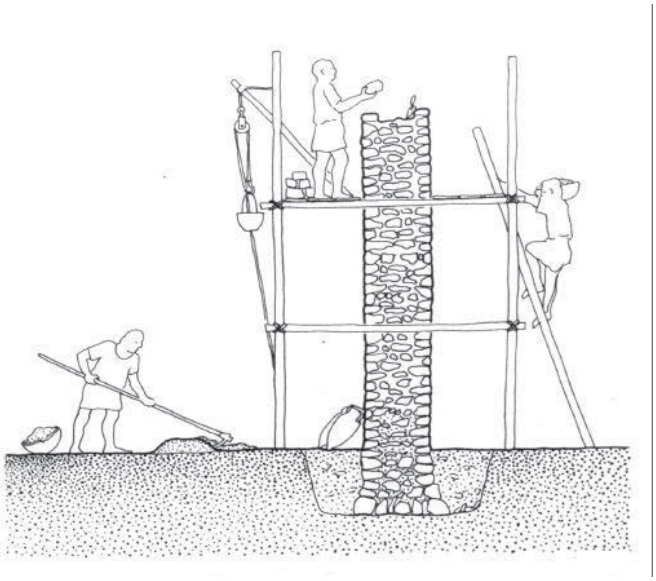


Fig 31 The method of constructing a concrete wall (Drawn by R Lea, after J P Adam)

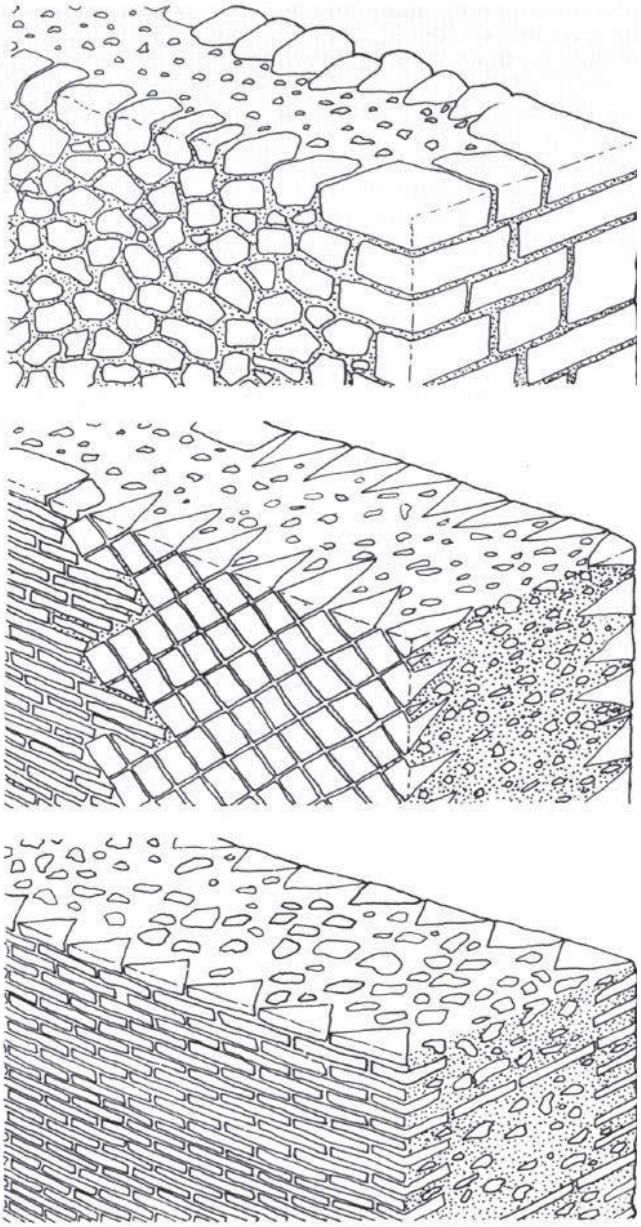


Fig 32 Concrete wall with facings of opus incertum *(top),* opus reticulatum *(centre), and brickwork (bottom) (Drawn by R Lea, after Leacroft 1969, fig 10)*

fist (Fig 33); it took time and skill to build, but Vitruvius commends it for its comparative strength (ii.8.1). It was succeeded by the second main technique, *reticulatum,* a network of specially cut pyramidal blocks laid in diagonal lines, point inwards so as to 'bite' into the concrete core (Fig 34). The material was generally volcanic tuff, chosen because of the ease with which it could be cut. Reticulate tesserae, which came to conform to a module of ¼ Roman foot, represent a standardization of *incertum* rubble designed to streamline the building process; but because

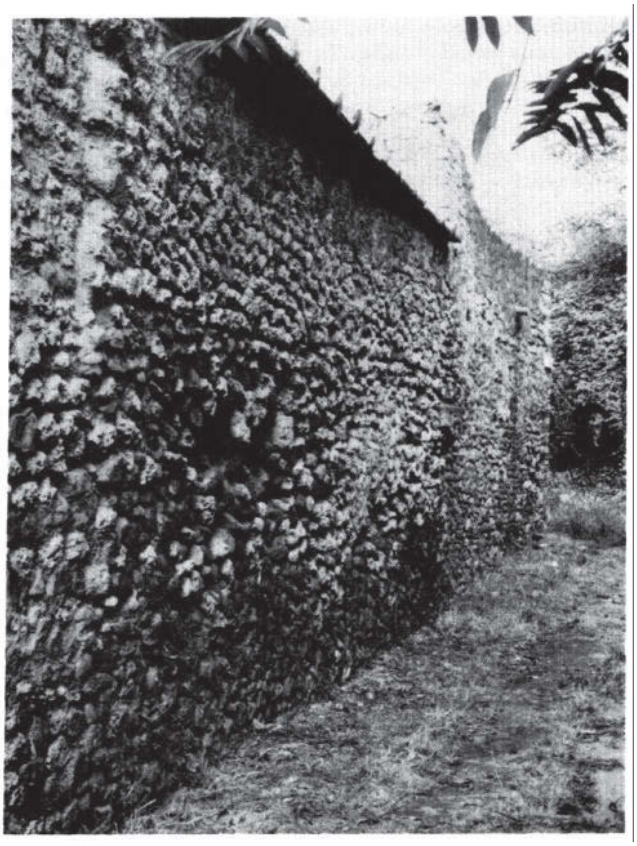


Fig 33 Rubble-faced wall at Pompeii, showing a building line at a height of about 2m (Photo: author)

their joints were not staggered, they had the disadvantage of presenting lines of weakness should subsidence occur, a snag which Vitruvius was not slow to point out *(ibid).* The third and final technique, called by modern authors 'opus *testaceum',* is brickwork or, to be more precise, baked brickwork (Fig 35). This was the strongest and, from the

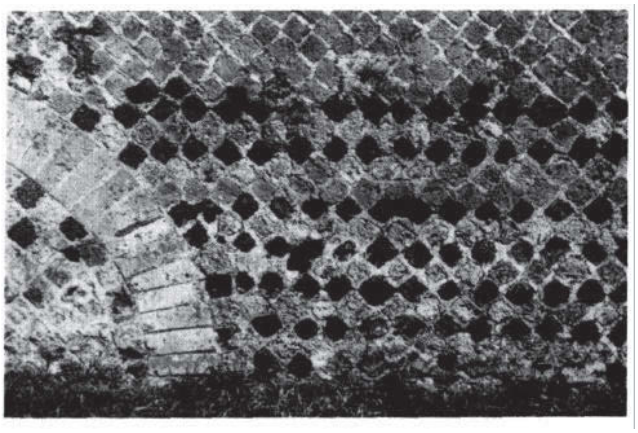


Fig 34 Opus reticulaturn *at Pompeii, showing colour patterns (Photo: author)*

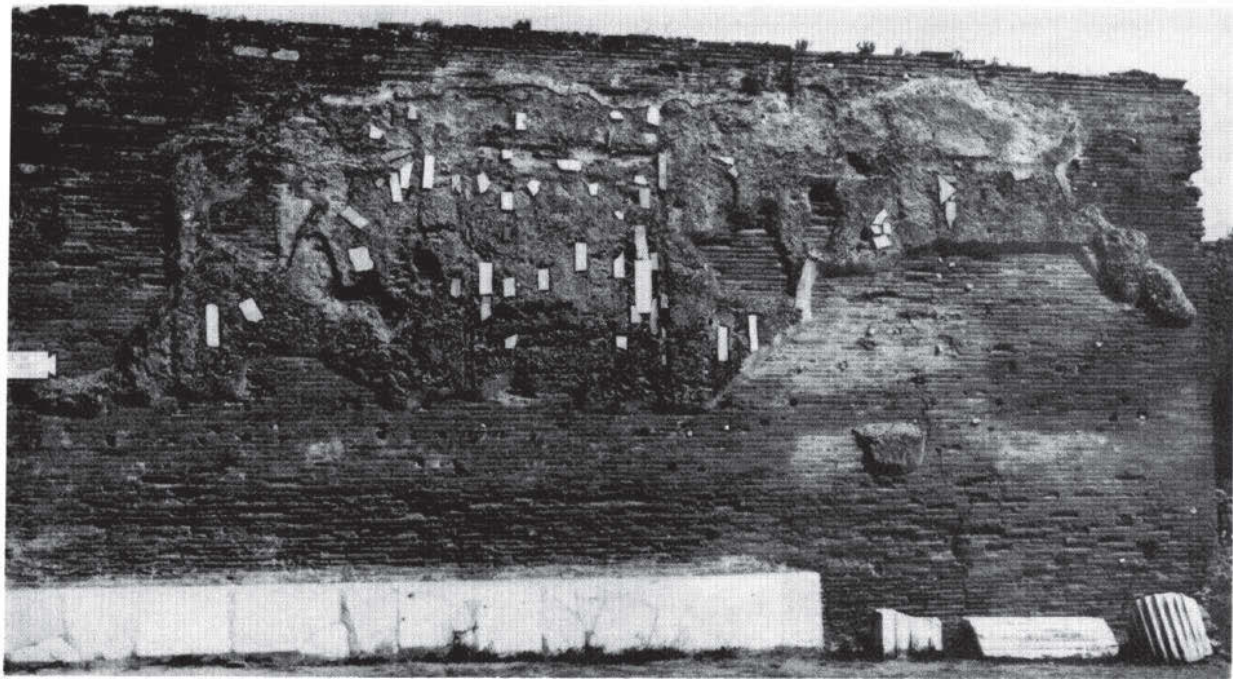


Fig 35 Brick-faced wall at Pompeii, covered with mortar in preparation for marble veneer (Photo: author)

time of Nero onwards, the predominant technique. The facing consisted of horizontal courses of flat, shallow bricks, generally (in Italy at least) triangular in shape and laid with one point inwards. Vertical joints alternated, as in ashlar construction. At first the 'bricks' were roof-tiles cut along the diagonal, but under Claudius they began to be cut from true bricks fired to standard sizes (multiples or fractions of the Roman foot). From then on, as builders realized the advantages of the new technique, which was simple to use, provided greater stability in the construction process, and had a high resistance to heat, brick production developed on a large scale, with many makers of the 2nd and early 3rd centuries stamping their wares.

It should be stressed again that the role of these facings was primarily to assist in the construction process. Nonetheless, they also provided an attractive surface to the finished wall (Vitruvius (ii.8.1) calls reticulate 'charming'), and their decorative potential was sometimes exploited by the use of different colours to emphasize specific areas or to form overall patterns. Even so they were not always left visible. Some of the most careful facings in reticulate and brickwork were originally concealed beneath a bland and monotonous coat of stucco.

The role of the so-called relieving arches visible in the facing of many walls is interesting. These are often merely superficial and have no effect on the concrete behind; their sole function lay in the statics of the reticulate or brickwork before and during the setting of the core. Once the concrete was hard they became redundant. There are of course exceptions, as in the Pantheon, where the well-known relieving arches are an integral part of the structure, helping to transfer thrusts away from niches and cavities in the interior of the walls and at the same time dividing the concrete mass into more manageable volumes in the event of settling.

The building of vaults and domes was the most complex operation in Roman concrete architecture, since it required the preliminary construction of timber centering. Where vaults were of limited span this could be lodged in the spring of the vault, just as the centering for the stone-built arches of the Pont du Gard rested on the cornices and on projecting blocks built into the piers. But

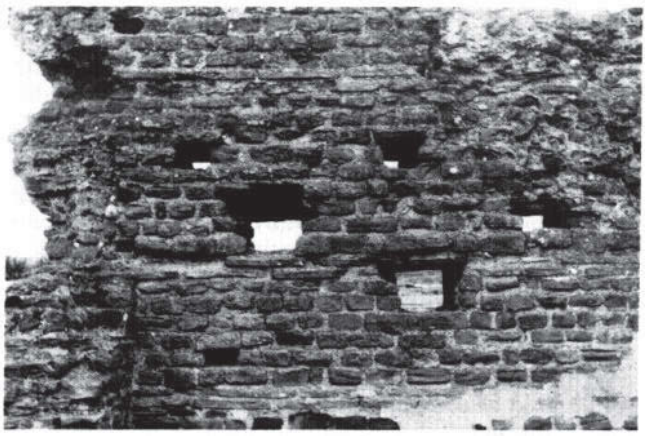


Fig 36 The 'Old Work' at Wroxeter, showing petit appareil *with tile bonding-courses and putlog holes passing right through the wall. Some of the holes perhaps served for the construction of centering for the vault, not simply for scaffolding (Photo: author)*

Fig 37 Detail of the city walls of Silchester, showing bonding-courses of flat stones and a vertical 'gang join' at the left (Photo: M Fulford)

with large vaults, and inevitably with domes, such as that of the Pantheon, the centering had to be built up from floor level and, as one can see from reconstruction drawings, would itself have been a structural *tour de force.*

Despite the great surviving triumphs of Roman vault construction, there were obviously many failures, and it is striking to observe a certain caution, if not actual diffidence, on the part of builders throughout Roman times. Down to the end of the 1st century BC the rubble *caementa* which formed the aggregate in the core of the vault were laid radially like the voussoirs of an arch, as if the builders distrusted the strength of their material. Only later did they begin to build up their vaults over the centering in horizontal layers, just as they did walls. When groined vaults appeared at the time of Nero's Golden House in Rome, the angles were first carried out in brick, and the intervening spaces then filled with concrete. The architect may have felt that he was reinforcing a point of weakness, but in fact brick ribs tend to create a line of potential cleavage. There are many examples of vaults or domes in which ribs and concrete have come apart, the one perhaps still standing, the other collapsed. Brick ribs were also used to divide up barrel vaults, presumably so that the work could be completed in manageable sections and the same centering moved from one to the next; once again the result was frequently a crack (or worse) between the brick and the concrete. More success was achieved by careful selection of the materials for the *caementa.* For example, in the Pantheon they were graded from the heaviest and strongest in the lower part of the dome to the lightest (pumice) in the area round the central *oculus.* At a later period, for example in the Circus of Maxentius outside Rome, vaults were lightened by the incorporation of empty amphorae,' and later still (chiefly in the Christian period) by the use of purpose-made terracotta tubes.

To return finally to Britain. Here concrete walls were comparatively weak, and on the whole they are more accurately described as mortared rubble. Although brickwork is not unknown, facings were generally in rubble or small squared blocks *('petit appareil')* with frequent bonding-courses of tiles or flat stones, often two or three courses thick. Good examples of the former can be seen in the 'Old Work' in the Roman baths at Wroxeter (Fig 36), and of the latter in the town walls at Silchester (Fig 37), where one can also discern the vertical joints between sections of walling carried out by different work gangs. As was the case with ashlar construction, the aggregate and facing-stone were regularly those which could be most easily obtained. Thus at Colchester the city walls were built with the locally-available septarian nodules, while in the chalk country, as at Verulamium, the normal facing material was flint. But while British builders were certainly affected by regional factors, it would be wrong to think of them apart from their continental counterparts. Britain was merely one part of a much larger cultural world and most of the building practices found here followed those developments in the mainstream of Roman architecture which have been the subject of this paper.

Notes

1 My purpose here has been to present a general survey of a vast subject, rather than to offer a research paper. References have thus been kept to a minimum, and for this the reader's indulgence is requested. Much of the material will be reexamined, with full documentation, in a book being prepared in collaboration with Sheila Gibson, whose help is gratefully acknowledged.

2 At the conference one member of the audience took issue with details of the architectural terminology used, in particular with the term 'concrete'. It is, of course, well known that what we have called 'concrete' is not concrete in the modern sense, but the term is retained for convenience and out of deference to established usage. Any further comments and suggestions will be very welcome.

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Who paid for public buildings in Roman cities?

R P Duncan-Jones

Our information about who paid for public buildings in Roman Britain is rather limited. Many inscriptions show the army carrying out building work. Where this occurred, it was the government who paid, not the local community. But these inscriptions mainly refer to military zones. There is little direct information about how buildings were financed in civilian towns and villages in Britain.

I shall turn, therefore, to evidence from the Mediterranean and look in particular at Rome's North African provinces. Many more answers to the question 'who paid for public building?' can be found here. There may not be any straightforward analogy between Africa and a northern province such as Britain: there were crucial differences not only in climate and geography, but also in the level of Italian settlement in the two areas. Nevertheless, a description of how things stood in one part of the Empire must demonstrate possibilities that would have existed in any of the provinces.

Before we look at different systems of financing, it is worth saying that some Roman public buildings were not paid for at all. Cicero *(In Verrem,* ii.5.48) speaks of the ancient Capitol at Rome as having been built for nothing, because it was built with forced labour. Livy (i.56.l-2) says that the Capitol was built with a mixture of forced labour and public funds. Whatever we think of statements about Rome's early past, forced labour on public works continues to figure in Rome's later history where there is better documentation. One of the more severe punishments inflicted by law under the Empire was *damnatio ad opus publicum,* being condemned to labour on public works (cf Berger 1953,610). When the younger Pliny was governing Bithynia under Trajan, he found many men in the largest cities who had been condemned *ad opus publicum,* but who had managed to escape. Instead of working on buildings, they had found employment in the city as public slaves, which was evidently preferable. The emperor ruled that these men must go back to their original punishment, unless they had been condemned more than ten years previously. Trajan laid down that they must work on servicing public baths, cleaning sewers, and building roads and streets. This is a valuable definition of what *ad opus publicum* meant, and it clearly does include working on major building works (Pliny, *Epistulae,* x.31-2; for corvée in the *Digest,* cf Brunt 1980, 82, n5).

The supply of criminals sentenced in this way was not necessarily sufficient. In the town-charter from Urso in Spain *(ILS* 6087,98) there is a provision for conscripting the citizens and other inhabitants of the town if the magistrates are carrying out building works. This may look to us very severe, since it apparently places the free citizen on a level with the serious criminal. But the amount of time that each citizen had to contribute was very short. The stint was five days per year, with exemption for anyone aged over 60 or under 14. The owners of teams of oxen had to contribute these also, the stint for ox-teams being three days per year.[2] In Egypt there was a similar standard requirement of five days' labour per year, to be spent in cleaning out the irrigation channels on which Egypt depended (Sijpestein 1964).

In the nature of things, compulsory labour or corvée is very rarely mentioned in building inscriptions. The magistrate who had access to quantities of labour from criminals or even from ordinary townsfolk was very unlikely to mention this in the inscription of the building he was putting up. But there are a few exceptions. The colony of Auzia in Mauretania built a covered market in the year 230; the inscription *(ILS* 5590) says it was provided from the *sportulae* of the decurions, but also by the *operae,* the labour contributions, of the people of the town. In another case we can still see building works that were carried out in this way. At Tiddis, one of the *castella* of Cirta in central Numidia, big rainwater cisterns were constructed to feed the town baths in the 250s. The work included pulling down the ruins of previous buildings and levelling the site. It was carried out *'per populum',* by the labour of the citizens themselves *(ILAlg* ii. 1.3596). We find a few other references to building labour provided by the citizens in Mauretanian inscriptions of the early or mid 3rd century *(ILS* 6887-9). Forced labour, when it is mentioned in the inscriptions, is always the labour of free citizens. Work by criminals, if recorded at all, would usually count as financing from public funds. When the emperor is recorded as a major road-builder, the labour, unless explicitly provided by the army, may well have been criminal labour.[3] An enormous project like Claudius's attempt to drain the Fucine lake, which occupied 30,000 men for eleven years, is likely to have depended on criminal labour, and when Nero tried to cut a canal through the isthmus of Corinth, he had criminals, apparently sent from all over the Empire, to work on it (Suetonius, *Claudius,* 20.2; ps-Lucian, Nero, 3; cf Dio, lxii. 16.2).

Though forced labour may have been crucial to some imperial building projects, public buildings in secondary towns were normally paid for in money. Using the citizens themselves as workers on a large scale, as at Tiddis, was a sign that money was lacking. This may be why the few epigraphic references to direct labour come from communities which were either very small or very remote. The typical building inscription, in contrast, tells us that the building was paid for with town funds or by a private individual. That does not necessarily mean that the labour was free. The contractors who undertook to put up a building for cash may have employed a mainly servile workforce. At the end of the Republic Crassus had a big labour-force of slaves engaged in building redevelopment in Rome (Plutarch, *Crassus,* 2.4; for free building labour in the city of Rome, see Brunt 1980).

In theory a Roman town should have been capable of

putting up buildings from its own funds, and a great many buildings actually were financed in this way. To see what this implies we need to look briefly at where town funds came from. One source was taxes on trade and money-changing. These could include local tolls, sales taxes, shop rents, and licences to trade.[4] It might seem to us, living in a world where the local rates are always going up, that Roman towns should have been able to make good any deficit by levying new taxes or increasing old ones. But the central government actively restrained provincial cities from bringing in new taxes and from beginning large-spending projects (Brunt 1981, 161). There seems to have been a simple underlying reason. If local communities were allowed to tax and spend as much as they liked, this could easily have affected their ability to pay taxes to the central government. Consequently local taxation was not flexible enough to be the answer to every financial problem that a city might have.

A second source of revenue was land or urban property belonging to the town. We happen to know that certain public lands and urban property were bringing in 12,847 sesterces a year at Pompeii in the middle of the 1st century (Frank 1940, 103; *CIL,* 4, 3340, cxxxviii-cxl, cxli-cxliv, cx1v-cxlvii, cxli). Some other indicators of the scale of town lands are much more impressive. Augustus gave Capua land in Crete worth 1.2 million sesterces (Velleius, ii. 81). In Trajan's time the town of Luca in northern Italy owned an estate worth 1.6 million sesterces, bequeathed by a private owner *(CIL,* 11, 1147, *obligatio 43).* At the Flavian veteran settlement of Arausio in Narbonensis about 20% of the very large cultivated territory seems to have belonged to the town (Duncan- Jones 1976, 8). Clearly town land was a sizeable source of income in these cases. But the extent of town property is bound to have varied greatly, and many towns may have owned no land of their own.

A third source of income was payments for office by the town magistrates. In some cases this is likely to have been the most important single source. The *summa honoraria,* or payment for office, is sometimes mentioned as though it could make all the difference to a town's ability to put up buildings. Cities in Bithynia were petitioning the emperor in Trajan's time for permission to elect more town councillors, apparently so as to increase their income. Pliny mentions that the *summae honorariae* of new councillors at one town, Claudiopolis, were immediately put to use in building new town baths (Duncan- Jones 1982,84). He writes as if this was not what the payments were intended for. Nevertheless, *summae honorariae* often were put towards monumental building (Duncan- Jones 1982, 86, n2). We find at least one other instance where they were used *en masse* to finance a major building work. The town of Lanuvium records that public baths were enlarged and renewed using the *summae honorariae* which Septimius Severus had just allowed the town to levy on holders of priesthoods *(ILS 5686).*

We have a good deal of information about *summae honorariae* in African cities and it is possible to make an attempt at estimating income from this source. At Thubursicu Numidarum in central Numidia we know the *summae honorariae* for three positions in the early 3rd century. The payment for the position of town councillor and for the duovirate was 4000 sesterces in each case. The office of *flamen,* the priesthood which was the supreme office in almost all African towns, cost 6000 sesterces. The aedileship probably cost 4000 sesterces like the first two offices. If we extrapolate from these figures, we can estimate the town's *summae honorariae* income at roughly 35,000 sesterces (Duncan-Jones 1982, 72).[5] This is quite impressive, though it is lower than the figure implied for some other African cities.

Building was not of course the only expense that towns had to face. There was also the cost of municipal employees. At Urso in Spain these cost about 17,000 sesterces per year, which is half the amount estimated for *summa honoraria* income at Thubursicu *(ILS 6087, 62).* But there were other sources of income, such as public lands and sales taxes, as we have seen. Perhaps at a guess something like half the *summa honoraria* income, or its equivalent, would have been available for building purposes.

We can compare this very rough estimate of about 17,000 sesterces per year with the cost of building in Africa, which is also well attested. We find that a medium-sized temple cost 60-70,000 sesterces in the 2nd century (Duncan-Jones 1982,90, nos 8,9,l0a,ll). A small paved forum with porticoes could cost 200,000 sesterces *(ibid,* 92, no 42). A theatre could easily cost three times as much, 600,000 sesterces, or more if it was at all large *(ibid,* 77-8).

If we translate these figures into the number of years' building income estimated for Thubursicu, a temple works out at about four years' income, a forum at about eleven, and a theatre at 33 years or more. Public baths, if at all extensive, would be another very large item, perhaps comparable with the cost of a theatre *(ibid,* 91, nos 29-30). It was quite common for African towns to have two or more sets of baths. Thus, if we assume that a medium-sized town would have four average temples or their equivalent, a set of baths, a theatre, a market, and at least one square with a portico, this quota would be enough to absorb over 90 years' building income. The further cost of paving the streets and building drains, walls, gates, and an aqueduct would probably add a third or a half to this figure. On this estimate it would take something of the order of 120-140 years' building income to cover the cost of providing essential buildings for a town. In practice, of course, towns varied greatly in their level of income and thus in the speed with which they could carry out a building programme from their own funds.

African inscriptions give the impression that the construction of public buildings was generally spread over a long span running into many decades, and even centuries. One of the best-attested towns is the hill-town of Thugga on a remote site in northern Tunisia (Broughton 1929, 213-16; Poinssot 1958; 1962; 1969). Here we can see in detail what buildings were put up at what dates in the first three centuries of the Empire. This little town has several peculiarities. For one thing it only received proper Roman status at the start of the 3rd century. For most of the period it was not a full Roman community. In fact it had two separate halves, one a *pagus* of Roman citizens, the other a native *civitas.* The *civitas* went back hundreds of years further, but the *pagus* was the dominant partner in terms of inscriptions and the events they record. By the late 2nd century the two communities each had their own town councils. But there were no proper magistrates in the Roman sense, save a *flamen* or priest of the imperial cult.

Under Septimius Severus, Thugga became a *municipium* and all this must have changed : the two communities were welded into one, magistracies were granted, and the usual *summae honorariae* were no doubt introduced.

Thugga's other main peculiarity was that it lay in the *pertica* of Carthage. The *pertica Carthaginiensis* was a zone of tax-free cities spreading across northern Tunisia whose land was deemed in some sense to belong to the territory of Carthage.'[6] As a result there were wealthy men and women who held office at Carthage, but who also had local associations at Thugga and were prepared to benefit this small town with their wealth.

The dated inscriptions from Thugga start extraordinarily early for an African city. [7] They show that there was a first wave of building activity under the Julio-Claudian emperors. Thugga already had a *templum Caesaris* by the late years of Tiberius. In 36/7 a private benefactor, Postumius Chius, who was patron of the *pagus,* gave three buildings. These were a forum and square in front of the temple of the emperor, a small shrine of Saturn, and an arch *(ILAf 558).* At about the same date a freedman patron, Licinius Tyrannus, restored a temple and its statues *(AE,* 1969-70, 651). He also built a temple of Ceres, consisting of a shrine with stone columns *(ibid,* 648). His wife, not to be outdone; gave the town a temple of Concordia *(ibid,* 650; it is not Hadrianic, as stated in *ibid,* 193). These monuments are all likely to have been small, to judge from the dimensions of the inscriptions.

A few years afterwards, probably in the reign of Caligula, another benefactor, Caesetius Perpetuus, built an arch *(ILAf* 520). This was dedicated in the reign of Claudius, but the emperor's name has been restored over that of Caligula. Probably also under Claudius a small shrine of Jupiter was built by another patron *(CIL, 8,* 26475). Then in the middle of Claudius's reign, in 48, a local office-holder from the native part of the town, Iulius Venustus son of Thinoba, put up a statue of Augustus *(ILS 6797).* Six years later, at about the end of Claudius's reign, a further private donor gave a market *(AE,* 1969-70,652). The benefactor, M Licinius Rufus, was an equestrian, prefect of an *ala* of cavalry in Syria, but also patron of the *pagus* of Thugga. Besides the market he gave another small temple *(ibid 649)* -

This brief list shows that we have evidence for about a dozen monuments put up at Thugga in the twenty years between the 30s and the death of Claudius. Though the monuments were modest, we can see an intense burst of competitive spending in this brief period. There is no sign in these inscriptions that the community itself had the financial capacity to put up monuments. This may suggest that as yet there were no sources of revenue of significant size.

Rather surprisingly the evidence for public buildings at Thugga now comes to a halt for half a century or more. Though there were one or two minor benefactors (Poinssot 1969, 230-1, nos 9-l0), the Flavian period does not yield clear evidence for building - We next have evidence in the reign of Hadrian. Two temples of Concord, which are clearly dated to the reign, cost over 50,000 sesterces and were given by a family named Gabinius *(CIL, 8,* 26467-70 = Duncan- Jones 1982, 90, no 12). The benefactors appear to have been the sons of a *conductor* or chief tenant of the imperial estates which surrounded Thugga. Another patron and his daughter, who held the office of *flamen,* gave a temple of Fortuna costing over 70,000 sesterces *(CIL,* 8, 26471 = Duncan-Jones 1982, no 8). Probably at about this date, or a little earlier, a third benefactor gave a temple of Pietas. This was a small temple in the shape of an apse given by bequest by Pompeius Rogatus *(CIL,* 8,26493 = Duncan-Jones 1982, no 15).

From this point on a new building boom had clearly begun, and we find several buildings being erected in every major reign for the next century. Under Antoninus Pius members of the Gabinius family gave the portico surrounding the Forum *(ILAf521).* A woman benefactor, Iulia Paula Laenatiana, also gave a temple of Minerva *(ILAf* 518, 522; *CIL,* 8, 26525). The monument is of substantial size. Under Marcus Aurelius, Thugga received some improvement in status. The emperor granted the *pagus* the right to receive legacies *(ILS 9399).* Some grant was probably made also to the native community, the *civitas,* which appears shortly afterwards with the epithet *Aurelia (CIL,* 8, 26534). These political benefits were celebrated by the building of a Capitol. True to form, the building was paid for by a private benefactor, Marcius Simplex, who had been created a *iudex* in the jury courts at Rome by Antoninus Pius *(CIL,* 8,26609; Duncan-Jones 1967,173, no 103). Simplex was one of three brothers who received this honour from the emperor. Another brother, Marcius Quadratus, gave Thugga its theatre at almost the same date *(ILS* 9364; Duncan-Jones 1967,173, no 102). A third donor, whose name is unfortunately missing, gave Thugga a substantial temple, also in the reign of Marcus. It cost 150,000 sesterces *(CIL, 8, 26527).*

Building activity remained intense during the reign of Commodus. The centre of the town was further adorned with a square and portico by the Forum *(ILAf* 516). A temple of Mercury was put up next to the Capitol *(CIL, 8,* 26482).

Both buildings came from private benefactors. Another shrine was given by L Octavius Victor Roscianus *(CIL* 8, 26500). Most important, the town built an aqueduct seven miles long, which was dedicated in the mid 180s by Antonius Zeno, proconsul of Africa (Poinssot 1966, 772-4). The main purpose of aqueducts was to feed public baths. This one was evidently linked to the large baths to the south of the town, which have not been excavated, but are presumably contemporary with the aqueduct. Under Severus a large temple of Saturn was built by Octavius Victor Roscianus, at a cost of over 100,000 sesterces *(CIL,* 8,26498). Severus at last made Thugga a *municipium (see* note 6), and this was celebrated by the building of a triumphal arch dedicated to the emperors *(CIL, 8,* 26539).

The short reign of Caracalla saw the building of another temple; the woman donor, Gabinia Hermiona, gave 100,000 sesterces to pay for it (Duncan-Jones 1982,90, no 6a). Under Severus Alexander a big circus or race-track was built by a number of different benefactors; public funds may also have been spent on it *(CIL,* 8,26552). A private donor, yet another member of the Gabinius dynasty, gave a large semicircular temple of Caelestis *(CIL,* 8, 26549-50). The town built another triumphal arch, honouring the emperor for his help in preserving Thugga's *libertas,* or tax privileges *(CIL,* 8, 26460). This reign also saw the erection of another privately-given building, donated by Vitellius Privatus *(CIL, 8, 26547;*

ILAf 528), and the restoration of the temple of Fortuna by the city *(CIL, 8, 26548).*

The main building development of Thugga was now complete, after two or more centuries. From this point on, following the serious upheavals in Africa in the late 230s, there was much less building in African cities. But there was a revival under Gallienus, and at least three more buildings were erected. One was a second set of baths, the Licinian baths *(ILTun* 1500). The dedication does not survive and we do not know how they were paid for. This impressive building was no doubt put up to celebrate Thugga's receiving colonial status from Gallienus *(ILS* 9018). We know that private generosity continued even in these comparatively dark years of the mid 3rd century. A woman donor, Botria Fortunata, paid for a temple of Tellus *(ILAf* 530). An equestrian benefactor gave a portico and a large cash sum to the city a few years later, in *264 (CIL, 8, 26559; ILTun* 1416). The inscriptions are then silent again for another two or three decades, after which we find building activity starting once more under Diocletian. A temple of the Genius Patriae was adorned with private money *(CIL,* 8, 26472), and the city itself built a portico of the temple of Mater Deum *(ILAf* 531).

This very condensed version of Thugga's building history shows a number of things. Firstly, Thugga started acquiring buildings very early, and was still receiving new ones even under Diocletian; the overall span approaches three centuries. Secondly, the source of financing was overwhelmingly the pockets of private benefactors, not the coffers of the community. We can associate this with the fact that Thugga lacked proper municipal institutions for most of the period. Payments by magistrates for office-holding were not being made on the large scale that must have happened in African cities with fully Roman institutions. But even after the grant of municipal status at the start of the 3rd century, Thugga went on acquiring buildings which were paid for by private generosity. Perhaps by this date private generosity had become so deeply engrained in the ruling class that there was little question of leaving the building programme in the hands of the city. Perhaps also the resources of the community as such always remained too small to give it buildings of much note. The wealthy classes who lived in the splendid villas in the town's best residential district may have wanted to see something better than the buildings which the town itself could have afforded from municipal funds. Whatever the reasons, the building history of Thugga demonstrates to a remarkable degree the power of a small community to attract wealthy benefactors.

But Thugga's history is not the history of every African town, still less the history of every town in other parts of the Empire. If we turn to look at the ratio of private to public financing in some other African towns, a rather different picture emerges. A cross-section of buildings at Thamugadi in Numidia, now eastern Algeria, in the period up to the Severi shows a clear majority as being paid for by the city from its own funds, not by private benefactors.[8]

There are conspicuous differences between Thamugadi and Thugga. One is that Thamugadi was considerably larger. To take a crude index, whereas Thugga had two sets of public baths, Thamugadi had four (Duncan-Jones 1974, 81, n 19). Another difference was that Thamugadi was a full Roman community from the start. Founded by Trajan in 100, it was a Roman colony of veterans from *Legio III Augusta.* As a civil community it was a Roman town with a *flamen, duoviri,* aediles, and quaestors *(ILS* 6841).[9] There was a system of *summae honorariae* for offices. We know that *the flamen* paid 10,000 sesterces, quite a large sum, for his office, while a *duovir* paid 2000 (Duncan-Jones 1982, 110, no 366a; 109, no 356). Income from this source must have given a firm basis to the town's finances. Since Thamugadi was founded as a new colony, there was almost certainly also an endowment of town land which would have been a further source of revenue.[10]

Thamugadi was able to put up monuments considerably grander than most of those at Thugga, usually without resorting to private benefactors. The Capitol for example was much larger than the one at Thugga, having 22 columns compared with only 6 at Thugga (Boeswillwald *et al* 1905, 178, 161). Of the dated buildings at Thamugadi listed by Romanelli in the period up to Caracalla, almost all were paid for by the town (see note 8). There were nevertheless rich benefactors here also. A market was given in the late Severan period by the *eques* M Plotius Faustus (Boeswillwald *et al* 1905, 183), and a library was given in the mid 3rd century by a senator, at a cost of 400,000 sesterces *(ibid,* 297; *ILS* 9362 = Duncan-Jones 1982, 91, no 38 and note; 1967, 170, no 62).

These gifts show that Thamugadi did not lack a ruling class rich enough to make major benefactions. Nevertheless, the dominant pattern is that the town was mainly able to put up a very large complement of public buildings from its own official sources of income. This pattern probably obtained also in other veteran colonies, and it probably existed in other African towns of pre-Roman origin where Roman institutions had been introduced by the grant of municipal or colonial status. But many African towns did not have proper Roman status and were either *civitates* or *pagi* without full municipal rights. It might be tempting to think that these would have belonged to the same category as Thugga. But the fact that a community lacked a Roman constitution did not automatically mean that it would have had citizens wealthy and generous enough to pay for a large building programme themselves. There is some reason to think that Thugga, perhaps because of its Carthage connection and its tax-free status, was exceptionally lucky in its number of benefactors.

Probably there was no such thing as a normal African city, but rather a small spectrum of different types. Each would have had its characteristic financial structure and the pattern of building development that this structure dictated. But if we look for an artificial average, that average seems to lie between the extremes represented by Thugga and Thamugadi. An analysis of the sample of more than 100 buildings dated between Trajan and Caracalla in Romanelli's lists (excluding material from Thugga and Thamugadi) shows publicly-financed building as 42% of the whole and private as 58% (Table 1). This is closer to the Thugga pattern than to that of Thamugadi. But the sample of 115 buildings is not large, and in broad terms it suggests that public and private financing were roughly equal in importance.

But there is a definite chronological shift. Evidence from the start of the 2nd century shows only a fifth of the building as being paid for by the city. A century later the proportion has risen to a half (Table 1). This very marked

Table 1 Financing of dated town buildings in Africa

	Public	%	*Private*	%	*Total*
AD 98-138	4	24	13	76	17
138-161	5	29	12	71	17
161-192	16	43	21	57	37
193-217	23	52	21	48	44
Total	48	42	67	58	115

increase seems to reflect the spread of Roman civic institutions, bringing as it did more widespread payment of the *summa honoraria.* [11]

In conclusion, we should not make too much of the distinction between public and private financing. When a municipal building was paid for with public money a large part probably still came from the pockets of the propertied class via the *summa honoraria.* This system at least made the distribution of burdens more even, though in Africa the rich were in any case often willing to benefit their cities spontaneously. This willingness was not necessarily so strong in northern provinces, where the opportunities for public advancement which might go with munificence were usually less. [12] But pressures to spend on municipal purposes were still there. Tacitus *(Annals,* xiv.31) speaks of Britons who had to pour out their whole fortunes while serving as priests of the colony of Camulodunum. [13] Even if exaggerated, his remark vividly reflects the way that institutions could work in a Roman town and suggests that in essence the system functioned in Britain much as it did in the Mediterranean heartland of the Empire.

Notes

1 The discussion has been confined for reasons of space to the simple dichotomy between publicly and privately financed buildings. For the variants represented by subscription-financing, and part-financing by private gift, cf Duncan- Jones 1982, 90, no 16 and note, p 114; 1974, 84, n 52.

2 For the amphitheatre at Tibur, a donor gave, besides money, 200 *operae* or man-days of building labour *(ILS* 5630).

3 But imperial road-building could also result from cash expenditure *(ILS* 5875; cf Duncan-Jones 1982, 157, no 454).

4 See eg Broughton in Frank 1938, 566 (tolls); 800 (market taxes). For the sale of the right to trade, cf the money-changing monopoly at Mylasa *(ibid,* 896) and the annual sale of the right to sell oil at Heracleia *(Pap Amherst,* 91-2, no lvi).

5 This envisages that the town council, presumably of 100 men (Duncan- Jones 1982, 283-4), was replaced on average every 30 years, assuming entry at age 25, and assuming the least favourable demographic regime included in the Princeton Tables (South). The calculation of annual revenue is:

flamen (x 1)	6,000
duovir (x 2)	8,000
aedile (x 2)	(8,000)
town councillor (x 100/30)	13,333
Total	35,333 sesterces

6 The important inscription found at Thugga in 1961 honouring a defender of *the immunitas perticae Carthaginiensium (AE,* 1963, 94) implies that immunity from direct government taxes was inherent in the territory on which Thugga lay (cf Broughton 1969). This immunity is evidently reflected likewise in the dedication to Severus Alexander as *conservator libertatis* in 232, in the dedication honouring the procurator A Vitellius Honoratus for his embassy *pro libertate publica* in the time of Gallienus, and in the fact that Thugga, unlike most African cities whose titles are known, was a *municipium liberum (ILS* 6796, 9018; *CIL,* **8,** 26539). Other *municipia libera* of Severus were Aulodes, probably Thibursicum Bure, and Thysdrus *(ILS* 6792, 1430, 2911; for titles of African cities, see Galsterer-Kröll 1972). The suggestion that Thugga's *libertas* was notional appears untenable (Gascou 1972, 180). Even if there were no inscription mentioning *immunitas,* a *'libertas'* which was merely notional could hardly inspire a procurator to carry out an embassy in its defence.

Carthage, Utica, and Lepcis received *ius Italicum* from Severus, probably at the time of the emperor's visit to Africa in 202/3 (cf Birley 1971, 216; the Lepcitanes had become 'Septimiani' by 202, *IRT,* p 81; cf *IRT* 292,606). The first explicit mention of Thugga as a *municipium* dates from 205 *(CIL,* **8,** 26539), but this is only a *terminus ante quem.* The grant to Thugga may even have been contemporary with the grant to Carthage. *Ius Italicurn* brought with it exemption from direct taxes, in other words *immunitas,* which the *pertica Carthaginiensium,* and by extension Carthage itself, already had. But *ius Italicum* also meant that a city's land 'came into the full Quiritarian ownership of its possessors; the most important practical result was probably that it paid no taxes whoever possessed it, whereas in an immune city only the [local] citizens held their land tax-free' (Jones 1940, 133).

7 For early building development at another African secondary town, compare Zitha in Tripolitania, whose forum was begun under Claudius *(CIL,* **8,** 11002; cf *BAC,* 1886 (1887), 54-65).

8 Using dated material from Romanelli 1959, and omitting statues, the ratio at Thamugadi in the period Trajan to Caracalla is: public 17, private 2.

Public: *Hadrian: CIL,* **8,** 17844, 17845
Pius: CIL, 8, 17852-3: *AE,* 1940, 19; *ClL,* **8,** 17854, 17857-8, 17849; *BAC,* 1921, cli; *AE,* 1899, 3
Marcus: *BAC,* 1915, 238; Boeswillwald *et al* 1905, 290; *CIL,* **8,** 17869
Commodus: AE, 1934, 40
Severus-Caracalla: CIL, **8,** 17940, 17872, 2369-70; *AE,* 1948, 111

Private: *Marcus: AE,* 1968, 647
Commodus: CIL, **8,** 2699

9 The fullest account of local offices is the celebrated Album of the 4th century *(ILS* 6122; Chastagnol 1978).

10 Cuicul, a veteran colony in Numidia founded at almost the same date as Thamugadi, employed a slave bailiff, *Onesimus vilicus Cuicul-(itanorum),* to run the town's estates *(BAC,* 1917, 346 no 76).

11 The dated building inscriptions from Romanelli 1959 have been classified in terms of financing; Romanelli's sample has not been added to significantly. Statues, building by the army, and buildings whose financing is uncertain, are all omitted. The dated evidence from Thugga and Thamugadi has already been considered separately (see text above & note 8).

Trajan :
Public: *CIL,* **8,** 621 = 11798; *ILAlg,* **1,** 1230-2
Private: *IRT* 352; *ILAlg,* **1,** 1026; *AE,* 1938, 43; *ILAf 384*

Hadrian:
Public: *CIL,* **8,** 21514; *ILAlg,* **1,** 1028
Private: *IRT* 357-9; *CIL,* **8,** 98, 6047, 23955, 23861, 20076, 15381, 16441; *ILAlg,* **1,** 2082

Pius:
Public: *CIL,* **8,** 18509, 228, 11193; *IRT* 372; *AE,* 1930, 40
Private: *CIL,* **8,** 14851, 25852, 26178, 14301, 16368, 17679, 26245; *AE,* 1925, 23-4; *AE,* 1949, 40; *IRT* 370-1, 374-5; *ILTun* 102; *ILAf 238*

Marcus:
Public: *CIL,* **8,** 18510, 4209, 801, 587, 23696, 22691, 23022, 11799, 17958; *ILTun* 699 = *ILAf* 244, 495, 126; *AE,* 1914, 39
Private: *CIL,* **8,** 26121-2, 15576, 22710, 12361, 955, 14378; *IRT* 232; *AE,* 1909, 126; *ILAlg,* **1,** 863; *ILAf* 125

Commodus:
Public: *CIL,* **8,** 12014, 27769; *AE,* 193.5, 45
Private: *CIL,* **8,** 23862, 16417, 14811-2, 23983, 1402, 26125, 14362; *IRT* 230, 29, 396; *ILAlg,* **1,** 3032

Severus-Caracalla
Public: *CIL,* **8,** 8321, 306, 14395, 1798, 12274, 8375, 20135, 307, 4364-5, 21628, 12366, 2194, 11194, 12331; *IRT* 398; *ILAlg,* **1,** 3037; *ILAf* 608, 267,195,268; *AE,* 1911, 106; *ILTun* 1206, 585
Private: *CIL,* **8,** 12094, 14690, 14465, 23107, 25515, 25484, 25500, 12031, 12364, 12141,

12142, 12349, 10569, 9030, 12006-7, 709, 2670, 26259; *ILAlg,* 1, 1255, 1256; *AE,* 1904, 75

Useful statistics for the 4th century are provided by Lepelley 1979, 67, 74-5. The proportion of public building work in Africa paid for by the city had risen to about 80% for the period from Diocletian to Valentinian III. The work was mostly restoration of existing buildings; new buildings made up only a sixth of the total (52 out of 332 examples). Of the 198 buildings whose type is known, 21% were baths, 19% temples or altars, 14% porticoes, 11% aqueducts or water installations, 9% theatres etc, and 8% arches *(ibid,* 295-6).

12 Few men from Britain attained any prominence in Roman public life. In Africa, where the opposite was true from the 2nd century onwards, there are possible connections between the conferment of equestrian rank, and local office and gifts to cities (cf Duncan-Jones 1967, 154, 156-7).

13 For the exorbitant cost of provincial priesthoods, see *ILS* 5163, 16-18. For pressures on private individuals to spend their money on city purposes, see Duncan-Jones 1974, 85 n 55, 83 n 37.

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Civic Pride: a factor in Roman town planning

S S Frere

A variety of motives may lie behind the erection of public monuments, ranging from piety to self-advertisement, from political propaganda to love of animals. These motives are often penetrated or revealed in literate periods by evidence such as wills or the inscriptions carved on the monuments themselves to make explicit the name of the donor and his reasons for expenditure; but in the absence of such evidence, as at prehistoric monuments or in Roman Britain, there is room for considerable divergence of interpretation. We must also always remember that Civic Pride can be both corporate and individual.

In studying the ancient world it is provident to keep in mind the relatively small populations forming the communities of that time, in which personal knowledge of the majority of other citizens was-far more widespread than it is today, and personal reputation was correspondingly more intimate and more vivid. We have to make the imaginative leap back to the ethos of a pre-industrial society, where the responsibilities of a landlord for his tenant or of the rich for expenditure on public purposes were far more powerful social obligations than they are today, and where the absence of journalists placed far greater emphasis on deeds than on words in the attraction of political support. In the modern world these attitudes have been eroded by high taxation and by other forms of legislation based on the theory that the state can provide more uniformly and more efficiently — a theory whose validity in its turn is now beginning to be in doubt.

In the ancient world, of course, public expenditure by the rich was not always the product of voluntary benevolence, because for many centuries there had existed the system of 'liturgies' as they were known in the Greek east, or *munera* in the Latin west, a system not unlike in its effects the surtax of more recent times; by it certain duties, often involving expenditure, were regularly and compulsorily shouldered by the rich. On the whole these duties were principally connected with transport and food supply, with public entertainment, or with membership of delegations, and are not therefore of prime concern to us here; nor are the compulsory contributions payable by successful candidates for office.

Two questions are more relevant: (1) what expenditure in addition to compulsory burdens was voluntarily undertaken by the rich; and (2) whether 'civic pride' can be included among the motives for the spending. We have to remember that although altruism certainly existed, as it still exists today, there were clearly other motives too, connected with self-advertisement and the search for popularity for political ends; altruism and private interest cannot always be easily distinguished. One can identify both streams of motive, for instance, in the so-called Marble of Thorigny, an inscription from Vieux in Normandy, the capital of the Viducasses *(CIL,* **13,** 3162; Pflaum 1949). Here T Sennius Sollemnis in outlining his early 3rd-century career tells us that he was the son of Sollemninus, had been four times elected *IIvir,* and had served all public offices including augur in his *civitas* as well as having undertaken seven *munera* (or compulsory public expenditures) there. He had been *flamen perpetuus in* his home *civitas* as well as priest of the Imperial Cult at Lyon, where he had given a very expensive gladiatorial show (another compulsory duty). He goes on to say that he had completed the bath building begun by his father and had bequeathed capital for its future maintenance. The gift of the bath building was not a compulsory *munus* but an act of benevolence in keeping with his social position. But in making the gift he was no doubt also strengthening the political standing which eventually brought him to the highest position in Roman Gaul, the imperial priesthood and presidency of the Council of the three provinces.

Public benefactions by an individual might take one of two forms. Many gave money for public festivals and games, or for public banquets and distributions of cash, no doubt preferring or needing the immediate popularity which this ephemeral expenditure secured them. A good example is attested in a letter to the city of Ephesus from a proconsul of Asia, written in 104:

> Aquilius Proculus, *vir clarissimus,* to the magistrates, council and people of Ephesus, greeting. Knowing Vibius Saturninus to be an excellent citizen in all other respects, and knowing also that on many occasions previously he has provided many quite exceptional demonstrations of his munificence, I held him, as was right, among the most intimate of our friends; and now, since he has undertaken to adorn the city magnificently with the greatest and most notable benefactions . . . and has devoted 20,000 denarii for distributions and lotteries for the citizens, I consider that you too, in consideration of the benefits which he has already bestowed upon you and those which he now promises, acted properly in repaying his munificence and good will by granting him the honours which you have decreed . . . (Abbott & Johnson 1926, no 71).

But a sounder and more sceptical view is expressed in a letter from Antoninus Pius to the same city, written in 145:

> The emperor . . . Antoninus Pius . . . to the magistrates, council and people of Ephesus, greeting. The munificence which Vedius Antoninus generously bestows upon you I have discovered, not so much from your letter as from his. For wishing to secure assistance from me towards the embellishment of the public works which he has promised you, he made plain how numerous and how splendid are the buildings which he is adding to the city; yet you do not appreciate him as you should. For my part, I

> granted him all his requests and recognized that he prefers to follow not the usual course of action of those who take part in public life, who for the sake of immediate popularity lavish their munificence on spectacles and distributions and prizes for the games, but one by which he hopes to make the city more handsome in the future . . . (SIG, 850)

The emperor prefers the long-term investment in public buildings to the short-term benefits won from financing public shows.

A well-known example of private munificence of the better kind is the public library at Ephesus which was begun early in the 2nd century in memory of his father Ti Julius Celsus (who had been proconsul of Asia) by Ti Julius Aquila, consul in 110, and which was completed by his heirs. Here a very prominent local family is paying its debt to its native city with no apparent motive save pure benevolence, for they were already too prominent to be in need of local popularity.

Other instructive examples of civic munificence which clearly indicate civic pride are found among the monuments and inscriptions of North Africa. I take two instances from Djemila, the ancient Cuicul. Two inscriptions of 169 record that C Julius Rescentianus had promised a statue *(ex liberalitate sua)* costing HS 3000 (a sum equalling two and a half years' pay for a legionary soldier), but had actually had it made at greater cost *(ampliata petunia)* and had dedicated it in the city's basilica, the Basilica Julia, which he had himself built at his own expense *(CIL,* 8, 8318). Nearby stands the 'Market of Cosinius', outside which a pair of statue bases immortalize two brothers, the Cosinii, both of them prominent civic figures; one inscription tells us that when the people of Cuicul demanded a statue of one of the brothers the city council agreed to erect it; but C Cosinius Maximus himself undertook the cost of his statue and dedicated it *(AE,* 1916, 33). The other base is dedicated to his more prominent brother, Lucius; it records that when the people and council had decided to set up a statue of Lucius because of his generosity, his brother Caius undertook the cost *(AE,* 1916, 34). The market itself, an enclosed precinct, was erected by Lucius at a cost of HS 30,000 *(AE,* 1916, 35, 36). When we consider that a year's pay for a legionary in the 2nd century was HS 1200 and that there were compulsory payments of around HS 2000 for election to civic office, these additional acts of munificence are put in proper perspective. This is also the moment to recall that the Digest (SO. 12.1) lays down that promises by individuals to construct a public work become binding and enforceable if the promise is made in return for an *honor,* or once construction has begun.

It happens that we are particularly well informed about civic munificence beyond the line of duty in North Africa because of the preservation there of numerous inscriptions, and because local custom dictated that details of cost should be recorded. But although in the western provinces it was not the custom to record such detail, we have several examples which show that the same obligations were felt. At Feurs, the capital of the Segusiavi in central Gaul, for instance, we have a splendidly informative inscription recording a gift there in Claudian times from the recently enfranchized Roman citizen Ti Claudius Capito who rebuilt in stone the city's theatre which Lupus son of Anthus had originally built in wood *(CIL,* **13,** 1642 = *ILS* 5039). What an interesting excavation there would be, if only this theatre could be located. And at Bordeaux we have the record of a bequest by a local magistrate of HS 2,000,000 — almost a year's salary for four cohorts of legionaries — for the construction of an aqueduct *(CIL,* **13,** 596-600).

So far I have been considering what might be classified as the Pride of citizens in their cities and the voluntary expenditures which they were prepared to undertake in its expression. These could take extremely diverse forms. We may recall Lucilius Gamala at Ostia *(CIL,* **14,** 375 = *ILS* 6147) who, in addition to restoring four temples, paid for the metalling of a street and presented a marble tribunal to the forum. Elsewhere men gave sundials or water-clocks to their cities (eg *CIL,* **12,** 2322 = *ILS* 5624), in one case together with a slave to look after it. A pair of North African aediles presented lead pipes and a bronze stop-cock for a fountain *(ILS* 5776), and at Brough-on-Humber we recall the well-known gift of a stage-building *(RIB 707).*

But there is another aspect of Civic Pride, namely the pride of cities in themselves. There are several passages in the Digest which are of interest here. One (50.10.3) lays it down that no name might be inscribed on a public building except that of the emperor or of the person at whose cost it was erected; another (50.10.7) ensures that if private persons contributed to buildings constructed at public cost, their names might be inscribed only to record the sum which they contributed. And finally (50.10.3) it is laid down that although new public works might be constructed at private cost without the sanction of the emperor, no new work might be built at public expense without the emperor's consent.

As a rule the erection of public buildings, such as the forum and the main temples, was the responsibility of the city itself, and these buildings often exhibit evidence of communal civic pride by their size, Roman characteristics, or decoration. At Wroxeter this is illustrated by the fine inscription over the entrance to the forum. Monumental arches, although sometimes erected by private generosity, could also express this communal pride in achievement. The arch at Cillium in North Africa *(CIL,* 8, 210 = *ILS* 5570) was originally built by Q Manlius Receptus: 'after other benefactions, with his usual liberality he built this arch carrying the insignia of the colony'; and 100 years later another inscription was added to record that 'the *ornamenta libertatis* (or titles of self-government) were restored together with the ancient insignia of the city'. The arch left the approaching traveller in no doubt of the status of the city he was entering.

What help is all this to us in Roman Britain, where this aspect of our epigraphic record is so deficient? We can think of the forum at Verulamium, dedicated to the emperor Titus, a vast structure covering almost 5 acres (2.02 ha) and carrying an inscription which seems to suggest that it was the city which built it — although in this case we can be fairly confident, from what Tacitus tells us of Agricola's contemporary policy *(Agricola* 21), that a government subsidy lightened the burden. At the time of erection it was certainly the largest building in Roman Britain. The position of the 3rd-century monumental arches at the same city, which marked the

spots where the ancient boundary used to run, strongly suggests that their purpose was the same as that of the arch at Cillium, to advertise the status and privileges of the foundation there, as also does the arch at Colchester (Frere 1983, 77; Crummy 1977, 924). The early boundary at Verulamium was itself a symbol of rank. In 16 BC Augustus himself had paid for the great gateway of the colony of Nîmes if not for the entire circuit of the city wall, and thereafter until the crises of the late 2nd and of the 3rd centuries' urban defences were a mark of rank except in frontier regions, where special dispensation was no doubt given. By the middle of the 2nd century Verulamium had burst its seams and a new circuit was then laid out enclosing twice the former area. This too was built in earthwork and so affords an indication of limited resources, while still representing a manifestation of pride in the privileges of municipal rank. However, this time masonry was employed for the gates, and very magnificent they were. (What a pity that no inscription survives to tell us who was responsible and how much he paid.) The same situation may exist at Cirencester, for it is very probable that a city so large would have achieved municipal rank by the middle of the 2nd century. Certainly here too we find an earth rampart combined with masonry gates. At present all we know of the date is that the rampart may have been erected 'in the first half of the 2nd century' (Wacher 1961, 64); in other words, the original Cirencester defences may well be contemporary with the Fosse earthwork at Verulamium.

I do not believe that the great programme of urban defences in the late 2nd century can be regarded as a manifestation of civic pride, however; for one thing it affected villages as well as cities. I believe instead that it was caused by a military or political crisis.

If in Roman Britain we are to seek to identify the results of Civic Pride, we must first remember my two categories, corporate pride and individual pride. The results of the first will be seen in the main temples, the fora, and early defences. Individual pride will have manifested itself, here as elsewhere, in aqueducts, subsidiary temples, or statues — categories of which we have little surviving evidence — and in useful structures such as the pedestrian markets at Verulamium and Cirencester, the smaller bath buildings at London or Canterbury, the public fountains at Lincoln, and perhaps the urban theatres at Verulamium, Canterbury, or Cirencester. The absence of direct inscriptional evidence should not lead us to underestimate the contribution of the private sector to the process of what Antoninus Pius called 'making the city more handsome in the future'.

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Roman towns and their plans

Richard Reece

When the Romans established a new town of any status down to *civitas* capital, they planned it. Exception is often taken when the modern concept of town planning, with all its rules and regulations, hopes, and follies, is pushed back on to the Roman administration. While it is quite right to relieve the Roman administrator of any responsibility for building regulations (with one or two known exceptions) or planning permission, there can be no doubt about the intention to order new towns on a gridiron pattern, for this is one of the most obvious characteristics of the Graeco-Roman town. It is also obvious in Europe in the Middle Ages, with the Bastides in France, and the Edwardian towns in Britain; and a prime example of a later date still in working order is the Maltese capital of Valletta built from scratch on a rocky peninsula after the great siege of 1565.[1]

Where we know the relationship between the Roman planned town in Britain and any earlier settlement, present evidence suggests that there was either a movement from one site to another, or from one part of a site to another. Seldom was the Roman plan imposed directly on a pre-Roman settlement, though at Chichester and Canterbury, and presumably at Silchester, it seems later to have spread out over earlier settlement. The introduction of the gridiron plan seems to go with the introduction of the concept of a 'town', which seems to have no foundation in the late Iron Age. In many of the concepts involved in towns there was direct inspiration from The City herself; the council was modelled on the senate, officials were similar to those in Rome, and citizenship itself was either an extension of citizenship at Rome or a system based on it. The gridiron plan was not part of this blueprint, for Rome had grown up organically, and sometimes chaotically, from the defended hilltop villages which were perfect for separate units, but provided a challenge for the planner determined to reduce all to a rectangular grid. The sheer size of the buildings in the city — the imperial fora, baths, and palaces — militated against regular blocks of predetermined size, for *insulae* which could accommodate, say, the Baths of Trajan, would have been on a module far too great for normal city planning.

The grid plan was, therefore, an admission that in certain respects there could be things better than Rome itself — unless every new town was thought of, as in citizenship, as an extension of the one City and the gridiron plan had now been accepted as suitable for new development even in the periphery of Rome. But I know of no evidence to support this suggestion. At present it seems best to conclude that the grid plan was tried and tested in the establishment of Italian *coloniae,* and in the enlargement of Italian towns to become *coloniae* or chartered cities. Even so, apparently it was only thought essential in the upper part of the hierarchy of settlement. So far as excavation in France, Britain, Germany, Holland, and Belgium has gone, there is no suggestion that settlements smaller in size or status than *civitas* capitals were thought to need a grid plan. They seem to have grown organically, often from ribbon development along a road. This contrast, which is already obvious between the pre-Roman settlement at Pompeii and the more rectangular Roman extension, continues at all later periods even up to the present. There are natural towns with irregular plans, and there are new towns which are planned; and new towns are planned because authority always believes, in the face of all the evidence, that a regular plan will be better for the inhabitants than organic growth.

It may be objected that planning is inevitable in the setting-up of a new town. I think a distinction ought to be made between the *idea* of rectangular or regular planning and the fact. If no nucleus and property boundaries exist then the ground must be marked out according to some plan, and a rectangular one is the simplest; so much seems unarguable. Having agreed to set out a limit, entrances through the limit, and roads into the centre, and having laid aside a central block for the civic authorities, what I would question is the desirability of apparently setting out the whole of the street grid — of predetermined extent — when development must be far in the future and its prime movers still uncertain. One of the strange things about towns in Britain is that once they had been set out and organized, contraction seems to have been more common than expansion. This suggests that in some of the *civitas* capitals town life never through four centuries pressed against its early limits. Whoever controlled the small towns of Roman Britain — and we are taught that the model of government was the same all the way down to the *vicus,* changing only in size and authority — saw no reason to copy the 'proper towns' set up as the centres of tribal areas. Even army commanders at Housesteads and Vindolanda either declined to attempt or failed in planning the attendant *vici.*

If we want to understand the implications of town plans, then I think we have to begin by looking at some possible comparative material. The most obvious comparisons are with the towns which succeeded Roman towns in Europe. The survival of Roman town plans is unknown in Britain, very rare in Gaul, Germany, or Spain, and possible, though seldom well documented, in Italy. Auxerre, in Burgundy, shows an extreme example of a medieval street plan in which it must be an accident if any surviving street follows a Roman course for any length. Bourges, even today, suggests a more regular plan, but on inspection this depends mainly on the Rue Moyenne and this possible relic might, as at Winchester, be controlled by the survival of walls and gates into the early medieval period. At Leon in north-west Spain there is an interesting compromise in which the shape of the fortress town survives clearly, but the internal streets are

— compared with a Roman fort — chaotic. We have to move to north Italy, to Verona, Pavia, or Piacenza, to see a regular grid plan in the oldest parts of the cities. I must emphasize here that such judgements are made from careful comparisons of modern town plans rather than from good archaeological surveys, since the latter are generally lacking. Two-dimensional street plans have the failing that they usually omit contours, but in the cases quoted these seem unlikely to invalidate the points made.

The-medieval town, apart from these small pockets of possible continuity, shows a complete contrast to the Roman grid pattern. It might be hoped that as the Roman town was centred on its civil administrative buildings so the medieval town might be centred on its cathedral; but this is a forlorn hope. The dedicated plan searcher might cite Le Puy in central France, but the topographer will remind him that the cathedral stands on a hillside so that any concentric lines of building owe more to contours than ideas of symmetry. The only clear example of literal church-centred planning that I have been able to find in a quick search is that of Brive-la-Gaillarde, south of Limoges, but the date of this plan and the stages by which it developed are unknown to me. One further example is to be found in far north-west Spain on the pilgrim road between León and Compostela at Puertomarin. There the church is at the centre of the village, at a point where the irregular streets meet at a variety of angles. The church is impeccable work of the late 12th century, but numbers on each of the stones lead to the discovery that the village was built anew and the church rebuilt when the original site in the valley below was flooded for a reservoir shortly before I first saw it in 1964.

This contrast between Roman and medieval, often on the same site, highlights a very unfortunate and almost total gap in our knowledge: that is, the process by which the Roman town plan in a majority of cases fell into disuse and the medieval pattern grew up. The church — where instances of continuity may one day be proven — is hardly ever a focus in terms of planning. It came late to the Roman town and hence virtually never occupied a prime position there — a point which makes the Silchester building even more unusual — and if it continued in use it had settled on to the landscape before the medieval process of expansion began, usually on a nearby commercial focus.

Before trying to pick out one or two particular questions to leave in the air it is worth moving a little further forward, for, as I have mentioned , the grid plan reappears. One of the most satisfying new towns of this type to survive today is Aigues-Mortes in the Camargue built by St Louis of France in the then independent County of Provence as an isolated French port on the Mediterranean. In 1248 he embarked there for his Crusade, but the silt of the Rhône has since isolated the port from the sea. The main square and the main church are set near to the chief land gate in the northern half of the grid, but there are few other ancient features to note. After this, in quick succession follow the French and English Bastides, new military towns near the Anglo-French front lines in Aquitaine, of which Libourne near Bordeaux and Villefranche-de-Rouerge (1252-6) between Rodez and Cahors are excellent examples. The new towns of Edward III in Britain (Beresford 1967) follow in the same tradition, which continues through Valletta in Malta (1566), Rochefort-sur-Mer *(c* 1660) near La Rochelle, and Mannheim (early 18th century).

One message that is conveyed very strongly by the post-Roman examples is the connection of the gridiron plan with newly-planned towns associated either with defence or with a move forward into new territory. All these towns are very positive statements, sometimes overbearing statements, by their builders and they mark either a stage in a campaign of conquest, reconquest (the Bastides), or consolidation (Rochefort-sur-Mer) in the face of antagonism, or simple non-communication (Valletta). In all these cases, just as in Roman Britain, there were 'native' settlements, but the new planned towns were intended as something different, tied more to authority than the pre-existing nuclei, which were anarchic in plan and inward-looking in attitude. All these points seem fair comparisons with the imposition of Roman towns on Britain in the 1st century AD. If I choose Valletta for more detailed comparisons it is because I know it in more detail than the others.

There is at once the comparison between a Britain recently conquered and a revolt recently crushed, and the arrival of the Order of St John in Malta and the fighting of the Great Siege of 1565. An indigenous population was hardly enthusiastic about the arrival of new rulers, however much an influx of trade and money may in hindsight have been a good thing, and the building of a new centre of administration was quite separate from the old civil and religious capital at Mdina in the west of the island. We can know nothing of the feelings of those who planned the towns of Roman Britain, but it is interesting to record that the engineer-designer of Valletta, Laparelli, expressed enthusiasm for competing perhaps only with Alexandria in the creation of a completely new city, away from the old focus of population: 'Now the City of Malta shall be completely and really new, since the promontory where it shall be built has never been inhabited before' (Council of Europe 1970, 67). Since even in 1566 it was possible for a planner to think that he was creating something which had never been created before and that he vied with Alexander in choosing a virgin site, we might legitimately assume that this dream is somehow inherent in planning at any age.

The question of a balance between streets, buildings, and spaces immediately returns. The two possibilities are to let the roads run through the town unimpeded or to lead the roads up to a central block which then acts as a focus. In Roman Britain, in a few towns of military origin, Crummy (1982) has suggested that the forum lay on the site of the fortress *principia,* astride one of the main axes; but even here, in most cases, the fora may finally have moved, leaving the streets to run unobstructed, gate-to-gate. In most other towns of Roman Britain, and certainly in Valletta, the clear street plan was adopted, and apart from Brive-la-Gaillarde and the very late example of the Schloss at Mannheim it is very difficult to find an example of a focus on a positive feature. In a modern town, where the flow of traffic is important, I can understand this; in a Roman town, or Valletta, where traffic passing through at speed was either highly unlikely or impossible, I do not understand it. Why in Valletta, which has only one gate so that there is no possibility of traffic passing through, do the Palace of the Grand Master or the Cathedral not form centrepieces, or together form a complex, to which the

approaches could lead? Exactly the same question occurs with the forum complex of the Roman town. The result of this type of planning is that the gateway is important, for it is the main chance to impress the visitor; but then the interior of the town fails to invite and lead him to a clear centre. The extreme case is Aigues-Mortes where it is still perfectly possible to look in through the Port de la Marine and out the other side of the town through the Port de St Antoine — or *vice versa.* There is no inducement to enter or to go to the centre, or even a visual nudge to show where the centre is. The implication must presumably be that such towns are created for their inhabitants who know them, rather than for travellers who might benefit them, and that most visitors will be official and will make straight for their business at the administrative centre. At Silchester Boon (1974, 55) has suggested that there might originally have been plans to lead the London road up to the forum; perhaps the temple area resisted the planners. Verulamium did eventually lead the London visitor in by the triumphal arch and the triangular temple (Frere 1981, 383-90).

At the risk of seeming to stretch the analogy too far, I do find the religious arrangements of Malta of interest when compared with Roman Britain. The introduction of a new settlement of planned type needed a religious focus; but there already was a cathedral of some antiquity at Mdina, and the arrival of foreign nobles did not necessitate the complete reorganization of the island. The best that could be done was to make the new church at Valletta a co-cathedral, an uneasy compromise which has continued up to the present. The absence of an honorific temple of classical plan in the middle of most Roman towns in Britain is one of the major points of difference from the Roman towns of the Mediterranean, and it does seem possible that this departure from the norm was because an established religion was already flourishing in other centres which would not move, or could not be moved. Here again there is the suggestion that however much the idea of these towns was Roman they were executed for Britain and the Britons, a culture which was recognized as belonging to north-west Europe, not the south.

Valletta and the Bastides have something of the restrained British air, rather than Hellenistic flamboyance, for they allow only the administrative headquarters and the main church to disrupt the regular plan; after that the block layout is rigorous. Local council offices seldom appear, large council chambers are absent, complexes for bathing or exercise are unknown, as are halls for relaxation or amusement. Similarly in Roman Britain, apart from baths and theatres — though these appear to have been used mainly in the 1st and 2nd centuries, and the latter may belong to religion rather than to entertainment — the elements of the town visible in the plan have already been stripped down nearly to the medieval essentials. It is tempting to see here the assertion of a western European tradition at the expense of the Hellenistic world.

Although the building and the plan of Valletta form an interesting parallel, there is a constant fault in any reasoning which uses the town as a direct model for Roman towns in Britain, for we have to work with what happened and survives for us now, rather than with what was intended to happen and why (see Blouet 1964). It may be that some of the answers to questions of why particular plans were made at Valletta lie in manuscript in the *Codex Laparelli* in the Royal Malta Library, which includes much of the correspondence between the builder and planner, Laparelli, and his clients, the Knights of St John. Until that is properly studied and published we must make do with an almost contemporary set of Ordinances in Madrid by which Philip II of Spain set out the rules and regulations for the establishment of new towns in the Americas (MS 3017, National Archives, Madrid, most conveniently published and translated in Nuttall 1921).

These 'Ordinances for discoveries, new settlements, and pacifications' given at San Lorenzo on 3 July 1573 are clearly far removed from Roman Britain in terms of date, yet the conditions in which they were made come very close to those facing the Roman administration concerned with Britain. Many points seem to apply with remarkable precision, for instance the initial instructions:

110 … On arriving at the place where the town is to be laid out (which we order to be one of those vacant and which by our ordinance may be taken without doing hurt to the Indians and natives, or with their free consent), the plan of the place shall be determined, and its plazas, streets, and building-lots laid out exactly, beginning with the main plaza. From thence the streets, gates, and principal roads shall be laid out, always leaving a certain proportion of open space, so that although the town should continue to grow, it may always grow in the same manner.

112 … If the town lies inland, the main plaza should be in the middle of the town. The plaza shall be an oblong form, which shall have a length at least equal to one and a half times the width, inasmuch as this size is the best for fiestas in which horses are used, and for any other fiestas as shall be held.

113 The size of the plaza shall be proportional to the number of the inhabitants, having consideration to the fact that in Indian towns, inasmuch as they are new, the population will continue to increase, and it is the purpose that it shall increase . . . . A moderate and good proportion is six hundred feet long and four hundred feet wide.

114 From the plaza shall run four main streets, one from the middle of each side of the plaza; and two streets at each corner of the plaza.

117 The streets shall run from the main plaza in such wise that, although the town increase considerably in size, no inconvenience may arise which may cause what may be rebuilt to become ugly or be prejudicial to its defence and commodiousness.

120 For the temple or the cathedral, the parish church or monastery, building-lots shall be assigned next after the plaza and streets...

121 After that a site shall be assigned for the royal council and cabildo house, and for the custom house and arsenal . . .

122 The site and building-lots for slaughter-houses, fisheries, and tanneries, and other things productive of filth shall be so placed that the filth can easily be disposed of.

126 . . . Shops and houses shall be built for merchants and these shall be the first to be built and for this all the settlers of the town shall contribute, and a

moderate tax shall be imposed on goods so that these buildings may be built.

127 The other building-lots shall be distributed by lots to the settlers... . And so that this may be done better, the town which is to be laid out should always be shown on a plan.

128 ...(The settlers) who do not possess tents shall build their huts of such materials that can be obtained easily, where they may have a shelter. As soon as possible all settlers shall make some sort of palisade or ditch about the plaza so that they may receive no harm from the Indian natives.

130 Adjoining the commons there shall be pastures... The rest of the land shall be assigned as farmland...so that there shall be as many farms as there are building-lots in the town.

133 ...Each house in particular shall be so built that they may keep therein their horses and work animals, and shall have yards and corrals as large as possible for health and cleanliness.

136 Should the natives care to place themselves under the defence of the town, they must be made to understand that it is desired to build a town there not in order to do them any harm nor to take their possessions from them, but to maintain friendship with them and to teach them to live in a civilized manner...

137 ...the houses are to be so built that when the Indians see them they shall wonder and understand that the Spaniards settle there for good and not for the moment only...

The instructions about the shape and dimensions of the main plaza could be compared with those of the forum in a Romano-British town, but possibly more important is the reasoning given for them. This immediately raises the question of the purpose of the forum, and contrasts a public plaza with an enclosed forum. The size of the plaza as an index of the intended population is an interesting idea, though the later references to population growth seem to make the calculations somewhat open-ended. The grid plan is expressly stated to be an easy means of laying-out initially and, since a copy was kept for reference, a help in further expansion. The cathedral is kept apart from the main plaza and the government buildings; the former is to be placed at a point of vantage, the latter to belong to the main plaza. In contrast, the nuisances are catered for in other parts of the town, if possible near a river. The yards attached to each house follow the Mediterranean pattern of close connection between farms and town-centres, which can easily be overlooked by observers of medieval or modern Britain.

References to 'the natives' must of course be modified in Britain, where presumably the incoming administration joined with the 'Romanized' native aristocracy to organize 'the rest'. The passages could well be useful so long as the division is put between the Romans and the 'Romanizing', and the great agricultural majority.

I have suggested several different ways of approaching the town plans of Roman Britain which may be more or less useful, but, as always in archaeology, the evidence so far gathered, partly by hazard and partly by design, has seldom been intended to answer the type of question which I now want to ask. Our major failure is in understanding how the Roman town plan collapsed and faded away, and how the medieval plan, in some cases, replaced it. Perhaps the first stage in future work is to pay greater attention to the archaeology of streets.

Note

1 For plans and details of Valletta I have relied on Blouet 1964 and Rossiter 1968. Town plans in general have been consulted in the *Guides Michelins* as follows:
France: Guide rouge, 1975
Italy: *Guide vert (6* edn), 1966
Spain: *Guide rouge,* 1964
Germany: Guide vert (1 edn), 1970

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The functions of urban buildings: some problems

J S Wacher

Normally most archaeologists' eyes are focused downwards on the ground, but to appreciate the general problems of ancient urban topographies and those particular to the function of buildings, it is very necessary to reverse the line of vision. This is especially true of Britain, where few remains survive above ground level and where it is difficult to visualize a Roman town or village when standing in a grassy field or an area of exposed foundations. It is even more difficult to imagine people walking about among buildings, babies crying, dogs barking, and all the noises of a busy community, together with the inevitable smell of unwashed humanity, open drains, and cess-pits. By their very nature archaeology is unlikely to be able to provide evidence of such things, even if they once existed.

Colour, texture, and vegetational cover are just as important in these assessments, and one has only to compare visually a modern village in Kent with one in Northumberland to appreciate the differences, which must have been equally marked in the Roman period, caused by variations in building materials and local vegetation. In addition, skyline studies of modern cities often provide identification as readily as do fingerprints and are a useful way of recording topography. They should also remind us how a Roman temple, theatre, amphitheatre, or basilica frequently towered over its surrounding buildings, in much the same way as medieval cathedrals still often, but sadly less so now, dominate their urban scenes.

These points are all significant if - as is often the case in Britain - we are to attempt the restoration of ancient urban topographies and the buildings of which they were formed from little more than foundations and a few floor levels. Without such restorations it is seldom easy convincingly to associate functions with buildings, and, more often than not, attempts at restoration stop at the structures and forget the people who had to use or work in them. Even modern practitioners from time to time commit some unpardonable architectural solecisms, mainly through lack of communication with the ultimate inhabitants, and there is no reason to believe that their predecessors were more efficient.

But no attempt at the restoration of an ancient building from its foundations or shell is ever likely to achieve total accuracy, no matter how careful the excavation (Drury 1982). Consequently, archaeologists are usually left with a choice between two or three acceptable possibilities. Even then, although it may be justifiable to say that such-and-such a building is a basilica, a forum, or a bath-house, it is seldom possible to state the precise function of each and every constituent part of the building, except in the most general terms.

Among the many types of buildings found in Roman urban environments the easiest to identify are those related to some public use, although, even here, there are traps for the unwary and variations in plan between buildings of similar function can cause further difficulties. A Roman forum is a Roman forum, but there were probably no two exactly alike anywhere in the Empire, so that, while the general identification is easy, interpretation of the individual elements often depends on restoration of the building's parts. A domestic dwelling may often be inferred from the arrangement and adornment of its rooms, while buildings given to industrial use may contain traces of the processes carried on within them. Seldom, though, will a building indicated as a shop yield much evidence of its trade. Overall, the sheer range and mass of material makes it impossible to consider any more than a small number of specific examples of current interest, picked largely at random, within the scope of this brief paper.

One of the most recent published examples of inspired restoration is that by Professor Frere of the basilica and parts of the forum at Verulamium, where he has put forward two alternative versions, with a third incorporating some later alterations (Frere 1983, 59). In these he has been able to demonstrate that Verulamium, far from being a backwater of Roman style, was in fact setting the lead for the north-west provinces in building design. But, vital though these restorations are if we are to understand the building, they still leave the detailed functions of constituent parts to be inferred.

Even more confusion can arise if only incomplete plans are known, since it is possible that some structures, in part similarly planned, can have small but significant differences in their functions. The market halls at Cirencester and Leicester, for instance, are superficially similar to fora (Wacher 1975, 298, 347); indeed, at Augst (Stähelin 1948, 601 & Abb 188) and some other Gaulish towns there are buildings which have sometimes been described as 'second fora'. Fortunately the principal fora of all these towns have been identified, and it is clear that the secondary buildings were mainly constructed for commercial use; this is suggested, for instance, by the absence of a tribunal at the west end of the Leicester market hall and the fact that the whole building only occupied half the area of a full-sized *insula.* In at least one section of the market at Cirencester there was evidence for butchery (Wacher 1975, 299). It is true that principal fora may have seen similar activities in provincial contexts, but it is normal, by reason of their associated basilicas, to assign additional administrative, political, and judicial functions to them.

Bath-houses in general present few difficulties of interpretation unless structural survival is poor, as at Leicester, where doubts continue to abound over the original assessment of the individual rooms (Kenyon 1948, 28).

Perhaps some of the most enigmatic buildings are *mansiones.* In Britain the example most often assigned such a function is that in *insula* 8 at Silchester (Boon 1974, 138), although similarly planned buildings are known

elsewhere, as at Heddernheim and Cambodunum (Kleiss 1962, 55-64). But, apart from the evidence of the plans, there is little to support such inferences and alternative interpretations have been put forward, which are often just as credible. Even greater difficulty is experienced when dealing with the smaller buildings of the frontier areas of Britain, such as those at Newstead (Curle 1911, 93) or Benwell (Salway 1965, 73-5 & fig 7). Slightly more certainty can perhaps be credited to the somewhat irregular 'structure at Catterick (Wacher 1971, 170), where its size, its position close to the bridge over the river Swale, its bath-house, its water-supply piped to several different rooms, its official construction attested by a stone inscribed *COH HVIIII* (probably a legionary cohort), and its elaborate, classical, porticoed entrance indicated by fragments of masonry, all imply its function.

Theatres, amphitheatres, and temples are in some ways easier to identify, provided that they have reasonably conventional plans, but restoration is often made difficult by local variations. Yet it is not often possible, in the absence of statuary or inscriptions, to attribute particular deities to temples. Moreover, there are some strange buildings in Gaul, as at Chennevières and Le Mans (Grenier 1958, 847-9), which have sometimes been interpreted as theatres, sometimes as amphitheatres. In fact, their unconventional design may be but a logical extension of the variations which were introduced in parts of Gaul and Britain to produce what is still commonly called the Romano-Gallic theatre (Kenyon 1934, 242). Dame Kathleen Kenyon suggested that they were intended to double as both amphitheatres and theatres: an ingenious solution. She also drew attention to their distribution when compared with that of Romano-Celtic temples; herein, surely, may lie the clue to their real function. The association of temple and theatre in the Roman world is well documented and extends throughout the north-west provinces, not only in urban centres, as at Verulamium, but also in many rural shrines, as at Champlieu (Grenier 1958, 407-11) and Gosbecks Farm, Colchester (Dunnett 1971, 27). In this area there must be a special relationship between the temples, with a form unknown outside north and west Europe, and their associated theatres. What would, therefore, be more normal than to design a theatre not only capable of accommodating the audience, but also adapted to suit the particular ceremonies and rituals of the cult, whatever these might be?

A somewhat similar but special problem is set by another unusual building, apparently associated with a small temple, at Wroxeter (Bushe-Fox 1916, 20-2; site VII). Unfortunately the full plan of its west end has never been exposed, so that the overall length is not known. Basically it consists of two roughly parallel walls, set some 12ft (3.5m) apart, enclosing a rectangular area with rounded corners, approximately 150ft (46m) wide and more than 190ft (58m) long. The temple (Bushe-Fox 1914; site V) seems to have been dedicated to some equine deity, possibly Epona, since a number of 'horsey' attributes have been found in and around it. It is difficult to avoid the conclusion that the rectangular building was some kind of stadium in which, perhaps, religious ceremonies of an equestrian nature took place. But, having decided that as a general proposition, it must be admitted that restoration of the building's superstructure, on which would depend the precise interpretation of the way that it functioned, is well-nigh impossible, although attempted by Alan Sorrel1 (1976, 61).

As stressed above, these cases are but a small sample, picked largely at random, to illustrate some of the difficulties inherent in the functional interpretation of urban buildings, the need for more detailed and accurate restorations as an aid towards that aim, and the contribution they make towards the ultimate study of ancient urban topographies and environments. Nor has anything been said here of the further complications brought about by secondary use.

The basic need, though, must remain more accurate restorations, and here greater use than is at present the case might be made of architects, engineers, quantity-surveyors, and similar specialists, together with computer analysis of proposed models, perhaps assisted by the rapidly-growing field of graphics. To my knowledge, no ancient building, restored on paper, has ever been subjected to a critical analysis to see whether it would, in life, have stood up, when related to its foundations, the load-bearing capacity of the underlying ground, and the strength of the materials used in the superstructure. This might well be a fruitful field of research.

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The Roman housing market

John Casey

> On Earth the God of wealth is made,
> Sole Patron of the Building Trade
>
> (Swift)

It was stated by no less an authority than M I Finley (1975, 118) that there was no such thing in the Roman world as a property market, despite the evidence from Pliny that when Trajan forced senators to invest in Italian land the price of that commodity rocketed. Be that as it may; it is not the purpose of this paper to enter controversies about the nature of ancient capitalism or to open up an economic investigation of real estate holdings in urban contexts in the ancient world. Unfortunately the material for such a study no longer exists. What is offered is more modest: an investigation of the ways in which living accommodation was made available to tenants, lessees, and house owners. At the outset we should say that the idea of very widespread house ownership is a recent concept which has become a cornerstone of modern political and social philosophies only as a result of structural changes in society in the last century. Until very recently the rented sector of the housing market provided for all but a very small proportion of the population. In antiquity the same situation seems to have been prevalent, with the practice of house rental stretching from the highest to the lowest social and economic levels of Roman urban society.

The wide range of housing available within this broad spectrum will be briefly reviewed in this paper, as will the problems which arose from time to time between landlords, tenants, property owners, and neighbours, so as to throw light on the vicissitudes of life in a complex society and aspects which may not be immediately obvious in the course of the archaeological investigation of an urban site.

The sources available for a survey of Roman housing, at the non-material level, are very limited both in time and place. Virtually all the evidence comes from Italy and none of it relates directly to Britain. However, it may not be unreasonable to extrapolate some of the evidence from one area of the Empire to another and at least use it to frame questions pertinent to life in provinces which do not produce literary or epigraphic evidence for themselves. By this statement it should not be understood that the problems of the urban aristocracy of Rome, or of its middle classes or *plebs,* are necessarily relevant to an obscure part of the Empire such as Britain, but that some of the legal usages which affected the inhabitants of the capital may equally have been applicable to life in other provinces. We would expect, for instance, Roman law to be employed in property transactions in the colonies of Colchester, Lincoln, and Gloucester, and in the *municipium* of Verulamium too, perhaps. We may also speculate that with the introduction of a new system of fully urbanized life, involving new commercial and personal relationships, new social factors might arise and be regulated by commercial and legal precedents familiar to those who introduced the changes. Thus, under Roman influences, the Briton, though he may have lived in a strip-house rather than a high-rise apartment block, may well have encountered some of the same problems as his Italian counterpart.

The ancient world was one of fixed ideas and of extreme conservatism, and one of the most firmly-held convictions was that the proper use for surplus wealth was to invest it in land. This was the sector of the economy into which 'respectable' wealth flowed. This is uniformly the impression conveyed by the literary authorities. But these writers were concerned to perpetuate the acceptable face of society, not the reality. It may be significant that in the only fully-recorded case where very large sums were invested in urban property the investor was not congratulated but castigated for avariciousness (Plutarch, *Crassus,* 2). But literary men, though they may point the finger of scorn, do not rule the market place, and in reality there was large-scale investment in urban property by some of the aristocracy. Among such investors was Vettius Bolanus, whose exploits as governor of Britain are castigated by Tacitus and given inordinate praise by Statius. Whilst Bolanus pursued Venutius, and tried to cope with Cartimandua, back in Rome the rents from his apartment blocks accumulated to finance his ambitions as a politician and military commander. The material remains of Ostia, the towns of the Bay of Naples, and surviving fragments in Rome itself all point to large-scale investment in the housing market. In the resort town of Puteoli a whole district took its name from the Hortensii, the aristocratic family of the late Republic who had developed it into a select residential and commercial area. Other large towns of the Empire, such as Ephesus and Tyre, reveal similar investment in housing development, usually in the form of apartment blocks. On a smaller scale there is the evidence of substantial structures of mixed domestic and industrial use in even the most modest of provincial settlements. Finally, there are the remains of extra-mural settlements outside forts. Some of these, on grounds of size alone, must qualify as cities, whether or not they aspired to the legal status of York or Aquincum, and may represent a substantial state investment in property speculation to provide accommodation for *vicani* (Casey 1982).

If the buildings themselves remain, albeit as vestiges of their former glory or squalor, the manner in which they were financed, owned, tenanted, bought, sold, and lived in, on the whole, does not. But there is a little evidence. For instance, a number of legal cases survive in which conflicts of ownership were sorted out, financial transactions which had gone awry *were* resolved, or the quarrels of neighbours recorded, to leave an imperishable precedent in Roman law. Occasionally actual documents, deeds of sale and leases, have survived. In Egypt the rubbish dumps of Oxyrhyncus and Tebtunis have revealed the

legal and commercial life of whole communities. There is also the literary evidence, most of which relates to the late Republic or early Empire, and which includes the works of Cicero, Martial, Juvenal, and that incomparable compendium of Roman low life, the *Satyricon* of Petronius. On the whole these sources paint a gloomy picture of the housing scene from the point of view of both the property owner and the tenant.

Let us look at the literary material before turning to the legal and documentary. Strabo (v. 3.7) depicts a horrifying picture of early imperial Rome in which constant building activity made it a city of turmoil:

> They build incessantly because of the collapses and fires and repeated sales which go on constantly too. Indeed the repeated sales are intentional collapses, so to speak, since they tear down some [buildings] and build others in their place to their hearts content.[1]

This picture of a jerry-built city was not lost on the imperial authorities who needed a majestic, or at least stable, backdrop against which to play out the rituals of power. Augustus limited the heights of buildings, and other rulers, with a zeal that modern authorities might do well to emulate, passed laws which sought to curb the wholesale destruction of habitable property in speculative ventures. Individual towns also passed local ordinances to prevent such depredations. An edict from the reign of Claudius forbids, no doubt without any real effect since the law was repeated by Nero, the razing of buildings. It is couched in impeccably environmentalist terms and was issued to prevent redevelopment at Herculaneum:

> The foresight of our excellent emperor has made provision for the permanence of the buildings of our city and all Italy . . . and since the protection of public and private structures alike is fitting and appropriate to the happiness of the coming age and since all ought to refrain from a vicious sort of speculation and not bring about an appearance most incompatible with peace by the demolition of homes and villas, the Senate decrees that if anyone purchase any building as a speculation in order to tear it down to obtain more than the purchase price, he shall pay the state treasury double the sum for which he bought the said property . . . *(CIL,* 10, 1401)

The foresight of 'our emperor' may have made provision for the permanence of buildings, but the sad truth is that Roman urban buildings were immune to the blandishments even of emperors; they persisted in both falling and burning down, and large parts of the population were condemned to live in shoddy fire-traps. Both Juvenal and Martial tell alarming tales of incinerated tenants, and the quality of construction may be judged by Cicero's comments on his own property, of which he had extensive holdings both in Rome and in the towns around the fashionable Bay of Naples *(Ad Atticurn,* xiv.9.1):

> Two of my shops have fallen down and the rest are cracking: so not only the tenants have fled but even the mice have migrated.

A 2nd-century writer makes a property owner comment:

> Town property brings good returns but it is terribly risky. If there was any way of stopping houses perpetually burning down in Rome I would sell my farms and buy town property every time. (Aulus Gellius, *Noctes Atticae,* xv. 1.1-3)

A little earlier than this Marcus Licinius Crassus, the multi-millionaire and politician, had enhanced his already notable fortune by speculation in just such properties as those described by Cicero and Gellius. Crassus developed an integrated strategy of property acquisition and development, building up a body of five hundred servile builders and architects who worked upon the properties which he bought cheaply - cheaply because his agents attended fires and bought threatened properties at truly knock-down prices from distraught owners who saw their livelihoods going up in flames.

Fire and instability appear, then, to have been major restraints on the investment of development capital in urban properties. But this applied only to that sector of the monied classes who would be wiped out by a single disaster. Very large capitalists could afford the risk in order to recover the 6% return brought in by urban properties. There are more than forty fires recorded in Rome alone, ie conflagrations of such magnitude that the destruction is recorded in the surviving literature. To this can be added an unrecorded daily toll of minor fires which resulted from the use of naked flames as lighting and the inadequate provision of ventilation for heating- and cooking-fires. Nor did the fire brigade necessarily prove to be a property owner's salvation. Their concern was saving life and preventing the fire from spreading. The main method of preventing spreading was by reducing adjacent, and unaffected, properties to rubble in order to provide a firebreak. In archaeological terms, then, quite a small fire might result in quite profound structural changes, not only in the building affected, but in a zone downwind of the conflagration. In any event the feelings of the owner or occupier may be imagined as he watched his property reduced to the status of a besieged city by the *vigiles,* or fire brigade, as they smashed down his home and assets with stone-throwing catapults. Of course fires were not confined to Rome; major conflagrations ravaged most of the towns of southern Britain in the 2nd century, so that some of the factors which influenced life in the capital may have been influential, on a diminished scale, in the provinces.

Though life was hazardous both physically and commercially it still went on, and the provision of accommodation formed an important component of economic and social activity. What sort of living-space was available and how was it obtained? At the lowest level, and in a Mediterranean climate, the poorest could find a roof in the porticoes of public buildings, live under the bridges, or huddle in the shelter provided by the arches of the aqueducts. Above this level of absolute poverty families could rent single rooms in barrack-like structures of the type found in working-class areas of Ostia. Here the object was to get the maximum density of occupancy consonant with the provision of the single amenity of light. The result was the development of long, corridored structures divided into cubicles with flimsy partitions. Privacy was at

a premium in these buildings.

A cut above this were the boarding-houses which offered quarters to both permanent residents and transient guests. Single bedrooms were provided for the lodgers and a communal dining-room and sitting-room were available for the guests, whose meals were prepared by a resident catering staff engaged by the proprietor. Life in such a boarding-house, or rather, a near-riot, is recorded in the *Satyricon.* Petronius's hero has been caught by the manager doing, as he mistakenly interprets an equally disreputable episode, a midnight flit. The residents, loyal to their landlord, set upon the defaulter *(Satyricon, 95):*

> Meantime Eumolpus was being set upon on both sides by cooks and tenants alike. One of them kept jabbing at his eyes with a loaded kebab skewer, another snatched a fork from the sideboard and struck a gladiatorial pose. But above all a bleary-eyed old hag took the lead. Dressed in a filthy linen house-coat and teetering on a pair of wooden clogs of different heights, she held onto a huge hound which she sicked on Eumolpus.

This led to the police being called, who, like the fire brigade, contrived to cause more damage in establishing the peace than the tenants had caused fighting among themselves.

Cheek-by-jowl with establishments such as these were the higher-class residences of the affluent or very rich. Few, in the major cities of the Empire, resided in the traditional Roman-style house, or *domus,* with its series of rooms arranged around internal light-wells; life was more often lived in apartments in high-rise developments. Some of these, like the Insula Felicula which towered above the Pantheon and the Column of Marcus Aurelius in Rome, evoked astonishment and ridicule in their own time just as, for instance, the Barbican scheme in the City of London does today. Needless to say, the same disregard for aesthetics, convenience, and amenity stimulated the ancient property developer in his pursuit of profit as his modern counterpart. Within such buildings each floor was divided into suites of apartments offering a range of rooms which could be allocated functions by the tenants. The elegance that could be achieved can still be judged by some of the surviving structures at Ostia, themselves not in the highest class of aristocratic housing (Meiggs 1973).

But it is not the architectural details of urban housing, or its interior decoration, which are my main concern; rather it is the reconstruction of the form of tenure and the quality of life. Some aspects of these can be glimpsed in the ancient legal texts. These date from the heyday of Roman jurisprudence, the early 3rd century, and are a compilation of judgements by the most eminent lawyers of the day. Although they date to the Severan period, they represent a body of law which is the accumulated experience of a society, and these cases reflect the problems which arose over a long period of time between owners, occupiers, and purchasers of property.

Generally speaking, when not operated by their own agents, property was leased by owners to middlemen for exploitation, thus distancing the aristocracy from the odium of commerce. These middlemen sub-leased units within the property to sub-tenants. This led to a complex legal situation, since in Roman law the concept of usufruct was very firmly established. In essence this doctrine established that a property owner had a strong right to exploit the value of the property and that nothing, except the equal and conflicting rights of other property owners, should impede that right. Thus an owner could terminate a lease and repossess his property at any time. A very humble property transaction from Egypt makes this clear. It is a lease dating to AD 496 which reads, in part:

> I voluntarily undertake to lease.. .a room in good condition on the ground floor, facing the south, with all appurtenances and rights, and will pay a rent of one tremissis annually . . .and whenever you wish I will surrender to you the aforesaid room in the condition which I received it for possession. *(Pap Oxyrhync, 1889)*

In reality the owner could override the rights of his principal lessee and evict the sub-tenants. This might occur if the owner wished to redevelop his property to maximize his profits. In the event of a resale without redevelopment the sitting tenants had the right to continued residence or to demand accommodation of an equal standard elsewhere from the dispossessed principal lessee. On the whole, though, it was in the interests of the owners and lessees to treat the tenants with commercial caution, since another Roman institution gave the tenant an informal protection against his landlord. This was because the terms of a Roman lease on property made no provision for the rent to be paid in advance. Indeed the rent was normally paid at the termination of the lease or at the end of each year in the case of long leases. Property was let out on annual terms in many cases, or from two to five years. Leases terminated on the last day of June, and 1 July was, therefore, a very important day in the Roman commercial calendar. For a period before the end of the lease the landlord could have access to the premises in order to show prospective new lessees around. This led to some arm-twisting on both sides, the landlord pressuring the sitting tenant to renew at a higher rent and the tenant trying to call the landlord's bluff until the last moment. Failure to clinch a deal is the theme of one of Martial's verses which describes the fate of a tenant who is reduced to trailing around apartment blocks on 1 July pleading for shelter from the porters and managers (xii.32.2W).

The fear that the tenants would not pay the rent was a constant one, and Roman law allowed for the distraint of goods so that the furniture could be seized by the landlord and the tenant locked out. A fine point of law arose in the case of a slave who was locked in with the furniture as part of the household effects in law; he chose not to starve slowly to death whilst his master raised the arrears of rent, but hopped out of the window and fled. It is conceivable that as the dread day of 1 July came closer, so the hot nights of late June witnessed the clandestine removal of furniture in towns across the Roman Empire. Martial (xii.32.14) again provides the image to suit the situation:

> Oh the kalends of July - I've seen you, Vaccera, creeping off down the street with your few sticks of furniture carried by your red-headed wife. . . the bits the landlord didn't grab in lieu of two years' rent.

Eviction of the tenant could be initiated for failure to pay the rent or for failure to keep the premises clean and in good order; in this case the landlord could take action to recover the whole sum due under the full term of the lease. On the other hand, unjustified expulsion could result in the tenant bringing an action to recover rents previously paid to compensate for inconvenience suffered. The arbitrary nature of the tenural system may be judged from a 3rd-century letter from a tenant to his landlord which has survived at Oxyrhyncus in Egypt:

> … and none knew whether the house was yours or mine because there was no disagreement between you and me. But now I am being subjected to violence by your very own Ptolema who has sent me word to this effect: 'Give up the house; otherwise, your household furnishings will be put out.' I ought not to be subjected to these things for I have assurances from you for the period of a year, and the god willing, I owe you no rent except for the present quarter only. (Frier 1980, 221)

Clearly the writer was a tenant of long standing, but the lease was still subject to annual renewal. As we shall see, rents were paid in advance in Egypt and not in arrears as in Italy.

A tenant himself might abandon the property without rendering himself subject to an action at law by the landlord if the latter failed to carry out necessary repairs or if the building became unsafe. Such circumstances were not uncommon and defective houses are the subject of a dialogue in Cicero's *De Officiis.* As a landlord himself Cicero knew a thing or two about the subject and his knowledge of pitfalls shows in the list of defects which his protagonist specifies:

> Suppose again that an honest man is offering a house for sale on account of certain undesirable features of which he himself is aware but which no one else knows; suppose that it is unsanitary, but has the reputation for being healthful; suppose that it is not generally known that vermin are to be found in all of the bedrooms; suppose, finally, that it is built of unsound timber and is likely to collapse, but that none knows of this except the owner. (De *Oficiis,* xiii.54)

A further cause for terminating the agreement might be if an adjacent owner developed his own property to the detriment of the life-style of the tenant. For instance, light might be blocked by building higher, or access prevented. This was not unusual, because Roman law had such a bias towards property owners that near anarchy prevailed in the area of development. Although imperial, municipal, and city authorities legislated against unrestricted development, the legal cases show that this was very largely ineffective. Two well-known examples may be cited. The first is the case of the 'bath-house and the granary', the second that of the 'cheese factory at Minturnae'. In the first we have the text of the complaint which led to the judgement:

> A man called Hiberus, who has a block of flats behind my grain-store, has built a bath-house against the common wall. But he is not allowed to attach pipes to a common wall.. .and besides, they are making the wall red hot. I wish that you would have a word with him and stop him committing this illegality. (Crook 1967, 151)

The judgement that was given in this case was that the attachment of the hypocaust pipes was indeed illegal and that they should be removed. However, the penetrating damp from the bath was another problem and here the bath owner was the winner. In any event, if the walls of granaries glowed red hot, one can see why ancient towns burned down so frequently.

The cheese factory was another *cause célèbre.* The problem here was that the manufacturing process caused quantities of noxious smoke to drift down the street to the annoyance of other residents in the area. Clearly something had to be done; a writ was issued against the operator of the factory and he was constrained from producing smoke because this affected the rights of property owners to exact rents and keep their tenants. The cheesemaker in turn sued the city of Minturnae for leasing him premises unfit for the purpose for which they had been rented *(Digest,* viii. 5.8.5). The importance of this case in relation to the location of industrial areas or specific crafts in Roman towns hardly needs to be stressed, though archaeologists would do well to look to the prevailing winds when interpreting the results of urban excavations.

A further factor which archaeologists should not overlook is that rented premises could not change their form or function. Commercial premises were for commerce and residential premises for living-quarters. To attempt to change the function conflicted with the owner's right under the doctrine of usufruct. As far as physical change went the legal opinion was that 'you can put in lamps and pictures and ornaments but you cannot change the internal partitions' (Crook 1967, 152). From this we may conjecture that buildings retained their functions for very long periods. We can see the restrictions on changing the nature of property in actual leases which survive from Egypt. These leases are in a form which dates back to the Ptolemaic period, at least, and survived virtually unchanged into the period of the Arab conquest. A typical example may be quoted from Oxyrhyncus, dating from the 2nd or 3rd century:

> Sarammon son of Chaeremon and Sintheus, of Oxyrhyncus, has leased to Besas son of Harpocras and Tausorapis, of the same city, for five years from the first day of Thoth of the coming second year, the half which he owns, previously in the hands of the lessee, in the South Quay quarter, of a house, beneath which is a cellar, with all its appurtenances, at a rent of 72 drachmas a year which, if the lease is confirmed by the lessee, he shall pay to the lessor in two instalments a year, half the sum at six month intervals, without any delay, he together with his assigns having the use of the half of the house leased to him with the appurtenances without let or hindrance; and at the end of the period of the lease shall relinquish the lease, giving up the rooms free from all filth and dirt of every kind, in the condition in which he received them, together with the existing doors and locks, or shall forfeit the proper

> value of whatever he fails to give up and whatever he still owes out of the rents, increased by half. *(Pap Oxyrhync, 3200)*

A number of deviations from the practices of Italy may be noticed in this form of lease. Egyptian leases always demanded the return intact of the doors and sometimes the windows. It would seem that in a country where good timber was at a premium the tenants decamped with the woodwork on enough occasions to make such a legal provision a necessity. We may note, secondly, that the rent is payable in advance and in six-monthly instalments.

Having looked at the problems of owners and occupiers we turn to the way in which properties were bought and sold. There is no word in Latin for 'estate agent'; sales were by auction or by private treaty, and the availability of property for sale or rental was made known by word of mouth or advertisement. Two such advertisements have survived in Pompeii, showing the sort of thing which will have festooned the walls of the ancient world:

> In the Arrius Pollio block owned by Gnaeius Alleius Nigidius Maius, to let from the fifteenth of next July, shops with their stalls, high-class second-storey apartments, and a house. Prospective lessees may apply to Primus, slave of Gnaeius Alleius Nigidius. (CIL, 4, 138)

The fortnight which is to elapse between the traditional date of 1 July for the taking up of a lease and the date of this lease may have been to allow the landlord to refurbish and redecorate the premises after getting vacant possession. A second advertisement from Pompeii offers a mid-August occupation date:

> On the property owned by Julia Felix, daughter of Spurius, to let from the thirteenth of August to the thirteenth of the sixth August hence, or five consecutive years hence, the elite Venus baths, shops, stalls, and second-storey apartments. (CIL, 4, 1136)

That such advertisements were a common feature of Roman property transactions is shown by the fact that in the *Satyricon* (38) one of Trimalchio's *nouveau riche* cronies also resorted to advertisement:

> Apartment for rent after the first of July. Am buying a house. G Pompeius Diogenes.

As well as advertisements, heralds might proclaim the auction of property, especially that acquired by the state by means of imperial confiscation. Few resorted to the tactics of the late republican bully boy, Publius Clodius, who threatened to burn down his neighbour's house unless he sold out to make way for a new wing on Clodius's adjacent property.

The sale of houses had its own formal, legal documentation and these documents reflect another important aspect of the Roman perception of property. In Roman law a property existed from its foundations in the soil to an infinite point in the sky. This led to the high-rise boom but restricted the sale of the upper floors of buildings, thus leading to the development of the apartment rental market. The doctrine that 'what stands on the land goes with the land' was confirmed by the emperor Caracalla in AD 213 when he replied to the petition of an aggrieved house-owner:

> If you can prove that the lower floor of the building, which rests on the ground, belongs to you, there is no doubt that the floor above, which your neighbour has added, accrues to you as owner. (Crook 1967, 143, citing *Codex Iustinianus,* iii.32.2)

Houses might be divided vertically, but never horizontally. A sale document from Dacia makes the position clear:

> Anduia Bato has sold half a house - the right-hand half as you go down the passage - and has received the purchase price of three hundred *denarii* from Veturius Valens. The house is at Alburnum Major in the *vicus* Pirustarum and is bounded by the properties of Platorius Acceotianus and Ingenuus Callistus. That part of the house which is involved with the external walls, doors, entries, and windows is rightly to be his... *(CIL, 3, 944,8)*

In Egypt, however, things were a little different and no doubt each province could show some variation on the basic property laws. In Egypt we have evidence for a much more complex division of property, perhaps reflecting aspects of the laws of inheritance in that country. A document from a land registry office shows the problem. After a good deal of officialese it reads:

> In virtue of a public deed executed on the present day through the record office here, I have bought in the village of Philadelphia the four-fifths part, which is owned in common and undivided, of the sixth part of a house and fixtures. (Hunt & Edgar 1934, no 325)

It would appear that this building was in multiple ownership, perhaps within a single family, and presumably in multiple occupancy. In this case the purchaser bought two-fifteenths of a house. There is no record of the sort of domestic problems which must have arisen from such complicated tenural systems, though we have a hint of a first-class family row preserved in the papers of Flavius Abinneus, the 4th-century commander of a fort in the Egyptian Fayum. His wife Nona, who seems to have been a litigious lady, went to court with a very high-priced lawyer from Alexandria in order to fight for the possession of a fourth of a courtyard (Bell *et al* 1962, 129-36). No doubt the pickings for lawyers at the property bar were very good indeed if we are to judge from incidents such as this and the richness of the surviving legal documentation.

This survey of the legal, social, and economic background to residential buildings in the Roman past has tried to convey some of the flavour of a particular aspect of life through the medium of contemporary documentary sources. I would suggest that by studying the legal and social evidence relating to housing and property in general in the ancient world we may be able to formulate new questions to which archaeology may address itself. These questions may not be answered fully, but an appreciation of the complex, vibrant society which inhabited the dour ruins may curb some of the excesses of archaeological pessimism which are detectable among students of the

Roman period who, assailed on all sides by prophets of the 'new archaeology', have perhaps too readily abandoned the people of the past in favour of abstractions derived from sociological and political theories of recent origin.

Note

1 Except where stated otherwise, the texts and translations of classical writers are taken from volumes in the Loeb Classical Library.

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PART III ROMAN TOWNS IN ITALY AND THE WEST

Urbanization in the Three Gauls: some observations

J F Drinkwater

In this paper I intend to examine certain aspects of the urbanization of the Augustan provinces of Aquitania, Lugdunensis, and Belgica in the period from the Caesarian conquest to the establishment of the Gallic Empire in the 3rd century AD (Fig 38). I deliberately exclude consideration of Narbonensis under the High Empire and of Gaul as a whole under the later Empire, both for economy of print and because I feel that the development of northern Gaul under the Principate requires separate and particular attention.

The paper is divided into four sections. In the first I will briefly review present thinking on Gallo-Roman urbanization in general. Special reference will be made to pre-Roman antecedents and to the emergence of the *civitas* capitals, their function, and their appearance. The second section is devoted to a close investigation of two aspects of Gallo-Roman *civitas* capitals, namely their defences and their chronology. The third section examines the significance of orthogonal street planning; and the fourth attempts to carry discussion beyond the major urban centres to the *vici* and the sanctuaries.

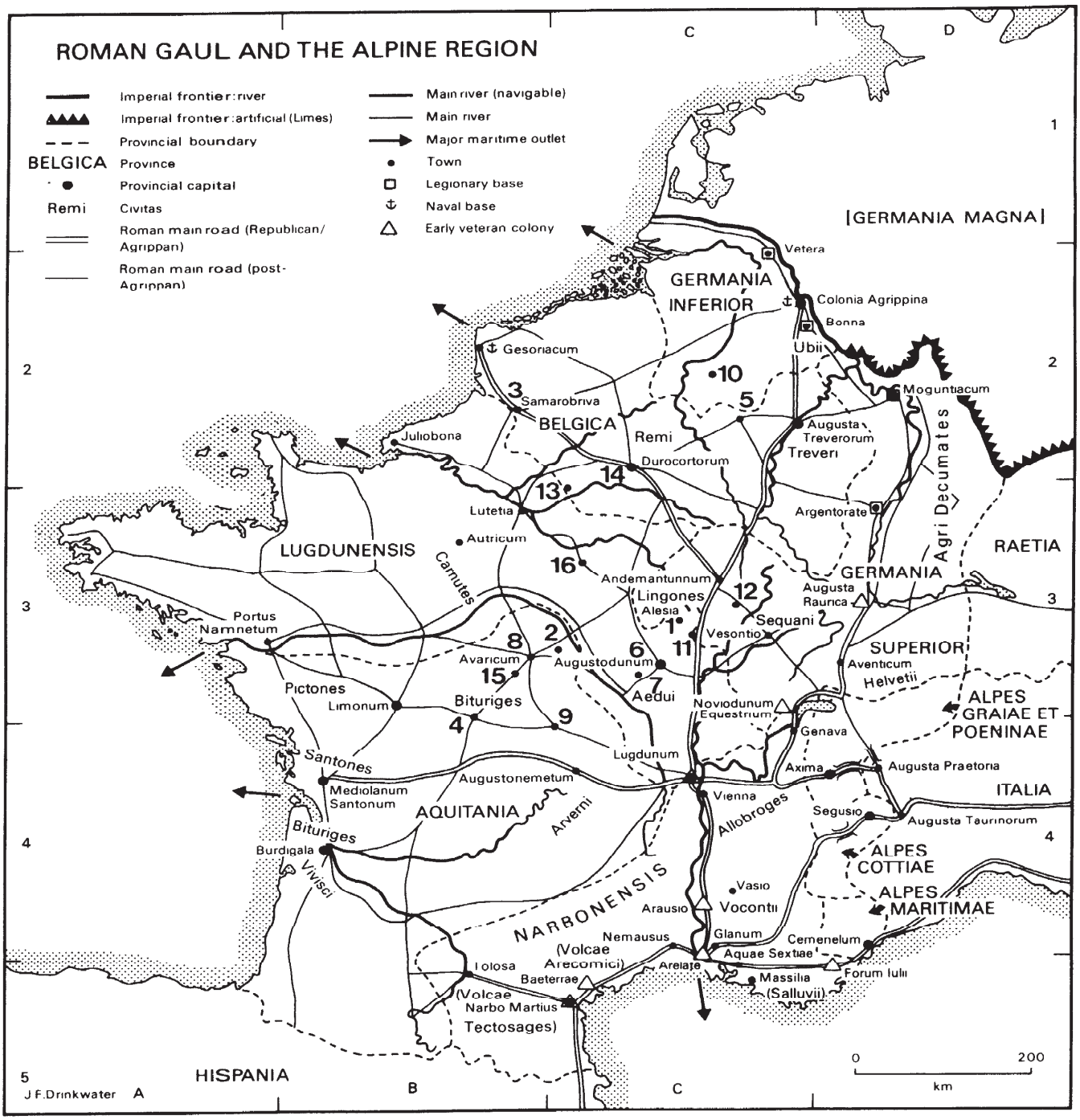
Urbanization in the Three Gauls

Students of Roman Britain are sometimes compelled to supplement the rather meagre information for this island with the much richer literary, epigraphical, and archaeological material to be found across the Channel. However, at the outset it is probably fair to concede that they should be little surprised by, and will have little to learn from, the present state of the evidence, and its interpretation, for the urbanization of the Three Gauls. Recent years have seen the publication of useful monographs on important sites and an invaluable synthesis of modern thinking on the earliest history of the French town (Duval 1961; Etienne 1962; Février *et al* 1980), but in terms of archaeological technique and historical analysis the Three Gauls are still catching up with advances already made in, or stimulated by, Romano-British studies. Above all, perhaps, Gaul has suffered from the lack of a Gallic Silchester to provoke thought by showing us how a Comatan *civitas* capital may have looked and operated in its entirety.

Common opinion now seems to advocate that in respect of urbanization the Three Gauls experienced a combination of continuity and sharp change. In the pre-Roman period we can see clear signs of 'embryonic' urbanization in the form of permanent centres of quite intense human activity, the main functions of which were not primarily agricultural or military, but religious, administrative, and even industrial (Février *et al* 1980, 204-6, 217-21, 231; Drinkwater 1983, 11-12). These were the social and economic foci of their regions; they brought together various chains of production and processing which ran to them from scattered farmsteads and from smaller artisanal and commercial settlements in the vicinity; in short, the hierarchy of *aedificium, vicus,* and *oppidum.* Individual *oppida,* through their dominance of the main lines of communication, were in close contact with each other and with the wider political and economic world beyond Gaul. Such a state of affairs existed, at least among the larger and more advanced nations of central Gaul, from about the end of the 2nd century BC (Nash 1976, 128; Février *et al* 1980, 86, 204). This was the tradition upon which Rome could build.

But with integration into the Roman Empire the indigenous movement towards urbanization was accelerated at such speed, and under such different political and social circumstances, that the evolutionary incline was faulted: there was a shearing, a forcing upwards to such a degree as to result in discontinuity. This was due to the interaction of two major forces. The first was the imposition of an overall military strategy on the Three Gauls, directed ultimately to the holding of the Rhenish frontier. This entailed the complete recasting of the road system, and the building of forts to protect its most vulnerable parts. Such activity was bound to disrupt the local, *oppida*- based, hierarchies. As was later to occur in Britain, *oppida* could now find themselves inconveniently distant from new patterns of movement created by the military highways; or, even if they were near or on these highways, they could suffer competition from rival centres of activity stimulated or brought into existence by them, and better able to exploit the new circumstances (Drinkwater 1983, 121-3; cf Frere 1975, 4-6; 1978, 273; Rivet 1975, 111-12). These included existing *vici* and more recent settlements around forts or other stopping-places, both official (stations of the Public Post) and unofficial (inns). The old order was shaken up; and, indeed, I would argue that with the consequent loosening of the hold of the *oppida* the number of potential urban centres was actually increased.

The second force ran counter to the first and arose out of Roman willingness to see, and indeed to insist on, the elevation of a very limited number of such places to provide for the proper running of Gaul. By these I mean neither the colonies nor the provincial capitals, both of which (somewhat oddly) figure little in the picture of Gallic urbanization, but rather the so-called *civitas* capitals, in which was centralized the administration of each Gallic nation. Thus, out of potentially many centres a few



1 Alise-Ste-Reine (Alesia)
2 Alléans
3 Amiens (Samarobriva)
4 Argenton (Argentomagus)
5 Arlon (Orolaunum)
6 Autun (Augustodunum)
7 Bibracte
8 Bourges (Avaricum)
9 Châteaumeillant (Mediolanum)
10 Clavier-Vervoz
11 Mâlain (Mediolanum)
12 Mirebeau-sur-Bèze
13 Mont Berny
14 Reims (Durocortorum)
15 St Ambroix (Ernodurum)
16 Sens (Agedincum)

Fig 38 Roman Gaul. The numbered sites are those mentioned in the text (Copyright Croom Helm 1985)

were raised to special prominence — possibly even fewer than in pre-Roman days when within a single large *civitas* several *oppida* may have vied for supremacy (Drinkwater 1983, 137). To just one locality in each *civitas* regularly resorted the *civitas* aristocrats and their families, and those who attended their needs (Goudineau 1980, 327-30, 333-6). The growth of these centres, therefore, owed more to political and administrative imperatives than to economic factors. Rome used them to maximize the efficiency of the local government of her Empire and to make it easier to monitor the activities of those who were in charge. As far as the *civitas* aristocrats were concerned, they became the all-important stages on which to vaunt, confirm, and increase their local status (Goudineau 1980, 331); in pre-Conquest times they would have had great throngs of dependants, but now this was probably their only chance to enjoy the adulation of large crowds in accordance with Gallic tradition. This display behaviour, this controlled rivalry *(aemulatio)* between individual and individual, family and family, tribe and tribe, even nation and nation, was made manifest in public munificence. Large amounts of private resources were expended in adorning the *civitas* capitals with public buildings and other amenities (Goudineau 1980, 340-2; Drinkwater 1983, 142-3). But quality mattered just as much as quantity, and this was measured in terms of similarity to the Graeco-Roman urban model. As a result, the *civitas* capitals as we know them emerged, with their street grids and fora, their basilicas and baths, their mosaics and marbles, all striving to look like Mediterranean cities. Again, Britain was to follow the same path some decades later (Wacher 1974, 21).

I would argue, *contra* Goudineau (1980, 307, 386), that these places were in no way 'artificial', arising out of 'unreal' needs and imposing 'unfair' burdens on the economy which supported them. Their shape and adornment were part of their function, which was seen at the time as very real, both by the imperial power and by the *civitas* aristocrats. Indeed, the new style of building reflects important and deep-rooted shifts in attitude, and shows the local nobilities going out of their way to accommodate their lifestyles to the New Order of which they wanted to be part. Thus, as Goudineau himself observes, in erecting large and numerous bath buildings, theatres, and amphitheatres the Gallo-Romans were undertaking extremely expensive long-term commitments of a sort they had not faced before; and likewise, in baring the burial-places of their dead to public gaze on the approaches to their *civitas* capitals, they were adopting Roman practices quite different from those of their forbears (Goudineau 1980, 243, *294-S).* The *civitas* capitals reflected and promoted Gallic participation in the Roman world. Although they followed upon native progress towards urbanization they were *sui generis* and did not proceed directly from what had occurred before (Goudineau 1980, 234-5, 242, 259, 331).

Most of what I have said so far will have been quite familiar to students of the urbanization of Roman Britain. Current views on particular aspects of the appearance and topography of these Gallic 'cities' (to adopt Rivet's terminology (1978, 499-500), since I wish to reserve the word 'town' for later use) should be greeted with a similar lack of surprise. It is, for example, now accepted that, despite the common underlying forces which drove them to assume a very similar shape, individual cities did not in the end emerge as identical, all reflecting some overriding master plan. There was, on the contrary, great local variation, reflected above all in the fact that the dimensions of *insulae* differed from city to city and even within a city (Goudineau 1980, 264-6; cf Frere 1977, 91; Wacher 1974, 21). As Goudineau suggests (1980, 266-7; cf Wacher 1974, 245, 277), the exact specifications for dividing up the plot of land which was chosen for a city were probably decided on the spot. In this respect, old-established dogma concerning the strict north-south/ east-west orientation of the *kardo* and *decumanus maximi,* the location of these streets, and the relationship of their intersection to the main public buildings has also been questioned, although not without some disagreement (Goudineau 1980, 259-64; cf Duval 1980, 269).[1] Likewise, the recognition (long-standing in Romano-British circles) of indigenous building materials, and even indigenous techniques and styles of building, which gave the cities a rather homespun look despite their grand pretensions, is now at last finding general favour in Comatan studies (Goudineau 1980,240; cf Frere 1978,281). In this respect, the notion of the absence of any sort of overall architectural inspiration, in striking symmetry and perspective, has also gained ground. There was no forward planning. Buildings, public and private, were slotted into the grid system as money became available for their erection. Except in rare cases, they were neither related to each other, nor to the city as a whole. Rather like Oxbridge colleges, they had their individual splendours in their inner courts and colonnades, but these they hugged to themselves and did not share with the city at large. The main striving after overall effect was to be found in the covered walkways, the porticoes, which lined the streets and provided a common facade to cover the irregularities of the individual structures within each *insula.* Even these, however, suffered from the neglect of central planning and uniform building regulations; they too had a home-made look. Above all, it was simply the street grid itself, and the vistas it provided, which supplied the main element of architectural unity and rhythm. The grid was paramount; it gave the city its shape, and held it together (Frere 1977, 102-3; Goudineau 1980, 269-72, 296).

Defences and chronology

At this point I would like to put discussion of the street grid temporarily to one side in order to draw attention to two aspects in which the topography of the Gallic cities differed from that of the British *civitas* centres.

Firstly, urban defences — specifically, curtain-walls — were a great rarity in the Three Gauls under the High Empire (Goudineau 1980,244). The few examples which do exist can easily be explained away as special cases (Drinkwater 1983, 131, 151). Unlike Britain, Gallia Comata saw no great programmes of wall building before the main onset of the 3rd-century crisis. The cities of Comatan Gaul, therefore, look somewhat different in plan from those of Britain. There are few crisp outlines and few easily-memorable shapes. We have to rely on the location of cemeteries to give us *pomeria* (eg Goudineau 1980, 243 — Reims); hence calculations of total areas occupied, and of the proportion of open to built-up space within these areas, must be very imprecise. The identification of the

'suburb' must also be made more difficult. More to the point, I feel it is safe to say that the general absence of fortifications must have removed from the topographical development of most Gallic cities a major influence which was, eventually, widely experienced by their British counterparts. City walls must surely affect the growth patterns of urban communities, if only by encouraging a greater concentration of people within them (cf Frere 1978, 284).

Secondly, I have been struck by the lack of a strong chronological framework for the development of the Comatan cities, in comparison with that available for Britain. Britain suffered a 'rolling' conquest, moving roughly from south-east to north-west, which took a number of years to complete. As the military moved forward, and as client kingdoms were broken up and absorbed, *civitates* and *civitas* capitals were established in their wake, on the existing Gallic model. In these early stages the army was never far distant, and difficulties in finding the right materials or expertise for the laying-out and construction of the new cities could be overcome by recourse to military resources. Thus there was a steady pulsing outwards of *civitas* development, the various beats of which can, within limits, be given fairly clear historical contexts and hence fairly precise dates — 'Claudian/ Neronian', 'Flavian', 'Hadrianic', etc (Wacher 1974, 178, 289, 375).

In the case of the Three Gauls, however, the situation is much less straightforward. In fact, it is very difficult to assess how long it took for the Gallic model to be adopted throughout Comatan Gaul itself (Ward-Perkins 1970, 1). The Three Gauls were rapidly and entirely subdued in the course of Caesar's campaigns. They were then neglected as Rome fought two rounds of savage civil war, to the extent that the very nature of the early Roman occupation and administration of these provinces (and, indeed, the question as to whether they were as yet fully 'provincialized') is a vexed issue. War ended in 30 BC and by 27 BC Augustus was in Gaul making a start in settling the affairs of the country; the provincial government was given a more definite shape, and we may presume that *civitas* administration would have received similar attention (Drinkwater 1983, 20-l, 95).[2] However, it is not easy to attach precise dates to these changes, still less so to the subsequent emergence of Romanized *civitas* capitals. Did the process begin as early as the early 20s BC when, we may assume, the Three Gauls were still very much under military occupation; or, more likely, did it have to wait until the period following 16 BC, when troops were moved en *masse* to the Rhine in preparation for the great assault on Germany, launched four years later? In any case, no matter what was happening on the juridical side (as martial law gave way to autonomous *civitas* administration, providing the opportunity for the creation and embellishment of *civitas* capitals), there would still have been enormous problems in obtaining the men and materials necessary to effect such a transformation. There were many Comatan *civitates*, and so many Comatan *civitas* capitals, competing for resources. On top of this, it now seems clear that it was as late as the reign of Augustus that the towns of Narbonensis, a province largely neglected by republican Rome, began their own strong development; these must have retarded the progress of many of the northern cities as they soaked up labour and supplies (Ward-Perkins 1970, 4; Goudineau 1980, 301). In the meantime, for most of the Comatan nations, the army was far removed (and, I would suggest, involved as it was in a long and ambitious German campaign, unable to offer much support in the construction of new capitals). We must, therefore, envisage the emergence of the Comatan cities as a long-drawn-out and irregular process, depending very much on local wealth and influence. Powerful *civitates* may have been able to get on relatively quickly, but many must have had to wait a long time before they could afford the privilege — well into the reign of Augustus, and even beyond (Will 1962; Walthew 1982; cf Ward-Perkins 1970, 4; Goudineau 1980, 239-40).

If it is accepted that the *civitas* capitals of the Three Gauls were subject to an uneven and protracted genesis, then a number of interesting questions follow. For example — an obvious, but possibly neglected, issue — how long did it take for a particular centre to be firmly designated as capital? We know those that did emerge; perhaps we find it too easy to justify their positions by reference to locational advantages? Although it is likely that a number did stand out as obvious places in which to settle their respective *civitas* administrations, we should not overlook the possibility that, especially in the larger *civitates,* there may well have been uncertainty as to which settlement would emerge as leader and that, in these early stages, the fortunes of individual sites may have fluctuated. Thus among the Bituriges, Avaricum (Bourges), which had figured prominently in Caesar's *Commentaries,* apparently declined in the years immediately following the conquest, its position usurped by Mediolanum (Châteaumeillant) and Argentomagus (Argenton) on the Roman main road to its south. I have argued elsewhere that, in the face of such competition, it may have been as late as the middle of the 1st century AD that Avaricum reasserted itself (or was consciously restored by Rome) as undisputed *civitas* capital (Drinkwater 1983, 133). Better known is the case of the Aedui, who seem to have taken some years to abandon their old *oppidum* at Bibracte in favour of a new *civitas* capital, probably generated by the existence of a Roman fort guarding the crossing of the Arroux, at Augustodunum (Autun).

Similarly, there is the question as to what the emergent cities would have looked like before they received the ultimate and irrevocable badge of their rank, namely the street grid. Continuity of occupation into medieval and modern times makes the archaeological evidence very poor in this respect, and we have to look elsewhere, to 'failed' city sites such as, again, Bibracte and Argentomagus (cf Goudineau 1980, 226). Here it is clear that growing prosperity produced fairly substantial buildings, even in the absence of orthogonal planning, arranged according to Gallic rather than Roman traditions (Février *et al* 1980, 206-9; Allain 1968). Elsewhere it is possible, as has been noted in respect of Roman Britain (Wacher 1974, 87, 294), that embryonic capitals copied or conformed to the layout of Roman military installations which adjoined them or lay in the vicinity (cf Walthew 1982, 225, 226, 228). However, such a precocious adoption of Roman planning would not have involved the laying-out of a full grid; this would have followed in due course. My point here is that in both cases — unplanned and planned — the ultimate levelling and resurveying in preparation for a chequerboard street plan would have involved the des-

truction of the work of one or more generations, and must have caused substantial temporary dislocation of the lives of the inhabitants of the capitals. We have here yet another reflection of the commitment of those who decided to redevelop their cities so as to conform with the ways of the New Order. On the other hand, this very disruption causes me to doubt the too easy assumption of 'second foundations' of established *civitas* capitals; in this respect I agree with Frere and Walthew that, for example, the layout of Samarobriva (Amiens) was the result of a single act of planning (Frere 1977, 91-2; Walthew 1981).[3]

Finally, it is all very well to talk glibly about vague 'commitment', but attention must be given to the particular stimulus which dictated the exact form of the change, and to its implications. So far as Britain is concerned there was the Gallic model relatively close to hand, together with several veteran colonies and the efficient, if somewhat utilitarian, skills of the army engineers (cf Frere 1977, 103). In the case of the Gallic model itself the army may have been less of a force; and, as far as colonies are concerned, there were relatively few in the Three Gauls. Colonies were, of course, much more common in Narbonensis, but even here, in the early period, they were only just beginning to find their feet. In fact, as Ward-Perkins has argued (1970, 5-6), it is likely that the inspiration for the Gallic style of city planning ('Gallic' here signifying the whole of Gaul) came from Italy or, to be precise, Cisalpine Gaul. This would explain the well-known difference between Gallic and British forum-basilica complexes, the latter more military in appearance than the former. The possibility of a considerable lapse of time before the complete development of Comatan *civitas* capitals, and of the presence of skilled Mediterranean-style architects in the country, has allowed Walthew to suggest that, in the north at least, the great sanctuaries owed their peculiarly early rise to the application of this expertise to rural sites before the cities (Walthew 1982, 228-9).[4] Overall, the emergence of the Comatan *civitas* capitals, compared with that of the British, seems to have been a very ragged and untidy process.

Apart from the issues of defence and chronology, there are many other aspects of urban topography which would repay further study, such as the location of cities, their size and population, the likelihood of internal zoning, and the nature and level of public utilities. One which has a particular interest for me is the central, but still hotly disputed, question of the residence and residences of the decurial aristocracy, and the extent to which they and their entourages dominated city life (Goudineau 1980, 358). However, I now return directly to that aspect of Gallic urban topography which concerns me most in this paper, namely the street grid.

The street grid and its implications

The street grid is conventionally and, I feel, correctly given great prominence in every discussion of the Gallo-Roman city. It is commonly referred to as the most distinctive feature of the break between pre-Roman and Roman urban practice (Wacher 1974,21; Frere 1977,87; cf Frere 1978, 274). The historian, even more than the archaeologist, must be drawn to it as a graphic indication of the political, juridical, social, and economic transformation which marked Gaul's integration within the Roman Empire. As we have already seen, in severely practical terms the orthogonal street grid was the most potent force in determining the basic appearance of the city: it provided the framework into which everything else had to be fitted (Goudineau 1980,296). On its margins lay the cemeteries; and near its centre was usually located the hub of urban life, the forum-basilica complex. As mentioned above, there is now general agreement that as far as the Roman west as a whole is concerned there was little or no imaginative town planning in the layout of cities (Goudineau 1980, 269, 296; cf Wacher 1974, 262). Provision was not made for future plazas or crescents. Once the main grid had been laid down even the largest and most expensive structures had to respect it, imparting that odd air of introspection which I have already noted. In essence the urban street grid dictated the urban topography. (It is noticeable that even today those who examine the sites of Roman cities make the reconstruction of the street plan one of their first priorities - a zeal which, as Goudineau has remarked (1980, 264, 269), can lead to problems.)

The importance of the grid is reflected in its ubiquity and in the effort and expenditure invested in bringing it about on such a large scale; the amount of work involved in clearing and replanning a site was plainly enormous (Goudineau 1980, 267). Such reliable plans as we do possess demonstrate a quite remarkable disdain for existing features, either natural or man-made. The demand was for a virtual *tabula rasa,* in the execution of which even features of prime importance, such as the original courses of military highways, were obliterated (see, for example, the plan of Amiens - Walthew 1981, 298; cf Goudineau 1980, 269). Earlier I commented on the lack of detailed uniformity, but quite clearly there was a preconceived idea of a *general* form, a *general* layout, which would go to make Gallic *civitas* capitals look *generally* the same – especially in plan, when inconvenient contours could be ignored, and when the new city could be shown in a condition of 'perfect horizontality' (to borrow Goudineau's expression – 1980, 267). In one direction such considerations take us back to questions of resources, stimulus, and even the quality and degree of the persuasion which was applied to the leaders of the Gallic nations to get them to conform (cf Drinkwater 1983, 142-3). In another direction, however, and one which I intend to pursue here, they lead us to the issue of natural development, and the question as to whether the cities reflect the true spirit of Gallic urbanization and Gallic urban topography. Did the Graeco-Roman urban style completely replace the vernacular style? If one were in a position to ask the Gaul in the street what he would accept as the minimum requirements for calling a place a 'town' (and here I reintroduce the word), what would he say?

The same question could, of course, be asked about Roman Britain, but in this respect there is a difference and, unusually, Britain is at a disadvantage. If the Three Gauls have no Silchester, then Britain possesses nothing to rival Gallo-Roman Alesia. In other words, there were in Gaul a considerable number of important urban and quasi-urban centres which were not colonies, *municipia,* or *civitas* capitals. Here, of course, I mean the 'small', 'subordinate', or 'minor' towns, which for the sake of convenience I will continue to call *vici,* while accepting the juridical problems which this involves (Drinkwater 1983,

135-6; cf Rivet 1975, 111), and the rural sanctuaries. Many were very small, but some were social, economic, religious, and administrative centres of considerable significance. As far as Gaul is concerned, we must not restrict our thinking on urbanization and topography to the *civitas* capitals or to the few full colonies. Equal if not greater attention should be paid to complementary agglomerations, the archaeology of which, indeed, tends to be more reliable and productive than that of the cities because it is less restricted and more recent (eg Roussel 1979; Roussel nd).

These other centres were, of course, not directly part of the administrative framework of the New Order, and thus did not at first attract the same input of imperial or local aristocratic wealth as did the colonies and cities. However, they had strong economic lives of their own, and through artisanal, commercial, and religious activity throve and prospered. Indeed, it has long been noted that the surviving material from places such as Arlon, St Ambroix, and Sens seems to show them more active in these respects than many a *civizas* capital. An identical picture is coming out of new excavations; the richness and vitality of the Comatan *vici* is now almost an archaeological truism (Allain 1968; Roussel 1979; Roussel nd; cf Drinkwater 1983, 135). On top of this self-generated prosperity there may also, in the end, have come direct stimulation from local aristocrats who, having exploited the opportunities of the *civitas* capitals to the full, now sought the acclaim of other audiences. I have long argued that sub- *civitas* ties and loyalties remained strong in the Three Gauls, particularly at *pagus* level (Drinkwater 1979, 93–4); by acting as benefactors of local centres artistocrats would give themselves the opportunity to be adulated by other, and possibly more appreciative, crowds. Perhaps the creation of a virtual 'new town' at Alléans, across the river from the old *oppidum* centre, was the result of such generosity (Leday 1980, 311-13)?[5] As a result, building at the lesser centres boomed, and their growth and appearance may provide us with a useful external means of measuring the artificiality or otherwise of the layout of the cities.

Towns and sanctuaries

As far as the *vici* are concerned, viewed in this light, it must be significant that orthogonal street planning is very rare indeed. Although often claimed, it has, in my view, seldom been conclusively proved to have existed on a very large scale within a particular community.[6] Exceptions exist, but may be explained away; for example, at Mirebeau-sur-Bèze the civil settlement was plainly influenced by the neighbouring army base *(Gallia,* 28 (1970), 381-2). At Mâlain initial, possibly quite ambitious, formal planning of the *vicus* was subsequently abused in a way which is never found in the cities; a length of a main street was overbuilt, went out of use, and was eventually used as a rubbish dump (Roussel 1979, 203, 208-10, 227; cf Goudineau 1980,270). Again, this should not surprise students of Romano-British small towns, used to the unformed development of most native *vici.* However, the difference here, as I have already hinted, is that the Gallic towns were plainly much richer than their British counterparts. They had the resources to develop themselves, and the ways in which they used them are interesting. The fashion was for public buildings - places of resort, entertainment, and administration: they seem to have possessed open areas, porticoes, market halls, temples, bath buildings, theatres, even basilicas (which would suit the notion of their role as important centres of *pagus* administration), sometimes on a very grand scale indeed, and in a way not yet clearly seen in Britain (eg Allain 1968; de Böe 1976; Leday 1980; Le Gall 1980; Planson 1976; Roussel 1979; Willems & Lauwerijs 1973). Indeed, the largest *vici* could boast many of the facilities of the cities - except for the street grid. In plan they look like the cities with the framework, the corset, of orthogonal planning removed; and perhaps their inhabitants preferred it this way? In other words, perhaps to the Gallic mind, the rigid street planning of the *civitas* capitals, which at the time so much determined their layout and which today, either directly or indirectly, still governs the thinking of scholars, was not a prerequisite for the development of all urban life. In many *vici* the resources must have been available to effect such a change, but the option was spontaneously rejected.

This rejection is all the more interesting if we remember that other sites show that the Gauls were not averse to order and symmetry for their own sake. Such a borrowing from Roman architectural practice is to be found in many villas and, above all, in the great rural sanctuaries, where axiality is combined with massive monumentality and the desire to establish a striking prospect.

These ambitions were realised most of all in the large, purpose-built complexes which have been termed *conciliabula,* and which, with their vast courts and porticoes, their baths, theatres, and basilicas, as well as their temples, have been seen as a way by which local aristocrats sought to bring the benefits of town life to the remoter parts of their *civitates* (Frere 1975, 6; 1977, 87; Walthew 1982, 228; Drinkwater 1983, 179-81). Thus they may be called 'quasi-urban'. Clearly, a great deal of thought and work went into designing and building them, and a special effort was made to create an impression of order and grandeur. However, as with the *vici,* the greatest emphasis was put on the public buildings and places of public resort. Effect was created by the careful juxtaposition of such structures, not by their insertion in a prearranged system of roads or avenues; and the permanent settlements which grew up alongside as orthodox *vici* were just as disordered as those elsewhere.

In the end, however, is the word 'disorder' itself unfair, arising out of the orthogonal prejudices inspired in us by too close an acquaintanceship with the *civitas* capitals? Possibly urban topography is too often and too closely associated with town planning. There is a tendency for scholars to recoil from the idea of establishing any sense of order or arrangement within the Gallic *vici,* and to dismiss such settlements as chaotic straggles (Leday 1980, 317). However, I doubt most strongly whether any long-settled centre of human activity can be dismissed in such a way; over time all places develop a rhythm and personality of their own. I would suggest that, as the evidence becomes available, the internal patterns of *vicus* settlement will repay closer study. It already seems to me, for example, that in many places the inhabitants of the *vici* made efforts to arrange their public buildings in some form of recognizable civic centre, as certainly can be seen at Alesia and is also distinguishable at Clavier-Vervoz and, perhaps, at St

Ambroix (Le Gall 1980, 126-45; Willems & Lauwerijs 1973, 158-9, 169-72; Leday 1980, 308-10). It should also, I suggest, be possible eventually to learn more from a site as rich and complex as Mont Berny, with its associated religious, administrative, residential, and commercial buildings (Harmand 1976, 226-8, 234). Furthermore, as I hinted earlier, for practical reasons it will be left very much to the *vici* to fill gaps in our knowledge about details of life in the cities; private housing is an important topic where progress has been made in this way (Martin 1977; Roussel 1979; Roussel nd). In my opinion, as far as Gallo-Roman urban studies are concerned, the future lies very much with the *vicus*.

Conclusion

In this paper I have drawn attention to the importance usually accorded to the orthogonal street grid in the study of the *civitas* capitals of the Three Gauls. I have suggested, however, that for all its importance it remained very much a foreign importation which must not blind us to the authentic nature of Gallic urbanization. This, I suggest, was much more inclined towards the erection of public buildings, and their grouping in loosely ordered centres, than towards the establishment of a rigid street system. In fact, in respect of the *vici,* it is perhaps not unreasonable to suggest a much greater degree of continuity betwen pre- and post-conquest behaviour than was proposed at the beginning of this paper for the *civitas* capitals. Essentially there is not a great deal of difference between Bibracte and Alesia in their rejection of perfect horizontality and total planning. The same would, I suspect, also hold true for the post-Roman period. Above all, however, I suggest that the question of the 'town' in Roman Gaul demands much more than the consideration of colonies and *civitas* capitals; and, equally, that the *vici* and sanctuaries should not be considered by themselves, but rather as part of the complete urban, and sub-urban, picture.

Notes

1 cf Wacher 1974, 105, 318, who seems inclined to accept a somewhat greater degree of uniformity with regard to Britain.

2 cf Drinkwater 1983, 131. I see no reason why the boundaries of the *civitates* should not have been delimited even when their administration was still military, ie before the move to the Rhine. To have shelved these changes for too long would have been unsettling and unwise.

3 In fact, for the same reasons, I have my doubts about the very peculiar twofold development suggested for Bavai (Leman 1979, 174).

4 I cannot agree in full, however, with Walthew's contention that the sanctuaries were founded as early substitutes for cities, and that their architecture subsequently affected that of the northern *civitas* capitals (1982, 229).

5 Leday (1980, 312), following Picard (1976, 49), regards Alléans II as an orthodox *conciliabulum*. However, I find it unrealistic to conceive of such so close to a normal *vicus,* and propose that it was a 'new town' based on the layout of a *conciliabulum*.

6 I am unconvinced by recent claims on behalf of, for example, Vendeuil-Caply (Agache 1978, 413) and Verdres (Jalmain 1977, 26).

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Forum and Capitolium in the early Empire

Malcolm Todd

Introduction

This paper, an abstract from a larger work, has two principal subjects tending to one end. One is a brief review of the information recently gained on the development and dating of certain forum types in the western provinces. The other, interwoven with the first, is an examination of the role played by temples of the Capitoline cult and other public temples in the planning of urban centres from the later Republic into the early Empire.

It is sometimes possible to get closer to the truth by examining a statement which is wholly wrong. Here is a judgement on Roman religion under the Empire. 'Roman religion issued in a mere political worship of dead emperors and of the genius of the existing monarch and of the fortune of Rome - the deifications of force and power and outward peace, with scarce a spark of love or moral enthusiasm.' This is perhaps not a surprising statement, coming as it does from an English bishop in 1881. More surprisingly, that judgement persists among some who have studied the Roman Empire more deeply than Bishop Wordsworth.

Archaeologists frequently underestimate, if they do not entirely omit, the influence of religion on the planning and the life of Roman cities. Fora, baths, markets, and defences tend to be the principal components of the scene. Temples figure too often as decorative elements and scarcely more. To a large extent this is due to a failure to appreciate how significant and all-pervading religion was to the Romans and their provincial subjects in the west as well as in the east. This was as true throughout the Empire as under the Republic - Wolfgang Liebeschuetz has put it succinctly in a recent book (1979, 197-8): 'Throughout the period *(sc* the late Republic and the early Empire) it remained axiomatic that the state could not flourish without the successful appeasement of the gods. Moreover, the gods who have to be appeased remain the traditional gods, with Jupiter as much as ever the supreme patron of the Roman state.' The fate of Rome (and her rulers) lay in the hands of Jupiter. It was Jupiter who saved the state from the conspiracy of Catilina: Cicero was merely his agent. It was Jupiter whom Vergil moves to say in the first book of the *Aeneid:* 'imperium sine fine dedi' (i.279). Emperors as diverse as Augustus, Gaius, Domitian, and Trajan were content to appear as the counterpart of Jupiter on earth. It was the supreme god to whom the individual and the State turned when in serious trouble. This is admirably illustrated in the *Punica* of Silius Italicus (a governor of Asia under Domitian): the subject is Rome's struggle against Hannibal, one of its major themes Jupiter's care for Rome and his determination that Hannibal will never prevail.

Jupiter was honoured on the Capitoline hill in Rome. The foundation of his temple was traditionally set in 509 BC, and although this may not be historically accurate (Pékary 1969), it was certainly ancient. The association of Juno and Minerva with Jupiter is apparently just as old. The Capitolium was not merely a great temple, the most important of the Roman state, it was a symbol of Roman power and a political monument, a repository of the

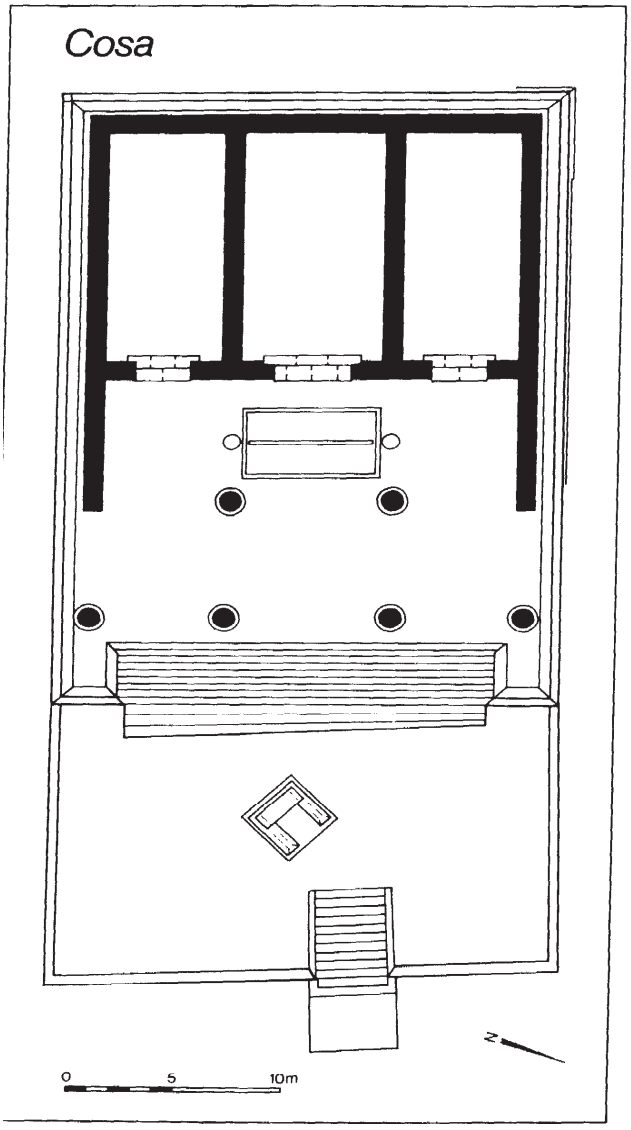

Fig 39 Cosa: the Capitolium

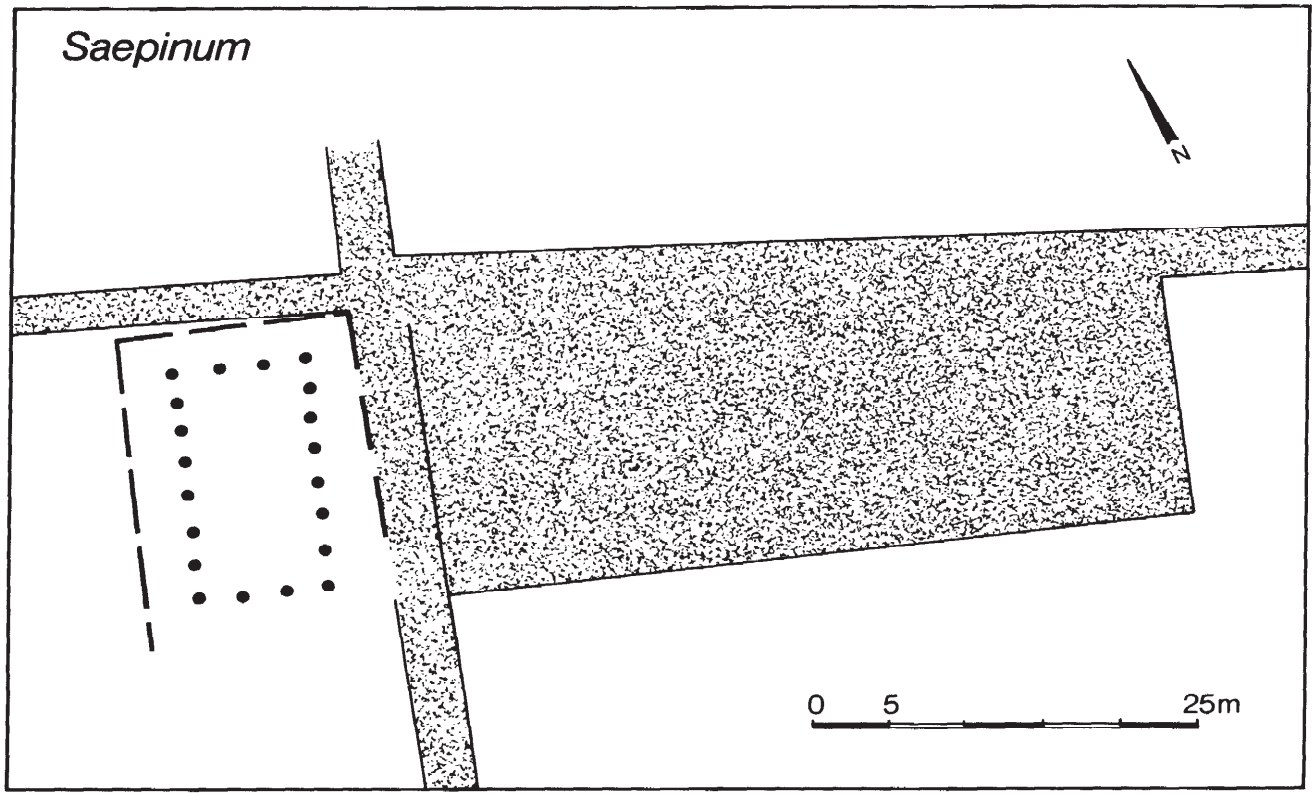

Fig 40 Saepinum: the forum and basilica

records of treaties struck with external peoples and of gifts offered by friendly kings and tribes, and the shrine to which the young citizen went to make an offering to Jupiter on the day he was invested with the *toga virilis.* Tertullian (De *Corona,* 12) tells us that the year began with prayers to Jupiter: *prima in principiis, secunda in Capitoliis.* In the same way that the *principia* was the focus of a military fortress, the Capitolium was the focus of a city.

Capitolia on the pattern of the state temple on the Capitoline are familiar features of the plans of cities in Italy and North Africa. Generally, but not invariably, these communities were *colonies,* and the provision of the building may have marked an important stage in the advance towards full Roman status. In the eastern provinces Capitolia were rare, the most notorious being the result of Hadrian's choice of the cult of Iuppiter Capitolinus to replace that of Jehovah in his new colony of Aelia Capitolina at Jerusalem.

We are left in no doubt as to the *special* nature of Capitolia. The most prominent site in the city must be reserved for the Capitoline Triad, according to Vitruvius (i.7. l), presumably to echo the siting of the Capitolium in Rome itself. What topography could not provide was often afforded by a high podium, for example at Ostia and in several of the North African cities. The simple fact is that Jupiter dominated public ceremonies. When, therefore, Italian and, later, other provincial cities wished to include a distinctively Roman feature in their centres, it was natural that they should construct Capitolia in dominating positions, either in the forum or on some eminence within or near the town.

Recognition of a temple as a Capitolium is not always easy, but there are several characteristics common to those which can be identified with reasonable certainty: three *cellae,* a high podium or a high natural position, and a deep *pronaos.* The first of these is often regarded as a peculiar feature of a Capitolium. The siting of a temple, or three temples, at one end of a forum piazza is a less safe guide. Three temples in a row, without any other evidence, is certainly not enough. Sculptural or epigraphic evidence is of course more cogent, though in relatively few cases has such evidence proved decisive. The combination of a number of such features is a prerequisite, one of the most reliable being a tripartite *cella.* But even here there are pitfalls. Not all temples with a triple *cella* were Capitolia and not all Capitolia had a triple cella.

The Capitoline cult and its associated buildings have been studied by several scholars, though no exhaustive study has yet appeared. Castan's treatment of 1886 was the first to examine provincial Capitolia in any detail, followed by Toutain (1899). The most ambitious survey, still of value, is that of Cagiano de Azevedo (194l), particularly useful on Italy, though he accepted more structures as Capitolia than seems justified. On the Capitoline cult, Bianchi's study of 1950 is the best general review, though it requires updating for individual provinces. The recent article by Barton (1981) is helpful on the African provinces, but does not cover the others in detail. The present

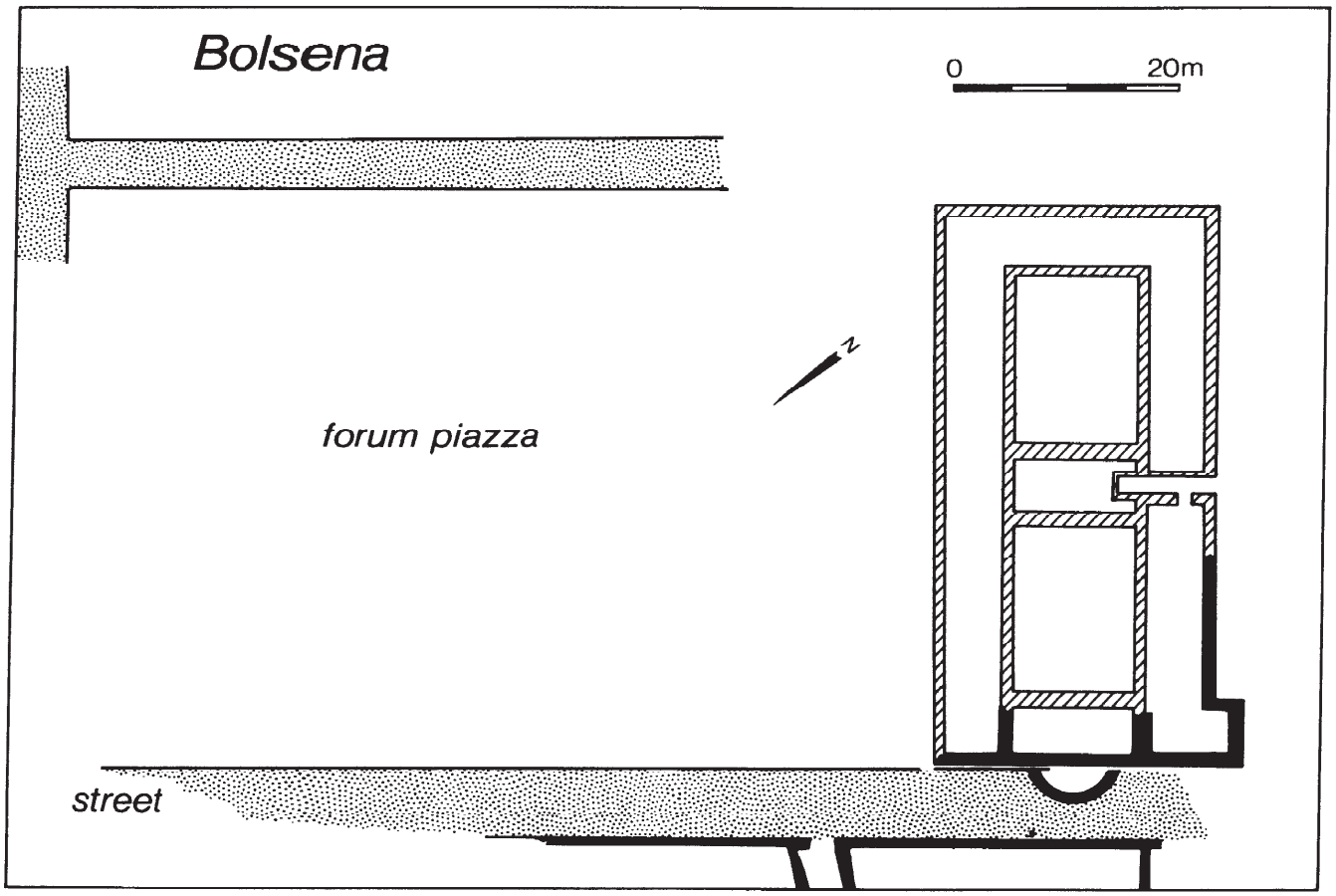

Fig 41 Bolsena: the forum and basilica

paper makes no attempt **at an** exhaustive survey. A short lecture offers only an opportunity to review the present state of knowledge and highlight certain features of the subject. I have chosen to pay particular attention to the Capitolium as an architectural focus, as this aspect has been under-emphasized by most earlier writers.

Republican fora and the architectural role of Capitolia

During the 2nd century BC, particularly in the second half, there occurred a great spurt of building activity, reflecting partly the accession of wealth in Italy following the Second Punic War and partly the need for some cities to rebuild and expand their centres after a long period of destructive warfare. This was a formative period for the public buildings of Italian cities, particularly the structures which surrounded the fora, and the public centres which emerged during the 2nd century were to influence powerfully the planning of early imperial foundations not only in Italy but in the west as a whole. Among the most striking and significant developments was the addition of a basilica to the forum in a wide range of cities, from Rome herself (Basilica Portia in 184, Aemilia in 179, and Sempronia in 170) to lesser places such as Pompeii (after *c* 150) and Cosa. Porticoes were increasingly used to link elements of different date and style into a more coherent whole, often masking such humdrum features as shops and *tabernae.* Public temples not only became more common features of the environs of a forum, but in some cases emerged as dominant architectural elements. Not infrequently those temples were Capitolia. All this is well exemplified at Pompeii after *c* 150 (Nor *Scavi* 2 (1941), 371; 3 (1942), 253; 8.5 (195l), 225). The whole of the early piazza was remodelled, a basilica and *macellum* were added, and a portico on a raised stylobate hid a muddle of structures along one edge. But the most notable new building was a temple of Jupiter set on a high podium which commanded the side of the piazza. This was of a typically central Italian type with a single *cella* and an altar placed in front on the podium steps. Further south, at Paestum, a similar transformation was wrought early in the 2nd century. Again a large temple was to dominate the plan, this time a Capitolium, but here the builders chose to place it in the centre of one of the longer sides close to the earlier *comitium* and *curia* (Sestieri 1963; Greco & Theodorescu 1980). This very bold design would have produced an overpowering focus of Capitolium and *comitium,* and possibly for that reason never reached fruition, the unfinished Capitolium being abandoned for a temple of Pax in about 100 BC. The same development is

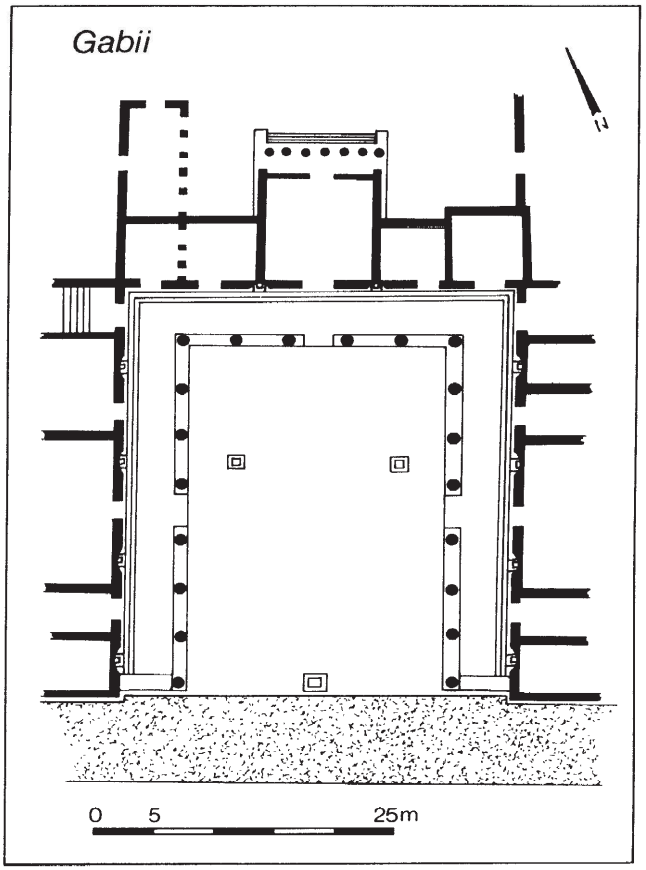

Fig 42 Gabii: the forum

evident at Minturnae in the early 2nd century, where a trapezoidal piazza was dominated by a Capitolium which had turned its back to the forum (Johnson 1935).

These examples of republican fora, along with a number of others, provide no conclusive answer to the question of what came first, temple-dominated forum or open piazza with loosely-planned buildings around it. Like so many matters which have been hotly debated over a long period, the problem may not have been stated in realistic terms. Both forms may well have existed from an early date. But until much more large-scale excavation of republican fora has taken place there is little hope of progress here.

One of the most important of recent excavations of a republican town has been that at Cosa, one of the results being that Cosa joins Pompeii as the possessor of one of the earliest known forum layouts to a regular plan (Brown 1980). Along the north side of the piazza stood a remarkable series of monumental buildings: basilica, *comitium,* and two temples. These are probably typical of public buildings in the twenty or so colonies founded in the years immediately following the defeat of Carthage. This was a period of considerable creative innovation in urban architecture as Roman artists used and developed Hellenistic forms and practices. In about 160 BC the Arx at the southern end of the town was crowned by a Capitolium (Brown 1960) replacing and partly incorporating an earlier temple of Jupiter. The new building stood on a massive podium and had a triple *cella* and an exceptionally deep *pronaos* (Fig 39). The structure as a whole follows closely the Vitruvian rules for 'Etruscan' temples, so closely that Brown has gone so far as to suggest that the Cosan temple was modelled on that of Rome herself.

A building programme of similar, or even greater, scale was pursued in the cities of Cisalpine Gaul after 89 BC, though as yet we know precious little about it. Some fora, at least, appear to have been modelled on those of central Italy, for example Verona (Marconi 1937; Zorzi 1960), Luni (Frova 1973; 1977), Florence (Maetzke 1941), and Brescia (Mirabella Roberti 1963). At Brescia the higher ground at the north end of the long piazza was chosen as the site of four small temples, probably dedicated to local deities. These were later buried beneath the fine Capitolium erected by Vespasian (see below, p 61).

Italian fora and capitolia

There is no doubt that the two periods 200-80 BC and 50 BC-AD 1 saw enormous advances in urban planning and design. In an important paper Ward Perkins (1970, 5)

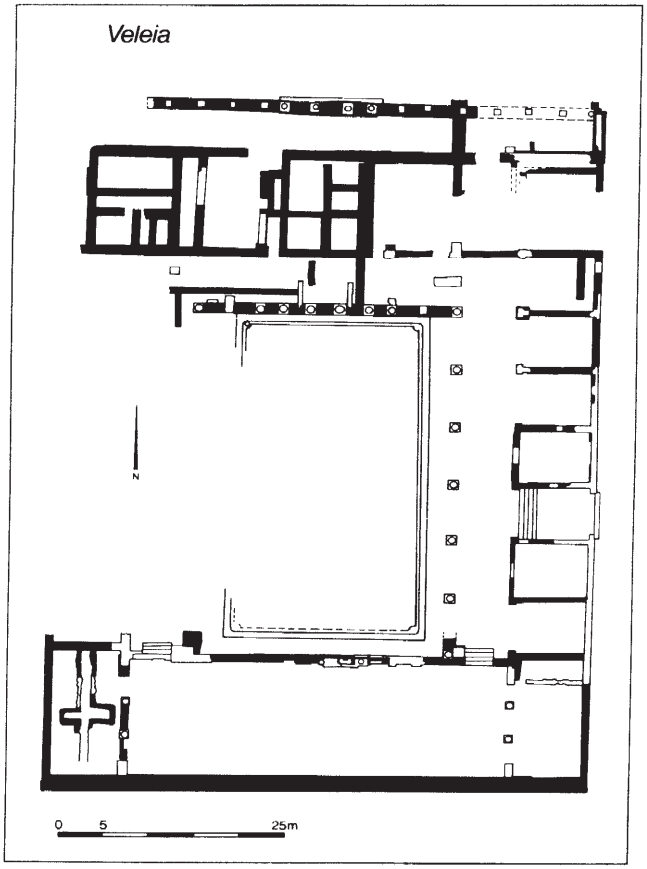

Fig 43 Veleia: the forum and basilica

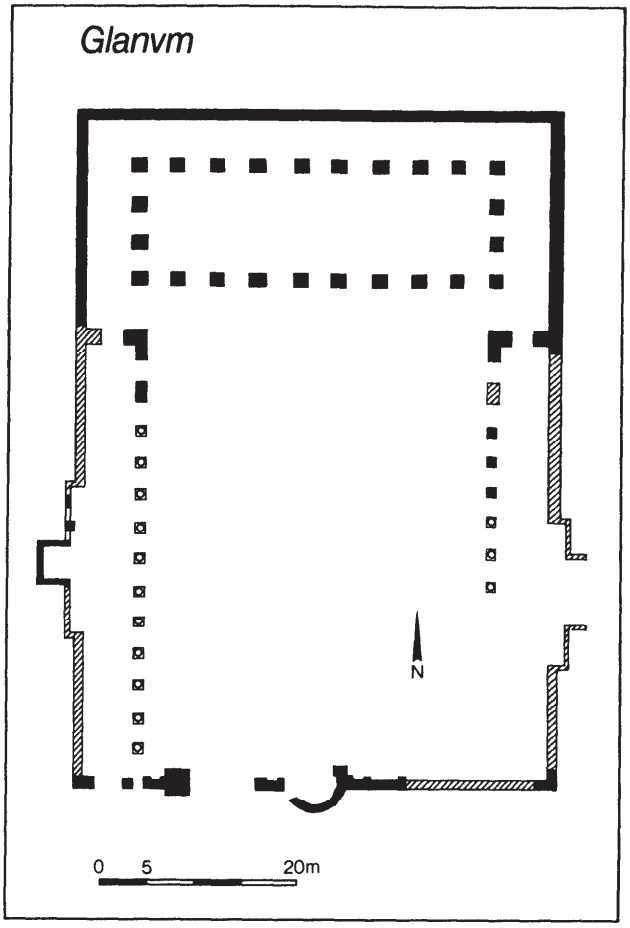

Fig 44 Glanum: the forum and basilica

argued strongly that the later republican architecture of Italy was no 'mere reflection and extension of that of Rome itself, and that there were several creative centres apart from the capital, a major one being Cisalpine Gaul. Here 'was the school in which the architects of the early imperial European provinces learned their craft'. There is a fundament of truth in this judgement, but it cannot be ignored, firstly, that other currents were flowing into and out of Italy at this time, and, secondly, that other regions shared with Cisalpine Gaul in the development of urban architecture and planning. Greek influence on Italian architecture was of such antiquity by this date that it is meaningless to talk of 'eastern' and 'western' in the later Republic. For example, large enclosed spaces surrounded by porticoes and frequently serving as the *temenoi* of public temples were well-established features of major Hellenistic cities and they served as the prototypes of more ambitious structures, such as the now-vanished Kaisereia of Alexandria, reputedly the finest building in the city, and of Antioch, both of which were projects of the Dictator himself. It is probable, at least, that planned spaces like these were among the antecedents of Caesar's forum at Rome and thus of the imperial fora.

One of the areas which may have made a considerable contribution to urban planning and about which little is yet known is central Italy. Cities here were being replanned in the 1st century BC and probably earlier in some cases. The familiar combination of forum and basilica, which was to provide the model for so many fora in the western provinces, is well represented and may have emerged in this region as early as it did in Cisalpine Gaul. Certainly there seem to be no good grounds for deriving the building type from purely Cisalpine models. It has been known at Rusellae, Lucus Feroniae, and Saepinum for some time (Maiuri 1960) (Fig 40). More recent excavation has added Alba Fucens (Mertens 1969), Ordona (Mertens 1967), and Bolsena (Gros 1981) (Fig 41). Augustan activity is to the fore in these towns, and at

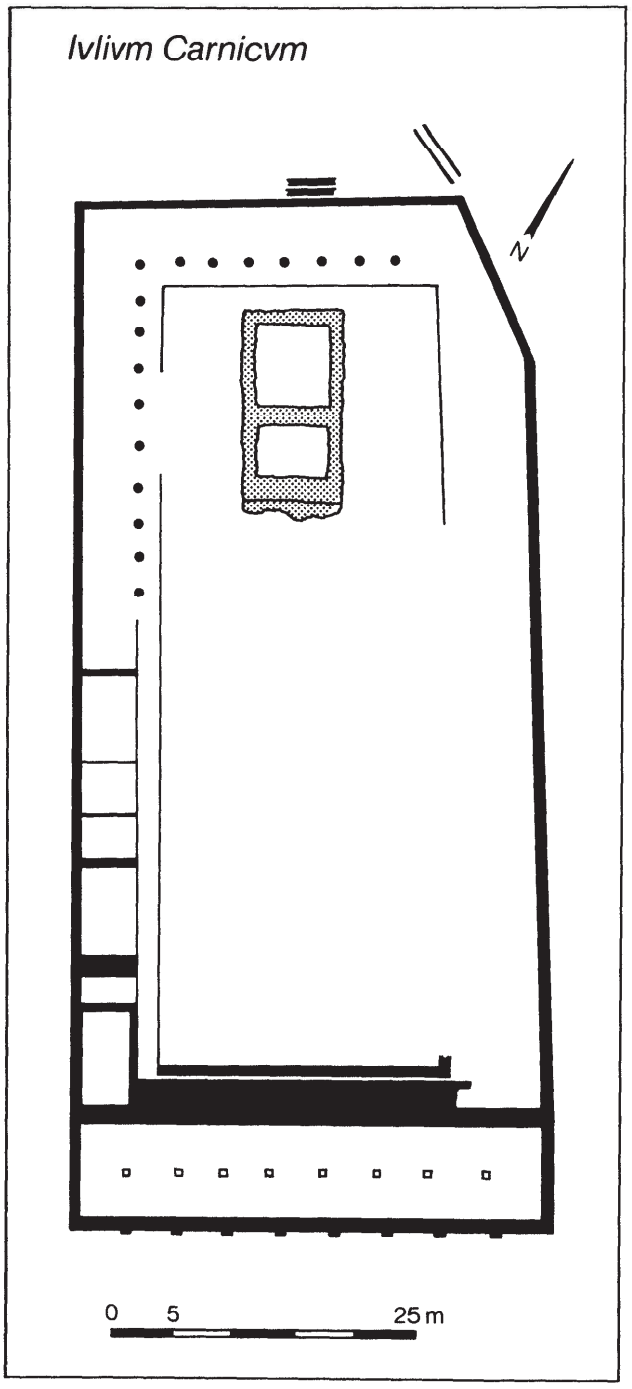

Fig 45 Iulium Carnicum: the forum and basilica

Ferentium where there is epigraphic testimony for a rebuilding of the forum between AD 12 and 18. The little forum at Gabii, plundered by Gavin Hamilton in 1792, offers a variation on the basic design (Fig 42). Here the piazza, enclosed on three sides, opened directly on to a main street on the fourth. There was no basilica, the architectural focus being a temple, possibly of Augustus, alongside a chamber which may have been the *curia.* There is no evidence of date for Gabii and one can only guess that this forum is late republican or Augustan.

This simple forum type is, of course, also well known in Cisalpine Gaul, notably at Veleia near Modena (Antolini 1822; Aurigemma 1940) (Fig 43). The visible layout here is Augustan or Tiberian and may fairly represent developments in many of the prospering cities of the Po valley and the Alpine foothills in the early Empire. A small temple was included in the Augustan plan at Veleia, centrally sited in the range facing the basilica, but no dominating temple in its own precinct was ever added.

A note of warning must be sounded about the plan of the Veleia forum. The plan generally used - and reproduced in many books on Roman architecture - was drawn up in 1767. The important work done in the 1960s seems to be too little known (Frova 1969). Not surprisingly, closely similar forum plans are found in Gallia Narbonensis at about the same time. That at Glanum of the late 1st century BC (Rolland 1959) (Fig 44) has now been joined by the recently published complex, also Augustan, at Ruscino (Barruol 1981).

A variant on this north Italian scheme is one in which a temple lies within the piazza, as at Iulium Carnicum (Zuglio) (Moro 1956), an arrangement which found favour in other provinces (see below) (Fig 45). The narrow basilica divided by a single, central row of uprights, also in evidence at Forum Iulii (Cividale) (Stucchi 1951) and Trea (Bejor 1977), appears to be a distinctively Cisalpine feature at present. A more monumental layout, unfortunately poorly excavated and recorded, is that at Augusta Bagiennorum, notable for its inscription of 5/4 BC *(Inscr Italiae,* 9, 1 (1948), Tab II).

Developments in Italian cities after Augustus are very ill-recorded. But there are indications that they did occur and that urban planning had not totally atrophied. The importance of public temples, especially Capitolia, as a focal element in the planning of fora was emphasized throughout the 1st century AD and later. There is no better illustration than the Capitolium at Brescia, one of the finest surviving temples in the western provinces (Mirabella Roberti 1963; Comune di Brescia 1979) (Fig 46). Excavations between 1823 and 1827 revealed much of the ornate Flavian building, its immediate environs, and an interesting group of structures which preceded it. The enterprise achieved considerable fame, to the gratification of the local academy which organized the work, the Athenaeum of Brescia, and its progress was attended by a great deal of artistic endeavour.

The temple was built on ground which rose above the forum piazza. The forum layout, so far as it is known, resembles the elongated fora of central Italy, measuring 140m in length and only 41m in width. These dimensions bring it very close to those of the forum of Pompeii. It is clear from largely unpublished work in the 1930s and 1950s that the imperial forum reproduces its republican predecessor fairly closely. The latter probably dates from

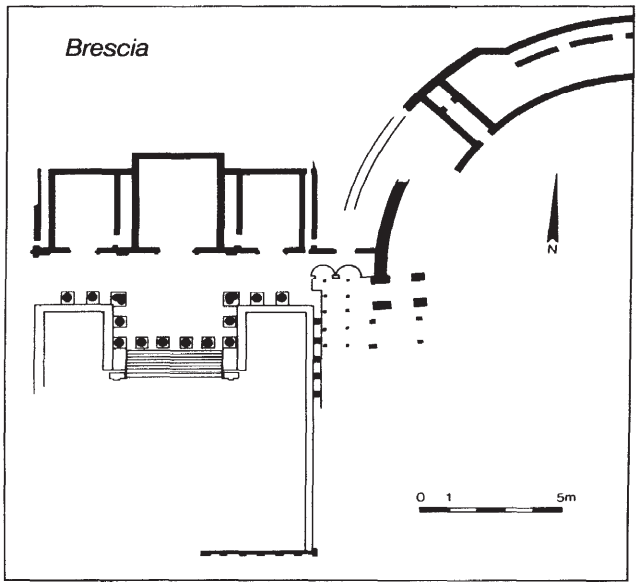

Fig 46 Brescia: the Capitolium

shortly after the grant of Latin citizenship to Gallia Cisalpina in 89 BC. Herein lies one of its most important features. It is the earliest reasonably well-dated example of a basilica-forum-temple complex and thus, as early as the 80s BC, is an instance - or at least the prototype - of a forum design often described as 'Gallic'.

What of the Capitolium? The Flavian building was a highly individual structure, with a hexastyle *pronaos* fronting the central of the three identical *cellae.* The *pronaos* projects from the rest of the facade and thus dominates the entire front. The temple - and indeed the whole monumental complex - was the work of Vespasian, the dedication dating to AD 73 *(CIL,* 5,4312). Why was Brescia singled out, for that is not too strong a term? It is difficult to think of any reason other than that the city lay not far from the field of Bedriacum. The exceptionally wide structure, enforced by local topography, and the prominent *pronaos* are unparalleled in the other known Capitolia. We must turn to Rome for anything similar, in particular to the temple of Veiovis on the Capitol and to the temple of Concordia in the Forum Romanum. The entire scheme at Brescia, including its decorative detail, is thoroughly up-to-date, as a comparison with Vespasian's forum of Pax reveals (Boethius & Ward Perkins 1970, 219-20). (We might note in passing that this building was not conceived as a forum at all, but as a temple and its precinct. It appears not to have been referred to as a forum before the 4th century. Earlier Latin authors called it a *templum,* Greek writers a *temenos.)*

The rebuilding of Capitolia, occasionally *in toto,* continued well after the 1st century. The visible Capitolium at Ostia, looming over the forum on its northern side, is a structure of the early reign of Hadrian (Calza *et al* 1953, 164; Meiggs 1973, 380). That this building *was* the Capitolium is demonstrated by no direct evidence such as statuary or an inscription. But the position and the lofty height to which the temple was raised on its podium, 70ft

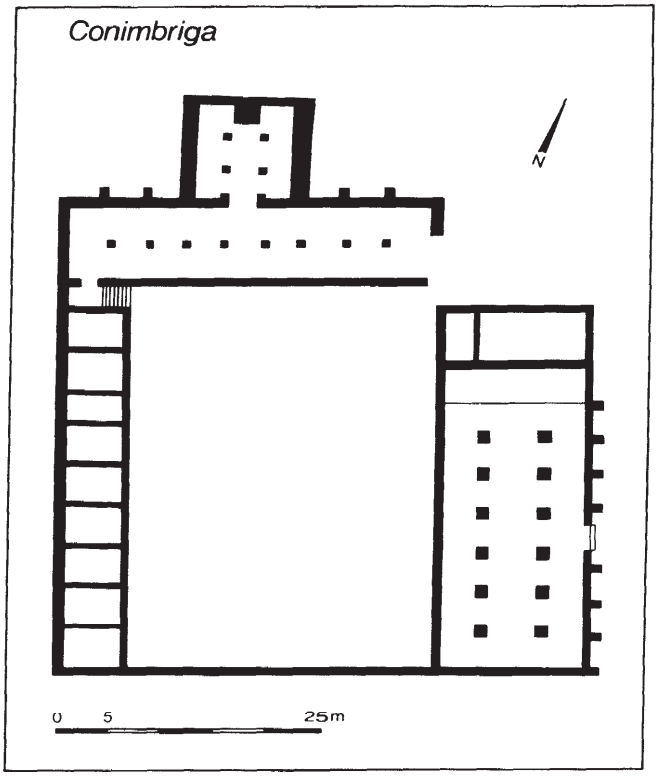

Fig 47 Conimbriga: the Augustan forum

(21.34m) from the ground to the pediment, are strong indications that this was the Capitoline temple implied by a disassociated inscription (GIL, 14, 32). Interestingly, this Hadrianic temple had taken over the site of two earlier shrines, both of Augustan date. One of these may have been the Augustan Capitolium, the other a temple of Jupiter alone.

One of the most interesting aspects of Italian Capitolia is the fact that they continued to display most of the main elements of Etrusco-Italic temple architecture until at least the 1st century BC and probably later: the emphasis upon the front, the deep *pronaos,* the high podium, and the closed wall to the rear. It is understandable that it was the Capitoline cult which continued to be honoured in so conservative an architectural setting. What is more remarkable is the fact that so many elements of the republican Capitolia were still in evidence in the early Empire. What we can see today at Brescia and Ostia would have been familiar and comprehensible to the Roman of the 2nd century BC. The survival of this temple type would certainly have commended itself to Vitruvius, who so earnestly sought to assert and preserve the form of Etruscan sanctuaries.

Capitolia were not merely prominent components in the overall design of many fora. Frequently they were the most dominant architectural feature, the focus of the whole, for the very good reason that the Capitolium was the most important public building in the place. The eye was drawn to them as it is today to the cathedral in an Italian *piazza del duomo.* The analogy is apt both socially and architecturally. The siting of Capitolia in commanding positions overlooking the piazza of a forum clearly reflects the supremacy of Jupiter and his companions as guardians of the State (Radke 1975). It was natural that the politico-religious role of Jupiter's representative on earth should be manifest in the same context, in some cases by a temple of Rome and Augustus, more often by imperial images. The use of the main public space as a showplace for images of the imperial family would take on special significance in cities which normally never saw an emperor. This will help to explain the astonishingly large numbers of statues, dedications, and other monuments found in relatively modest Italian cities. At the small town of Ferentium, for example, over 50 statues were found in the forum. Gavin Hamilton found Gabii a productive quarry. The humble town of Ruscino in Narbonensis has yielded some forty dedications to members of the Julio-Claudian house and to provincial officials. The Veleia forum contained a famous series of eleven statues of the Julio-Claudians, which had apparently retained their original positions throughout the Empire. Brescia, too, had its bronze imagines of emperors. It would be possible to adduce many more instances of a similar kind. The point is that the public spaces at the heart of cities were populated, even crammed, with statues of emperors, their families, and servants, most of them erected by private individuals. It would not have been possible to pass through the forum of most cities without being reminded of the monarch and his honoured antecedents.

Of the other Capitolia in Italian cities the majority appear to date from the late 2nd and 1st centuries BC, or to have undergone extensive rebuilding in that period, This is true of Luni (Frova 1973; 1977), Aquinum (Cagiano de Azevedo 1941, 16), Minturnae (Johnson 1935, 18-29), Florence (Maetzke 1941), Spoleto (Pietrangeli 1939), and probably Fiesole and Tarracina. Cascia was possibly restored in the 1st century AD (Cagiano de Azevedo 1941, 24-5). There is room for much further study of these temples under the Empire. It is too frequently assumed that the Capitoline cult faded in significance as the cult of emperors developed. There is no real support for this, and even in the 4th century and beyond we encounter references to Capitolia in inscriptions (Verona: *CIL,* 5, 3332) and in the Acts of the Martyrs.

Forum and Capitolium in the western provinces

The quality of the information available to us on Capitolia in the western European provinces is far from impressive. Excavation has in the main been limited and there has been no attempt at a full study of the Capitoline cult in these regions, following Bianchi's useful short survey (1950). Some advance has been made in the study of fora in the past twenty years and some of the most welcome information has come from the Spanish provinces. The indications are of considerable diversity. Closest to the Italian plans already considered is the Augustan forum at Conimbriga (Fig 47), with its basilica along one of the longer sides, a second large hall divided along its long axis in the Cisalpine manner, and behind it a temple of the imperial cult (Alarcao & Etienne 1977; Alarcao *et al* 1978). Whether or not we follow the excavators and see the

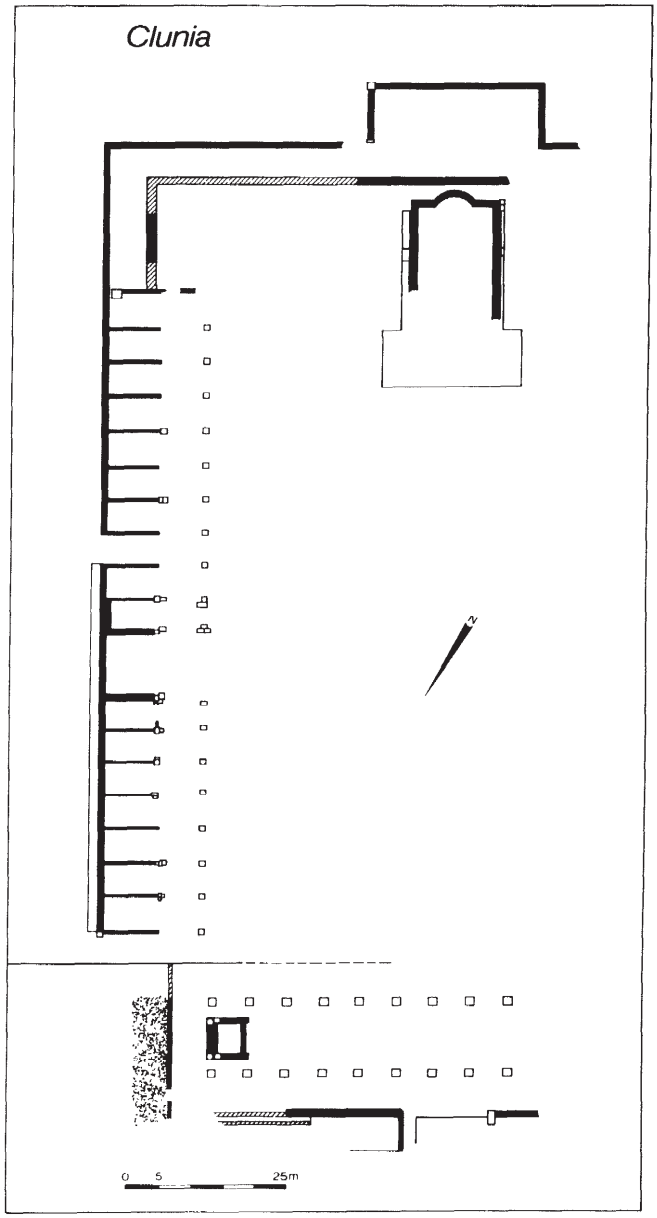

Fig 48 Clunia: the forum and basilica

influence of Vitruvian precepts here, there is no doubt about its ultimate Italian inspiration. The Augustan forum was replaced in the Flavian period by a magnificent layout, dominated by a temple within a precinct surrounded by a cryptoporticus. The temple was double-celled and dedicated to Rome and Augustus. There was no basilica or curia. Presumably the needs of the *ordo* and the men of commerce were met in other buildings in the city. The provision of this new urban centre fairly certainly coincided with the elevation of Conimbriga to municipal rank.

Another forum with strong affinities with north Italian plans has recently been emerging at Clunia in north-western Tarraconensis (de Palol Salellas 1976) (Fig 48). Here a temple, traditionally assigned to Jupiter, lies within the piazza, as at Zuglio. The date is uncertain, probably mid to late 1st century AD.

Cities in other provinces adjacent to Italy were plainly drawing on the same architectural sources. One example of the double precinct forum is known in Dalmatia, at the colony of Iader (Zadar). This forum is strikingly similar to those of Cisalpina and Narbonensis, one of the most notable points of similarity being the cryptoporticus which surrounded the north-east side of the temple. The date is not entirely clear. Preliminary accounts have indicated the Julio-Claudian or possibly even the Augustan period. However that may be, there is a strong probability that certain elements in the design, including the basilica on the south-east side, are later additions. Aenona boasts a fine forum and associated temple, possibly a Capitolium, sadly published in an inadequate form (Cagiano de Azevedo 1948) (Fig 49). Another possible double precinct forum, with Capitolium, exists at Salona (Dyggve 1933; Clairmont 1975). To the north, in Noricum, Virunum possessed a huge double precinct forum, more than 200m long (Fig 50). There is little evidence of date and it would be unwise to assume that it was built soon after the foundation of the *municipium* in the reign of Claudius (Vetters 1977).

It should be apparent from the instances detailed above

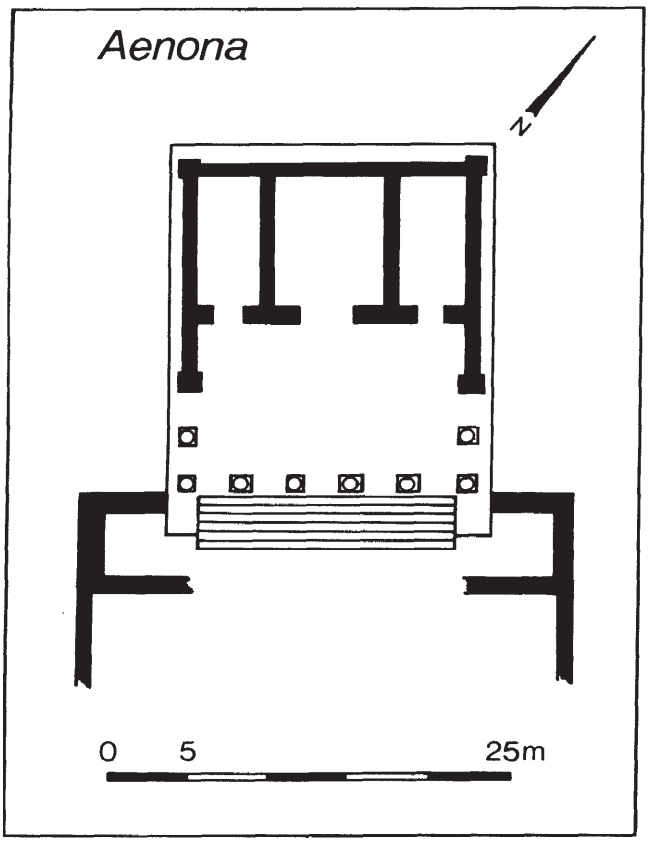

Fig 49 Aenona: the forum and associated temple

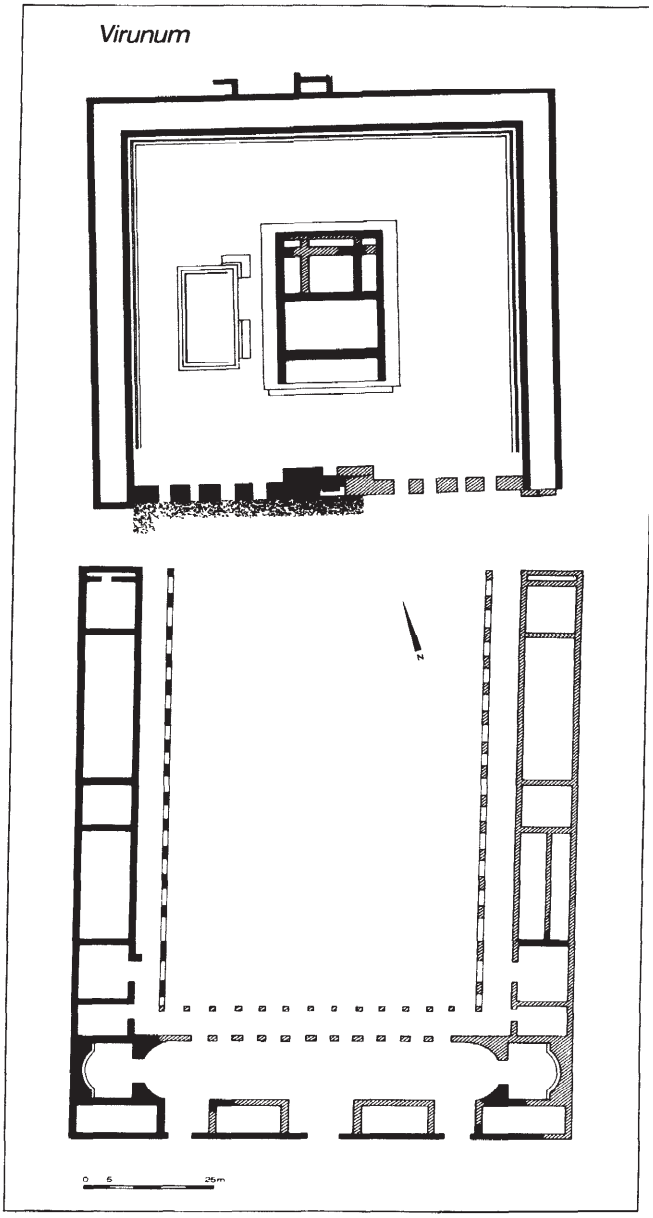

Fig 50 Virunum: the forum and temple

that the double precinct forum originated in Italy and that it was transmitted thence into neighbouring provincial areas. The available dating evidence for the transfer is not impressive, but so far as it goes it is reasonably consistent. None of the known examples outside the Italian peninsula (including Cisalpina) is Augustan. One (Iader) may be Julio-Claudian. Conimbriga and perhaps Virunum are Flavian. St Bertrand-de-Comminges in its visible form (Fig 51) and Paris (Duval 1961, 131-8) are probably Trajanic. Amiens and Bavai are later, probably Hadrianic or early Antonine. The most familiar, and most widely illustrated, of the Gallic fora, that of Augusta Raurica, is most probably early Antonine or Hadrianic at the earliest, though it must surely have replaced a monumental layout of the 1st century AD or even earlier. There is little evidence as yet that the double precinct forum was widespread in northern and central Gaul in the 1st century AD and it is therefore not surprising that it had so little influence on the planning of Romano-British fora in the Flavian period and the early 2nd century (Frere 1978, 276). What is more interesting, perhaps, is the fact that no British forum is known to have been later embellished by the addition of a temple precinct or even by the erection of a temple within the forum piazza. The Verulamium forum resembles the Gallic double precinct type in some respects, but it was not a fully developed instance (Frere 1983, 59-69). It is, of course, in the three lst-century *coloniae* of Camulodunum, Lindum, and Glevum that more elaborate plans might be expected, but as yet the evidence is too fragmentary for certainty to be attainable. Recent work at Lincoln suggests that the forum here could

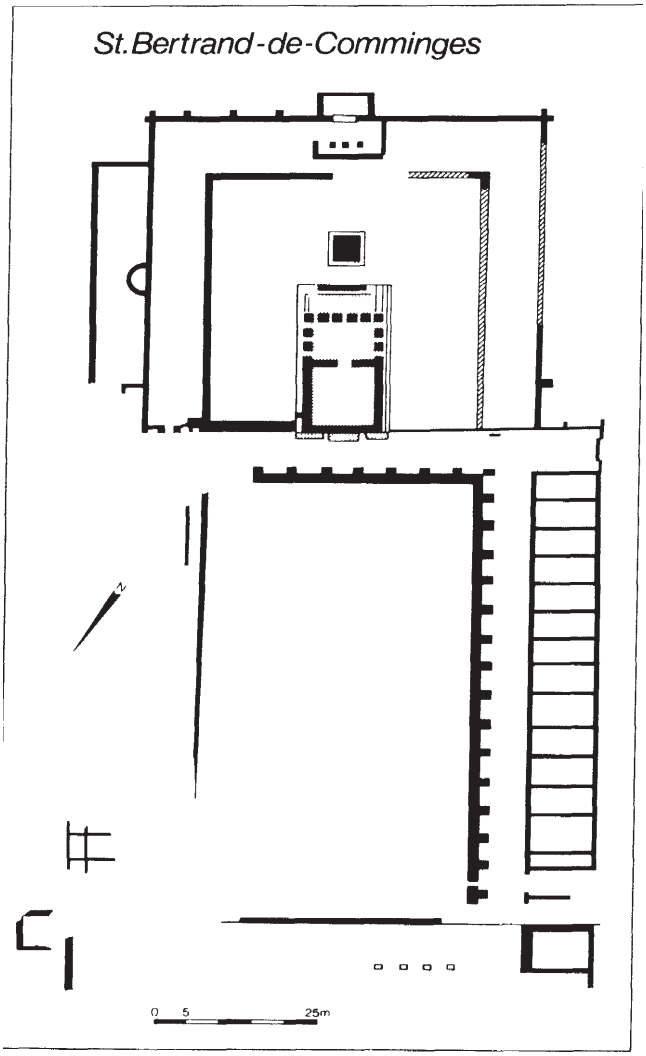

Fig 51 St Bertrand-de-Comminges: the forum and temple

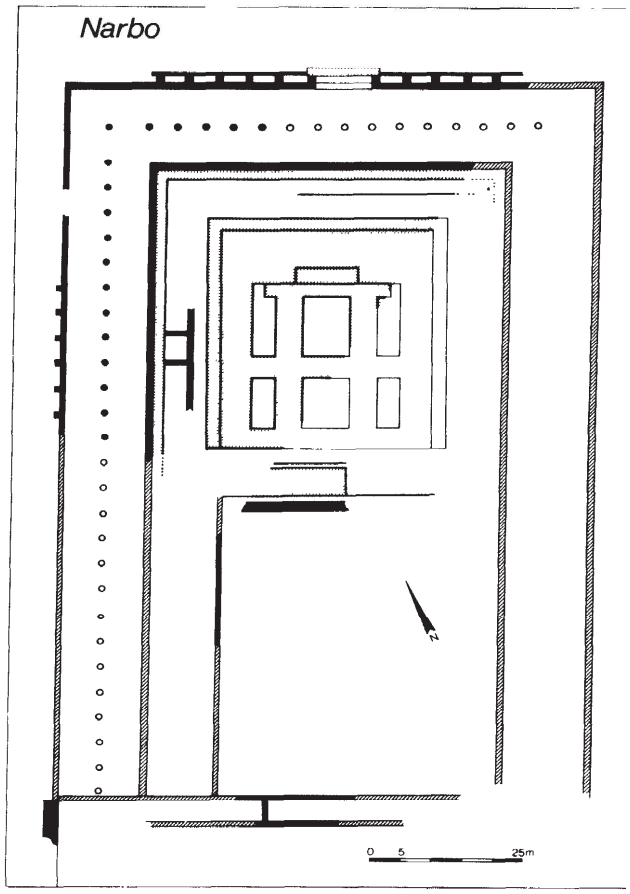

Fig 52 Narbo: the Capitolium

have been of the double precinct type (Jones, this volume, p 89).

Few Capitolia have yet been identified with certainty in Gaul, though there is scope for much more work on the subject. The most notable instance is a temple, almost certainly a Capitolium, on the hill of Moulinasses at Narbonne situated at one end of the forum (Fig 52). It stood on a raised podium measuring 48 by 36m, and was fronted by a *pronaos.* The entire structure was surrounded by a *peribolos.* The vaulted substructure, all that survives, suggests the existence of three *cellae*. The site has produced a remarkable series of 2nd- and 3rd-century monuments, but dating evidence is otherwise slender. Grenier (1957) argued for the reign of Antoninus Pius for its construction, relying on an inscription of that date which refers to a *templum novum (CIL,* 12, 4393). More recently Gayraud (198 1, 265-6) has suggested the reign of Hadrian, referring to another inscription *(CIL,* 12, 6024) found in a nearby church and probably originally set up in Narbonne. None of this is firm evidence, but the presumptive early 2nd-century date is at least supported by the architectural details, so far as these are known. What does seem certain is that the known temple was not founded in the early years of Narbo, and there is no evidence, as yet, for the existence of a Capitolium in the 1st century AD.

Elsewhere in Narbonensis and the Three Gauls undoubted Capitolia have not yet been revealed, though the epigraphic evidence indicates that they did exist. There are two outstanding candidates in the Lower German *coloniae.* At Cologne the church of St Maria im Kapitol in the south-eastern corner of the city lies over a three-celled temple dating from the 1st century AD (Bracker 1966; Hellenkemper 1975). At Xanten, where there is epigraphic evidence for the Capitoline cult in the 3rd century, a large temple immediately adjacent to the forum *insula* may have been dedicated to the Triad, though there is no conclusive evidence (Hinz 1975, 846).

Britain as yet requires little comment for no certain traces of an urban Capitolium have been recorded. The most likely sites are the fora of the four *colonise* and of London, but in no case has examination revealed any evidence. Neither of the late Antonine or Severan temples at the south end of the Verulamium forum (Frere 1983, 63) has any particular claim to be regarded as a Capitolium, even though we might expect such a building in this town. The famous building of which the vaulted substructure remains beneath Colchester castle is usually identified as the temple of the deified Claudius (Tacitus, *Annales,* xiv, 32), but it is perhaps worth remembering that the premier *colonia* in Britain might have boasted a Capitolium as well as a temple of the imperial cult, and that there is still no absolute proof that the known building actually was the *templum divo Claudio constitutum.*

The most remarkable series of Capitolia, as is well known, is that found in the North African provinces. At least nineteen Capitoline temples can be identified with reasonable certainty, while a further eighteen are directly attested by inscriptions. The African evidence has recently been reviewed in some detail (Barton 1981) and I therefore confine my comments to general matters. Firstly, there is abundant evidence for the building of Capitolia in the 2nd and 3rd centuries AD. Indeed, of the nineteen known temples epigraphy reveals that no fewer than eleven date from this period, as do twelve of the eighteen attested by inscriptions alone. Not a single example can be dated to the 1st century. The Capitoline deities were far from being overshadowed by the cult of emperors. Secondly, not only *colonise* and *municipia* possessed Capitolia. Although the suspicion subsists that the construction of a Capitolium often accompanied the elevation of a community to the higher municipal ranks, it is certain that some non-citizen *civitates* (for example, Mactaris and Urusi) erected temples to the Triad. Thirdly, in all parts of the Empire *except* Africa, dedications to Jupiter alone far outnumber those to any other deity; possibly the popularity of the Capitoline cult in the African provinces was one reason why the supreme god on his own received so much less attention here.

This brief paper touches on many matters which require much more profound treatment. The main aim has been to outline a major field of study and to point out the many areas of uncertainty or downright ignorance in what is often regarded as a thoroughly researched subject. At the very least, I hope this highly selective account has underlined the manifold functions of the fora of Roman cities, political, religious, and commercial. It was not by

chance that Vitruvius put special emphasis upon the religious aspects of public buildings. In antiquity the world of gods and men was one world and in the Capitoline cult the religious elements of *Romanitas* were aptly summarized (Bianchi 1950; Radke 1975).

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PART IV TOWNS IN ROMAN BRITAIN

Geography and the growth of towns, with special reference to Britain

Peter Salway

'It is not possible for me', said the Augustan architect Vitruvius (i.4.9), 'to exaggerate the necessity of readopting the methods of the past. When our forbears were about to build a town or a fort, they sacrificed some of the cattle that habitually grazed on the site they had in mind and inspected their livers. If they found that the livers of the first victims were dark in colour or abnormal, they sacrificed some more to find out whether the fault was due to disease or to diet. '

Superstition or sense? The procedure the reader is being urged to employ undoubtedly derives from the Etruscan strand in Roman religion. We should never dismiss the element of the irrational in Roman decision-making, but neither should we ignore the fact that even in our terms there was often a hard-headed reality in their use of religious techniques. And it was not always for the blatantly fraudulent purposes displayed by the politicians of the last years of the Republic. If we read Vitruvius a little further, it becomes difficult to fault his common sense (i.4.9):

> Our ancestors never commenced the construction of a stronghold in a particular place till they had carried out many such trials, to the point where they were satisfied that good feed and water had made the liver sound and firm. If the tests continued to produce abnormal organs, they deduced that the water and food resources of the site would be just as injurious to man. A decision would then be made to choose another site, health being the principal objective.

Perhaps we now know what Marcius Memor, *haruspex (f Roman Stud,* 56 (1966), 217, no 1) was doing at Bath! However, it does not need an exercise in experimental archaeology, simply a taste of the water in the Pump Room, to suggest how a suitably observant *haruspex* might really spot a good site. Indeed, there is direct evidence from Vitruvius himself that even in the choice of religious sites a rational examination of the natural features played more of a part than one might have supposed. We shall be on exactly the right lines, he tells us (i-2.7), if

> . . .for all religious sites we choose very healthy districts, with suitable springs in the spots where the temples are to be constructed. This is especially important for shrines to Aesculapius and to Health, these being divinities whose powers appear to heal multitudes of the sick. What happens is that when their diseased bodies are brought from an unhealthy place to a healthy one and undergo treatment with the waters from the healing springs, they get well much more quickly. The outcome of this is that the reputation of the deity rises and the awe in which he is held increases, but the cause lies entirely in the properties of the site.

Vitruvius may have served under Julius Caesar as *praefectus fabrum.* He was almost certainly writing very early in the reign of Augustus. By the time of the Claudian invasion of Britain, therefore, his detailed architectural advice may have seemed technically rather antiquated, but his general principles should still have appeared sound. We should not, of course, overlook the fact that he appeals for a return to former practices, suggesting that in his day these were already often neglected. And he was well aware that mistakes had even been made in the Greek past which he so admired. Mytilene, on the Greek island of Lesbos, he remarks (i.6.1), is

> a town built with elegance and splendour, but not good judgement. When the wind is in the south, there is much illness. When it turns north-west, they suffer from coughs. It is only with a north wind that they get better - but then they cannot bear to stand about in the streets and alleys, because of the bitter cold.

One might expect such attention to the 'tactical' or local aspect of siting a town in the particular landscape from an architect. Indeed, he also explores at length (i.2.8) the availability of materials, explaining how the sensible architect will not demand those which are unavailable locally, but will accept substitutes, since transport may be difficult and costly. Thus he points out that river or sea sand may be used where gravel pits are not possible, and that fir can be replaced by cypress, poplar, elm, or pine. He is, however, also aware of the wider aspects of siting, noting that towns should be placed where there is an ample local food-supply (i. 5. l), and where roads, rivers, or the sea may provide ready means of transport.

If we look at any of the principal towns of Roman Britain we are likely to find that one or more of these conditions applies. Cirencester, for example, is at the intersection of major highways and - if the constellation of villas it eventually developed is any guide - at the heart of a highly productive region. Colchester, Exeter, and London all have easy access by river and estuary to the sea. Lincoln and York lie on excellent navigable rivers. But we also know that in each case other elements affected their foundation and contributed to their success. I suspect that in the long run we shall learn more about the prerequisites for success from failed or partly-failed towns than from the well-known successes themselves.

I earlier suggested a powerful streak of the rational in the religious practices concerned with the choice of a site. I should now like to look briefly at the other side of the same coin: the side where the Romans thought they were operating on scientific lines. Returning to our example from Vitruvius about the setting out of a town relative to the winds, we read (i-4.1-6) that

> . . . if the town is on a coast and faces south or west, it will be unhealthy, because the southern sky in summer heats up as soon as the sun appears and burns at midday. A western aspect is warm after daybreak, hot at noon, and glows with the setting sun in the evening. . . In summer everyone grows weak from the heat as much in healthy spots as unhealthy; and in the winter even the most unhealthy places are better for the solidity given by the cooling process. People who move from cold countries to hot cannot endure the climate but fade away; while those who go from hot regions to the cold of the north lose nothing - indeed their health benefits from it.
>
> . . . all bodies are composed of the four elements, heat, wetness, earth, and air, but there are different mixtures according to the nature of the particular creature. . . . If, then, one of these elements - heat - predominates over the others, it destroys them.

On this argument one might expect there to have been a great flourishing of the cities of the northern part of the Empire, stimulated by a mass influx of literate hypochondriacs. But we cannot win. Vitruvius goes on to argue (i.6.2-3) that

> Wind is air in constant motion, flowing here and there without end. . . . By shutting out winds from our houses we shall make our city healthy for those who are already fit arid also help those who perhaps suffer from diseases brought on by unhealthy locations elsewhere. . .to become well again from the mildness caused by excluding the winds . . . . In unhealthy places, the air is polluted by being constantly stirred up by the wind and debilitates the sick day by day. A mild, thick air, however, which is free from draughts and continuous movement, restores their bodies by building them up with its own unshifting steadiness and brings such people back to health.

So Vitruvius would have the potential founder of cities seek a cold climate with no draughts! On the whole, it must have been easier to trust to the guidance of the gods than follow the dictates of contemporary science. But the point I am trying to make is that we cannot dismiss the 'irrational' (in the sense of irrational to us) in considering why particular choices were made. Our problem is that we very rarely have any evidence for the operation of such factors. Our lesson must be always to allow for their possible influence on judgements in the ancient world, and consequently to be tentative in attributing reasons based on modern ways of thinking for particular urban foundations and their subsequent success or failure. Of one thing we can be certain: once political, military, and economic practicalities had pointed the Romans in a particular geographical direction, the clinching factor in a decision is much more likely to have come from the livers of sacrificial animals than from central-place theory.

The emphasis has so far been on the deliberate foundation of towns and cities, but at this point it is appropriate to digress briefly so as to deal with a source of confusion that may be about to invade the terminology of our subject. In a recent article on the origins of some major Romano-British towns Crummy (1982) draws a distinction between 'those with newly-planned layouts' and 'those founded on the sites of military fortresses'. This distinction is entirely valid in the context of that article, but his subsequent use of the term 'planned town' (in opposition to 'reused fortress') is only too likely in the hands of the careless to leave the impression that Exeter or Gloucester, for example, were not 'planned' in the more generally understood sense.

It has to be remembered that the deliberate - in modern terms 'planned' - urban foundation was extremely common in the ancient world. The tradition in the western Mediterranean certainly goes back to the numerous Greek colonies of the 8th century BC and onwards: Syracuse or Pithecussae, for example, Ampurias, Marseilles, or the well-known lesser sites that lie along the coastal sea-route on the Mediterranean shore of Gaul. Indeed, so much was this the norm that it was often felt necessary to provide a foundation story - usually with a heroic founder - for settlements whose origins were in reality much more obscure, probably often being organic rather than the result of a deliberate act. In the East these stories extended especially far back and frequently starred Greek heroes wandering, like Odysseus, after the Trojan Wars. The foundation story of Rome itself contained just such a Trojan War element, and after the tradition had been hallowed by Vergil and hammered home by Augustan propaganda, emperors certainly came to regard the deliberate foundation of cities - planned foundation - as a prestige activity. This applied as much to refoundation as foundation - for example, Constantinople imposed on existing Byzantium, or perhaps, if one may come down from the sublime, the new street grid superimposed on Silchester. A 'green-field' site (to use the current planning jargon) was undoubtedly easier to handle, but we should not imagine that in Roman terms the conversion of Exeter into a civil city was any less planned than the building of Caistor-by-Norwich. In many ways, indeed, an abandoned legionary fortress must have resembled a 'green-field' site much more than, for example, Aix-en-Provence, which by the time of its Augustan refoundation as Colonia Julia Augusta Aquis Sextiis could already trace its Roman occupation back a century to the establishment of the first permanent garrison in Gaul.

How geographical factors came into the actual choice of sites for the deliberate foundation of cities, and how ideas about them influenced their success by attracting willing colonists (and encouraging the conscripted or directed colonist to contribute to that success by staying), is not as simple as might at first appear. Vitruvius has given some reasons of common sense - or apparent common sense - and to these we may add some other factors that must have been obvious. The interaction between what one might call the 'strategical' geographical-cum-political elements and the 'tactical' can be demonstrated by returning to Provence.

First my previous example, Aix-en-Provence: there we have a Roman valley settlement taking over from the hillfort (or hill-town) of the Salluvii, destroyed by Sextius Calvinus. Its origin lies in the geographical and military interest Republican Rome had in protecting her route by sea from Italy to Spain. This depended vitally on the friendship of Marseilles and her satellites. Harassment of Marseilles by the Salluvii brought in Rome, first in the form of expeditions, then of settlement. But the long-term success of Aix was strongly influenced both by the excellent choice of the site in the local landscape and, with the construction of the coastal highway, by a key position in the communications system.

In the same region we can observe Arles, in whose story there is a strong watery element. It starts with Marius's construction of the canal system to help solve the problems of the Rhône delta, at least partially in the interest of Marseilles. It continues ironically in the consequent choice of Arles as the base from which Julius Caesar launched his waterborne attack on that same city, which had sided with Pompey. Its long-term economic prosperity was closely bound up with the emergence of a powerful guild of shippers, profiting from the location of Arles at a point ideal for the transshipment of cargoes from river craft or land transport to sea-going vessels. The linking of river and sea in a navigable form was crucial. That linking had a partially political origin; its consequences were both military and economic.

Arles, however, also demonstrates another important geographical factor. To the north-east lay the ridges of the Alpilles, whence major aqueducts were to bring water-supplies, and to the south-east was the vast open Plaine de la Crau. The land was ideal for a veteran colony, and on geographical grounds alone it is not surprising that Julius Caesar chose it as a site with which to reward his Sixth legion, nor that it was much enlarged and developed under Augustus. But we should not forget the political point - that the territory of Marseilles had fallen into Caesar's hands as that of a defeated enemy. Many years ago Sir Ian Richmond (1946) suggested that Lincoln and Gloucester were founded as colonies where they were because, at the end of the 1st century, the lesson of Colchester and the Boudican revolt had been learnt. He argued that because both Gloucester and Lincoln lay adjacent to areas that seemed relatively underpopulated in the late Iron Age, they were judged by the Romans less likely to provoke resentment at land settlement by veterans. It is certainly true that mishandling of the once friendly local aristocracy of the Trinovantes and expropriation of their land by colonists had much to do with the revolt. But Arles suggests another possibility: the conjunction of the right sort of land with its having passed (recently or years before) into imperial hands by right of conquest.

Remembering that the royal estates of defeated peoples automatically passed to the emperor, we may perhaps guess that at Colchester the fortress, first, and the *colonia,* subsequently, were established on land that had belonged to the Catuvellaunian kings. Tacitus *(Annals,* xii.32) specifically states that the colony was founded in *agri captivi.* It is perhaps not an unreasonable piling of speculation on speculation to suspect that this land had once been the domain of Trinovantian princes, was restored to Mandubracius by Caesar, but was not allowed to revert to Trinovantian ownership under Claudius. Indeed it may have been the absence of a legitimate family claim - we hear nothing of a restored Trinovantian royal family - that made the *colonia* initially acceptable. The subsequent seizure of properties from other leading Trinovantian families by the colonists of Colchester, one of the principal causes of the Boudican revolt, will then have seemed all the more intolerable than if the whole district had been expropriated at the moment of conquest. *Ownership* of land - or rights over it - is an important element in geography. It has a particularly important bearing on any deeper understanding of land utilization. What sense, for example, could we make of the Highland Clearances if we knew nothing about land ownership in Scotland? It is therefore particularly frustrating that we have so little information about land ownership in Roman Britain - but this does not absolve us from being aware of the question.

Sensitivity about the siting of colonies and the necessary acquisition of land for the colonists was deeply engrained in the Roman consciousness. If it had not been part of the common currency it is difficult to understand how Vergil could have risked being so bold as to raise the issue openly in the dangerous days of the Second Triumvirate. The dispossessed Italian farmer laments to his more fortunate friend *(Eclogues,* i.64-6): '. . .the rest of us must leave - some to suffer the parching thirst of Africa, others to Scythia.. .yet others, almost the whole world away, to join the Britons'.

The reality that lies behind the poetic embroidery on the fate of the dispossessed is the reality that lies behind the bland words of Augustus's *Res Gestae (28):*

> I founded colonies from my soldiers in Africa, Sicily, Macedonia, both the Spains, Achaea, Asia, Syria, Gallia Narbonensis, and Pisidia. And in Italy itself I created 28 colonies on my authority. . . colonies that have become exceedingly populous and reached the heights of renown within my own lifetime.

Compensation had, indeed, been paid since the late Republic. The offence to public opinion was the loss of the ancestral home, however humble, and the destruction of traditional communities. Forty years or so after the event, Augustus could perhaps afford to gloss over the acts of the Second Triumvirate and take the credit for the good that had come out of the colonization. But the despair chronicled by Vergil is a feeling that cautious emperors must have borne in mind when weighing up the advantages in prestige and the need to provide for discharged veterans against probable local reaction. Colchester certainly proved that without strict control a colony founded for the traditional purpose of deterring rebellion could help disastrously to provoke it. And central to that control was a clear delimitation of the territory allocated to the colonists and subsequent supervision to prevent unauthorized encroachment on neighbouring land. Public maps, such as the Orange survey, were not simply an exercise in land measurement. They made clear what the allocation and sub-allocations were, and where the territory stopped.

To those who know Lincoln and Gloucester and their surrounding regions in detail I leave the thought that their foundation as colonies could have followed a pattern set by Colchester, rather than been a reaction against it - all

being deliberately sited on land in imperial hands. If that is the case, the difference is likely to have lain in a much stricter Flavian supervision of the geographical boundaries between the new colonies and their neighbours, and may help to explain why Cirencester, for example, managed to flourish without being stifled by its proximity to Gloucester. Political, we may begin to suspect, was as important as physical geography.

Situations of this kind cannot have been uncommon. Another factor entered when Roman political as well as strategic importance had already been attached to a site before the city's foundation. At Cologne the *Ara Ubiorum,* the centre for the imperial cult in Germany, was established in 9 BC where the friendly tribe of the Ubii had been deliberately resettled by Rome as early as 38 BC (Hellenkemper 1983, 20-3). Claudius's Colonia Claudia Ara Agrippinensium did not follow till AD 50. Here we have three different layers of imperial action, each focused on the same spot by a combination of politics and geography, and implying an exceedingly complicated set of relationships for the lawyers, administrators, and land-surveyors to sort out in the planning office and in the field.

Are there periods in Romano-British history or particular situations recognizable on the ground where we should be especially alert to the possibility of such problems having existed? Cologne in AD 50 is not irrelevant here, since we have the certainty that the Colchester *colonia* was founded in 49 and the possibility that London was deliberately planted at almost exactly the same time. In general terms, it is reasonable to assume that both these British sites were associated in some way with the movement forward on the western frontier. Tacitus says as much for Colchester *(Annals,* xii.32), and I will return later to the origins of London. But London and Colchester also commanded the two principal points of entry for sea traffic from the Low Countries and the Rhine. I agree with the view that the wealth and political influence of Cunobelinus in pre-conquest Britain was probably very closely bound up with his geographical location: that his taking of Colchester gave him the critical control of the route between Britain and the Rhine. I certainly suspect that British agricultural production expanded before the conquest to meet the opportunities presented by the appearance of large permanent Roman garrisons on the Rhine. Sited at Colchester, Cunobelinus was in the ideal geographical position to elicit diplomatic 'gifts' both from his British compatriots and from the Romans. On the one hand he could facilitate or block the passage of the luxury status-symbol imports from the Roman world which were destined for other British princes; on the other he could command the respect of Romans anxious to purchase British exports, whether as supplies for the army or in private trade. I am sure this explains the characteristics of such sites as Skeleton Green, and it is the most probable explanation for the Welwyn silver or the Augustan cups from Hockwold.

If a good deal of Cunobelinus's power and prestige was based on an astute exploitation of geography, then it follows that it is geography that ultimately lies at the bottom of the importance in early Roman Britain of Colchester. It was undoubtedly the preeminence of the Catuvellaunian royal house that determined Colchester as the scene of the imperial final act of the initial campaign; and that in turn must have influenced Claudius in settling on Colchester both as the site of the first colony in Britain and as the centre of the imperial cult. We may also assume that the preexistence of the trade route, whether through Colchester alone or through this and neighbouring Essex estuaries, must have given this district enormous initial importance in military communications and supply.

What, then, of London? The paucity of Iron Age material suggests that there would have been little to draw the attention of Claudius or his commanders in the first stages of the conquest, except perhaps the bridge that features in the account of the crossing of the Thames. And that is perhaps symbolic. The new importance given to the south and south-east of England by the Claudian bases in Kent and the Southampton area shifted the balance away from a concentration on the east coast. At a fairly early stage after 43, as the first permanent forts west and north began to be established, someone must have realized that London was the natural hub for land communications and consequently had far more potential as the major port than anywhere on the east coast. If London *was* deliberately founded, then I think the decision must have been based on an official reappraisal of the geographical situation; and I would argue that the assessment was made in the context of the renewed military expansion of the province from 48 onwards. An absence — or virtual absence — of existing native settlement at London will have been a bonus, permitting the founders to work untrammelled by such administrative problems as may have occurred at Cologne.

But if we accept that London was a deliberate foundation, can we create another step in the hypothesis by considering the character of its first phase, as it now seems to be emerging? If the earliest structural evidence does seem to have a predominantly civilian character, then we have to consider where the early administration of the province was situated. It has, of course, long been suspected that the provincial procurator's office was in London at an early date. But what about the civil functions of the governor?

I think it is reasonable to assume that the governor's office was first set up in the base camp at Richborough. During the early phases of the conquest most of his staff will have moved with the governor on campaign, though one might perhaps expect a communications unit to have remained at Richborough at the British end of the short route to Gaul. The establishment of the legionary fortress at Colchester and the 'gradual reduction of the nearer part of Britain into the regular form of a province' (Tacitus, *Agricola,* xiv. 1), should have led to greater stability among the staff dealing with civil affairs and their fairly continuous stationing in one place — probably the headquarters building of the fortress. But does it follow that, when the legion moved and the *colonia* was founded in 49, Colchester as a civil town necessarily retained its function as 'capital' of Britain?

The presence of the premier temple of the imperial cult, whether or not there was a temple of Claudius during his lifetime, has led to the assumption that the *colonia* was indeed the capital. The elaborate laying-out of this temple area, outside the limits of the former fortress, might seem *prima facie* to support the idea, perhaps indicating a permanent base for the provincial council, and maybe accommodation for the provincial administration as well. The link between provincial council and imperial cult centre is a natural one. It is, for example, demonstrated in

the most spectacular fashion at Lyon. There, indeed, Claudius himself was born and there his father had been responsible for establishing the great altar of Rome and Augustus as the centre for the cult in Gallia Comata and to mark the completion of the Augustan organization of the Gallic provinces - facts which Claudius, being Claudius, is hardly likely to have overlooked when thinking of how to organize his own addition to the Empire and how to mark the scene of his own moment of military glory. The link between *colonia* and imperial cult is, however, less secure. At Lyon the colony dated back 30 years, to 43 BC; and topographically the cult centre lay as a precinct of its own outside the city proper. It is perhaps also relevant to note that the council was a council of all three of the provinces of Gallia Comata, not of Lugdunensis alone, and remained so after the practice of having one governor for all three provinces was discontinued early in the reign of Tiberius. At Cologne, in contrast, the altar was consecrated about 40 years *before* the foundation of the colony, and it, too, may have originally been intended to serve a whole group of German provinces before the Augustan ambitions in Germany were given up.

I would, therefore, hesitate before automatically associating provincial councils with colonies, or, for that matter, with the site of the governor's administration. Lyon and Cologne had very different origins as administrative centres: Lyon as the hub of the Gallic road system laid down under Agrippa; Cologne in the highly anomalous context of the military zone known as Lower Germany, not becoming the capital of a regular province till the reign of Domitian, and even then not being the seat of the provincial procurator. In Britain, therefore, we are free to disregard any automatic associations between these various elements.

For these reasons I feel that the presence of the imperial cult at Colchester in the mid 1st century does not preclude the civil administration of the province from being elsewhere. If we have to find a site for those sections of the administration that did not follow the governor on campaign or tours of the province, then on geographical grounds London has to be the prime contender. When fully developed, the road system essentially converged on, or radiated from, London; and we can safely assume that at least the stubs of those radials were already established by 50. If London originated organically, as a settlement of traders individually attracted by a natural centre of traffic, we would expect its core to appear round the point where roads and river converged. If, however, it was a planned foundation, our assumption should be that, given that the omens were propitious, the site chosen would be that which was most suitable for building a city. We might then expect to find adjustments being made to some or all of the preexisting roads in their final approaches to it. And this is what does seem to happen, at least south of the Thames (Marsden 1980, 13-15). Overall, the easiest general hypothesis is that the foundations of the *colonia* at Colchester and the port at London were parts of a single general plan to prepare for the movement of the frontier forward — the one releasing troops for active campaigning, the other setting up the supply and communications network. The geographical imperatives determined that the hub of the latter be established at London- And the force of the geographical argument leads us to suspect that the governor never actually settled into the colony at Colchester, but based himself on London from the time of its foundation.

All the towns I have so far discussed were successes, at least in their initial foundation and development, whatever their later history. It is not too difficult to see in each instance what made them so, even if we can be much less confident about understanding the motives of their originators. But what of the other side of the coin — failed or partly-failed towns? Do the street systems observable at Silchester or Caistor-by-Norwich outside the later circuit of walls represent *insulae* initially occupied (perhaps by timber buildings) and subsequently abandoned through shrinkage or change of use, or are they evidence for street grids planned on too large a scale, presumably based on estimates of local population growth that proved too optimistic — Roman versions of Milton Keynes, where *cows* graze in the *insulae,* circumscribed by the roads, street-lights, and roundabouts of a grid laid down to meet the planning targets of the 1960s? In the case of Silchester it is very difficult to postulate straightforward geographical causes for such an early failure, if there really was little occupation in the outer *insulae.* Silchester is at an excellent point on the road network, its hinterland is prosperous, and there is no obvious competition from a near neighbour. I can only suspect some unknown political reason — perhaps connected with its changing position, first in a client kingdom and subsequently in a *civitas.* Pliny, you will remember, found local councils involving themselves in and then abandoning civic projects in many parts of Bithynia. Trajan's pitying remark is memorable: 'These poor Greeks cannot resist a gymnasium. It may therefore be that the scheme at Nicaea was over-ambitious. The people of that city will have to restrict themselves to a building that fits their actual requirements' (Pliny, *Epistulae,* i.40).

For Caistor-by-Norwich there is an alternative to the conventional political explanation that the development of the Iceni was held back by the Boudican revolt in such a way as to prevent the Flavian impetus in the towns of Britain having any real effect there, other, perhaps, than in the laying-out of the grid itself. If there were geographical reasons, then it may have been the site's apparent isolation from main routes of communications, the probable incorporation of the western, or Fenland, portion of the Icenian hinterland in an imperial estate, turning that district's natural focus elsewhere, and perhaps other problems of ownership and control of land consequent upon confiscation. But one cannot help noting that here, even more certainly than at Silchester, we have an example of direct provincial organization superseding a client kingship.

Mention of the western Iceni brings to mind one other intriguing possibility. Was there at one crucial time a potential urban rival? Without pursuing it very far — for the information is yet too scanty — I should like to draw attention to Timothy Potter's tentative suggestion that the monumental Hadrianic tower at Stonea was intended to form part of a projected urban complex. I am happy to accept Potter's identification of the tower and its attendant structures as a procuratorial administrative centre (Potter & Jackson 1982; Potter & Whitehouse 1982). It was clearly intended to impress, and it is possible that its siting was influenced by the location of Scapula's victory over the Iceni in 47: the evidence does point in the direction of

Stonea Camp as a traditional focus for the western Iceni and as the site of the battle. I would really like more evidence for any intended urban development, but the suggestion is not inconsistent with the vast scale of the Hadrianic development of the Fenland; and if it failed, that too is in line with the very short occupation of many Fenland sites. Nevertheless, if there was something in the wind, it may have come at the critical moment when Hadrian was injecting new drive into the flagging Flavian urban development, serving in this case — unlike in other parts of Britain — to stunt the growth of Caistor, which was more remote than Stonea from lines of communication and further from the most densely settled parts of the region.

There is another factor in this part of Britain that may have affected the growth of towns. That is the prevalence of 'large villages' — if that is the right phrase, for some of them are as big as 'small towns' (for example, Flaggrass, Grandford, or Hockwold). Some even show signs of being attached to villas. Those who work in other parts of the country may care to think about the proposition that where there were many large villages or small towns, the geographical fragmentation of specialist occupations may have retarded the growth of large urban centres.

It is often alleged that the cities of the ancient world were parasitic upon the countryside. The classic reference is Galen, in the 2nd century *(de probis pravisque alimentorum succis,* 1; trans1 Millar 1967, 208):

> The famine prevalent for many successive years in many provinces has clearly displayed. . . the effect of malnutrition in generating illness. The city-dwellers, as it was their custom to collect and store enough corn for the whole of the next year immediately after the harvest, carried off all the wheat, barley, beans, and lentils, and left to the peasant various kinds of pulse - after taking quite a large proportion of these to the city. After consuming what was left in the course of the winter, the country people had to resort to unhealthy foods in the spring; they ate twigs and shoots of trees and bushes and bulbs and roots of inedible plants...

That passage implies a situation where effective power over the countryside lay in the hands of the city-dwellers, whether through superior buying power, the municipal control of farming of the adjacent countryside, or town-based private landlords exploiting the countryside for the urban market and their own consumption. But a very different balance between town and country was encountered by the lst-century holy man Apollonius of Tyana, when he arrived at Aspendus in Pamphylia (Philostratus, *Life of Apollonius,* i.15):

> . . .vetch was the only commodity on sale, and the inhabitants were reduced to eating this and anything else they could lay their hands upon, The reason was that the rich had locked up the grain in order to export it. An excited mob of people of all ages had attacked the chief magistrate and were lighting a fire to burn him to death, even though he was clinging to the imperial statues. These were more dreaded at that time, and considered more inviolate than those of Zeus at Olympia, because they were images of Tiberius, under whom, it is said, the master of a slave was held guilty of impiety simply for striking his servant when the latter had upon him a silver drachma bearing the emperor's likeness. Apollonius now turned to those who were around the magistrate and indicated that they must listen. They were so surprised that they not only fell silent, but also put down the torches they had lit onto the adjacent altars. The chief magistrate now plucked up enough courage to speak. 'This man, and that one,' he said, naming these and several more, 'are the people at whose doors the blame for the famine lies, for they have taken away the grain and are keeping it under guard, some in one part of the country, some in another.' At this, the citizens of Aspendus spread the word amongst themselves to hurry off to these men's estates. Apollonius, however, signalled with his head not to do so, but rather to summon those who were to blame and get them to give it up voluntarily. After a little while the culprits arrived. At this point Apollonius was so overcome by the tears of the multitude that he nearly broke into speech against the accused *(he had taken a vow of silence);* the women and children had all collected together and the old men of the city were groaning as if at the point of death from starvation. Nevertheless, he remembered his oath and wrote his accusation against the guilty men on a writing tablet. This he gave to the chief magistrate to read aloud. It went as follows: 'Apollonius to the corn-dealers of Aspendus. The earth is the mother who nourishes us all, for she is just. You are unjust, since you falsely hold her to be your provider alone. If you do not desist, I shall not allow you to remain upon her. ' This threw them into such a state of terror that they filled the market-place with grain, and the city revived.

We must bear in mind that neither author was intentionally writing about economic geography, and that in the second passage the picture may well be exaggerated to improve the moralizing impact of the story. Nevertheless, we have here two extremes in the relationship between town and country, and the corn trade at Aspendus is a particularly graphic illustration of the operation of the free market economy, where it existed in the ancient world. In each case archaeology might have detected changes in the respective urban and rural sites - periods of prosperity and decline. If the goods involved had been less perishable, distribution studies should have shown where they were going and how patterns of trade changed over time. 'The city revived', we are told of Aspendus. That phrase could have come from an excavation report, and the excavator would be justified in suggesting possible reasons. But - and here is the rub -without the literary text, which of us would have deduced the truth, that the archaeologically detectable changes were caused by the chance intervention of an itinerant guru?

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The quick and the dead: suburbs, cemeteries, and the town

Simon Esmonde Cleary

'... any future conference might well include a paper on suburbs' (Rivet 1966, 105). Seventeen years after Professor Rivet published these words in his summing-up of a conference on the The *civitas* capitals of Roman Britain we may now attempt to fulfil his suggestion and show that yet again he had identified an area of potential importance. In these years the amount of evidence relating to suburbs has increased enormously, as has our knowledge and appreciation of urban cemeteries. The present author has elsewhere reviewed this evidence, and that from earlier archaeological and antiquarian observations (Esmonde Cleary forthcoming), and shown that these areas contain information vital to a proper understanding of the layout and function of the Romano-British town.'

This paper is in three main sections. The first will be a critique of developments in the study of Romano-British towns insofar as they have affected the study of suburbs and cemeteries; the second will state briefly some of the major conclusions reached elsewhere about the nature of suburbs and the role of cemeteries; the third will show how these areas can be used to help construct new ways of looking at the Romano-British town as a whole, as a functioning system.

A review of earlier studies is a prerequisite for further research, since it is these which condition our current approaches to the subject. Such a review must be critical, but in the best sense; mere fault-finding and castigation of earlier workers, even where justified, is unedifying, cannot alter their arguments, and sometimes threatens to throw out the evidential baby with the conceptual bathwater. As with so many Romano-British studies, town studies grew out of a preoccupation with cultural and historical topics, reflecting the training or interests of many practitioners. In the case of towns this is evident in the prominence given to cultural problems, such as 'Romanization' as expressed in public or private architecture, or to quasi-historical deductions from such features as the defences. Such stresses or biases obviously will have had effects on the strategies of excavation and research, and on the subsequent thought and publication. Here one may draw attention to four of these effects. The first is the compartmentalization of research effort, certain discrete excavations or pieces of study being carried out for predetermined reasons. The second is the emphasis which is placed on certain types of structure, feature, problem, or approach. The third is the correlative of the second, the downgrading of types of evidence not of immediate use in solving these problems to a status of relative insignificance. The fourth is the result of all these three, the failure to look at the town as an entity, its development, its functions, its population, and all their interactions.

So far as suburbs and cemeteries are concerned this has resulted in almost total neglect until very recently. For the suburbs the reasons are not far to seek. It is partly a matter of convenience, since at a defended town the defences provide a convenient limit for study; sometimes this is stated explicitly, but more often it is merely implicit in a failure to look outside them. It is also a result of the hierarchical perception of Romano-British towns brought about by the question of 'Romanization'. In a 'large' town the classical-style public buildings of the centre commanded the initial interest, followed by the private houses of the wealthy, then (partly as a result of improvements in excavation technique) the artisanal buildings. But the defences were always the limit, as is graphically demonstrated by the trench plans in the successive reports on Silchester or Caerwent in *Archaeologia.* At the 'small' towns research often started later, but many of the same preoccupations may be discerned, as at Kenchester (Jack & Hayter 1926). Only recently has the situation changed with publications on specific suburbs, as at Southwark (Sheldon *et al* 1978) or Lincoln (Jones 1981), or with the survey work undertaken around Silchester. Some 'small' towns, such as IIchester (Leach 1975) or Water Newton, have also benefited from this trend. How this has changed our understanding will briefly be reviewed below. The laggard development of the study of Romano-British cemeteries is a curiosity of the discipline which it is hard to explain, especially when the 'Romanist' had the experience of the prehistorian and the 'Saxonist' to show him how vital such evidence could be, let alone the example of Continental Roman cemetery archaeology. Partly it seems again to be the problem of location outside the defences; from early references to work in cemeteries it is clear that such activities were seen as a sideline, as at Colchester or York in the 19th century. Partly it was probably because it was not understood how much information cemeteries and burials could yield even in an epoch as rich in material remains as the Romano-British. Happily this situation is now also changing dramatically for the better (cf Down & Rule 1971, 53-126; Clarke 1979; McWhirr *et al* 1982).

As a result of the amount of new evidence coming to light in the 1960s and early 1970s, and the quantity of earlier references, the present author undertook the general survey of extra-mural activity at Romano-British towns referred to above, to try to correct the distortion in our knowledge and approach. Here it is possible only to outline some of the major conclusions and lines of argument, as a background to further discussion of the usefulness of these areas in our comprehension of Romano-British urban topography.

Broadly speaking, extra-mural occupation falls into two types, depending on whether it occurs at a 'large' (ie *colonia, municipium,* or *civitas* capital) or a 'small' town. At the former it is generally limited, usually taking the form of isolated buildings (sometimes of some pretensions) or of ribbon development along the main through-routes.

Structures in such ribbon developments are simple 'strip buildings' of the rectangular shop/workshop type familiar from most Romano-British towns, sometimes interspersed with humbler structures. At the 'small' towns the picture is different. Here the extramural occupation can cover an area as large as, or in some cases larger than, that enclosed within the defences. In addition the building types and functions present in the extramural areas are scarcely to be distinguished from those in the intramural. The latter usually has the main concentration of buildings of above-average elaboration, but for the great generality of buildings there is a consistency between the two areas.

This distinction is related certainly to morphology and quite probably to status. The morphological point is that the 'large' towns were provided with street grids; thus the occupied area tended towards the square, rectangular, or ovoid. These shapes can comfortably be completely circumscribed by a defensive circuit, as the ratio of area defended to length of perimeter is favourable. The 'small' towns had almost all developed at and along the junctions of roads and/or other routes. Their plans were thus of a simple linear type or an agglomeration of linear elements. To attempt to enclose all the occupied area would be a military let alone a financial nonsense. Accordingly one finds the relatively restricted defended area at the nucleus of the town, probably designed to encompass amongst other things installations of governmental interest such as a *mansion.* This difference in policy in the laying-out of the defences must have had a significant effect on the relationship of the intra- and extramural areas in the two categories of town. In the 'large' towns it means that the areas excluded from the defences were generally ones already peripheral to the main inhabited area, and it is to these that one may if one wishes apply the term 'suburb' in something approaching its modern usage. Obviously in the 'small' towns the relationship is very different. Here substantial portions of the existing settlement, integral to the town as a whole, were excluded. These were economically and socially indistinguishable from the defended area, and should therefore be considered in parallel with it rather than in any subordinate role. For the 'small' towns this means that any attempt to view the urban topography or economy or society solely from the standpoint of the defended area ignores evidence of such importance as to result in a distorted and blinkered view of the town.

The location of urban cemeteries has also received inadequate attention. Apart from the general if fuzzy recognition that because of the Roman legal prohibition on burial within towns they must in some way define the inhabited area, they have been little used in topographical analysis of Romano-British towns. Yet they were extensive areas with a distinctive function which must be related to the rest of the town.

If, then, previous studies of Romano-British urban topography can be seen to be deficient, and if a large and vital body of evidence can now be called upon, how may we proceed to refashion our view of Romano-British towns and, moreover, the ways in which we should look at them in the future? A particular advantage of studying suburbs and cemeteries is that instead of concentrating on particular building types or features one is considering whole zones or areas of the town. These are identifiable geographically or functionally, and, moreover, were recognizable as such to the inhabitants of the town at the time. We are therefore looking at entities which make sense not only now but also then, and which would have interacted in some way. In studying the contribution of these zones to our knowledge it would seem appropriate to adopt a roughly chronological approach, helping to bring out another important point, that these zones and their relationships were not static across 400 years.

The term 'extramural' of course carries the implication that one may deal only with evidence from outside a set of defences *(sensu stricto* walls). Accordingly before the mid to later 2nd century there is only a handful of sites which qualify for such analysis, namely the *coloniae* at Colchester, Gloucester, and Lincoln, the *municipium* of Verulamium, and the *civitas* capitals of Winchester, Silchester (briefly), and possibly Exeter. At all but the last two there is evidence from the later 1st century onwards of extramural occupation, that at Gloucester and Lincoln being particularly extensive. At the latter, indeed, the area between the southern defences of the 'upper' *colonia* and the river seems from the start to have been reserved for building and kept free of burials (see Jones, this volume, p 90). It may even have been provided with elements of a street grid before its importance was formalized by the construction round it of an extension of the defences, creating the 'lower' *colonia.* At the other towns the occupation is relatively sparse, usually ribbon development along approach roads. At the undefended majority of formally laid-out towns it is nevertheless possible to identify areas of occupation which are in an analogous location to truly extramural occupation. Usually these are divided from the main part of the town by a physical feature, generally a river, as at Leicester or at London, where the large and early settlement at Southwark is the classic example of this type. A rather different state of affairs occurred at Aldborough, where settlement developed at the junctions of the roads from the north and east sides of the town with the main through-road, Dere Street, which does not pass through the town itself. Clearly this occupation is to be associated with the town, but equally clearly the stimulus was the opportunity of attracting trade from those travelling along Dere Street as well as from those entering or leaving the town. Once the defences of Aldborough were constructed these areas of settlement satisfy the requirements of what geographical town-plan analysis would term the 'distal extramural' (cf Conzen 1960, 61). The siting of the occupation at Aldborough, as well as at places such as Southwark on the approaches to London Bridge, emphasizes the essentially mercantile nature of these developments, confirmed by the form and function of the buildings.

It would be useful to know more of the location of cemeteries at this period, since in the absence of defences their value in defining the area zoned for occupation, though not, of course, necessarily built up, is considerable. The location of the St Dunstan's, St Martin's Hill, and St Sepulchre's lst- and 2nd-century cremation cemeteries at Canterbury, lying as they do at a distance from the later defences, may suggest that the original zoning of the town allowed for more occupied area than was achieved. A similar situation may have obtained at Chichester. At Silchester the pattern is reversed. Traces of the street grid can be detected outside the later defences and are truncated by them; unfortunately the location and

relationship of the cemeteries to the early and later layouts is unknown. The areas given over to burial are important, then, for their relationship to the occupied area, but also, when considered as part of the entire urban area, are important in defining the extent and layout of the land given to a new town at or soon after its foundation.

With the advent of defences at an increasing number of towns - including 'small' towns - from the mid 2nd century onwards, problems of the definition of the 'extramural' diminish sharply. I wish to consider here the effect in the short term of the construction of defences on the newly-created extramural areas, the effect on the cemeteries, and then the longer-term fate of these areas.

By and large the immediate effect of being rendered extramural seems to have been negligible. At the 'large' towns the areas concerned were already peripheral to the main settlement; defences merely emphasized this. In no case is there convincing evidence for decline; some even expanded gradually. At Wroxeter the extramural area to the north of the Bell Brook seems to have been so successful that eventually the defences had to be extended northwards to enclose it (see Barker, this volume, p 109).

At the 'small' towns it has already been argued that considerations of form, and perhaps finance and status, dictated that only part of the area occupied at the time of the laying-out of the defences could be enclosed. But here also there is precious little evidence of decline. A possibility is Irchester (Hall & Nickerson 1967), but there the circumstances of the excavation made it difficult for the excavators to reach any but the broadest conclusions. The apparent decline in occupation in the early 3rd century may have more to do with problems of dating or settlement-shift than just of decline. Elsewhere stratigraphic and artefactual evidence suggest general continuity, with perhaps small-scale shifts and realignments.

The effects on the cemeteries are less easy to follow. At Canterbury the 2nd-century cremation cemeteries seem to have been abandoned by the 3rd century, and what we know of the 4th-century cemeteries shows that they lay elsewhere. It may be that the change was consequent upon the (relatively late) defending of Canterbury. At Chichester also the early St Pancras and Canal Basin cemeteries declined and passed out of use at about the time of the construction of the defences. Redefinition of the occupied zone may have led to a change of location, but, as we shall see at towns such as Winchester, such shifts could happen at times, and presumably for reasons, utterly unconnected with the defensive sequence. The cemeteries of 'small' towns are as yet largely unexplored, but it is clear that at some, such as Alcester, Irchester, or Water Newton, there were extensive cemetery areas as at the 'large' towns. At others there are records of isolated burials near buildings, suggesting that there may have been less formality at towns whose layout was looser than that of the 'large' towns. At present it would not be wise to go further than this, but one can point out the general importance of cemeteries in the topography of towns and this gap in our current knowledge.

In the longer term, that is down to the mid 4th century or a little later, extramural occupation seems to have continued at no less than its 2nd-century rate virtually everywhere. This should not be taken to imply that it was unchanged. At sites such as Alcester, Southwark, or Water Newton timber buildings were often replaced by ones with stone cill-walls at least. At Southwark this may well be related to a change in the social and economic functions of the settlement. At other sites it is a phenomenon which occurs in the intramural areas also, so that it may be associated with rising prosperity in the town or even with changes in building techniques. At Catterick the early 4th century seems to have been the time when the Brompton-on-Swale transpontine occupation first developed. At some towns, such as Ilchester, Lincoln, Towcester, Water Newton, and Winchester, there was expansion of the extramural occupied area. Only at a few towns is there evidence of some decline. At Colchester the extramural occupation to the west would seem to have declined during the 3rd century, and at Verulamium the St Stephen's bath house seems to have gone out of use in the first third of the 3rd century. At Margidunum the defences seem to have enclosed a largely vacant area, and the same seems to have been true of the possible *burgus* sites along Watling Street. The defences of Caistor-by-Norwich enclosed a far smaller area than had originally been laid out; investigation of the changing relationship between town core, peripheral buildings and industries, and the cemeteries through time here might prove most instructive. Apart from this small number of sites the picture is one of continuing, though not static, occupation. The building types and associated features in this period still suggest that the great majority of those in the extramural areas were engaged in manufacture and distribution, a conclusion which is consonant with the quantities of low-denomination coins from the sites.

About the cemeteries at this period our best information is from the 'large' towns, as a result of recent excavations at the Bath Gate, Cirencester, Butt Road, Colchester, Poundbury, Dorchester (Dorset), and Lankhills and Victoria Road, Winchester. At these towns it is clear that extensive 4th-century cemeteries exist; indeed at Winchester the known areas of 4th-century burial are larger than all those known for the other three centuries put together. At Dorchester, Winchester, and possibly, Colchester the 4th-century cemeteries seem to be considerable modifications to the urban topography. At Winchester the northern cemetery seems to have been extended and relocated soon after 300, and at Colchester and Dorchester small burial nuclei expanded quite quickly into major new cemeteries. The authority and mechanism for such changes are obscure, but the changes themselves are notable. How this relates to such problems as the relocation of the cemeteries at Canterbury and Chichester must await further research. The 'small' towns are again little known, though there is evidence for a large cemetery at Ancaster, and the Cherry Orchard cemetery at Irchester may well be largely of this date.

If, then, we regard the extramural occupation and the cemeteries as zones, and relate them to each other and to the defended area of the town, we may see that there is considerable potential for examining their growth and subsequent changes in emphasis and relationship. Not only are large physical areas now added to our account of Romano-British towns, but the changing nature of the urban fabric, so familiar to those studying the post-Roman period, may for the first time be discerned.

So far we have left out of consideration one element in the problem, the countryside. The relationship between town and country is one that has recently been under

scrutiny on various levels (cf Fulford 1982; Hodder & Millett 1980; Reece 1980). These studies have mainly been concerned with administrative and economic relationships. In the present context, however, one can but concern oneself with a minor and not too important aspect of this problem, namely the physical relationship between the town fringe and the surrounding countryside. The actual edge of the town has seldom been observed, although at Ilchester, Neatham, and Winchester ditches have been found defining the edge of occupied or cemetery land; an absence of features beyond suggests open fields. At sites such as Brampton, Cirencester, Wroxeter, and Water Newton aerial photography has shown either the course of some town-edge feature or the presence, close up to the defences, of rural sites of the 'farmstead' type with associated field systems. This suggests that towns were physically closely defined. This need not occasion surprise, as no agriculturalist, then or now, will leave good land unworked just because it is next to urban properties. This close definition should not be taken to mean that the town was an unwanted intrusion into the rural landscape, which the countryside was in some way attempting to confine or extrude. But identifying the shifting edge of the town should act as a rough guide to the expansion or contraction in the fortunes either of the town in general or of specific areas of it.

The decline and fall of Roman Britain has its echoes in the extramural areas. Evidence is accumulating that at some towns, such as Alcester, Brampton, Gloucester, or Water Newton, areas of extramural occupation were being abandoned during the last third of the 4th century. Buildings were demolished and not replaced, pits were filled in, and ditches allowed to silt up. Given that these areas were essentially artisanal, it would suggest that the economy of the Romano-British town was in some cases no longer able to sustain the population and crafts of earlier years. This may perhaps be related also to the seemingly greater emphasis on the town's ability to process agricultural produce, as suggested by the appearance of cattle pens within the defences of Exeter or of corn driers at Verulamium and Winchester. Perhaps the town/country economic link was fading. Nevertheless, some occupation at towns such as Lincoln or parts of Water Newton does seem to have continued very late into the 4th or early 5th centuries. Cemeteries too may provide evidence about the decline of towns, for until they ceased to be used one may assume some sort of continuity of urban institutions of a Romano-British type. At Winchester the abandonment of the Lankhills cemetery is put at **c** 410-20; a similar date may be suggested for Poundbury at Dorchester. At both, towards the end, there is evidence for declining standards in the disposal of the dead.

In this necessarily brief survey there is much that I have not mentioned. Some towns have not figured, nor have interesting areas of those that have. Nor have I had much space for all the 'ifs', 'buts', and 'perhapses' that litter the subject and of which I am very well aware. But my purpose here was to propose that Romano-British urban studies have developed in a lopsided fashion and have been in danger of going down blind alleys of unanswerable questions. I have been concerned to outline areas of information, suburbs and cemeteries, which have in the past been unfortunately neglected, and ways of approaching urban studies which involve the synthesis of differing groups of evidence rather than their individual analysis for a particular problem. We shall never have the evidence of documents and standing buildings to allow us to emulate the precision of the geographer (eg Conzen 1960) or the historian (eg Keene 1975), but there is evidence here which the student of the period and of towns will ignore at his peril.

Note

1 In this paper bibliographical references to particular sites have been kept to a minimum. The author appreciates that this is inconvenient, but feels that their inclusion would have threatened to swamp the text. A full bibliography will be found in the forthcoming general survey (Esmonde Cleary forthcoming).

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Colchester: the mechanics of laying out a town

Philip Crummy

The Roman colony at Colchester was not laid out on open ground as a single planned entity, but was formed by adapting a redundant legionary fortress (Fig 53; Crummy 1977; 1982a). The process of conversion was extensive and involved considerable building work. The legionary defences were filled in and a new street grid was set out on the east side at a slightly different angle, so that it covered the area of the legionary annexe and the eastern half of the fortress. The *via principalis* and the north-south streets to the west of it appear to have been retained for the colony. The *via sagularis* was also kept, except on the east side of the fortress where it was replaced by a new street built over the levelled legionary defences. The area of the annexe seems to have been given over partly, if not entirely, to public buildings. Four are known here: the Temple of Claudius, the theatre, and at least two others, one in *insula* 29 and another, perhaps a large basilica, in *insula* 30. The last two buildings had pre-Boudican forerunners, discovered and partly examined by Hull who felt that they were both public in character (Hull 1960, 310, 316). According to Hull, the building in *insula* 30 probably contained columns 3ft (lm) wide which were covered with fluted stucco. It is not certain if the theatre is the one referred to by Tacitus when he wrote about the strange occurrences in Colchester shortly before the Boudican revolt *(Annals,* xiv.32). The remains of a pre-Boudican theatre may lie underneath, although no trace of this was noted during the small exploratory excavations of 1981 (Crummy 1982b).

At a recent excavation in Culver Street the pre-Boudican remains proved most important (Rankov 1982, 371). On the east side of the *via principalis* were found the corners of two large buildings whose size and position are consistent with those of tribunes' houses. They were separated by a narrow, well-gravelled street *c* 6m across. The walls were built of timber posts set in construction trenches up to *c* lm deep. The buildings had been demolished and an east-west street of the new grid was laid on top on a slightly different alignment. Timber-framed houses were built along the frontages of the new street and were destroyed in 60/l. In contrast to this sequence, the centurial blocks, situated to the west of the *via principalis,* survived until the revolt.

About two-thirds of the eighteen or so military buildings recognized so far in Colchester were destroyed in the fire. This fact, combined with the number of streets which were reused, suggests that a substantial proportion of the military buildings must have survived the change from fortress to town. Probably there would have been insufficient space within the former fortress for all the large civic buildings which the first colonists required; the defences were therefore levelled and the area of the annexe was given over primarily to them. This would explain the otherwise puzzling statement by Tacitus, 'It seemed easy to destroy the settlement; for it had no walls. That was a matter which Roman commanders, thinking of amenities rather than needs, had neglected' *(Annals,* xiv.32). The 'amenities' must be the group of public buildings which, as already explained, would only have been laid out after the defences had been levelled. Excavations at Balkerne Lane have confirmed Tacitus's statement that the colony was unprotected in 60, because it was found that houses burnt in the revolt had been constructed over the levelled military defences and that these defences were not replaced until after the fire (Crummy 1977, 96).

The destruction of the military bank and ditch was a mistake which was not repeated when, in the post-Boudican period, other fortresses were converted into towns. At Gloucester (Hurst 1972), Lincoln (Jones 1980), and Exeter (Bidwell 1979; 1980) where much is now known about their early development, the legionary defences were retained and the towns were initially held within the circuits of their military ramparts.

At Colchester, the fate of the *principia* is not known. Perhaps it was retained in the colony to fulfil some civic administrative purpose or perhaps it was demolished and the *via decumana* and the *via praetoria* joined up to form a continuous east-west street. The street to the west of the *via principalis* was later to replace it as the main north-south street of the town. The date of this change is unclear, but it probably occurred just after the Boudican revolt when the colony was provided with its first defences and gates.

The process of converting the fortress into a town may have taken several years. The evidence for this comes from three places: (i) the Temple of Claudius; (ii) the backfilling of the legionary ditch; (iii) the theatre.

It has been argued that the Temple of Claudius could not have been started until after the death of Claudius in 54 (Fishwick 1972). Since the *insula* containing the temple is apparently the dominant feature of the eastern grid and clearly an integral part of its layout, then either the grid was set out no earlier than 54 or, before this date, the *insula* contained only an altar as, for example, at Lyons and Cologne.

The legionary defences at Balkerne Lane had been much neglected before being levelled. Debris had been tipped into the butt ends of the ditch, pits dug on its western side, and at least one building, probably a workshop, had been built up against the southern butt end so that it encroached onto the main street. Since no military commander would have tolerated such treatment of his defences, the bank and ditch must have been intact for some time after the evacuation of the garrison (Crummy 1977, 76).

The western side of the theatre appears to overlie the levelled defences of the fortress (Fig 53). Moreover, it is not on the alignment of the eastern street grid as might be expected, but shares the same alignment as the fortress. These two facts seem to indicate that between the destruction of the defences and the laying out of the

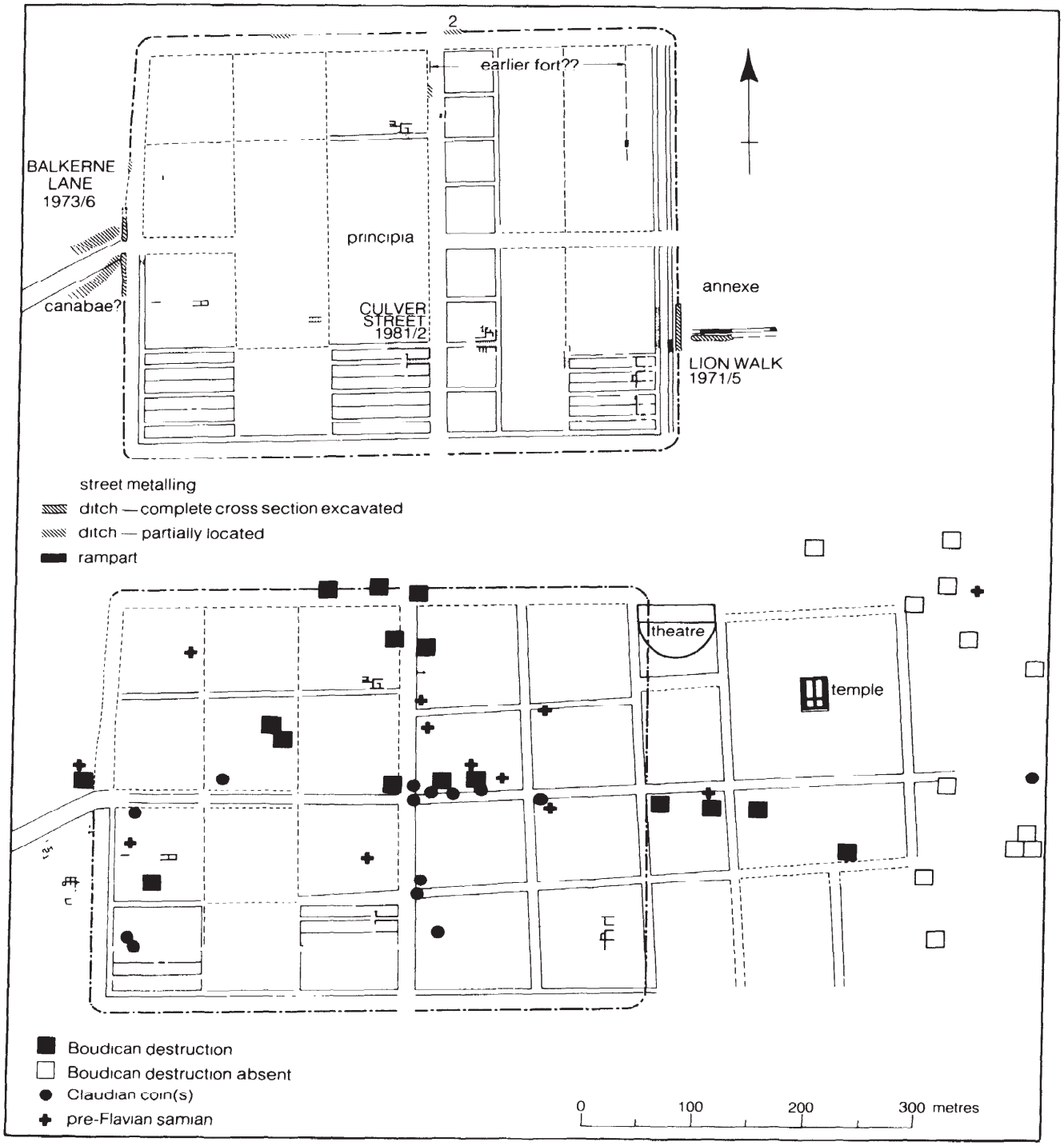

Fig 53 Colchester: the fortress (top) and the pre-Boudican colony (bottom)

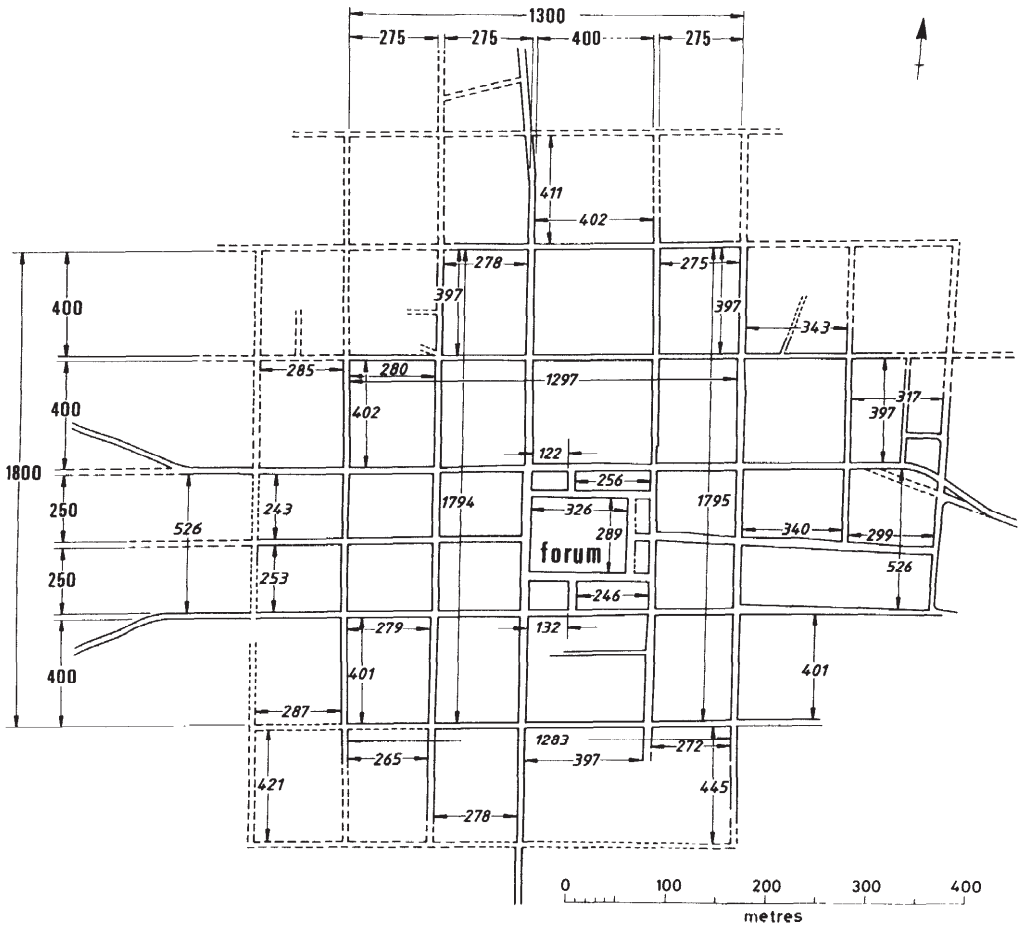

Fig 54 The street system of Silchester (taken from Boon 1974), with dimensions in pedes monetales *(Actual measurements in italics, theoretical dimensions in upright bold)*

eastern grid there was a hiatus long enough for construction of the theatre to begin.

Taken together, the various strands of evidence indicate that the eastern grid may not have been laid out until the mid 50s. The process could have been quite complex, with various stretches of the defences being levelled independently over a period of years.

The layout of the town's street system in its original form is accurately known in places, so that theoretically it ought to be possible by careful measurement to determine the strategy of the planners. It appears that in at least some towns and fortresses planners adopted a common approach: the layouts were formulated in terms of round figures and the planning of buildings was secondary to the street system. In other words, the buildings were made to fit the street plan rather than *vice versa.*

At Silchester, careful measurement of Boon's large plan of the town (Boon 1974) reveals that its layout was based on a series of rectangles sharing the dimensions 250, 275, and 400 standard Roman feet *(pedes monetales)* (Fig 54; Crummy 1982a, 130-2). The streets seem to have been 25 feet wide. To show this, the width of each row of *insulae* was measured at either end to gauge the degree of accuracy of the layout. From these measurements, the scheme conceived by the planner emerged. To check its consistency, measurements were taken across several rows of *insulae* and these were found to compare well with the theoretical dimensions. Thus, east-west the actual measurements of 1297 and 1283 compare well with the theoretical dimension of 1300, whilst north-south the measurements of 1794 and 1795 are very close to the theoretical 1800 feet. The measurements were made in metres (since the plan is metric) and converted into Roman feet by taking one *pes monetalis* to equal 0.295m. The fact that the measurements in Figs 54 and 55 are all to the nearest Roman foot does not reflect their degree of accuracy. Various factors affect the quality of the measurements and combine to make it very difficult to estimate the actual level of precision. No doubt it would have been more realistic to have rounded off the figures to the nearest multiple of five, but it seems simplest to leave the measurements in their raw form.

Inspection of the street system of Caistor-by-Norwich reveals that it was formulated on the basis of a series of

east-west strips 150 and 300 feet wide (Crummy 1982a, 132, fig 6). These do not appear to have been as accurately laid out as at Silchester. The north-south streets are too few and fragmentary to detect the planner's intentions.

The same kind of approach as used at Silchester can be applied to post-Roman street systems. A study of five late Saxon and early medieval systems indicated that these appear to have been laid out using multiples of 4 poles (Crummy 1979). This makes much sense; the 4-pole dimension must have been an important and much-used unit of land measurement because in the 17th century it acquired its own name, the chain (Berriman 1953, 174).

Of the five places examined the two in which planned systems were most easily detectable were Winchester and Salisbury. At Winchester (Crummy 1979, fig 8.2) the frontages along the main street seem to have been divided into blocks approximately 16 poles wide. Most of the dimensions were to within half a pole of the intended figure, although two were 1 pole and another as much as 1.75 poles too large. Salisbury (Crummy 1979, fig 8.1) seems to have been set out principally as three long strips 16 poles wide laid north-south. These were then chopped into blocks on the basis of 20 and 40 poles (0.5 and 1.0 furlong). Two-thirds of the dimensions are within half a pole of the intended figure. As at Winchester, the streets were cut from the edges of the strips. Compared with Roman planning these systems are much less accurately laid out, not only in terms of the linear dimensions, but in

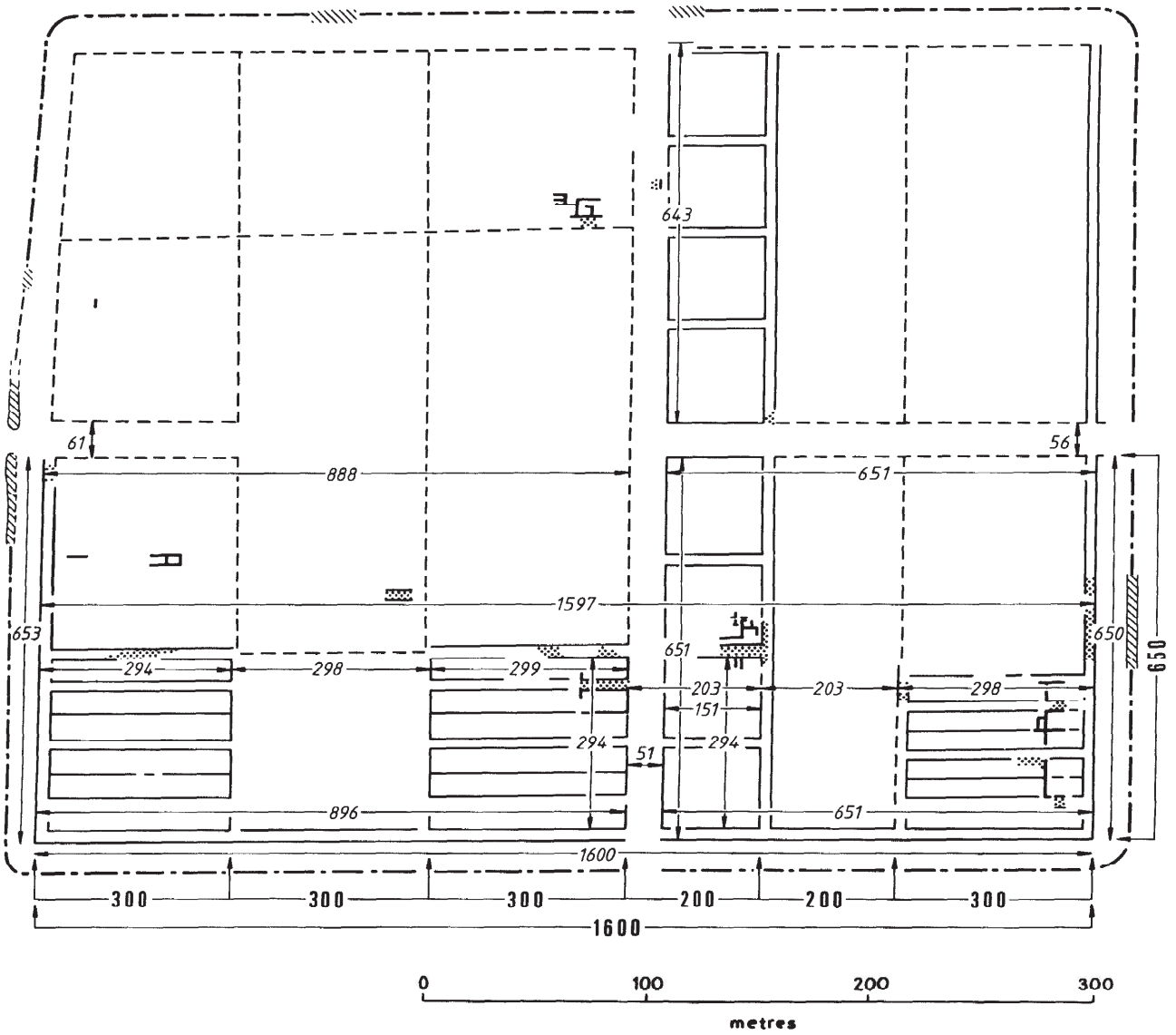

Fig 55 The fortress at Colchester, with dimensions in pedes monetales *(1* pes monetalis = *0.295 m) (Actual dimensions in italics, theoretical dimensions in upright bold)*

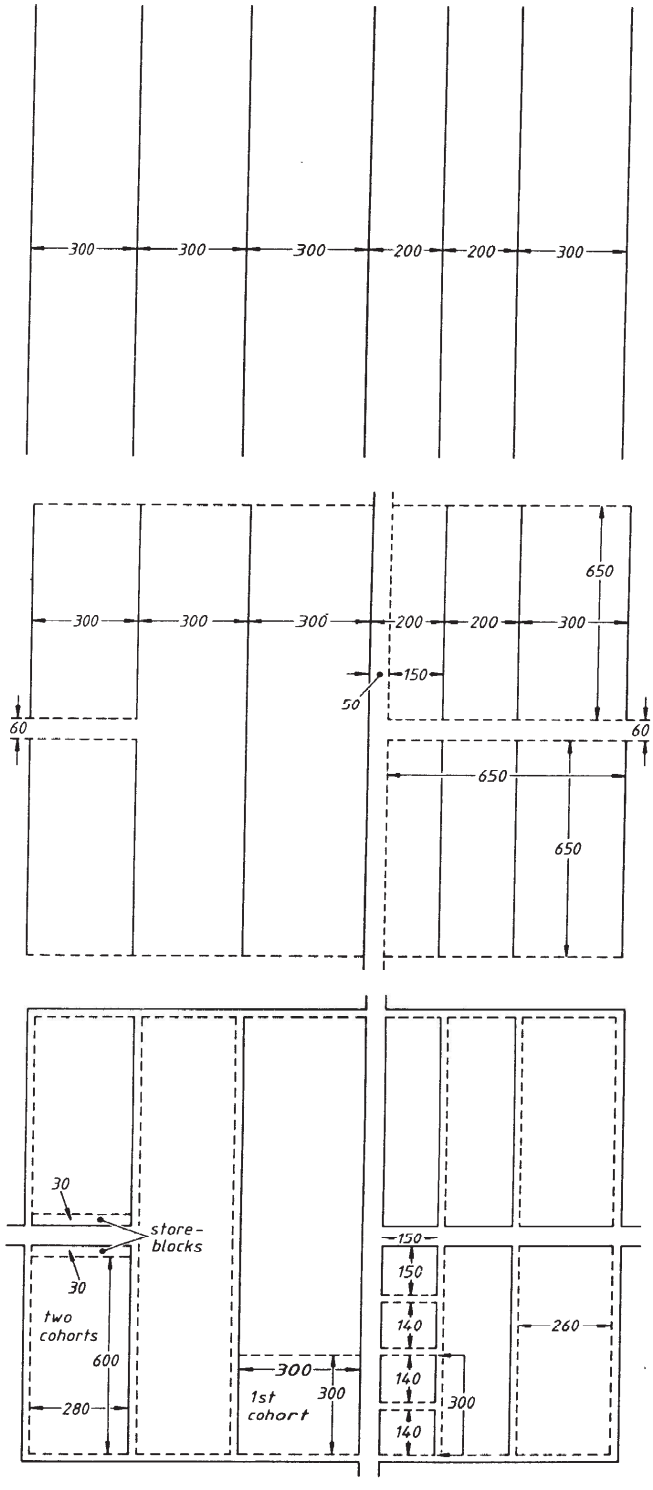

Fig 56 The stages in planning the fortress at Colchester. The figures are 'hypothetical' (cf Fig 55) measurements in pedes monetales (1 pes monetalis = *0.295 m)*

the angles and the poor execution of straight lines. However, the approach is essentially the same.

These examples suggest that a similar system of planning may have been used at Colchester. Unfortunately it is not yet possible to detect the underlying strategy for the eastern grid. Here there are problems in determining the precise location of almost every street, and, more important, the *insulae* all vary in size and shape so that there is unlikely to be much repetition of dimensions. However, this is not the case with the fortress (Fig 55; in this plan the Roman foot is taken to equal 0.295m).

Taking measurements east-west, the ground area of the fortress can be divided into six north-south strips 300 and 200 Roman feet across. The area east of the *via principalis* can be divided into two squares 650 feet across. In one of the ZOO-foot-wide strips lay the tribunes' houses and the *via principalis.* At Culver Street the barracks and the two tribunes' houses were 300 feet across, measured from the inside of the *via sagularis.* Thus the strategy of the planner can be summarized as follows (Fig 56).

First he marked out on his plan, at an appropriate size, strips 300 and 200 feet wide. Then he set out the *via praetoria* and the *via decumana,* probably so that these were 60 feet across. (The exact widths are not certain.) At the same time he allocated a 50-foot-wide strip for the *via principalis* and marked off the northern and southern limits of the street system at a distance of 650 feet from the north and south frontages of the *via praetoria* and the *via decumana.* Thus the street plan of the fortress covered a theoretical area of 1360 by 1600 feet.

The next stage involved delineating the minor streets. I have assumed that these were 20 feet wide, but with the exception of the *via sagularis* they could have been as much as 30 feet. The *via sagularis* has been excavated in two places and its width established at *c* 20 feet.

Finally the building plots were marked out. Those for the tribunes' houses mainly seem to have measured 140 by 150 feet, but there may have been store-blocks along the eastern frontage of the *via principalis,* in which case they would not have been the full 150 feet across, east-west. Probably the area south of the *via decumana* would have been occupied by ten barracks taking up 600 feet. If so, this would have left 30 feet for store-blocks at the north end - more if the *via decumana* was narrower than shown in Fig 55.

If it is possible to detect a scheme such as this at the fortress at Colchester, then it should be possible to do the same elsewhere. At Gloucester, after studying Hurst's plan of the fortress, hints emerge of a similar scheme there (Fig 57). Four strips seem to have been intended, three 300 feet wide and one 600 feet wide, the last being subdivided, perhaps as 240 and 360 feet. The outer edge of the *via sagularis* seems to have been 600 feet from the frontages of the *via praetoria* and the *via decumana.* The dimensions seem consistently on the large side, but perhaps if the original large-scale plan was examined, the measurements might turn out to be closer than they seem to the theoretical dimensions proposed here. It must be stressed that the measurements were taken from a plan published at a small scale, so that despite being given to the nearest foot they are very approximate. This qualification applies to all the plans in Fig 57. These should be regarded more as indicators of potential than fact.

The 300- and 600-foot dimensions are very evident in

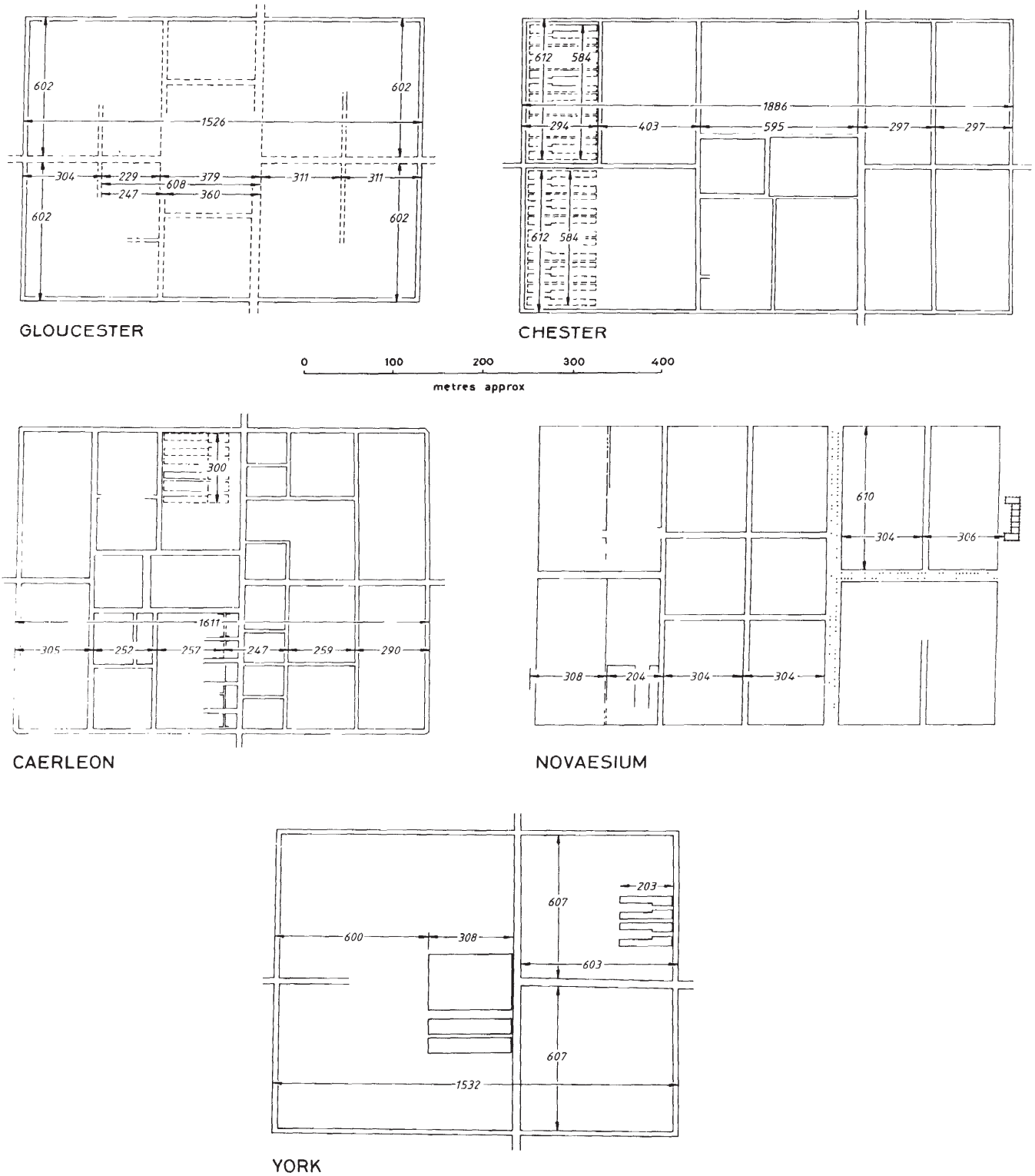

Fig 57 Very approximate measurements of some fortresses: Gloucester (based on Hurst 1972, fig 5), Chester (based on Nash-Williams 1969, fig 15), Caerleon (based on ibid, *fig 13), York (based on Whitwell 1976, fig 1), and Novaesium (based on* Bonner Jahrbucher, 112-13 *(1904), Taf 3). All the plans are approximately to the same scale and the figures represent measurements in* pedes monetales *(1* pes monetalis = 0.295 *m)*

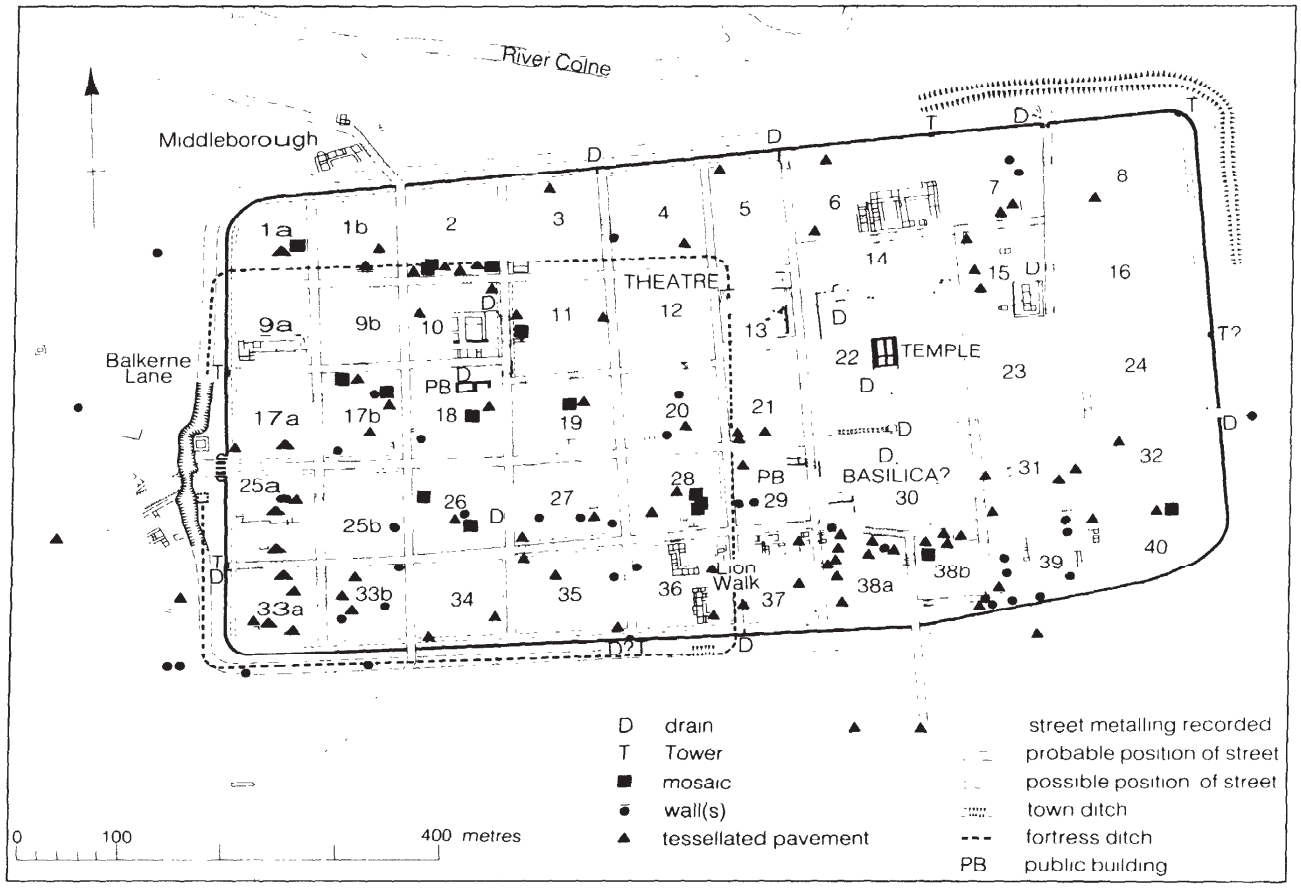

Fig 58 Colchester: the street system in its final form

the plan of the fortress at York (Fig 57) which appears to be similar to that of Gloucester. The distance between the outer edges of the *via sagularis,* measured along the length of the fortress, was *c* 1532 feet, confirming that the major subdivisions here (left to right in Fig 57) were 600 plus 300 plus 600 feet excluding the *via principalis.* Its width is also derived from the 600-foot dimension.

At Chester, from Petch's plan, the street system of the fortress seems to have been conceived as being 1900 feet long and formed from strips 300,400, and 600 feet across (Fig 57). The intended width of the fortress is less clear, but as at Gloucester the *via sagularis* is about 600 feet from the *via praetoria* and the *via decumana.*

Caerleon is more difficult, but seems to have been conceived as being 1600 feet long, formed from four strips 250 feet wide and two strips 300 feet wide (Fig 57). The width of each half of the fortress is unclear but is certainly in excess of 600 feet. Of all the fortresses Caerleon comes closest to Colchester in its layout and dimensions.

Most of the other British fortresses - except Inchtuthil, which I have been unable to rationalize satisfactorily – appear to have been rather too irregular or are not well enough known for the planner's scheme to be detected. At Novaesium, however, five strips 300 feet wide and one strip 200 feet wide can be detected (Fig 57). The hypothetical dimensions are consistently slightly smaller than the actual dimensions, but the printed scale also seems slightly too small. This discrepancy is apparent when individual buildings are scaled off the large-scale plans included in the report. This example underlines the obvious fact that this kind of examination of towns and fortresses can only be undertaken effectively by the compilers of the plans concerned, since they have ready access to the originals and, more important, only they can know how accurate and reliable their plans are.

A central conclusion of my previous paper (Crummy 1982a) was that if the street system of a settlement is accurately known then it ought to be possible to establish if it was a planned town or a reused fortress. In the light of the examples given above the difference between the two types of street systems does not seem so great. Whereas previously it was supposed that, unlike those of towns, the street systems of fortresses were planned around their buildings, now it appears that this was not so. However, the conclusion still holds good for places with very regular and uniform street grids - Orange, for example. No one would suggest that this town was not planned and, should proof be needed, measurements indicate that the plan was

formulated as east-west strips 125 feet wide and north-south strips 200 feet wide. Compared with Orange and towns like it, the plans of Silchester and Caistor seem inexplicably fussy in their detail. Why the variations in the widths of the *insulae,* especially at Silchester? If it is caused by buildings, why does the largest building of all at Silchester, namely the forum, not fill the full width of its 400-foot-wide strip? We may come close to seeing the ghost of a plausible fortress in the street plan of Silchester - but not quite. The town plan embodies north-south strips of the 300-foot width familiar in the other fortresses we have examined. The forum would presumably share the site of the *principia,* the streets to the west and east being in origin the *via praetoria* and the *via decumana* respectively. The principal difficulty is that the gap between the ends of these two streets is not nearly large enough; it is less than 400 feet, whereas about 600 feet would be normal in a full-size fortress. All this is speculation; no doubt Dr Fulford's excavations will reveal all, if they have not done so already.

Finally, and very briefly, back to Colchester. After the revolt the town was rebuilt and the pre-Boudican street system was restored. The occupied area of the colony was enlarged northwards and probably eastwards by extending the existing streets (Fig 58). The date of these alterations is not certain but they were probably contemporary with the construction of the town wall during the first part of the 2nd century. Thus, in its final form, the street system of Roman Colchester was a complex development and still contained important elements of the fortress which was set out shortly after the start of the invasion in AD 43.

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New streets for old : the topography of Roman Lincoln

Michael J Jones

Roman Lincoln owed its elongated plan largely to topographical factors, with occupation extending particularly along Ermine Street to the north and south. Just how extensive was the settlement, and how intensive was its occupation, is still emerging from excavation. Almost 40 years ago Sir Ian Richmond wrote of the upper *colonia,* 'the tale of structures. . .is a sorry one. All too many opportunities have been missed' (Richmond 1946, 39). Since then much effort and public money have been expended on rescue archaeology in the City, principally in response to the large-scale redevelopment schemes which have mainly affected the lower part of the walled city and the riverside in the last twenty years or so. Ironically, excavations on those sites have not added a great deal to our knowledge of the Roman street system, whereas the now-abandoned Inner Ring Road Scheme would have revealed much.

Phase I of the Scheme did go ahead in 1971, occasioning a small excavation on the High Street frontage, which produced for the first time stratified evidence for a pre-Roman settlement (Jones 1981, 87; Jones *et al* forthcoming). This is perhaps no more than might have been expected, given the known pattern of late Iron Age settlement in Lincolnshire, the Celtic derivation of the place-name, and earlier chance finds. The pottery from the site suggests an origin probably no earlier than the 1st century BC, and one might postulate a settlement of houses scattered along the river frontage on slightly higher areas of ground — for much of the valley was too low-lying and marshy for settlement.

Study of the natural ground levels is one of the clues to the location of the earliest occupation (Fig 59). To the west and south-west of the city are large areas of gravel dotted with occasional natural meres. If one assumes a natural origin (and this has yet to be proved), the Brayford Pool probably originated in this way. Today the canalized line of the river Witham as it flows through the City gives a misleading impression of the earlier width of the river, known from both antiquarian accounts and modern excavations (Drury nd; Whitwell 1970, 42; Jones 1981, 88-90).

On historical and perhaps also epigraphic grounds, part of the Ninth Legion is thought to have been in Lincoln before AD 50, whereas the samian (but not the coins) studied to date suggests that the uphill fortress was not built before 60 (Jones 1980; Hartley 1981; Reece & Mann 1983). If, as at Gloucester, there was an earlier base, where was it? Is the location of the early cemetery up to 2km to the south a clue, or is this a reasonable distance at which to expect military graves? Some of these burials are of soldiers of *Legio II A diutrix* and therefore postdate 71, but others have no *cognomina* and, some scholars suggest, ought to predate 50.[1] Once begun, this seems to have continued as the major cemetery for the troops, and only three tombstones are known from north of the river. Most were noted during building operations last century, but more recently (198 1) another cremation turned up on the South Common and in 1982 four were found in Monson Street, a site which had already produced one of the legionary tombstones. It is interesting to note that these finds were made about 50m east of High Street (the Fosse Way), and apparently east of another Roman street which branches off the Fosse not far to the north. Although the earliest street levels could not be investigated, it is possible that this is Ermine Street (Magilton 1982), which would thus have crossed the Sincil Dyke on the line of the medieval Little Bargate (Fig 59). Although this might make better sense in terms of the location of some of the early graves, unfortunately no indications of a road are visible on South Common and geophysical prospecting is desirable.

If we are looking for a suitable location for a base — be it auxiliary fort or vexillation fortress-in this area, then the gravel terraces identified by the Soil Survey beneath the north part of the South Common and between the two known cemetery areas would be the most favourable spot from the point of view of soil conditions. But to date there have been no Roman finds from here. To the north only small areas of higher ground exist south of the river, a fact borne out by recent excavations (eg at St Marks: Gilmour in Jones 1981, 92ff). It does seem, however, that by the late Neronian period there was occupation associated with the army on both sides of the river (Wacher in Colyer & Jones 1979, 83; Jones *et al* forthcoming). On the north bank the natives may have been resettled in a regular *canabae,* since the land here would have been required for installations supplying the garrison. By the time the uphill fortress was abandoned, the area occupied had grown considerably, particularly on the hillside (see Fig 61).

The size of the garrison is still uncertain. The fortress enclosed an area of approximately 40 acres *(c* 16 ha), similar to the contemporary fortresses at Exeter and Gloucester. Only small fragments of barrack blocks have been uncovered, and more large-scale excavations are required to bring our knowledge of the buildings and their demolition or reuse in the early *colonia* up to the level which exists for Exeter, Gloucester, and Colchester. If it is assumed that barracks lay against the western defences, the east-west width of that block will have been *c* 60-80m *(c* 200-250ft); when allowance is made for the *principia* and *via principalis* there could be no more than three strips of *insulae* separated by north-south streets in the *retentura* (cf Crummy, this volume, p 82 & Fig 56). But an attempt to reconstruct the plan of the Lincoln fortress on the lines suggested by Crummy for Colchester would be premature.

Streets of this period which are known or can be assumed are *the via sagularis* (separated from the legionary

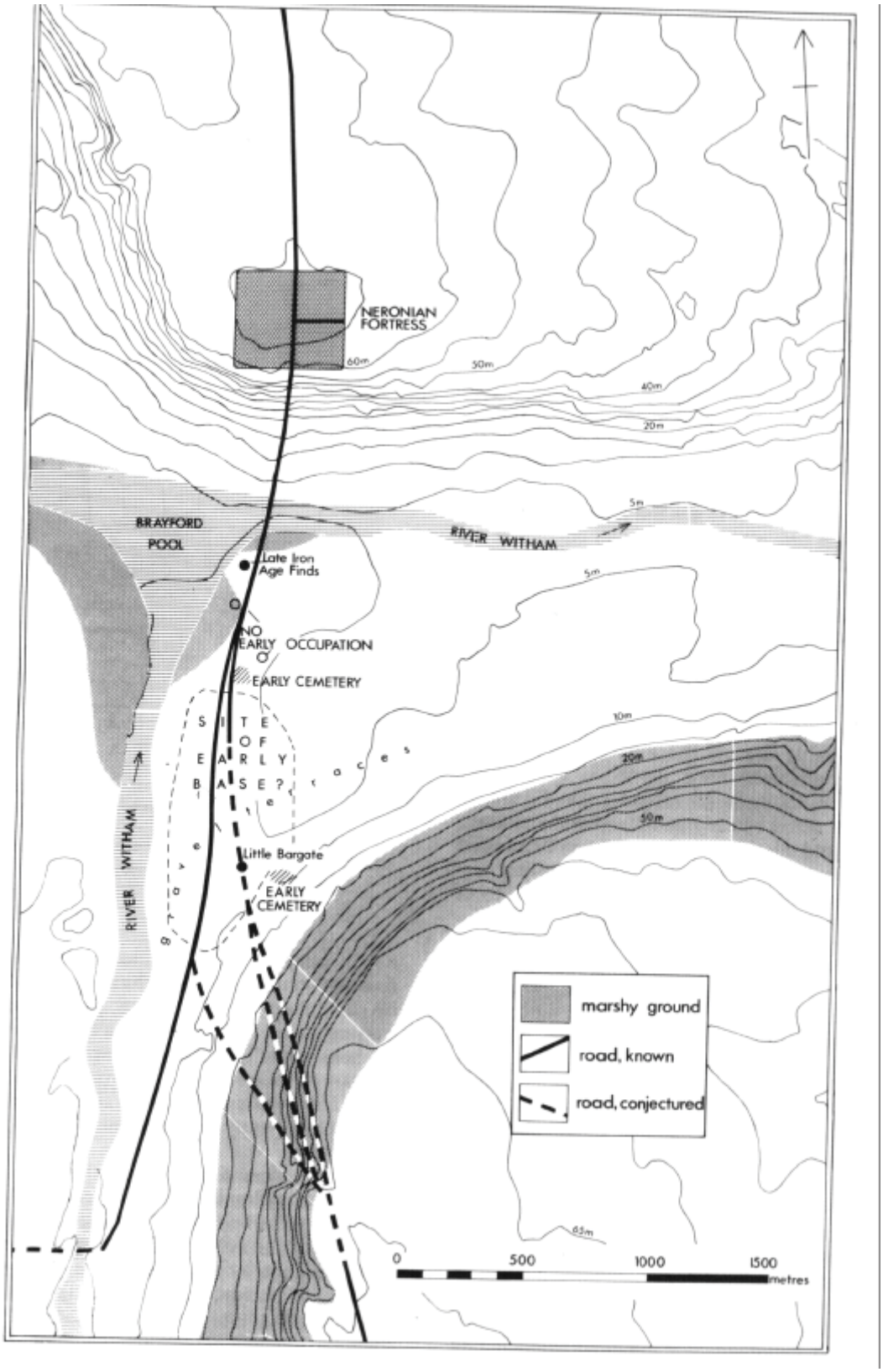

Fig 59 The Lincoln area, showing the topographical situation of the earliest settlements (Scale 1:25,000)

rampart by cookhouses or rampart buildings and followed by its *colonia* counterpart), and the two major streets, the *via principalis* and the *via praetoria.* Others may have run east-west on either side of the *principia,* which measured 50-70m (164-230ft) east-west and 60-75m (197-246ft) north-south. The baths building found in the north-east quarter of the enclosure probably belonged to the colonia; by analogy with Exeter and Wroxeter there is no reason why it should have occupied the same site as its legionary predecessor.

Our knowledge of the fortress layout is at present very limited, but it can be assumed that much of the *colonia* street plan was of legionary origin, as Crummy's general survey of British cities based on legionary fortresses makes clear (Crummy 1982; this volume, pp 78-85).

With regard to the interior of the new *colonia* it is salutary to look back at the history of its study. The outline of the upper city has been known since the days of the first serious antiquarians, and the discovery of the Bailgate colonnade more than a century ago led more than one scholar to postulate correctly the position of the two major streets (eg Fox 1892). It was less than 50 years ago, however, that the first plan of the Roman city based on detailed research was drawn (Baker 1938). Apart from isolated standing structures such as the Mint Wall and the Bailgate colonnades, Baker had only recorded finds of tessellated pavements and other structural remains on which to work, and the street pattern which he postulated was based partly on the analogy of contemporary *coloniae* - Timgad, for example - with no awareness at the time of the legionary origin. In the main he attempted to define *insulae* of reasonable size and shape by streets avoiding known building remains.

With some justification Baker assumed that the sewers which had been noted by early antiquarians lay beneath Roman streets, and this theme was taken up by Richmond in his fundamental 1946 survey: 'this sewerage system.. appears to offer a unique opportunity in the study of Romano-British town planning' (Richmond 1946, 36). Sadly, that opportunity has not yet been fully grasped, but there has been some progress. Richmond also noted for the first time, following Webster's excavations on the north and west defences, the possibility that the fortress lay directly beneath the *colonia,* and subsequent work by Thompson and Petch bore this out.

It was Petch who carried out the first systematic investigation of a major public building, when, in 1956-8, under difficult conditions, he revealed in the north-east quarter much of what is taken to be the public baths. As noted above, there is no reason to believe that this was other than a new colonial foundation, but we still await the full publication of the evidence.[2] To the south of the baths ran an east-west street, which was later narrowed for the construction of a new porticoed range, identified as shops. A narrow north-south lane west of the baths was also later blocked. Beneath the east-west street was a covered drain; it was not a sewer, but was similar to a drain found at East Bight in 1981. Both these streets are close to the water-tank inside the north defences.

The next map of the city was produced in 1970 by Whitwell, but little could be added to the street system since Richmond's article apart from those streets adjacent to the baths building (Whitwell 1970, fig 3). With the increased pace of activity from the early 1970s, however,

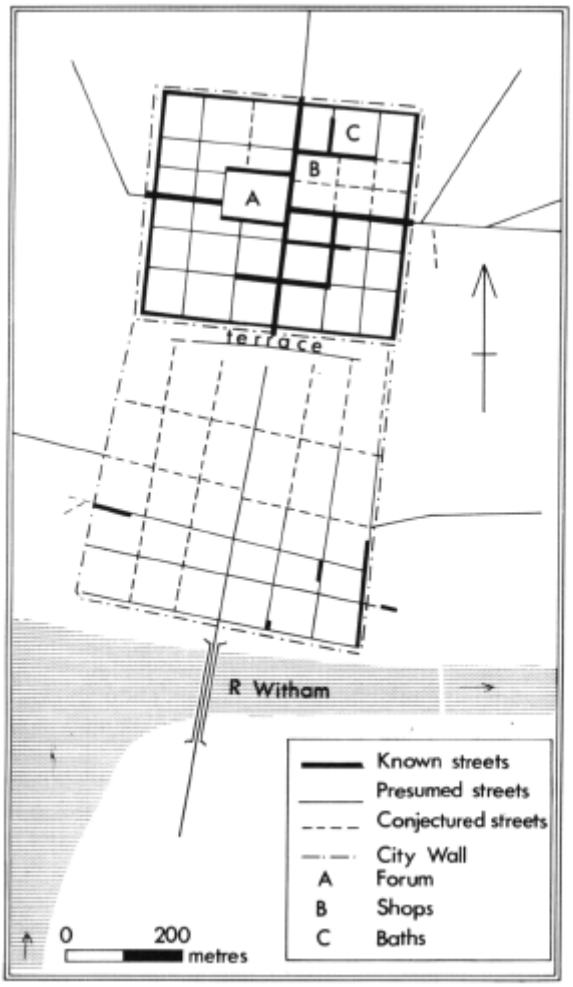

Fig 60 Lincoln: street pattern of the walled city, known, presumed, and conjectural (Scale 1 : 12,500)

new information was added, necessitating new attempts to reconstruct the plan. A worthy attempt was made in 1971 by Coppack (1973), when publishing Webster's Flaxengate excavations; this was the basis of the Lincoln Archaeological Trust's first attempt in 1973, which in turn was largely followed by Wacher (1975, fig 29). In all these plans there was an underlying assumption that much of the modern street plan represented a devolved version of the Roman.

This assumption can no longer be made. Evidence of a late Saxon replanning was discovered at Winchester and elsewhere (Biddle & Hill 1971), and the possibility that some of the assumed Roman streets at Lincoln were of early medieval origin was borne out by excavations in 1975-6 at Flaxengate (Perring 1981). Reduced to its absolute minimum, our knowledge of the Roman street plan consists of a few isolated traces, but several hypotheses can be put forward. It is certain that streets on the line of the legionary *via sagularis* continued around the whole circuit, and that a major relaying, sometimes involving new drainage, took place in the first half of the 2nd century. The principal north-south street was 25ft (7.62m) wide; the principal east-west street apparently measured only 15ft (4.57m) in places, but was certainly

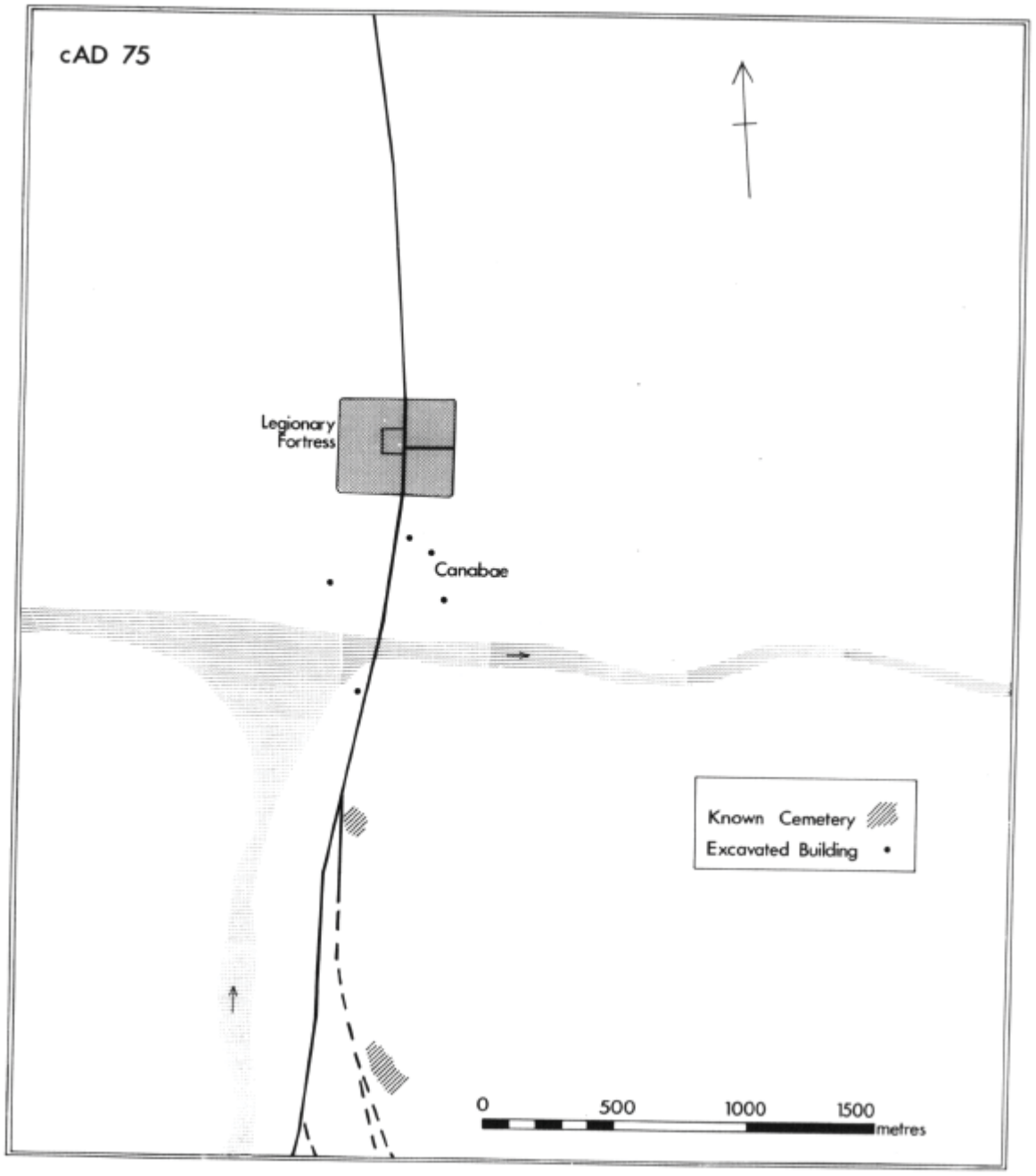

Fig 61 Lincoln: extent of occupation c AD 75 (Scale 1:25,000)

wider at the east gate. These were all presumably of legionary origin. A new street was laid out in the Hadrianic period to the north of the Mint Wall, which has been provisionally interpreted as the north wall of the basilica (Jones & Gilmour 1980); the 2nd-century forum-basilica complex extended beyond the site of the earlier *principia* to the north and west. Together with the evidence of the sewers and known sites of buildings, a reconstruction of the plan does not differ much from Baker's early effort (Fig 60). The gaps can only be filled by large-scale excavation of well-preserved deposits in key areas; our problem is that few of these are now left which are likely to be redeveloped in the foreseeable future.

Such excavations will have several research objectives, including clarification of the relationship between the legionary barracks and the houses of the early colonists. Most of the recorded tessellated pavements, particularly in the southern half of the enclosure, have been taken since Richmond's time to represent private houses, but presumably those of the Antonine period and later. Most of the public buildings could have been in the northern half of the city, where the ground is more level. The forum-basilica as provisionally identified was a replanning, probably Hadrianic in date, of an earlier development (a forum?) of the *principia* site, which had included a paved area with statue bases and a building with a semicircular pier. The style of the Hadrianic complex is more daring than most British examples,[3] hinting perhaps

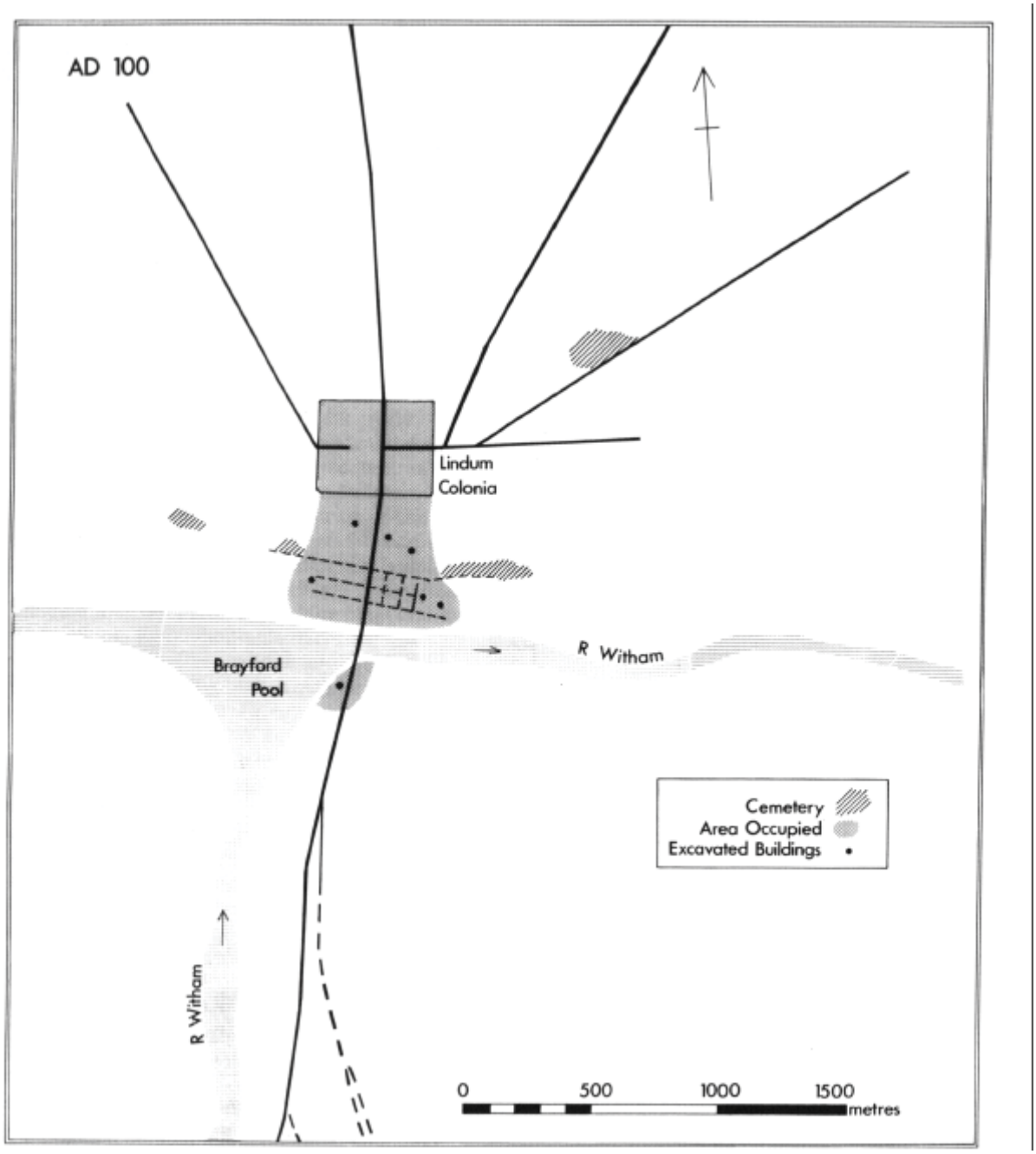

Fig 62 Lincoln: extent of occupation c AD 100 (Scale 1:25,000)

at Continental influence in its design and some awareness of visual impact. Mediterranean influence is also apparent from some architectural details of houses and tombs.

As noted above, the development of the hillside below the fortress began soon after the fortress's construction and the area within the later defences has so far produced no definite evidence of burials (Figs 61, 62). We may conclude that after serving as the *canabae* for the fortress, the hillside was from an early stage seen as an integral part of the town. Most sites excavated to their earliest levels have produced evidence of late lst- or early 2nd-century structures, and it is interesting to note that cremations of this date are known to the east and west of the later walls (Fig 62).

The concentration of recent redevelopment in the modern commercial area - the lower Roman city - has meant that more remains of Roman private houses have emerged there than in the upper city, but no complete plan has yet been recovered. The general impression is of good-quality houses, many with hypocausts, set within plots, and a number of public buildings, including a shrine, more baths, and a fountain on the main street. The steeper part of the hillside has produced little new evidence, since post-Roman terracing has removed most of the archaeological deposits. The 19th-century architect Michael Drury did note a double wall, the more southerly of which was 4.6m (15ft) thick, near the top of Steep Hill, and Richmond took it to be the line of a major terrace still

visible in the modern topography (Fig 60). This remains the only evidence to date for substantial terracing.

Attempts to identify a street pattern in the lower city have so far met with limited success, especially since the abandonment of the idea of continuity from Roman times. A major step forward came unexpectedly in 1973 when Wacher found a north-south street inside the east rampart (Wacher in Colyer & Jones 1979, 81-4). It had been resurfaced several times, and, although the dating evidence for its construction is not easy to interpret, it was certainly in commission by the middle of the 2nd century, possibly considerably earlier - in any case well before the erection of the extended defences. Another possible north-south street was indicated by the finding of a postern gate in 1974 at Saltergate, while a further street equidistant between the two, can possibly be inferred from the plan of Roman walls noted in Silver Street in 1960. Again, *insulae* of varying dimensions are suggested (Fig 60).

The approximate sites of the east and west gates of the lower city are known, but excavations in 1982-3 (Magilton 1983) demonstrated that there was no continuous east-west street linking them; the area west of Ermine Street may have been planned separately from that to the east where the street system may originally have extended beyond the line of the later wall. Another east-west street

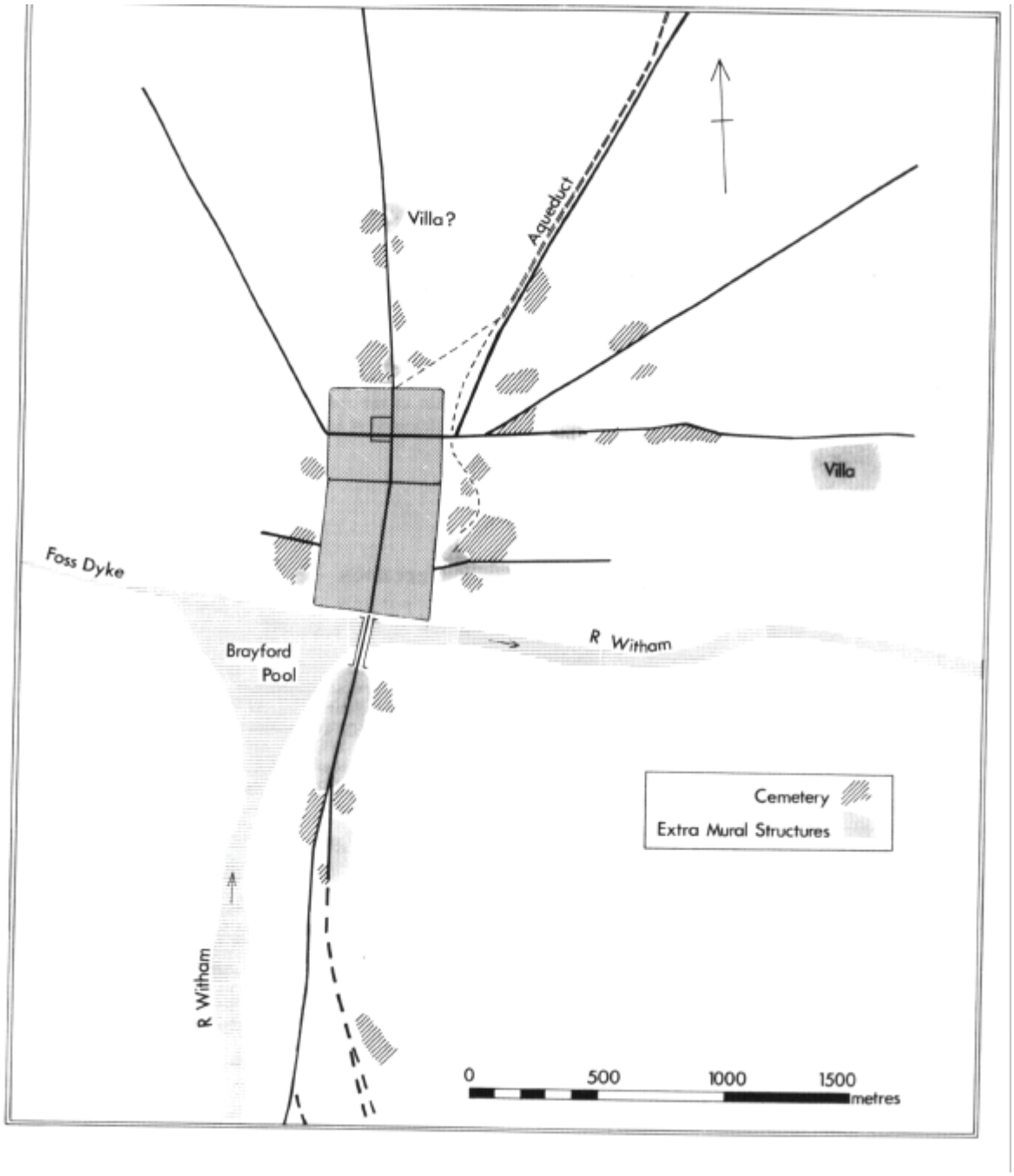

Fig 63 Lincoln: fullest extent of occupation, showing suburbs and cemeteries (Scale 1:25,000)

is likely on the line of the late gateway at the Park, which was inserted into the west wall in the 4th century (Colyer 1975, 23–41), and it is quite possible that a street immediately south of the south wall formed part of the system as a riverside lane. The construction of the defences at the end of the 2nd century, therefore, involved the demolition of a number of houses, but this was unavoidable, since the line of the extended fortifications was the only one which made sense on defensive grounds.

Similar indications of early decisions about land-use are evident from a study of extramural areas (Fig 63). Of course, Lincoln's excellent road and river communications meant that much of the extensive waterfront would have been developed with supply and commercial establishments. Unfortunately, although small areas of both timber and stone revetments have come to light, this is one of the major gaps in our archaeological evidence and is a priority for future work.

Of all the suburbs, that to the south (as in the medieval period) was the most important. A pattern of growth of commercial activity southwards along Ermine Street is slowly emerging. In places extensive dumping was necessary to raise the ground surface above the flood level (Gilmour in Jones 1981, 93). By the 3rd century the road frontage appears to have been built up for about 1km. It is a pity that it is so difficult to identify the commercial basis of individual establishments.

Other areas outside the walls also contained buildings, but nowhere at such a distance, apart from indications of an agricultural establishment 800m north of the north wall. Between this establishment and the city walls much of the land on either side of Ermine Street appears to have been taken up by cemeteries. The growth of cemeteries to the east of the upper city was even more extensive, and burials are also known outside the other gates. Little of this evidence comes from modern excavations, and further research is required to detect chronological patterns, but in some cases early cemeteries appear to have been built over, their monuments removed and sometimes reused. In all, therefore, the urban area or 'town-zone' was at its maximum 3km long and up to 1.5km wide. Some town-related industries, including quarrying and pottery manufacture, were further away at sources of stone and clay.

Many aspects changed through time. Some streets were built over. Some were not repaired or resurfaced after the 3rd century, while others continued in use until at least the end of the 4th. The defences were strengthened, even at the expense of monumental buildings and tombs, but some trading establishments flourished to at least the end of the 4th century. There were in addition some major new buildings erected after 300. Perhaps the most important of these were the two provisionally identified as churches: one a basilican building in the lower city (Thomas 1980, 168-9 & fig 37), the other the earliest church built on the courtyard of the forum and dated by radiocarbon analysis (Gilmour & Jones forthcoming). It was perhaps Christianity and this ecclesiastical focus which provided the principal thread of continuity into the next few centuries, as amid the impressive fortifications and the ruinous, but partially surviving, buildings new streets developed across the Roman grid, linking the gates and marking the end of the Roman pattern.

Acknowledgments

The paper presented above, though only an interim report and likely to be outdated by further study of material already excavated and by further excavations, owes much to many scholars. Among these are earlier excavators in the city of Lincoln, and I am particularly grateful to Mr D F Petch, Professor J S Wacher, and Dr J B Whitwell for providing me with details of unpublished work. Several of my colleagues in the Lincoln Archaeological Trust – Brian Gilmour, John Magilton, and David Stocker – also deserve thanks for their efforts and help. Mr J D Robson of the Soil Survey provided information about the soils of the southern end of the city. Jayne Peacock produced the line drawings, Greta Exton typed the manuscript, and Elizabeth Nurser assisted on editorial matters. Professor S S Frere and Dr G Webster kindly read and commented on an earlier draft of the paper.

Notes

1 I am grateful for discussion on this point with Professor E Birley, Professor S S Frere, and Dr G Webster, though I am still uncertain as to the chronological significance of the absence of *cognomina*. As a result I have been deliberately vague about the nature of the earliest military occupation.

2 Brief note in *J Roman Stud,* 48 (1958), 136. I am grateful to Mr D F Petch for information about the plan of the bath house; no dating evidence is yet available. Publication now in preparation.

3 But cf the remarkable forum at Verulamium, and other large complexes at London and Wroxeter.

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This brief paper is intended to summarize the current state of our understanding of the early development of the topography of Roman London and is largely drawn from more detailed studies. [1] It is primarily concerned with houses and streets, rather than with the public buildings.

The development of London was very much influenced by the nature and position of the site (Fig 64). This consisted of two hills, separated by the Walbrook stream, on the north bank of the Thames. A natural causeway though the marshlands of the south bank determined the location of the bridgehead, while the higher ground on the north permitted the insertion of the timber quays which formed the original port of London.

The evidence available at present strongly suggests that this was a planned civilian foundation of *c* AD 50, although it is still possible to argue that the civilian settlement was preceded by an as yet unidentified Claudian fort. The creation of the town involved the reorganization of the road system, which had probably previously centred on a ford at Westminster. The date is a significant one in the history of urbanization in Britain, roughly coinciding with the creation of the *colonia* at Colchester and the foundation of Verulamium. As all three places were evidently planned settlements, Roman in character from their inception, it seems likely that they formed part of a coordinated policy of urbanization, presumably directed by the Governor, Ostorius Scapula. This policy combined military and administrative needs with those of the commercial exploitation of the expanding province. That this was seen to be the case by the native population is most strikingly illustrated by the progress of the Boudican revolt a decade later; the choice of London and Verulamium as targets after Colchester is surely significant.

London was preeminently a port, and for most of its early life no doubt the main centre of interprovincial trade in Britain. But the fact that it also adopted a major administrative role, at least as the Procurator's base by 60, but potentially as the Governor's base of operations from its inception (cf Salway, this volume, p 70), illustrates the

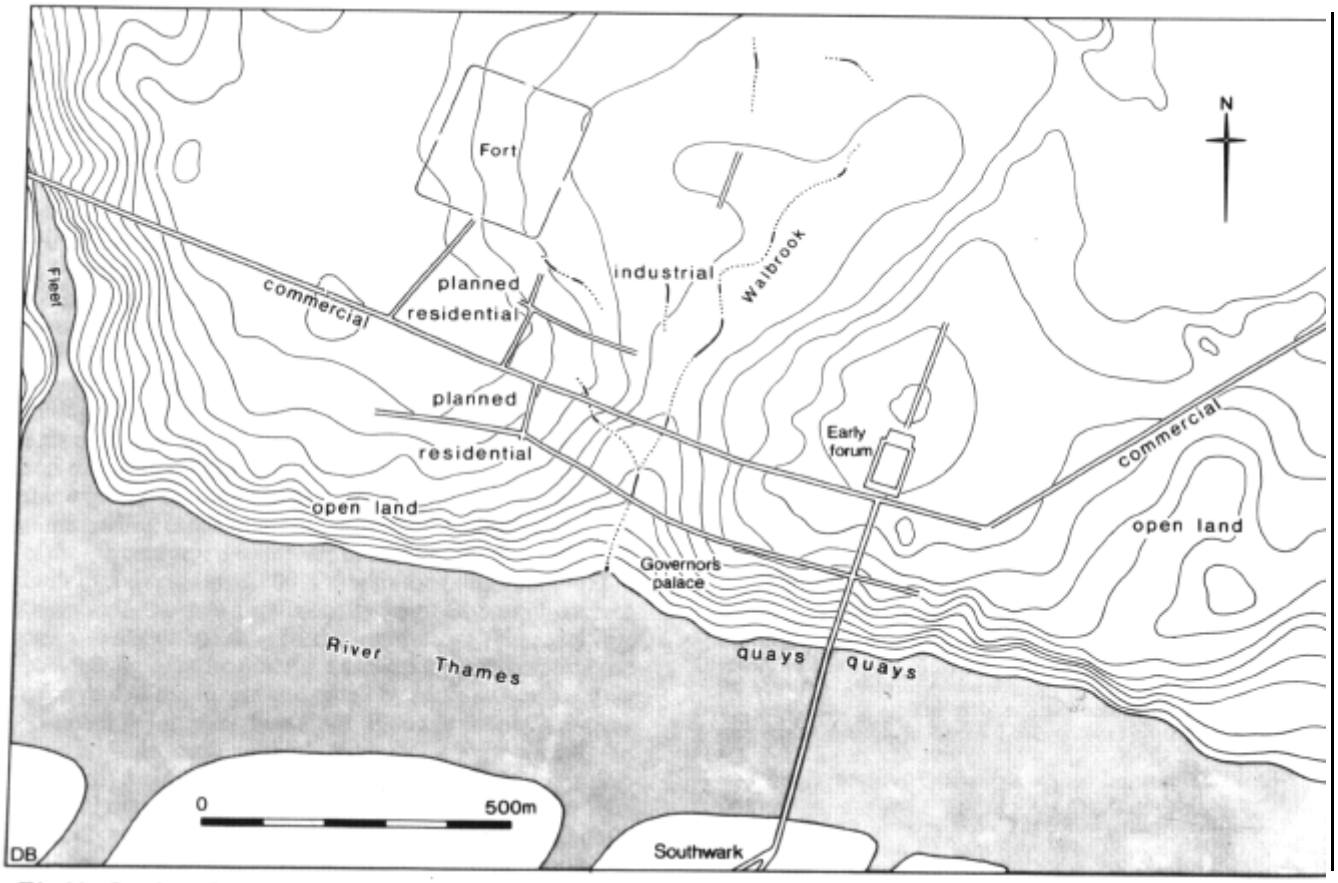


Fig 64 London: the topography of the early city; contours at 3ft (c 1m) intervals (Drawn by David Bentley after OS map of Roman London (2 edn) and other sources)

Fig 65 London: the GPO site at Newgate Street. Flavian strip buildings. Both have shops or workshops (i) fronting the main street, a main room (ii), and a 'service area' behind. At the rear of Building J three rooms (iv - vi) effectively form a separate block and were perhaps used as bedrooms (Scale 1:200; drawn by David Bentley)

interrelationship between provincial administration and arrangements for the commercial exploitation of a province.

The historical context is of some relevance to the topographical development of the city itself. London grew up around its major lines of communication; these were represented by a 'T' road junction, the base of which was formed by the bridge, its approaches, and the adjacent quays to the south, the bar by an east-west street part of which is roughly on the line of modern Cheapside (Fig 64). The three roads leading out of the city linked London with the other important centres of early Roman Britain: Richborough to the south, Verulamium to the west, and Colchester to the east. Kinks in the east-west road probably marked the point at which it crossed the original east and west boundaries of the city, beyond which early cemeteries have been found. At the junction of the 'T', on the highest point of the eastern hill, a gravelled area, later the site of the forum, may mark the location of a market. Excavations immediately to the west of the gravelled area produced evidence of rectangular buildings divided into a number of smaller shops. Their stone-based dried brick ('adobe') walls were of a Roman form now well attested elsewhere. The central part of the early city, between the

site of the forum and the bridgehead, has yet to be investigated in detail, but it seems probable that this area had a street grid from the start. Debris from the Boudican fire indicates that in *c* 60 the frontages beside the main arterial roads were intensively built up within the area of original settlement, and that outside extensive suburbs had developed along their line; there was also occupation in Southwark at this time. For the most part these suburbs were made up of the shops and workshops of small-scale traders, together with a number of circular and rectangular houses with wattle-and-daub walls apparently owing more to British than to Roman building traditions.

With the possible exception of some small-scale development along the streets leading to Bishopsgate (for Ermine Street) and Ludgate (for Westminster), neither of which was necessarily part of the primary layout, most of the remaining area within the planned limits of the city was not filled out until the Flavian period. The extent to which the Boudican fire affected London's development is not yet clear, although it is possible that post-fire rebuilding was used as an opportunity to regularize and 'Romanize' some of the suburban development. It is becoming increasingly plain that Roman London reached the peak of its development, at least in terms of the extent of settlement, in the late Flavian period. Commercial pressures had filled the arterial road frontages with narrow properties which were occupied by strip buildings arranged gable-end-on to the streets. The economic importance of these frontages is illustrated by the speed with which necessary redevelopment occurred on nearly all the sites which have been examined. It is also notable that boundaries were reestablished with such precision that detailed property records must have been available. Only on one site (GPO, Newgate Street, 1975) have near-complete buildings of this type been identified, but these adopted the familiar arrangement of shops and workshops with residential quarters behind (Fig 65). Typically the residential quarters consisted of a principal room (perhaps a dining-room) reached by a passage and adjoined by a service area which is likely to have been used as a kitchen, but perhaps also incorporated a latrine. A number of smaller rooms behind were probably bedrooms. In one example three such 'bedrooms' formed what was effectively a separate block to the rear of the building. This might be considered excessive for a single household and it is possible that some rooms were let out separately. Behind the main streets most areas which had previously been open were rapidly filled in the Flavian period, apparently in a series of planned units. Some more industrial areas have been noted in the upper Walbrook valley; this was unattractive for better-quality housing, since it was essentially marshland, but the excellent

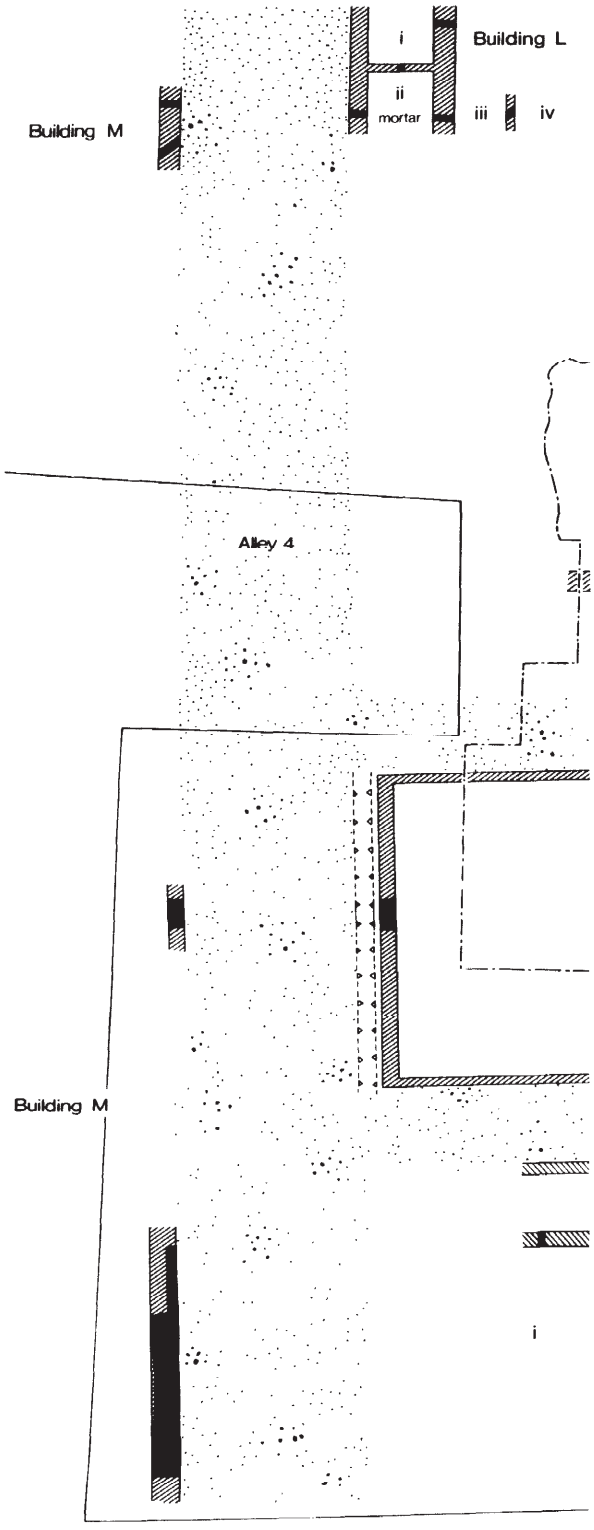
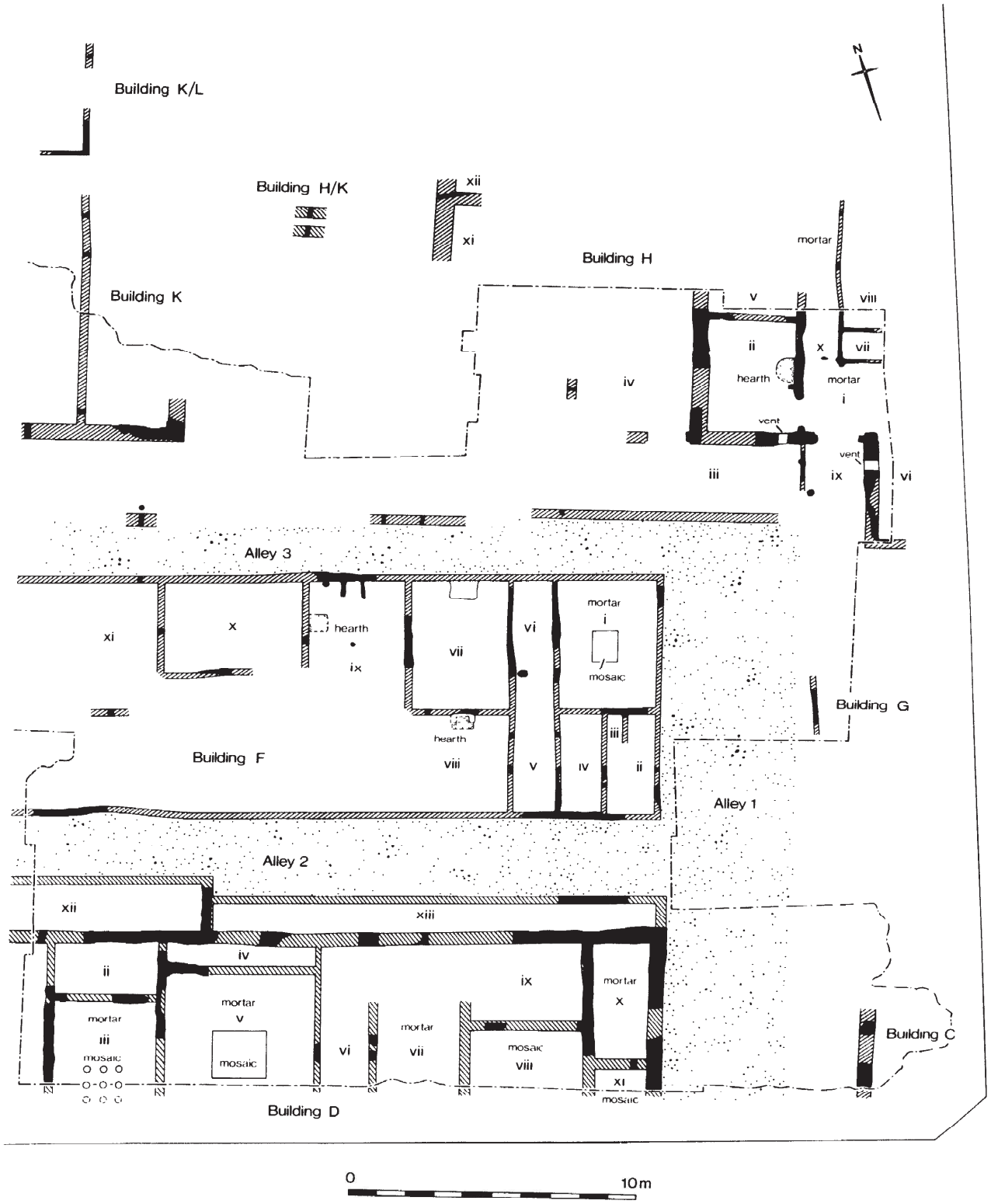


Fig 66 London: Watling Court. Building D appears to have formed the northern wing of a large house which extended beyond the limit of excavation to the south. It was built in Flavian times and was originally separated from Buildings H and K by a wide gravelled space; Building F was inserted subsequently and may have been divided into a number of separate apartments (Scale 1:200; drawn by David Bentley)


Building K/L
Building H/K
Building K
Building H
Alley 3
Building F
Alley 2
Alley 1
Building G
Building C
Building D
mortar
hearth
vent
mosaic
0
10m

water-supply and tolerable drainage were suitable for industry.

Shops have been found beside even quite minor streets, but most of the new development was for housing. The better-quality residential quarters seem likely to have been those within easy reach of a natural water-supply – it is now almost certain that Roman London was never provided with piped water. The natural topography and geology dictate that the best such sites were those on the lower slopes of London's two hills, beside the Walbrook and the Thames. Such considerations were no doubt important in the siting of the Governor's palace and also account for the distribution of London's known bath blocks.

Much of this new development was concentrated on the western hill, and it seems that by *c* 100 almost all the available land down to the river on both hills had been taken up by houses or streets. There is surprisingly little evidence for open space in the form of yards and gardens, and even some of the more lavishly decorated buildings must have had a somewhat utilitarian aspect. Certainly the courtyard or winged villa-type houses were as yet a rarity in London. Like the smaller commercial buildings, the houses were made largely of timber and clay with thatched roofs and unglazed windows; the only possible advance in construction techniques seems to have been the progressive rejection of post-built walls in favour of solid air-dried clay, often based on stone or tile plinths. Nevertheless, their internal decoration leaves little doubt that in some cases these houses were quite sophisticated.

The buildings of this type which have been examined most fully are those on the Watling Court site (Fig 66). Here the best-decorated house contained mosaic pavements whose nature and design imply the presence of Italian mosaicists, if not also of Italian clients. When it is recognized that many of the architectural elements, both plans and construction techniques, can be paralleled in Italy and the Gallic provinces, it is possible to argue the presence of a sizeable immigrant population.

A building adjacent to that described above was erected within what was apparently the same property and was therefore presumably in the same ownership. The building is of interest for two reasons. Firstly, it was evidently constructed according to a predetermined plan – which implies the use of architectural drawings or notes – and, secondly, it was laid out in an unusual manner. The plan apparently involved the repetition of certain groups of rooms and the absence of a through corridor. This arrangement could imply that the building was in fact divided into a number of separate apartments approached directly from the alleyways which encircled the building.

Flavian London was largely destroyed by a major fire in the 120s. The subsequent history of the city is discussed in the next paper (Marsden, pp 99-108). In conclusion, however, we can now see that Roman London had no single imposed street system, but a number of separately-planned areas, as yet imperfectly understood. These were organized around a nucleus which itself was structured around the communications system (bridge, quayside, and arterial road). Because of this somewhat piecemeal approach, London's urban topography could be structured to fit the natural topography to its best advantage.

Note

1 In particular, Perring, D, & Roskams, S, forthcoming, *The development of Roman London west of the Walbrook,* and Marsden, P, 1980, *Roman London.* The debt to these works is so extensive that no further individual references are made in the text.

London in the 3rd and 4th centuries

Peter Marsden

Londinium has often been envisaged as a city which developed from the 1st to the 3rd centuries, and then declined during the 4th (Page 1923, l-28). However, this simplistic view was challenged by Sir Mortimer Wheeler many years ago, when, in an attempt to explain the absence of early Saxon sites in and around London, he suggested that Londinium may have continued during the 5th and 6th centuries as an island of sub-Roman life (Wheeler 1934). Surprisingly, this possibility was still being considered only ten years ago (Biddle & Hudson 1973, 18).

Our view of Roman London has been modified fundamentally during the last decade, not merely because a programme of unprecedented archaeological activity has occurred in the City, but also because time has been given for pre-1973 discoveries to be assessed, often for the first time. Almost every site tells the same basic story, which is that the character of Londinium during the 3rd and 4th centuries was fundamentally very different from that of the 1st and early 2nd. Since the period of major change occurred during the 2nd century, it is this phase which must be examined first.

From the mid 1st to the early 2nd centuries London was a fast-growing city, whose private buildings usually had timber-framed walls with a clay infilling of daub or mudbricks. Public buildings, such as the basilica, forum, and baths, were built of Kentish ragstone. The speed of development is well illustrated by the forum site which, in about AD 50, was laid out with a large gravelled piazza, perhaps a market-place, with shops and houses nearby. The piazza was still in use in 60, when the area was destroyed by Boudica, but subsequently, in about 80, the first forum and basilica were built on the site. After extensive modifications they were replaced during the first quarter of the 2nd century by a second basilica-forum five times larger than the first (Marsden 1978, 96-102). Trade was by now extensive, and imports found in London clearly came from many parts of the Empire. From its founding, probably in about 50, Londinium had grown with amazing speed, functioning presumably as the main trading and administrative centre of the province of Britain: hence the presence of the Procurator and Governor before the end of the 1st century.

During the early 2nd century the city suffered a major setback when, *c* 125-30, much of it was destroyed in an extensive fire. It is after this that evidence of decline and decay is found, and it is this which is here termed 'the Antonine decline' of Roman London (Marsden 1980, 110-17).

The Antonine decline

Evidence of the Antonine decline is derived not only from sites of buildings destroyed in the Hadrianic fire, but also from structures that were left undamaged. In some areas there appears to have been no rebuilding; in others there was some rebuilding and occupation, but abandonment and decay followed later in the 2nd century; just occasionally sites are excavated which apparently show a continuity of occupation.

This decline has been seen particularly clearly in Southwark, the Roman suburb which lay at the south end of London Bridge. Here Harvey Sheldon has shown that, although there was no major fire, the many buildings of clay and timber which have been excavated beside the two main roads leading to the bridgehead were abandoned by *c* 150 and left to decay during the 160s and 170s. At the same time a water channel with substantial revetments, possibly used as a canal, was allowed to become silted (Sheldon 1978, 36-7).

In the City the normal manifestation of the decline is the occurrence of thick deposits of lst- or early 2nd-century occupation and building debris overlain by dark deposits of later Roman or of late Saxon and medieval date. For example, on a site at the south end of King Street, 1.2m of deposits of the period 50-150 were directly overlain by medieval strata (GM Notebook 1949-55, 32). A similar pattern was found in 1981 at 32 Clements Lane, where the remains of early 2nd-century buildings were overlain by fire debris. No evidence of a later Roman building was found, but merely a layer of dark earth which produced pottery of the 3rd and 4th centuries (Rankov 1982, 373).

Traces of rebuilding and occupation after the Hadrianic fire have been found in Watling Court at the south end of Bow Lane, in Milk Street, and in Newgate Street (Perring & Roskams forthcoming; for the earlier history of the sites, see Perring, this volume, pp 94-8). At Watling Court a timber-framed building seems to have been erected, but this was apparently burnt down in about the middle of the 2nd century. No trace of any later Roman building was found on this large site (Dyson & Schofield 1981, 34). In Milk Street a building with a fine mosaic pavement was constructed soon after the Hadrianic fire (Fig 67), but it was abandoned before the end of the 2nd century. No explanatory trace of burning was found; the mosaic was simply overlain by dark earth, and there was little trace of subsequent Roman occupation *(ibid, 33).* In Newgate Street the Hadrianic fire destroyed two long buildings, in some of whose rooms were ovens indicating industrial rather than exclusively domestic use. Buildings of similar plan were constructed afterwards — possibly, therefore, for the same purpose and by the same owner — but these were abandoned before the end of the 2nd century and no further building occurred *(ibid,* 31-3).

The evident decay of public buildings also points to a decline in the population of London at this time. The enormous baths at Huggin Hill, probably built during the Flavian period and enlarged in the early 2nd century, were demolished by the end of the century. The heating system of the rather smaller public baths in Cheapside, which

Fig 67 London: part of a mosaic pavement, damaged by medieval pits, found in a 2nd-century building in Milk Street, 1977. It was laid soon after the Hadrianic fire, but the building had been abandoned before the end of the 2nd century. No later Roman building occupied the site (Photo: J Bailey)

were in use by the early 2nd century, had stopped functioning by the 3rd, and, probably during that century, the baths were demolished (Marsden 1976, 20-2, 46).

Large stone altars originally from two 3rd-century temples, but found reused in a late Roman riverside defensive wall at Blackfriars, record that the temples were reconstructed after they 'had fallen down through old age'. One was from a temple of Isis which was reconstructed during the period 25 l-9 (Fig 68), the other from a temple, probably of Jupiter, which was restored during the 3rd century (Hill *et al* 1980, 195-8). The ruinous state of both buildings may have been a result of the Antonine decline (Marsden 1980, 115).

This period of decline may have coincided with a weakening of civic control, even to the extent that human remains were not disposed of adequately. At Duke Street, just north-west of Aldgate, a broad ditch, which may originally have marked the town boundary, contained two partly dismembered human skeletons in the dumped clay filling, together with pottery dating to *c* 150 (Maloney 1979,293). A large portion of a human skull was found lying exposed in the half-silted fort ditch in Aldermanbury, also with pottery of *c* 150. Although the fort was built during the early 2nd century, it is possible that it was abandoned by the middle of the century, thus accounting for the silting and accumulation of rubbish in the ditch (Marsden 1980, 115-16).

Not all sites reflect an absence of human occupation, however, for in Angel Court and at 2-3 Cross Keys Court activities associated with the marshy conditions in the upper Walbrook valley have been recorded (Blurton 1977, 19; Rankov 1982,373). This is untypical, however, and it is clear that any site on which occupation took place during the Antonine period should be carefully investigated.

At the same time as buildings were being abandoned the quantity of refuse seems to have declined remarkably, so that rubbish pits of the period 140-80 are infrequently found in the City. It might be thought that some alternative means of rubbish disposal, such as dumping into the Thames, had been found, but at Walbrook Wharf, where Thames river gravels deposited during the Roman period at the mouth of the Walbrook stream were investigated in 1959, it was discovered that the mass of rubbish dumping had occurred during the late 1st and

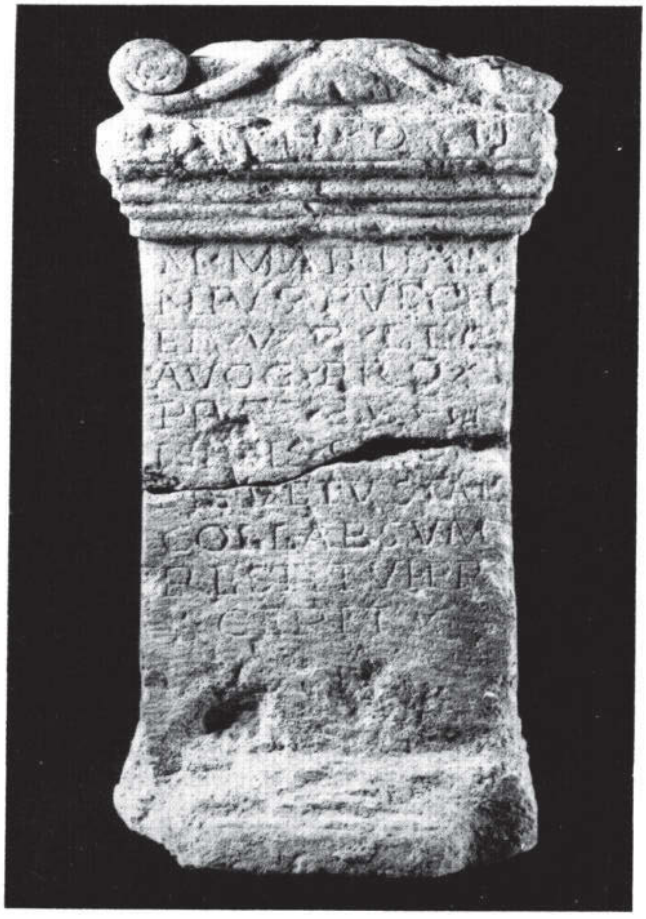


Fig 68 London: altar commemorating the restoration of a temple of Isis, probably during the 250s. The temple had 'fallen down through old age'. Found reused in the riverside defensive wall, at Blackfriars, in 1975 (Height: 1.22m)

early 2nd centuries, and thereafter had ceased. Indeed, the mass dumping of domestic and industrial rubbish in the middle zone of the Walbrook valley, behind the revetted bank of the stream at Bucklersbury House, had apparently finished by the mid 2nd century and it was at about this time that the revetment itself began to collapse (Wilmott forthcoming). This marked decrease in the quantity of refuse strongly indicates that during the 3rd and 4th centuries the population of the city was substantially lower than it had been in the late 1st and early 2nd.

Probably the first person to comment on this in writing was Quentin Waddington of the Guildhall Museum in 1930. Because his observation was published in a little-known article it was quickly forgotten and the phenomenon had to be 'rediscovered' in more recent years. His remarks are worth quoting at length (Waddington 1930, 68-9):

> It is indeed very notable how much more pottery there is in London of.. . the last quarter of the 1st century - than of the later periods of Roman London. . . . There is a considerable amount of samian of the mid 2nd century, but 3rd and 4th century stuff is decidedly rare.. . .
> This has sometimes been explained by supposing that the upper levels of the Roman debris were disturbed by building operations of the early Middle Ages.
> But this does not seem to be an adequate explanation. Why were not the earlier deposits disturbed and destroyed in the same way by the building operations of the latter half of the Roman occupation? The early Roman pottery is generally recovered from rubbish pits in which it has been tidily buried away out of sight.. . . A whole series of such pits studded the site of the old General Post Office at St Martin-le-Grand; and a recent excavation in Old Change showed that there was a similar pit-covered area to the south of Cheapside as well.
> A possible explanation is that Londinium, a very flourishing town at the beginning of the 2nd century, may have afterwards dwindled very markedly in size.
> Is it not equally reasonable to suppose that a bye-law may have come into force, which no longer permitted the burying of rubbish within the City, and that the refuse, collected by dustmen, was put into barges and dumped in the estuary well below the town?

But it is only in recent times that an attempt has been made to quantify this apparent lack of later Roman antiquities. Firstly, a study was made of the dates of all Roman rubbish pits recorded by Guildhall Museum staff during the period 1946-70. It was expected that if there was a real decline in the quantity of rubbish, then this would be reflected by a smaller number of later Roman pits. It is important to remember that this was a totally random selection, for it mainly depended upon the disclosure of pits on building sites and in archaeological excavations. From the mid 1st to the mid 2nd centuries there were 82 pits, and from the late 2nd to the end of the 4th century there were 46. Thus 64% of the pits dated from the first third of the Roman period (Marsden 1980, 148, 213).

Fig 69 London: the 3rd-century temple of Mithras, as excavated in 1954. The modern foundation (centre) is situated in the nave, on either side of which are the foundation walls for rows of stone columns which divided the nave from the side aisles. The raised apse lies at the far end

It might be thought that this apparent decline was because recent deep cellars had destroyed the upper Roman levels from which the later pits had been dug, and thus had removed a substantial part of the later rubbish. But if this had happened, it should also be reflected in the total number of medieval pits which, having been dug from even higher levels, should be even fewer in number than the later Roman pits. In fact, from the 13th century alone there were 62 pits, far more than the total number from the late 2nd to the 4th centuries. The reduced number of 3rd- and 4th-century pits would therefore seem to be a real reflection of a smaller quantity of rubbish, which in turn reflects a declined population.

The possibility that the later Roman levels were disturbed by medieval activity could also be checked, for if this was the case there should be a higher percentage of later Roman residual sherds in medieval pits. The Roman pottery in 30 pits of the 11th to the 13th centuries on a variety of sites was examined, and 466 closely-datable sherds were identified. Of these 240 belonged to the mid 1st to the mid 2nd centuries, and 226 to the later 2nd to the end of the 4th. Thus, as 51% belonged to the first third of the Roman period, and 49% to the last two-thirds, it would seem that, on this limited but random evidence. there was no significant erosion of 3rd- and 4th-century

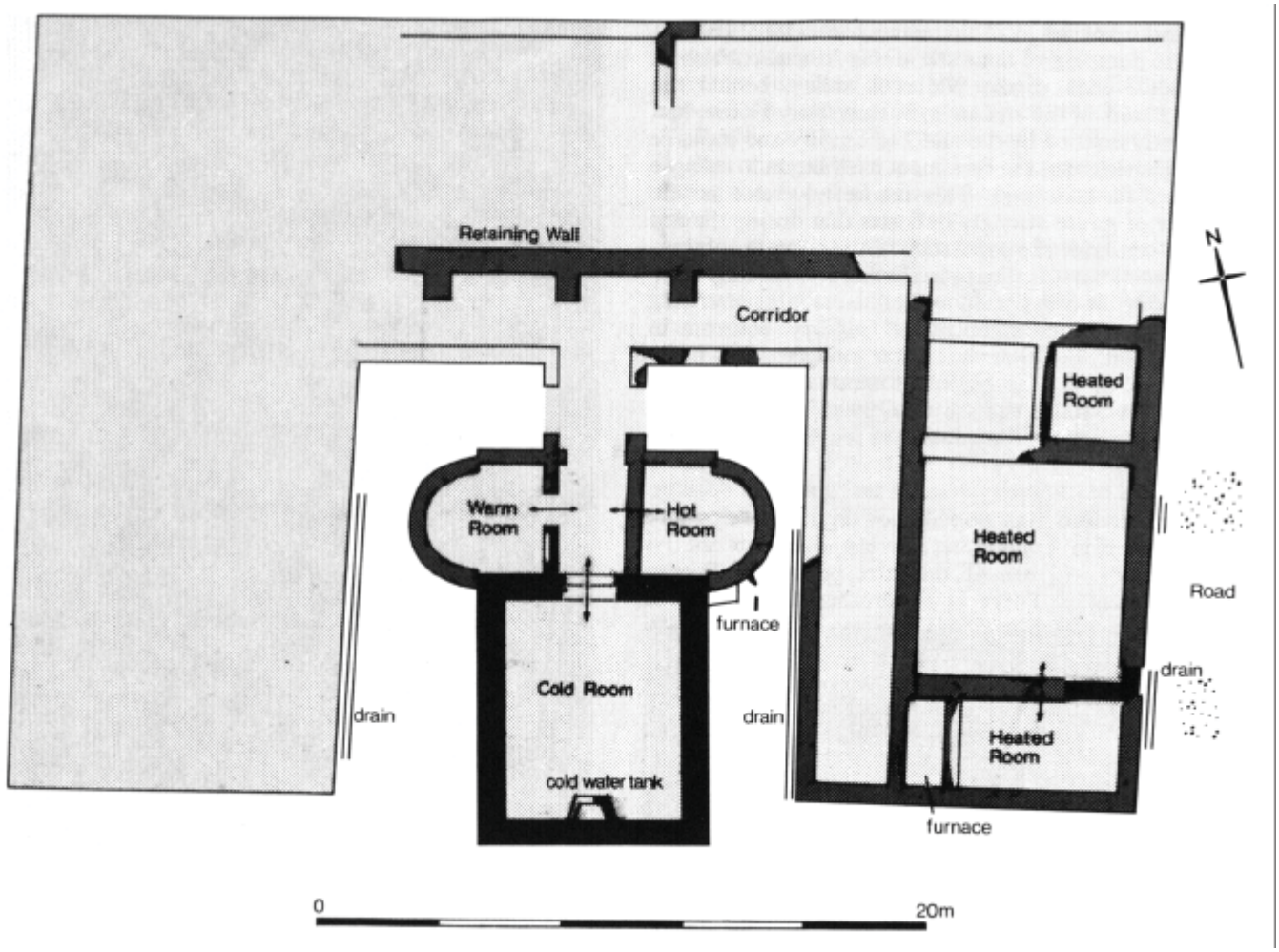


Fig 70 London: two, possibly three, wings of a 3rd-century stone dwelling, around a small bath house, found opposite Billingsgate Market (Scale 1:300

deposits during the Middle Ages. Of course, this study is based on a small sample, but the result is consistent with all the other evidence. Nevertheless, there is no doubt that the study should be extended to include the residual content of pits excavated on other sites.

Waddington also suggested that the small quantity of later Roman pottery was due to some bye-law which prohibited the burying of rubbish within the City, so that it was dumped in the estuary downstream. Although this is extremely unlikely, and seeking such rubbish in the Thames estuary would be a pointless exercise, since if found there would be no means of identifying its source, it has been possible to look at the rubbish dumped into the Thames off the former mouth of the Walbrook stream, at Walbrook Wharf. As was mentioned earlier, it was found that the mass dumping of rubbish on this site, well out from the Roman waterfront, ended in the early 2nd century. There was very little later Roman pottery in the subsequent gravels.

The decline in population would seem to have had a disastrous effect on the pottery industries north of London, at Highgate and Stanmore. They stopped production in about the middle of the 2nd century (Sheldon 1975, 283; Marsh & Tyers 1978, 534-7). The cessation of pottery production in the region between London and Verulamium may well have had other causes, however, and we must remember that Verulamium too suffered a great fire during the 2nd century, after which its character also changed very much.

Although there was a substantial reduction in the quantity of rubbish during both the 3rd and the 4th centuries, as compared with the period 50-150, it is difficult to suggest the extent of the reduction in population. There are so many unknown aspects, such as the extent of trade, which must also be taken into account. Nevertheless, it is against the background probably of a substantially reduced population that we must try to understand the topography of later Roman London.

The 3rd century

After the 'Antonine decline' there was a period of reconstruction which lasted from the late 2nd to the mid 3rd centuries. This included the demolition of redundant buildings, such as the very large public baths at Huggin Hill, and clearing the debris that had resulted from the period of decay (Marsden 1976, 20-3). The half-filled fort ditch was filled in completely (Marsden 1968,9), as was a large gravel pit on the site of the Royal Exchange

(Marsden 1980, 131-2). These activities also coincided with the beginning of a major programme of public building.

The city defences, which form the most conspicuous feature of the reconstruction phase, have been dated to the period 190-225 on coin evidence. Carefully built, the wall, two miles (3.22km) long, 2.4m thick, and probably 4.6-6.0m high, formed the main element of the defences. It was strengthened by small interval towers which gave access to the battlements, and entry to the city was now probably restricted to the four main gates - Aldgate, Bishopsgate, Newgate, and Ludgate. The early 2nd-century fort was included within the defensive curtain and its west and north (Cripplegate) gates apparently remained in use. It is not known if the fort held a garrison during the 3rd century, but soldiers' tombstones of the period indicate the presence of the Governor and suggest that it may have been reoccupied. If this was the case, then the west and north gates would not have been available for public access. The city defences also included a roughly V-shaped external ditch 4.6m wide and 1.8m deep, and, against the internal face of the wall, a bank 4.6m wide and 1.8m high of material excavated from the ditch (Marsden 1980, 118-30; Maloney 1983, 96-104).

Constructing the defences was a major undertaking, particularly as all the stone had to be transported 70 miles (113km) by water from the Maidstone area of Kent, by way of the Medway and Thames. The defences also raise a major problem, for they enclosed 330 acres (134 ha), an area as extensive as the greatest urban development in the late lst-early 2nd centuries. Yet all the other evidence indicates that at the time of their construction they enclosed a scattered settlement with many large open areas, such as are represented, for example, by the Newgate, Watling Court, and Milk Street sites. Why, then, was such a huge area enclosed? Perhaps the defences represent a major planning scheme, part of an attempt to redevelop the now sluggish city and restore its wealth and status. Possibly this occurred under Severus when Britain was divided into two provinces, of which Londinium apparently became the capital of Britannia Superior.

Many polychrome mosaics, parts of fine buildings and monuments, show that there was certainly wealth in 3rd-century Londinium, but although there was an enormous oak quay ¼ mile (400m) long, capable of being used to load and unload many large ships, this wealth seems *not* to have been derived from trade on the scale that had occurred during the 1st and early 2nd centuries. The quay seems to have been built during the late 2nd or early 3rd centuries, but goods from London as a whole indicate that most imports probably came from Germany, northern Gaul, and other parts of Britain. Excavations on the

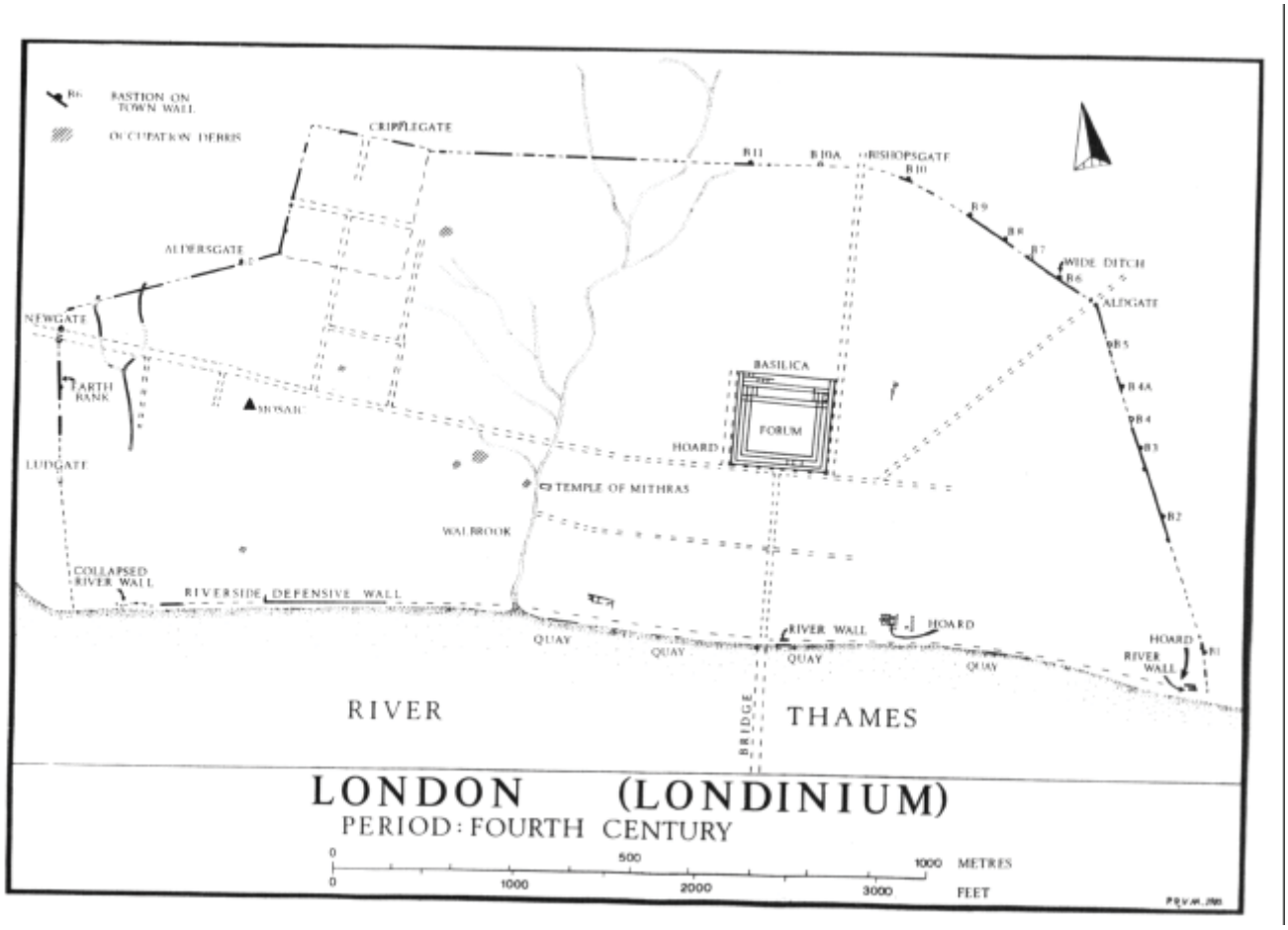


Fig 71 London: map showing the known remains of the 4th-century city. It is assumed that the basilica and forum continued to be used, but otherwise there is little evidence of late Roman occupation, other than the massive defences

Fig 72 London: lower part of the riverside defensive wall, as excavated at Blackfriars in 1975. The ragstone superstructure lay upon a foundation of oak piles and chalk blocks. The date of this part of the wall is disputed, but it may be of the 3rd or early 4th century (Photo: T Hurst)

quay at New Fresh Wharf disclosed a substantial quantity of goods from Germany which had probably been damaged in transit. However, the quay was not maintained, and it silted up by the 4th century (Hartley in Hobley & Schofield 1977, 62).

Third-century London seems to have been characterized in part by a succession of extremely substantial buildings: a monumental arch decorated with a variety of deities, a carved stone 'screen of gods', extensive terracing with wall constructions on a massive scale at Lambeth Hill, and temples of Isis, Mithras (Fig 69), probably Jupiter, and possibly Cybele. With the exception of the temple of Mithras and the possible temple of Cybele, all the evidence for these buildings has been recovered from a small area of the City, between Lambeth Hill and Blackfriars. It has long been noticed that domestic rubbish from sites in this south-western part of London is normally minimal, so that this zone was apparently set apart from domestic use, perhaps as a religious or other 'public' precinct (Marsden 1980, 136).

Houses too were far more substantial than those of the 1st and 2nd centuries, which were usually timber-framed and clay-walled. Dwellings of the 3rd and 4th centuries normally had walls of stone and mortar, and are sometimes found to contain mosaics, hypocausts, and frescoes. Although very few later Roman buildings have been found and dated, their location is suggested by discoveries of many polychrome mosaics which seem to date from the late 2nd to the 4th centuries. Significantly, many were found during the 19th century when office cellars first penetrated the upper Roman levels. In contrast, polychrome mosaics have rarely been found since the last war, when it has been the earlier Roman deposits which are usually being removed by redevelopment (Marsden 1980, 149).

In general it seems that a blanket of 'dark earth' lay around and between the later Roman buildings of London, having begun to accumulate in the late 2nd century, and perhaps continuing to do so in the post-Roman periods. Careful analysis has not revealed the process by which it was deposited (Dyson & Schofield 1981, 41, 43, 48).

It is unfortunate that the only 3rd-century Roman building which has been examined in detail, and possibly had a domestic use, has a rather unusual plan (Fig 70). The dwelling itself, found and partly preserved almost opposite Billingsgate Market in Lower Thames Street, had basically a fairly normal domestic form, and comprised two wings at right-angles to each other, each of which contained a range of rooms beside a corridor. The unusual feature is a small bath building, situated between the two wings so that it dominated the dwelling to an extent that is most unusual in Roman architecture. It is possible that the bath may have had a dominant function in the use of the whole building complex, and it may be significant that it lay very close to the Roman waterfront (Marsden 1980, 151-5).

The undoubted prosperity of London in the 3rd century requires explanation in view of the apparently restricted level of trade in the city at that time. Inscriptions show that its administrative function in the province continued, and that it was perhaps this which supplied the wealth. The existence of government offices and the possible continuing use of the Cripplegate fort may therefore be envisaged as an important part of the urban topography of London at this period. The presence of government officials is reflected by altars, one of which records that an imperial freedman had helped to restore a temple, the other that a governor of Britannia Superior had ordered a temple to be restored betwen 251 and 259 (Hassall in Hill *et al* 1980, 196-8). A military presence in the city, perhaps the staff of the governor, is indicated by the tombstones of two soldiers; the fact that the monuments were set up by their wives shows that they must have died after 197, when serving soldiers were first allowed to contract a legal marriage. The carving of one shows the soldier holding a scroll, and presumably indicates his clerical duties (Marsden 1980, 132-3).

The 4th century (Fig 71)

The complexities of 3rd-century London tend to contrast with what is known of the 4th-century city, for, apart from the defences, no major new building is known to have been constructed after about 300. The few hints that have been found suggest a decline in the standards of settlement, culminating in the construction and reinforcement of substantial defences, and the abandonment of the city by about 450.

The declining standards are reflected by the house and bath at Billingsgate, in which the mosaics were mostly removed and replaced by *opus signinum* flooring. A plain mosaic in a corridor was repaired with a patch of *opus signinum.* The temple of Mithras on the east bank of the Walbrook gradually deteriorated, its precious marble sculptures buried, presumably as a result of pressure from local Christians, until it was abandoned in the middle of the 4th century (Grimes 1968, 98-117). The fine stone house found in Lime Street was burnt about the middle of the 4th century and not rebuilt (GM Notebook 1949-55, 55), and eventually public, religious, and private monuments were broken up to strengthen the city defences.

This contrasts somewhat with the fact that London remained an important administrative centre. Although Britain was divided into four provinces under Diocletian, there is little indication of the status of London. The term 'capital', in the modern sense of the word, seems hardly

Fig 73 London: at Blackfriars and in the Tower of London have been found parts of late Roman riverside defences which contain reused stones, as in this portion of collapsed wall at Blackfriars. This seems to be of different construction, and of a different building phase, from the wall shown in Fig 72, and may date from the late 4th or early 5th century (Photo: J Maloney)

Fig 74 London: collapsed roof tiles from the east wing of the dwelling adjacent to the small bath building at Billingsgate; probably early 5th century

appropriate in that century. A mint was operating there until about 326, and it was the seat of the Bishop in the recently established Church. At some time the city was renamed Augusta, presumably in recognition of services; and, according to the late 4th-century *Notitia Dignitatum,* the officer in charge of the Treasury was located in London, even though the mint had closed down more than half a century earlier.

The late Roman defences have provided a wealth of information about what must have been an overriding problem during the latter half of the 4th century - attacks from barbarian raiders. These defences have been considered in detail in several recent publications and the conclusions are merely summarized here (Maloney 1983, 104-17). The first hint of a problem may be the construction of a defended watch tower at Shadwell, probably in the late 3rd century. A riverside defensive wall was next built in London, which in places contained reused stones and elsewhere did not. Much of the wall was constructed on a foundation of chalk and oak piles (Fig 72)) and had a carefully-built superstructure of unused ragstone, but at the west end, at Blackfriars, there was no such foundation, and the superstructure contained many reused carved stones from demolished religious buildings and monuments (Fig 73). Maloney has argued that the differences in construction can be accounted for by different gangs of builders working with materials from different sources. The present writer, however, has argued that these probably reflect two distinct building phases, the first in which there was access to the ragstone quarries in Kent, the second, perhaps much later, when this was no longer possible and buildings in the city were demolished to provide the materials. It is agreed that two phases of defensive wall existed on the waterfront at the south-east corner of the city in the present Tower of London. The earlier wall was founded on chalk and oak piles, and the later wall, containing reused building materials, dated from the last years of the 4th century (Goodburn 1978, 453). The existing landward defences in the eastern half of the city were also strengthened with solid external towers ('bastions'), built from reused materials. On coin evidence from around Bastion 6 these are believed to date from the period 35 1-75, as was a broad defensive ditch into which the bastion projected.

There is little archaeological evidence of the final stage of Roman London and its apparent demise during the first

Fig 75 London: Saxon saucer brooch of the 5th centuy found among the fallen roof tiles in the frigidarium *of the bath building at Billingsgate (Diameter of inner circle: 26mm)*

half of the 5th century. The south wing of the palace in Cannon Street had been spared demolition, unlike the 'state rooms', and remained in use until the end of the Roman period, as did the small bath at Billingsgate (Marsden 1975, 77; 1980, 180-96). Both sites show a similar sequence: Roman abandonment, occupation by squatters, and, finally, destruction. Just how typical these sites are of the demise of Roman London is not known.

During the 4th century the Walbrook stream was silting up, and at least in one area began to flood the surrounding region. The river bed in front of the late 2nd- and 3rd-century timber quay at New Fresh Wharf, near London Bridge, was also silting up, though a few late Roman amphora sherds indicate a trading link with the Mediterranean (Schofield & Dyson 1980, 31).

Traces of rural occupation at the end of the 4th or early in the 5th century have been found at Old Ford and in Bermondsey, so that it would be incorrect to imagine London as a city tightly held in isolation by militant Saxon settlers. Nevertheless, hoards hidden after 395 at the Tower of London and in the dwelling at Billingsgate do reflect at least financial uncertainty before the occupants, presumably Roman, abandoned the city.

Squatter occupation of empty buildings has been found in the south wing of the palace and in the bath at Billingsgate. A phase of abandonment in the palace was represented by a layer of silt and fragments of wall plaster lying on top of the mortar floor. A hearth of rough tile fragments and areas of scorching on the walls presumably represent casual occupation. Eventually the room was filled with dumped rubbish amongst which was some hand-made pottery in Roman style, of a type that occurs at Billingsgate in early 5th-century deposits (Marsden 1980, 184). At Billingsgate a phase of abandonment is suggested by a layer of hillwash silt which had spread through a doorway of the bath and fanned across the floor of the *frigidarium.* Fragments of pottery, smashed window glass, food bones, and coins of Arcadius and Honorius lay strewn about as if the room had been occupied by squatters. In the east wing of the dwelling a hoard of more than 260 coins, including those of Arcadius and Honorius, had evidently fallen from a hiding-place in the roof or in a wall, for they were scattered about the floor of a furnace and an adjacent corridor. Had the money any value then the hoard would surely have been recovered, not left on the floor (Marsden 1980, 185).

Finally the bath and house at Billingsgate were abandoned, and their roofs collapsed (Fig 74). At some stage, perhaps about the middle of the 5th century, a visitor dropped a Saxon saucer brooch between the broken roof voussoirs lying on the floor of the *figidarium* (Fig 75). Thus on this site is preserved the transition from the Roman to the Saxon periods, but how representative it is of Roman London at large, and precisely what it signifies is unknown (Marsden 1980, 185-6).

Conclusion

It is important, therefore, to explain the 'Antonine decline' and the subsequent restricted evidence of trade in the archaeological record during the 3rd and 4th centuries. Perhaps the explanation is that London, founded in the middle of the 1st century, was the main Roman civilian port for the new province. By the 2nd century the other provincial towns, which were mainly based around the native population, were now successfully undertaking their own trade and industry, and there was no longer a need for London as the main trading centre for the province. In this case all that would be left of any consequence during the 3rd century was its provincial administrative role.

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Aspects of the topography of Wroxeter (Viroconium Cornoviorum)

Philip Barker

Viroconium Cornoviorum was founded at the point where Watling Street, curving through the Midlands from Dover and London, crossed the Severn. The early history of the city has been outlined by Graham Webster (1978: 1980a; 1980b) but these accounts are being continually modified by his work on the *macellum* in the south-west corner of *insula 5,* the *insula* containing the later public baths and the basilica attached to them.

A series of military camps was established on the eastern bank of the river, culminating in the construction of a legionary fortress on the higher ground some 400m from the crossing-point to the south. The western side of this fortress has only recently been established by Webster (1980b, fig 2), and its outline is shown here in Fig 76. His work on the *macellum* has also revealed the remains of houses of the first civil settlement, built of clay and timber, underlying and predating the great public buildings of stone which were eventually to dominate the city centre (Webster 1980b, 292 & fig 19.1). This first city adapted for itself the plan of the fortress, lying on the same alignment, but with two *insulae,* 6 and 10, cutting across the presumed *line* of the *via principalis* and perhaps indicating the site of the early forum (Webster 1980a, 7 & fig 1; 1980b, 292 & fig 19.2).

The northern defences of this earliest city seem to be indicated by a double linear cropmark which runs across the site south of the Bell Brook (Fig 77). Kathleen Kenyon sectioned these supposed defences in 1936-7 (Kenyon 1940, 178) and showed them to consist of a ditch, apparently recut (see p 114 below), with a truncated bank and perhaps a robber trench (her 'dark' depression) behind it. There is also a suggestion in her section of an earlier posthole (again 'dark') cut into the layer containing lst-century pottery.

The city was soon drastically replanned, perhaps under the direct influence of the emperor Hadrian himself, and imposing public buildings were begun in the centre of the new development (Webster 1980a, 292).

The excavations of Donald Atkinson in the 1920s and Kathleen Kenyon in the 1930s unexpectedly revealed the remains of earlier stone buildings underlying or incorporated in the later forum and baths. Those beneath the forum are undoubtedly the foundations of a great unfinished bath block (Atkinson 1942, 25ff), but those beneath the later baths are more fragmentary. It would be logical to suppose that they are the remains of an early forum; recent work on the baths-basilica has shown that there is an earlier building on the same alignment, which might be interpreted as a forum-basilica, the forum itself lying under the later baths. However, the evidence, which is only revealed where the trenches of earlier excavators have been emptied, is not at all straightforward and these suggestions remain highly speculative.

Nevertheless, it is clear that there was a fundamental change of plan, and that, on the site of the forum, the first baths had reached an advanced stage before they were abandoned. One wonders what crisis or blunder led to this extraordinary waste of planning, time, effort, and public money. We are reminded of the letters which the Younger Pliny wrote from Bithynia to the emperor Trajan (particularly x.37 & 39) with their accusations of corruption and incompetence in the building of the successive aqueducts at Nicomedia and the theatre and gymnasium at Nicaea.

The public complex at Wroxeter was completed at the second attempt and the forum dedicated by the tribe of the Cornovii to the emperor Hadrian in AD 130. It was perhaps at this time (Webster 1980a, 292) that the city was almost doubled in size as a new defensive line was drawn north of the Bell Brook. The very large area thus added does not seem to have included any metalled streets or stone buildings north of the valley in which the little Bell Brook runs. However, a series of very fine aerial photographs by Arnold Baker shows what appears to be a grid of ditches or gullies within the defences, together with a multiplicity of pits of all sizes, many of them rectilinear and therefore not, for example, tree-root holes. There appears to have been intensive occupation here, but in buildings of timber, rather than stone (Figs 78-80). The immediate impression of a grid of streets has a misleading element, since it is overlain by ridge-and-furrow, which can be seen clearly outside the defences; but even when this is ignored the pattern of pits, ditches, and gullies remains rectilinear and argues for a planned extension of the city into this northern sector.

Outside the defences converging trackways, enclosures, and, in particular, enclosed cemeteries can be seen. What is remarkable is that the outer pattern of cropmarks bears no relation to that inside and, since the spread of the counterscarp rampart obliterates the outer cropmarks, these must be earlier. The trackways disappear under the defences and do not reappear inside (there is no trace of a gate), so that it is clear that the enlargement of the city not only erased the earlier landscape, but denied access at this point to the cemeteries. These must, therefore, themselves be early and perhaps even disused and forgotten by the time of the enlargements. It is apparent also that the trackways cut across some of the enclosure cropmarks, which may, of course, be pre-Roman.

The defences

The usually accepted sequence has been that of a lst-century circuit following the later defences in the south to protect the river crossing by the present village, but in the north running across the higher ground south of the Bell Brook (see above); an enlargement in the 2nd century, when the enclosure reached its greatest extent; and, finally, a refacing in stone of the 2nd-century circuit in the

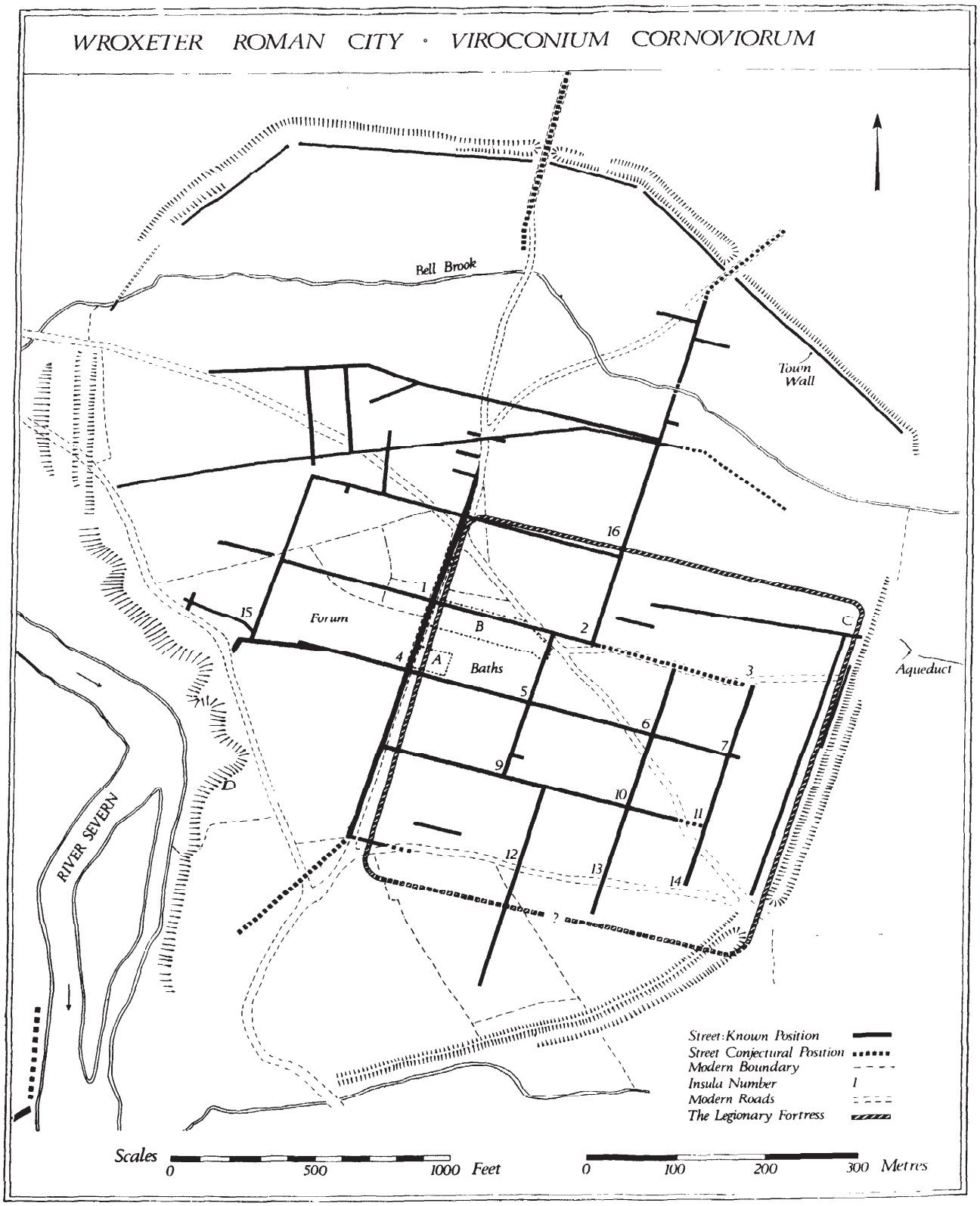

Fig 76 Wroxeter: plan of the city, showring the probable alignments of the defences of the legionary fortress (based on Webster 1980a, fig 2; Johnson 1975). A is the site of the macellum, *B the site of the baths-basilica*

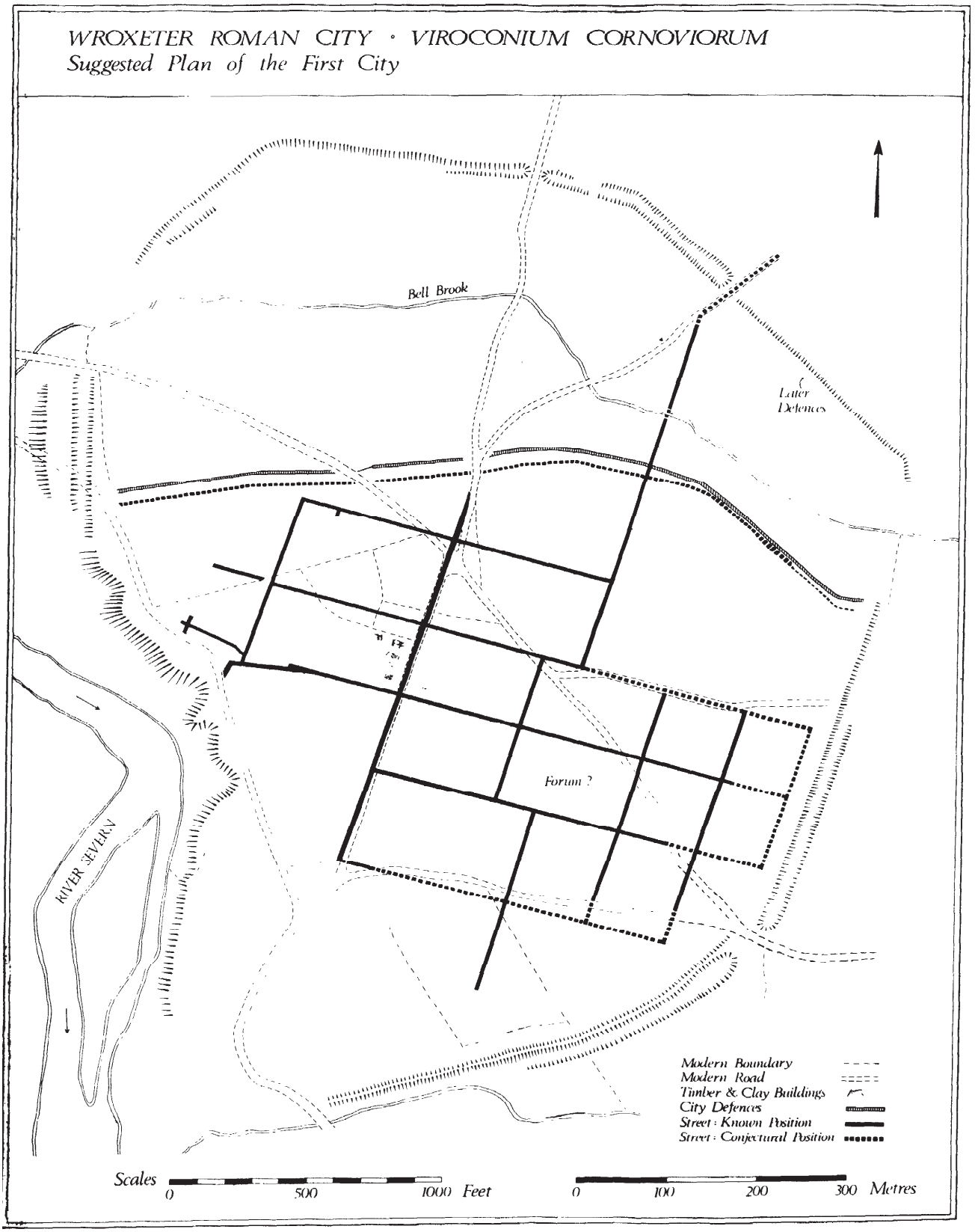

Fig 77 Wroxeter: conjectural plan of the first city (with acknowledgements to G Webster, A Baker, D Wilson, and others)

Fig 78 Wroxeter: aerial photograph, looking north, of cropmarks within and outside the northern defences of the city (Copyright A Baker)

3rd or 4th (Kenyon 1940, 176-80; Webster 1962; Wacher 1975, 369).

There are, however, two observations worth making. The evidence for the addition of a stone wall is provided by a number of sections cut across the ramparts and ditches since the 1850s, and by what appears to be a continuous robber trench visible on many aerial photographs. With one exception all the published sections or views of the wall show foundations of heavy cobbles set in clay. These average only 7ft (2m) wide, not, as Webster has observed (1962,31), the 12-14ft (4-4.5m) which might have been expected for the foundation of a stone wall. The only exception is the engraving by Thomas Wright (1872, 98), which illustrates his excavation of the defences at the point where Watling Street enters the city- Here a short length of wall foundation was 'tolerably perfect to a height of about four feet, or perhaps even more, with its sides even and tolerably smoothed, but with no more evidence of facing stones than before.' Wright goes on to say that there seemed here to be an original opening in the wall, but 'with no trace of any building besides the wall. . . the appearances as far as we went led to the supposition either that the entrance to the city had been a mere discontinuation of the wall, or that whatever structure protected it may have been of wood.' A 'mere discontinuation of the wall' seems to negate the whole purpose of a circuit of earthwork defences so massive and can hardly be taken seriously. An excavation here would be of the greatest interest.

Equally interesting evidence, also negative, comes from the sections cut across the defences since Wright's time. These include those by Kathleen Kenyon (1940), Graham

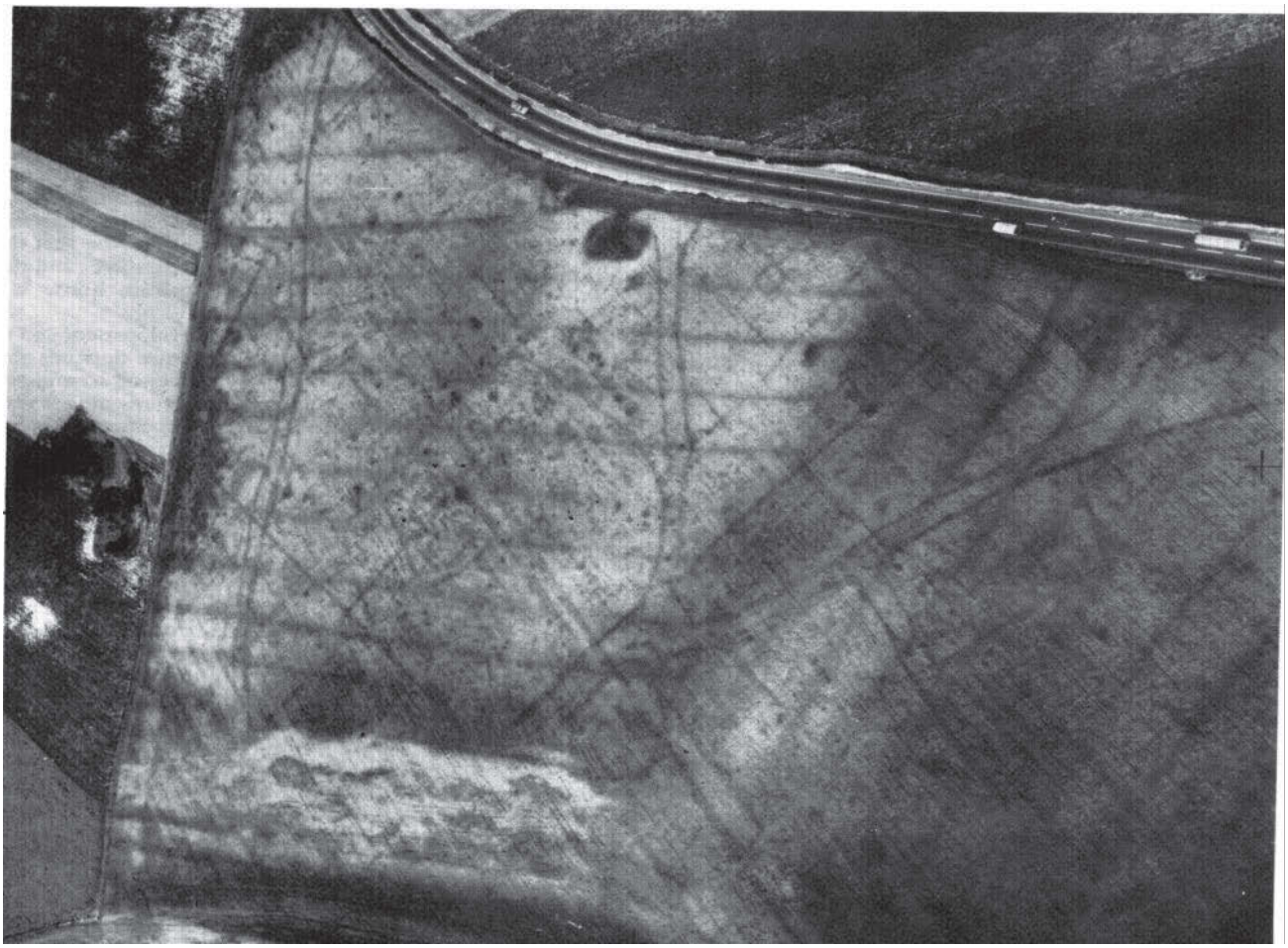

Fig 79 Wroxeter: aerial photograph, looking north, of cropmarks outside the northern defences, showing roads and early cemeteries (Copyright A Baker)

Webster (1962), Stephen Johnson (1975), and Peter Brown (1975), together with an unpublished excavation in c 1958 by a local research group. The remarkable common factor in all these was the total absence of any trace of cut stone, rubble, or mortar. The explanation given in the past has been exceptionally thorough robbing, in spite of the fact that those who dig out the foundations of mortared walls to recover stone usually knock all the surplus mortar off the stones and shovel it back into the trench, together with the scraps and lumps of rubble which are of no use to them. This is the common experience of those who have emptied robber trenches on this site or elsewhere.

The circuit of the defences of Wroxeter measures about 2 miles (3.7km). On the most minimal calculation, assuming a wall 7ft (2m) thick and 15ft (5m) high, about 1,555,000 cu ft (44,000 m^3) of stone and mortar would have been visible and available for robbing. For this to have been removed without trace puts a strain on credibility.

In addition, it is worth noting that, as far as can be seen, stone from Wroxeter appears not to have been used in buildings more than 4-5 miles from the site. For example, the abbeys of Shrewsbury, Haughmond, Buildwas, and Much Wenlock, which might be expected to have absorbed a good deal of building material from the remains of the city, appear to be constructed, at least so far as their ashlar is concerned, with freshly-quarried stone. Certainly the tiles used for packing at Buildwas are medieval, not Roman, and no Roman tiles are visible at the other sites, though they were commonly reused in medieval buildings elsewhere in Britain.

Finally, other deserted walled Roman towns, such as

Caerwent, Silchester, Verulamium, and Caistor, retain long stretches of their walls, in spite of centuries of robbing, as do even many continuously occupied towns.

The conclusion, that Wroxeter was never defended with a stone wall, seems inescapable. The earlier defences of the late 2nd century on the same alignment were presumed to have been of timber (Webster 1975,44), and it now appears that their late refurbishment was in the same material.

There is a further complication in the received interpretation of the defensive sequence. Kathleen Kenyon, in cutting a trench across the line of the lst-century defences, found that the ditch had been recut, probably in the 4th century (Kenyon 1940, 178 & pl LXX, section at bottom of plate). This must admit the possibility that the city was, in fact, reduced to its original size before its eventual abandonment.

Until 1975 it had been assumed that the river Severn had eroded much of the western part of the site, but a small excavation by Peter Brown (1975) showed that there was a series of truncated ramparts along the present scarp above the river, and independent work by a geographer, David Pannett, confirmed that the river has not changed its course significantly since Roman times. Little, if any, of the city has therefore been lost.

The latest occupation of the city centre

The results of the excavations directed by the writer on the site of the basilica of the baths between 1966 and 1982 have been published in summary form elsewhere (Barker 1975; 1980a; 1980b; 1981; 1982) (Fig 81). Work since 1980 has confirmed many of the earlier results and added further information, particularly regarding the history of the basilica itself. The detailed evidence will be adduced in the eventual published report; here, the later history of this part of the city centre can only be summarized briefly (Fig 82).

At some stage, probably c 300, the basilica apparently became unsafe. The floors had certainly sunk dramatically in places and most of the north aisle mosaics had been removed in Roman times. There is no evidence that the building collapsed: no fallen columns or fragments of columns, no piles of roof tiles, in fact virtually no debris of any kind lying directly on the floors. It seems, therefore, that the roof and the colonnades were carefully and systematically dismantled, leaving the walls standing and the interior empty. Perhaps at this stage it was used as a *palaestra* for the still-operating bath house. This would now be almost impossible to prove. Soil eventually accumulated on part of the nave floor, while elsewhere the postholes and stakeholes of buildings were cut into layers of sandy material presumably imported for the purpose.

These were swept away in turn, and hundreds of tons of rubble were brought in and laid as foundation platforms for the massive timber-framed rebuilding of the last period. It is possible, in fact, that this was in two phases, though the evidence is slight and very ambiguous. Elsewhere, however, particularly on the southern edge of *insula 2,* the evidence for at least three phases of late major timber buildings is more certain (Fig 82) and this strengthens the argument that the ultimate replanning of the city centre was not a single operation, but complex and protracted.

This last rebuilding was not confined to *insula 5,* the baths *insula.* Short rescue excavations directed by the writer - one in 1964 (Barker 1968) occasioned by modern road widening in *insula* 6, 300ft (100m) east of the baths *insula,* the other in 1980 (Barker forthcoming), on the site of the Post Office on the modern crossroads north of the baths at the junctions of *insulae* 2 and 16 - both showed that in the final phase of occupation, massive foundations, probably for timber sills, lay across the lines, in one case, of a levelled stone wall and, in the other, of the street dividing the *insulae.* The implications must be that the final replanning of the city was very extensive, and not merely the building of an imposing private house in a ruined urban landscape.

The dating of the latest phases of development and of the ultimate abandonment of the city centre depends on a floating chronology, with a small number of *termini post quos* and one *terminus ante quem.* The arguments are very detailed, but chiefly depend on the sequences of buildings, worn surfaces, or other clear occupation horizons.

The coin sequence ends before 400 and none of the pottery can independently be dated to the 5th century. There are, in fact, no objects from the site which must be 5th- (or 6th-) rather than 4th-century in date.

Some of the buildings are given *termini post quos* by stratified coins and the most important of these is a sequence of structures on the northern edge of the site. Here a furnace with associated pits and interconnecting gullies was succeeded by three major timber buildings, one founded on massive post-settings of clay and cobbles, the others on the facades of buildings fronting the east-west street. These three buildings could have had a life of at least 50 years each, and a century or more is certainly possible. The collapsed clay roof of the furnace contained a coin of Constantine I, c 320, which gives a firm *terminus post quem* for the subsequent sequence. On the assumption that the buildings lasted only 25 years each, the occupation here will have continued until c 395. If we concede that each may have lasted a century, the final date is extended to 620. The date range of the abandonment, therefore, is 395 to 620, with a point midway between the two the most probable.

Another pointer to the length of occupation between the dismantling of the basilica and the final abandonment of the site is given by the sequences of worn sandstone and cobble surfaces found within the basilica area. Detailed discussion must await the final publication, but on the most minimal arguments some of the worn surfaces could hardly have taken less than a century to develop. The problem, of course, is that we do not know how many people walked over them daily, or whether they all wore hobnailed shoes. However, an indication of how long it takes even the Wroxeter sandstone to wear smooth is given by a wall foundation on the site of the baths, which are open to the public. This wall was capped by the Ministry of Works in the 1950s and, despite approximately 25,000 people a year having walked over it twice each (as they enter and leave the site) for 30 years, the stones have barely lost their sharp edges; they are certainly not yet smooth.

Considerations such as these incline us to believe in a longer rather than a shorter timescale for the whole sequence; it now seems impossible to compress all these events into a century, or even a century and a half, and a terminal date near 500 now appears increasingly likely.

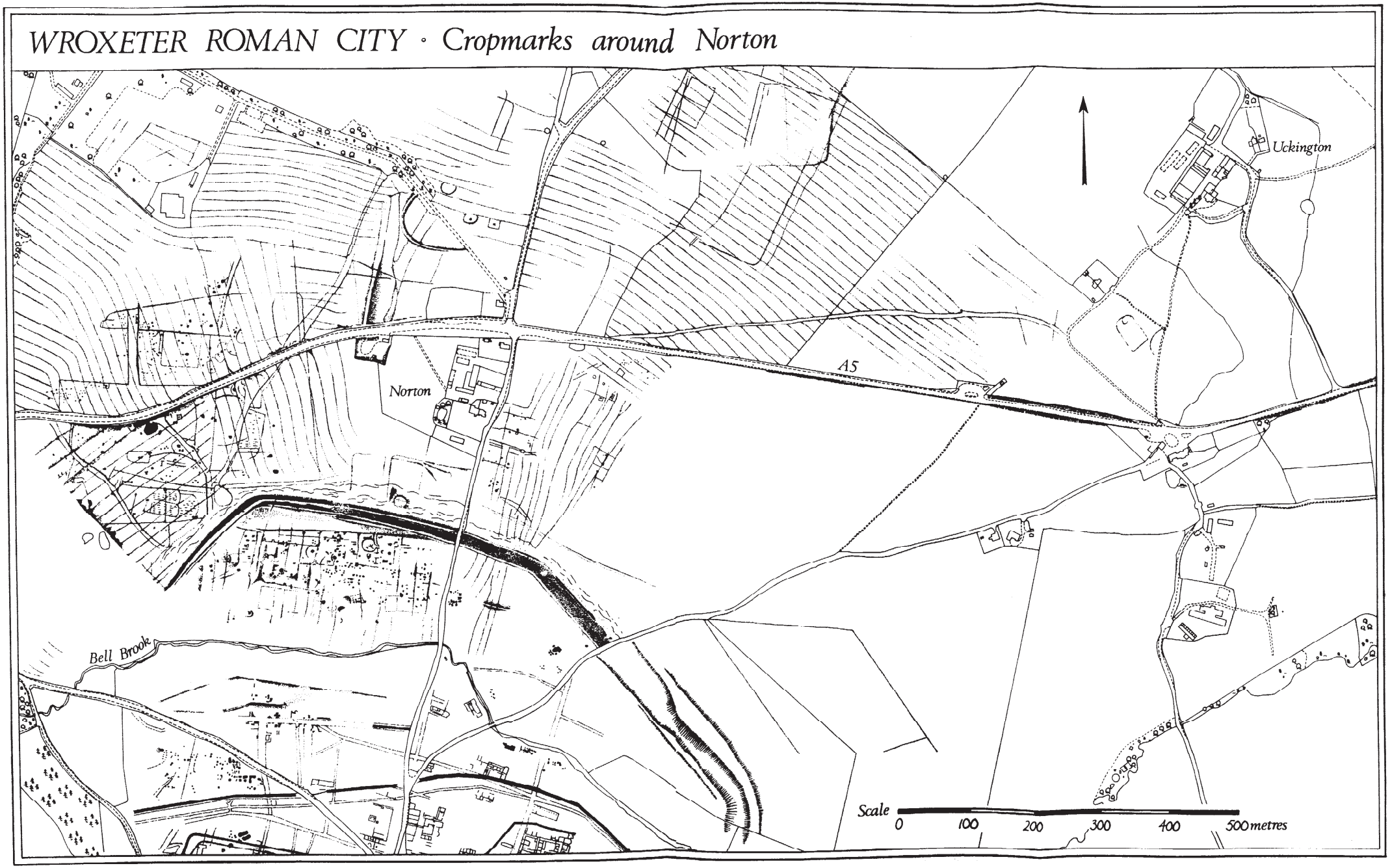

Fig 80 Wroxeter: plot of cropmarks within the northern part of the city and around Norton (Scale 1:5000)

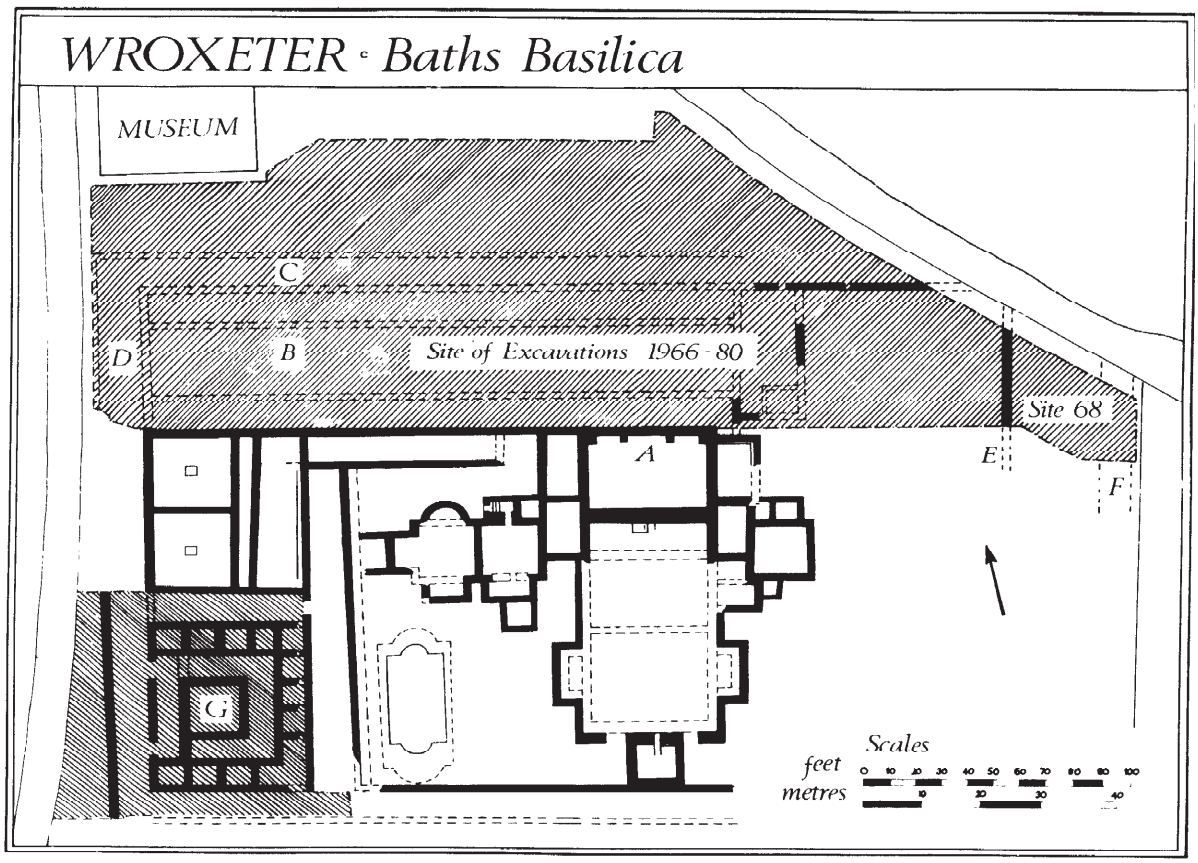

Fig 81 Wroxeter: the area of excavations on the site of the baths-basilica

A *terminus ante quem* is given by the burial of a man in the centre of the site. He had been placed in a north-south grave dug from a surface well above the level of the rubble platforms of the last buildings, at a time when the whole area must have been deserted, its buildings gone, and the rubble covered with sufficient soil for the grave to be dug. The preliminary radiocarbon date obtained from the bones is AD 610 ± 50 years. Further work seems likely, however, to push the central date back nearer to 550. Though arguments from radiocarbon readings are always fraught with difficulty, these dates suggest strongly that the city centre was abandoned at the latest by the mid 7th century (allowing for sufficient time for soil to develop over the abandoned rubble platforms), though, by the same token, it is possible to argue that the site was abandoned before 500 and that the body was buried in the early years of the 6th century. Taking all the evidence into consideration, however, it seems most likely that the whole development of the site after the basilica's destruction is contained between the beginning of the 4th century and the beginning of the 6th.

The occupation of the basilica area, in the very centre of the city, by what appears to be a house or mansion of considerable pretensions, where before there had been a major public building, argues not only for a complete change from public to private ownership of the site, but the occupation of one of the two most prestigious sites in the city by a man determined to demonstrate his pre-eminence. We do not yet know, of course, what happened at the same time in the forum, the other major site at the city centre, and it may be that Atkinson's excavations destroyed too much of the upper levels to permit re-excavation and reinterpretation. However, Donald Mackreth has recently suggested that more may be left than we thought and that it may yet be possible to discover what happened there in the latest years of the city's life.

It must be kept in mind, also, that the evidence from the basilica applies only to that area and that other parts of the city, particularly perhaps the south-western corner, close to the river crossing, may have continued to be inhabited, perhaps continuously down to the present day. The siting of St Andrew's church here suggests this possibility. The Taylors (1980,694) suggest an early (7th or 8th-century) date for the visible stone remains of the Saxon church, but the discovery of a mid 9th-century strap-end in the back-fill of one of the robber trenches of the colonnade stylobates of the basilica, dug to remove massive stones of the kind from which the Saxon part of St Andrew's is built, suggests that it is perhaps as late as the 9th or 10th centuries, although succeeding a timber church on the same site; however, since the churches at Atcham and Upton Magna, close by, are also built of very large stones,

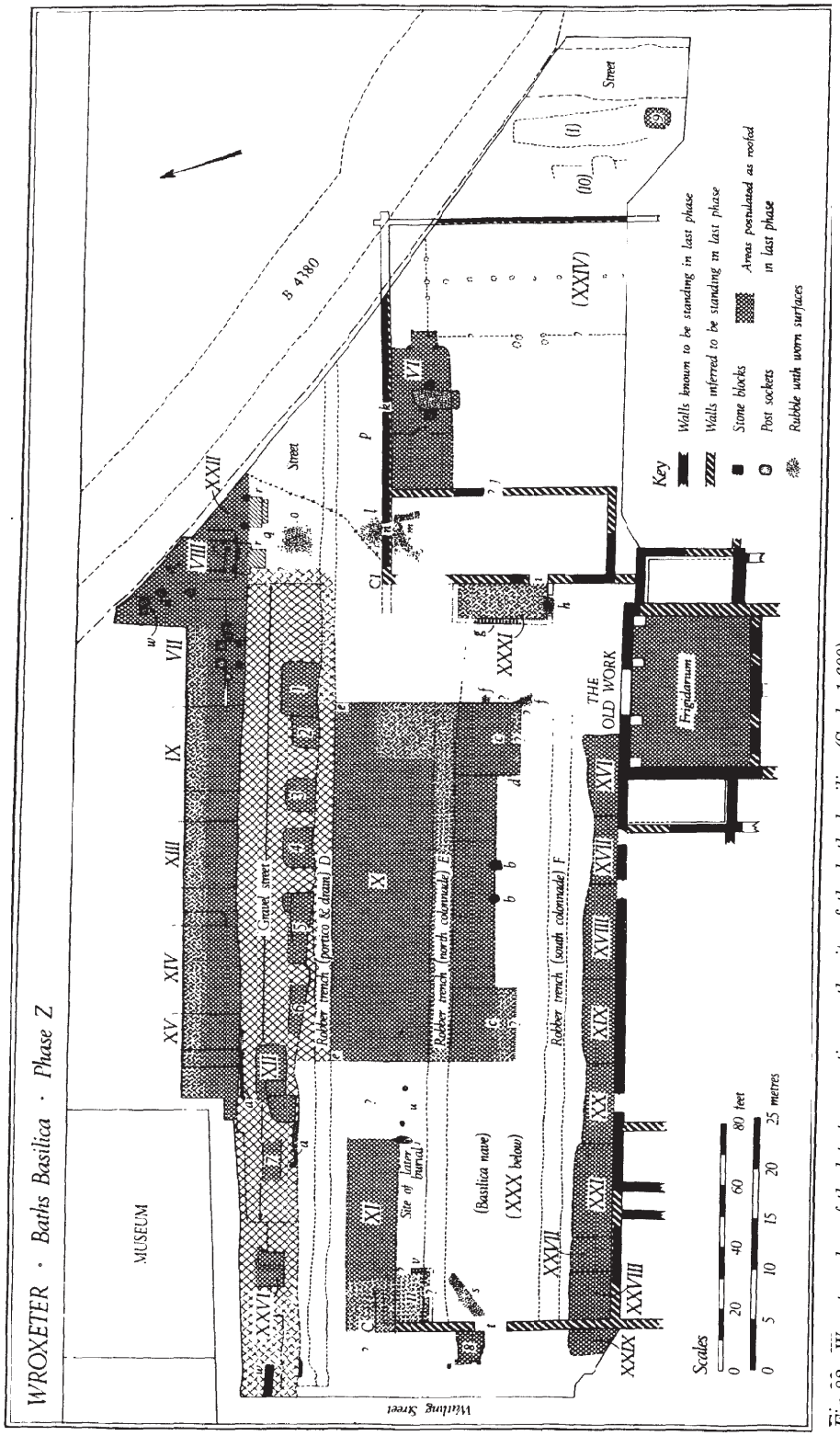

Fig 82 Wroxeter: plan of the latest occupation on the site of the baths-basilica (Scale 1:600)

probably from Viroconium, the robbing may have been for one of those, or for a building yet to be discovered.

It is remarkable that the church at Wroxeter is recorded as having four priests at Domesday (fo.254, b.2), and the long Norman chancel with choir stalls is that of a church of collegiate size. This presupposes a large and important village, and, since the present one is small, it is almost certain that the fields round the church, and perhaps particularly those between the church and the river, contain the site of the much larger medieval village. A sunken road, now private, leads from the church to the river crossing and bounds a field to the south which contains the Roman city defences. These seem to have been remodelled in medieval times to form a large rectangular platform, almost certainly the site of the house which John fitz Alan II had at Wroxeter in the mid 13th century and in which, perhaps, he died in 1267 (Eyton 1858, 309-10). This, and two adjacent millponds, are at present being surveyed as part of the continuing study of the city's topography.

The north-south line of Watling Street is the only survival from the Roman street grid, except for a short east-west stretch, now a green lane, lying between *insula 3* and *insulae* 6 and 7 (see Fig 76); the lane running south of *insulae* 12, 13, and 14, however, roughly follows the course of an east-west street which can be seen in the spectacular aerial photographs taken in 1976 (Wilson 1984, fig 1 & pl XVb). The other modern lanes run across the site of the city regardless of the planned grid, though they probably enter and leave the defences at the position of the Roman gates (none of which has yet been found by excavation). The lane which runs parallel to the river, on the low cliff above it to the east, may well be the medieval road from Shrewsbury to the village of Wroxeter. The date of the road connecting Shrewsbury and Ironbridge, which crosses the city diagonally, is unknown, but may be as late as the Industrial Revolution, which had its source at Coalbrookdale in the Ironbridge Gorge. This suggestion is supported by the fact that the uppermost archaeological levels on the site of the basilica have not been disturbed by the plough, as previous excavators thought. The reason for this seems to be that ploughing (as adduced from the pottery in the ploughsoil) did not begin before the mid 18th century, some twelve-and-a-half centuries after the abandonment of the city centre. This would have given time for a considerable quantity of soil to have moved down from the higher ground in *insula* 2 to the north-east, so that by the time ploughing began it was deep enough over the basilica to protect the uppermost layers. This could hardly have happened if the Ironbridge road had been there since early medieval times, as it would have formed an effective barrier against soil movement over the basilican area. In fact, the edge of our excavation skirts the road and shows that it is built on a very deep soil layer, which surely must be late.

The continuing study of Wroxeter and its hinterland, both on the ground and from aerial photographs, will provide the context for, and greater understanding of, the detailed excavations of the city itself.

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The plot of cropmarks in Fig 80 was made by Frank and Nancy Ball, Heather Bird, and Sandy Coates, and permission to reproduce his photographs was kindly given by Arnold Baker.

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