

IMAGES OF THE BUILT LANDSCAPE IN THE LATER ROMAN WORLD

Jesse Simon UNIVERSITY COLLEGE



A thesis submitted for the degree of Doctor of Philosophy

*A*T ITS GREATEST EXTENT, THE ROMAN EMPIRE REPRESENTED ONE OF THE largest continuous areas of land to have been ruled by a single central administration in the classical period. While the extent of the empire may be determined from both the extensive body of literary evidence from the Roman world, and also from the physical remains of great public works stretching from Britain to Arabia, the processes by which the Romans were able to apprehend larger spaces remain infrequently studied in modern scholarship. It is often assumed that Roman spatial awareness came from cartographic representations and that the imperial Roman administration must have possessed detailed scale maps of both individual regions and of the empire as a whole.

In the first part of the present study, it is demonstrated that Roman spatial understanding may not have relied very extensively on cartography, and that any maps produced in the Roman world were designed to serve very different purposes from those that we might associate with maps today. Instead, it is argued that the extensive construction projects that defined the character of the imperial world would have provided a means by which the larger physical spaces of the empire could be understood.

However, as transformations began to occur within the built environment between the late-third and late-sixth centuries, spatial processes would have necessarily started to change. In the second part of the present study, it is suggested that attitudes toward the built environment would have led to changes in the physical arrangement of rural and urban spaces in late antiquity; furthermore the eventual dissolution of the constructed landscape that defined the Roman empire would have resulted in new approaches to the apprehension of larger spaces, approaches in which cartographic expression may have played a more central role.

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LONG ABSTRACT

*T*HE ROMAN EMPIRE REACHED ITS GREATEST EXTENT IN THE FIRST DECADES of the second century AD; at that time, the empire stretched from Britain in the west to Arabia in the east, and represented one of the largest continuous areas to have been ruled by a single central administration in recorded history to that point. The limits and content of the empire are well known, both from the literary sources that record the achievements of the Roman state, and from the abundance of material remains that may still be seen throughout Europe, Africa and the Near East. However, for all that we may know about the Roman empire, we are still unclear about the processes by which the Romans were able to assess and apprehend the extent of the world in which they lived.

The act of perceiving spaces larger than those which may be taken in at a single glance necessarily involves a process of abstraction. In order to understand the limits of an empire, or even a particular region, the observer must create an image of the area in question; that image may take any number of forms, including a textual description or a pictorial representation. In the western world, since the fifteenth century, scale cartography has become the most commonly accepted means of apprehending larger spaces; thus, the idea that an advanced civilisation must be able to express itself through cartographic displays has, in much modern scholarship, been somewhat carelessly applied to the Roman world. In the nineteenth and twentieth centuries, it was often simply assumed that Roman spatial awareness was informed primarily by cartography, and that in order to control an area as large as the empire, the imperial administration must have possessed accurate and detailed scale maps both of individual regions and the empire as a whole.

In the present study, we have attempted to argue that this may not have been the case. While the Romans did inherit an advanced geographic and cartographic tradition from the Greek world, and while they may also have produced cartographic displays of some description, their ability to conceive of larger spaces within the empire may, in fact, have been closely bound to the extensive construction projects that came to define the physical character of the imperial world. Along with the spread of urbanism, the Romans of the imperial period were responsible for a series of public works – notably the implementation of consistent land surveys and the establishment of an extensive road network – that were specifically designed to make sense of the spaces that, together, formed the Roman world. While cartographic representations may have existed in the imperial period, they may not have been designed to serve anything close to the function that we might associate with the maps of today. Instead, it was the physical presence of the built environment that created a system through which larger spaces could be easily understood.

From the third to the sixth centuries, however, the nature of the Roman built environment started to change. Transformations in the attitudes and ideals that had once governed construction in the Roman world led to changes in the physical arrangement of rural and urban spaces. The dissolution of the imperial built environment would not necessarily have led to the disappearance of large-scale spatial awareness. Instead, we find that the mechanisms for spatial perception may have adapted themselves to the new physical realities of late antiquity; in the absence of a strong imperially-defined built environment, cartographic representations may, in fact, have started to play a more active role in the apprehension of the larger world.

The present study is thus divided into two parts. In the first part we discuss the emergence of the Roman built environment during the imperial period – that is, the period lasting from the beginning of the reign of Augustus in 31 BC, to the end of the Severan dynasty in AD 235 – and the ways in which that built environment may have contributed to awareness of Roman space. After a brief discussion of the types of building activity that occurred during the imperial period – focussing specifically on the city, the orthogonal land survey and the paved road – the study opens with an extensive assessment of cartographic traditions in the Roman world.

We may identify two strands of Roman cartography, which do not seem to have been interrelated in any way. On the one hand there were the local-area *formae* of

the land surveyors: in the process of dividing land by means of *limites*, or baselines, the surveyors of the imperial period may have created cartographic records of land allocations. In the present work it is argued that these surveyors' *formae* – for which no detailed contemporary definition exists – were, in fact, the intermediate stage in a process that sought to represent the geographical arrangement of local or regional areas in a purely textual form.

Our other major strand of cartography – a tradition of images that sought to represent the *oikoumene*, that is, the whole of the inhabited world – is slightly more problematic. Through careful reassessment of primary source material that deals with the creation of world maps in antiquity, it will be argued that the Romans had little use for the tradition of scale cartography that had developed in the Greek world, and that representations of the inhabited world derived their sense of accuracy from their ability to catalogue the world's contents rather than express the world's shape. It is further noted that the cartography of the imperial period was concerned primarily with natural topography, and that the built environment, in fact, played a relatively minor role in images of the *oikoumene*.

While the built environment may have contributed little to the pictorial representations of the Roman world, it would have nonetheless created a physical framework for the assessment of larger spaces. Although we may find hints of this in the land surveys that shaped the rural spaces of particular regions, perhaps the most notable example of the relationship between construction and perception may be found in the Roman road network. The paved roads of the imperial period not only provided the surface on which travel could take place, but also allowed for the creation of itineraries, textual records that could guide the traveller to his destination. It is argued that, between the itineraries and the literary descriptions of the world which would have formed a part of Roman education, movement through the Roman world would have required nothing in the way of a cartographic aid. The first part of the study concludes with an examination of several texts that describe the act of travelling, and a discussion of how the built environment defined the travellers' perceptions of the world through which they moved.

In the second part of our study, we examine the fate of the built environment in late antiquity – that is, the period lasting from the end of the third to the end of the sixth centuries – and the new approaches to spatial awareness that may have

subsequently emerged. Because it was the imperial city that had very much acted as the source for the urban forms that defined the Roman landscape, our investigation necessarily begins with an assessment of the city in late antiquity. The urban spaces of the fourth century onward were still, to some extent, governed by the ideals that had informed the imperial cities of earlier centuries. While those ideals may have continued to survive in the legal prescriptions of the state, they may have no longer been shared by either the urban populations or the individuals responsible for maintaining urban order. We may note how the forms that had defined the classical cities – specifically the straight street and the orthogonal grid – were being ignored, and that private building projects were beginning to encroach upon urban public spaces.

Changes in the city may well have been echoed by transformations in those aspects of the built environment that defined the rural landscape. In the time of Augustus, the state had taken an active role in the structuring and arrangement of physical space. From as early as the third century, however, reforms to the system of taxation instituted by Diocletian may have resulted in changes to the ways in which land was assessed and recorded. Where the imperial surveys had imposed an artificial structure that allowed larger rural areas to be perceived within a single system, the evidence from legal codes, tax records and the writings of later surveyors suggests that landholdings in the later Roman world were starting to revert to a more organic state. Instead of square plots defined in relation to central baselines, the land became a series of individual forms, defined by natural topography and arcane boundaries, and ultimately unconnected to any system that allowed for the apprehension of a regional landscape.

The road network was perhaps the one aspect of the built environment that continued to be maintained by the state until the very end of antiquity. Although epigraphic records for road repairs disappear after the fourth century, a variety of textual sources suggest that the road network received continual imperial attention, both in times of peace and times of crisis. With the emergence of Christianity, however, and with the development of a highly defined catalogue of Christian holy places, the Roman road network may no longer have reflected the topographic interests of the late antique population.

Our study thus concludes with an examination of how geographical and topographical information was compiled in late antiquity and how those compilations of geographical knowledge may have been translated into cartographic images. It is argued

that an increasingly abstract approach to the collection of topographic information – an approach that valued the preservation of place names over the establishment of geographical relationships between them – would have resulted in schematised visions of the world that were completely divorced from the representational cartography that had once been espoused by Ptolemy. It is suggested, however, that this new approach, which would gain prominence in the Medieval world, was firmly rooted in the chorographical representations that had become popular during the imperial period and that, indeed, it was the Roman rather than the Ptolemaic tradition that was best able to express the geographical beliefs of late antique society.

By examining the ways in which the imperial built environment contributed to spatial awareness – and the ways that changes in the built environment in late antiquity would have affected the perceptions of space – our goal in the present study is to clarify an issue that has received insufficient scholarly attention and has thus been clouded by assumption for far too long. Through the careful assessment of classical and late antique evidence, we may arrive at a better understanding of the different ways that the Roman world was able to conceive of its own extent; in doing so, we may hope to contribute to a greater understanding of the larger intellectual transformations that defined the transition between classical antiquity and the Medieval period.

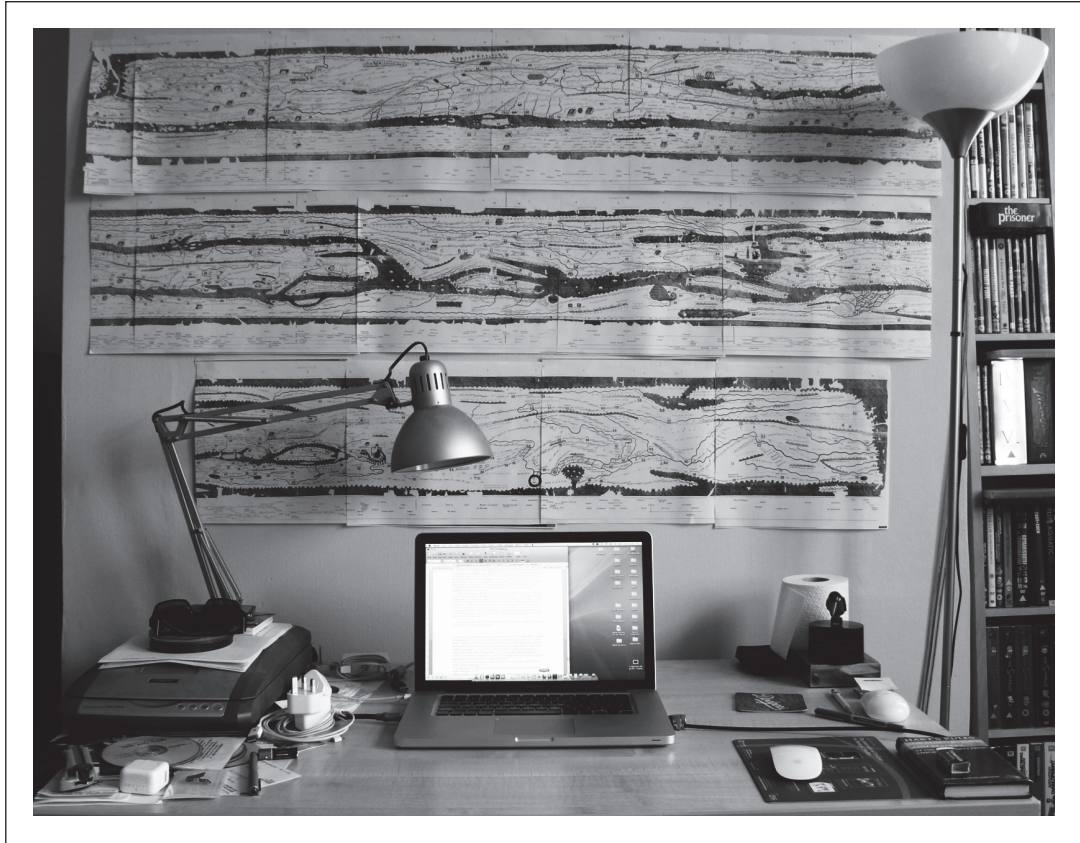
Images
of the
Built
Landscape
in the
Later
Roman
World

Jesse Simon

UNIVERSITY COLLEGE

*Submitted to the
University of Oxford
to fulfil the requirements for the degree of
Doctor of Philosophy*

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LIST OF ABBREVIATIONS

AJA	American Journal of Archaeology	HoC 1	Harley and Woodward, <i>History of Cartography</i> Vol. 1
AJP	The American Journal of Philology	HSCP	Harvard Studies in Classical Philology
ANRW	Aufstieg und Niedergang der Römischen Welt	IEJ	Israel Exploration Journal
BASOR	Bulletin of the American Schools of Oriental Research	IM	Imago Mundi
BMGS	Byzantine and Modern Greek Studies	JECS	Journal of Early Christian Studies
BSNAF	Bulletin de la Société Nationale des Antiquaires de France	JHS	The Journal of Hellenic Studies
CAR	<i>Corpus agrimensorum Romanorum</i> (see bibliography for different editions).	JNES	Journal of Near Eastern Studies
CCSL	<i>Corpus Christianorum Series Latina</i>	JRS	The Journal of Roman Studies
CIL	<i>Corpus inscriptionum Latinarum</i>	JSAH	Journal of the Society of Architectural Historians
CP	Classical Philology	MAAR	Memoirs of the American Academy in Rome
CRAI	Comptes-rendus des séances de l'Académie des Inscriptions et Belles-Lettres	MEFR	Mélanges de l'école française de Rome
CTh	<i>Codex Theodosianus</i>	MSNAF	Mémoires de la Société Nationale des Antiquaires de France
DOP	Dumbarton Oaks Papers	PBSR	Papers of the British School at Rome
EHR	The English Historical Review	PRIA	Proceedings of the Royal Irish Academy
GGM1	<i>Geographi Graeci Minores</i> Vol. 1	REA	Revue des Études Anciennes
GGM2	<i>Geographi Graeci Minores</i> Vol. 2	SEG	<i>Supplementum Epigraphicum Graecum</i>
GJ	The Geographical Journal	TPR	Town Planning Review
GLM	<i>Geographi Latini Minores</i>	TPAPA	Transactions and Proceedings of the American Philological Association
GRBS	Greek, Roman and Byzantine Studies	ZPE	Zeitschrift für Papyrologie und Epigraphik

PREFACE

The following study draws upon a variety of written sources, largely composed between the first century BC and the sixth century AD. Many of these sources – for example, Vitruvius, Strabo and Ptolemy – have long-established conventions for citation; while the present work has not abbreviated the names of classical authors (Vitruvius appears instead of Vitr.), it has followed as closely as possible the standard shortened forms of individual texts as given in the *Oxford Classical Dictionary* (Third Edition).

There is, however, one important source – the *Corpus agrimensorum Romanorum* – for which there is no standardised system of citation. Over the past century and a half, the contents of the *Corpus* have appeared in several different configurations, and it has become common practice to provide page-and-line references to a particular edition (i.e. Lachmann or Thulin) rather than to a particular author or text. This practice has the unfortunate side-effect of making the *Corpus* seem less like a compendium of treatises by individual authors and more like a single monolithic tome.

The recent Budé edition, prepared by J.-Y. Guillaumin – the second volume of which appeared in 2010 – has broken each treatise into sections, making it possible to refer to a paragraph within the text rather than a page within an edition. While it is hoped that this system of referencing will take hold in future scholarship, it remains the case that Lachmann and Thulin's editions are still the most widely available; indeed, full versions of both volumes may be downloaded from the internet as PDFs. Campbell's edition – which confuses matters further by demanding its own page-and-line reference system – was out of print when work on the present study commenced, although it has since been reprinted and was, as of 2010, available from the publisher.

The existence and, indeed, the varying availability of so many editions has made it difficult to arrive at a coherent strategy for citation. While it would have been desirable

to cite merely the author and their treatise, in the end it seemed necessary to provide references to the editions of Lachmann and Thulin, simply because they are the most widely available; references to Campbell's edition have also been included in order that the reader have recourse to a convenient English translation. Citations have thus been given in the following manner: author and treatise, followed by page and line equivalents for Lachmann, Thulin and Campbell (where applicable). The page and line equivalents refer to the first line of the paragraph where the relevant text appears. In those instances where no line number is given, it should be understood that the reference is found in the first paragraph on that page, or that references to the subject discussed appear throughout the page. While this system has resulted in one or two cumbersome footnotes, it will nonetheless ensure that the present work remains useful to anyone wishing to make a further exploration of the writings of the agrimensores.

For the sake of clarity, the present work has opted for familiar versions of personal and place names wherever possible; thus, in the following pages you will read about Ptolemy and Procopius, Antioch and Jerusalem. Any attempt to impose a completely consistent system of transliteration would be to the ultimate detriment of the reader. Towns that are less well-known are referred to by their classical name, although modern equivalents have been included in parentheses, where relevant. Finally, all of the Latin translations in the present work have been prepared by the author; translations from the Greek are by the author unless otherwise indicated.

Jesse Simon

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INTRODUCTION

LANDSCAPE, THE WORD, WAS INTRODUCED INTO THE ENGLISH LANGUAGE IN the early seventeenth century, and spent the next three hundred years leading a quiet life as a technical term in painting and, later, in garden design; only in the twentieth century would it become attached to larger ideas about physical spaces and our ability to perceive them. Ever since the English word was effectively introduced into the geographer's lexicon in 1925, the idea of landscape has accumulated so many possible meanings, and been subjected to so many theoretical approaches, that the word itself has become almost impossible to define¹. Indeed, the most recent edition of the *Dictionary of Human Geography* offered only a summary of the arguments that had emerged during the past century, rather than a concise definition of the word itself; while landscape was considered 'a cardinal term of human geography' and a 'central object of investigation, organizing principle and interpretive lens' for geographical analysis, its precise meaning remained elusive².

The idea of landscape as a unit of spatial perception is essential to our present study: in the following chapters we shall investigate the question of how larger spaces were understood and expressed in the Roman world during the imperial period, and how that spatial awareness may have started to change between the fourth and sixth centuries, the period now commonly referred to as late antiquity. Specifically, the present study hopes to argue that spatial perception in the Roman world relied far less on cartographic

¹ One of the earliest uses in a geographical context is C.O. Sauer's article 'The Morphology of Landscape', reprinted in *Land and Life: A selection from the writings of Carl Ortwin Sauer* ed. J. Leighly (Berkeley and Los Angeles, 1963) 315–50.

² D. Gregory et al. (eds) *The Dictionary of Human Geography*. Fifth Edition (Oxford, 2009), s.v. landscape.

representations than has previously been thought, and that the Romans of the imperial period were able to apprehend larger geographical areas primarily through a variety of building activities that were designed to take an active role in the shaping of the land.

For the purposes of our study, landscape is a convenient shorthand to describe the variety of spaces that the Romans were attempting to assess and understand. However because the word has come to be used so frequently – some might say carelessly – in modern scholarship, and because its range of possible meanings is so varied, we cannot hope to employ landscape consistently unless we first discover the essence of the word, and discuss how this relatively modern concept may help us to understand the spatial processes of an ancient civilisation. Once we have clarified the nature of landscape, we may return to the principal argument of our study and expand upon the work that is to follow.

The etymological origins of landscape are easy enough to trace: *lantscaf*, an Old High German word roughly equivalent to the Latin *regio* or *prouincia*, evolved into the Medieval *landschaft*, an administrative term denoting a particular territory³; in Germany, *landschaft* would continue to be used in this administrative sense into the twentieth century. From as early as the fifteenth century, however, *landschaft* had also come to refer to the scenery that appeared in the background of a painting; in fact, the use of the word in this sense may have coincided with the emergence of the natural world as a subject worthy of the painter's attention.

While the natural world had not been excluded from Medieval art, it had often been simplified to a series of iconographic elements designed to complement the principal subject; a few rocks or a group of trees would suffice to situate the subject in nature, just as a chair and a few columns might suggest an interior setting. In the Ghent altarpiece of Jan and Hubert van Eyck, however, we begin to see a more naturalistic approach to the arrangement and rendering of the background scenery; less than a century later, we may observe in the works of Joachim Patinir how the background became more than mere setting and began to challenge the nominal subject as the focus of the painting⁴.

³ Etymological discussions in Sauer, 'Morphology', 315–50; J.B. Jackson *Discovering the Vernacular Landscape* (New Haven and London, 1984), 3–8; K.R. Olwig 'Recovering the Substantive Nature of Landscape', *Annals of the Association of American Geographers*, Vol. 86, No. 4 (December, 1996), 630–53.

⁴ On the emergence of landscape painting, see K. Clark, *Landscape into Painting* (London, 1949), 1–15; M.J. Friedländer *Early Netherlandish Painting: From Van Eyck to Bruegel* (London,

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FIG. 1 *St. Jerome in the Desert* (the Louvre *Jerome*, ca. 1515/19).

Patinir, who was referred to by Dürer as ‘the good landscape painter’ (*der gut landschafft mabler*), placed his subjects within a vast arrangement of jagged mountains and serene river valleys⁵; the elevated vantage points and high horizon lines of his paintings allow the observer to apprehend the receding details of a finite expanse of land⁶. The genre of landscape grew in popularity during the Renaissance, both in Italy – where it offered an ideal subject for the demonstration of the new technique of perspective⁷ – and in the low countries, where it reached a new level of formal refinement under Pieter Bruegel.

However, while the landscapes of Bruegel and Patinir offered a naturalistic representation of individual elements, the landscapes themselves were meticulously constructed compositions made from disparate elements that could not originally have appeared together in nature; we would not, for instance, expect the distant alpine peaks in Bruegel’s *Hunters in the Snow* (1565) to rise so suddenly from a lowland plain. Even in the more thematically naturalistic pastoral scenes of later painters – such as Constable or Millet – we may discover in the compositions a careful structuring of

1965), 76–84; E.H. Gombrich ‘The Renaissance Theory of Art and the Rise of Landscape’ repr. in *Norm and Form: Studies in the art of the Renaissance I* (London, 1985), 107–21.

5 R.A. Koch *Joachim Patinir* (Princeton, N.J., 1968), 3.

6 Koch, *Patinir*, 15.

7 See Clark, *Landscape into Painting*, 20–21 and D. Cosgrove ‘Prospect, Perspective and the Evolution of the Landscape Idea’, *Transactions of the Institute of British Geographers*, Vol. 10, No. 1 (1985), 45–62.

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FIG. 2 *The Hunters in the Snow* by Pieter Bruegel (1965)

space; the job of the landscape painter was to define, enclose and display both the limits and contents of a perceived area.

The painted landscape was artificial insofar as it gathered together elements from nature and arranged them in such a way as to convey a sense of continuous space; it was not a depiction of nature so much as a reinterpretation. However, while landscape painters would have set out to capture an ideal vision of nature, their paintings in turn may have started to influence the perception of land itself. The word landscape thus came to refer not only to a painting but also to a large natural space that could be taken in from a single vantage point; where landscape had once been the construction of the painter, it could now equally be considered the construction of an actual observer.

Since the fifteenth century, painters had sought to impose order upon nature through composition; however, in the eighteenth century, there emerged a desire to fashion the land itself into landscapes that corresponded more closely to the compositional ideals found in painting⁸. While many of the famous gardens of continental Europe – for example, Versailles, or the villa d’Este near Rome – had ignored the

⁸ G. and S. Jellicoe *The Landscape of Man* (London, 1975), 233–47 and B. Colvin *Land and Landscape*. Second edition (London, 1970), 56–73.

organic forms of nature in favour of ornate and highly artificial arrangements, we may perceive in the work of English garden designer William Kent a desire to construct an ordered physical space that would convey the spontaneity of the natural world⁹.

The idea that it was possible to transform the world into a more idealised version of itself was taken up in the second half of the eighteenth century by Lancelot ‘Capability’ Brown, whose landscape designs offered a more formal conception of the natural world than Kent’s¹⁰. Richard Payne Knight, who was critical of Brown’s tendency toward minimalism, nonetheless acknowledged that a certain amount of artifice was necessary to create a version of nature that was more pleasing to the eye than nature itself¹¹. This attitude is reflected in the opening lines of Knight’s *The landscape, a didactic poem*:

How best to bid the verdant landscape rise,
To please the fancy, and delight the eyes;
Its various parts in harmony to join
With art clandestine, and conceal’d design;
T’adorn, arrange; – to sep’rate and select
With secret skill and counterfeit neglect¹².

By the nineteenth century, the creation of landscapes had become a practice unto itself. In Paris, Jean-Charles Alphand acknowledged a debt to French landscape painters of the previous centuries by situating manufactured Greek temples within the contrived spaces of the Bois de Vincennes and the Parc de Buttes Chaumont. In America, Frederick Law Olmstead and Calvert Vaux – designers of Central Park in Manhattan and Prospect Park in Brooklyn – became the first practitioners to describe themselves as ‘landscape architects’; intriguingly, the idea of landscape architecture had first been used to discuss compositional techniques in painting¹³.

At the beginning of the twentieth century, landscape was still primarily a unit of subjective spatial perception. Its uses as a term in painting, in garden design and,

⁹ M.I. Wilson *William Kent: Architect, Designer, Painter, Gardener, 1685–1748* (London, 1984), 183–222.

¹⁰ See D. Stroud *Capability Brown*. New edition (London, 1975) 164–76 and 206–10; Jellicoe and Jellicoe, *Landscape of Man*, 245; Colvin, *Land and Landscape*, 64–65.

¹¹ On Knight and his aesthetics, see N. Pevsner ‘Richard Payne Knight’, *The Art Bulletin*, Vol. 31, No. 4 (December, 1949), 293–320.

¹² R.P. Knight *The landscape, a didactic poem*. In *Three Books. Addressed to Uvedale Price, Esq.* (London, 1794), I.1–6.

¹³ In the study by G.L. Meason *On the landscape architecture of the great painters of Italy* (London, 1828).



FIG. 3 Parc des Buttes Chaumont, Paris (photograph by the author).

for that matter, in the act of seeing, were all complementary: landscape referred to a view onto a constructed space whose limits lay at the edge of the canvas or at the natural boundaries of human sight. By the end of the nineteenth century, however, the German *landschaft* had entered the vocabulary of the geographer, where it referred to both a bounded land and the appearance of a particular area¹⁴. The desire to create a more empirical basis for geographical study resulted in an increased attempt to define landscape as an objective unit of physical space¹⁵.

One of the twentieth-century geographers to address the question of landscape, Richard Hartshorne, suggested that the traditional meaning of the word – which he defined as ‘the view of an area as seen in perspective’ – was of little use to the geographer¹⁶; however, despite his attempts to arrive at a series of objective criteria by which landscape could be assessed, he was unable to separate the word from the inherently subjective act of human perception. Nonetheless, the desire to break a landscape down into a series of component parts that could be defined and enumerated found parallels in twentieth century philosophy and linguistic theory. On the

¹⁴ R. Hartshorne *The Nature of Geography: A critical survey of current thought in the light of the past* (Lancaster, PA., 1939), 149–74.

¹⁵ Sauer, ‘Morphology’, 321.

¹⁶ Hartshorne, *Nature of Geography*, 160.

one hand, there were attempts to treat landscape as a language whose smallest units could be assembled into larger structures of meaning¹⁷; on the other, the emerging school of phenomenology provided a useful framework for understanding the perceptual essence of landscape¹⁸.

In the twentieth century, geographers also addressed the question of whether or not landscape was essentially the result of human intervention within the order of nature. Of course, human life had always been an undercurrent in the idea of landscape: we may note the tiny villages in Patinir and Bruegel, the ruined temples in Claude Lorrain, and the distant churches in Constable; the garden designers of the eighteenth and nineteenth centuries had used nature itself as the building blocks for an artificial environment. While nature had been the focus of these earlier landscapes, many of them had been defined by the imprint of human activity. In the second half of the twentieth century, landscape increasingly came to be defined not merely as a fixed unit of perceptual space, but also as a space that had been brought into being through the activities of a particular culture within a particular area¹⁹. In fact, the idea of a purely natural landscape – that is, a landscape free of human presence – is best understood as an ideal that can never be achieved²⁰.

Thus, in the twentieth century, landscape came to be defined as a space that came into being at the intersection of nature and human endeavour. For the landscape theorist J.B. Jackson, any larger space that bore the imprint of human activity – from a series of rural field systems to an agglomeration of buildings along a highway – could be considered a landscape²¹. Furthermore, by attempting to understand landscape not as a visual unit but rather as a composition of spaces – or ‘a synthetic space, a man-made system of spaces imposed on the face of the land²²’ – Jackson was able to remove the idea of the single vista from the definition of landscape, while leaving intact the notion of landscape as an essentially perceptual construction.

17 Sauer, ‘Morphology’, p. 326–344; see also A.W. Spirn *The Language of Landscape* (New Haven and London, 1998).

18 For an example of such an approach, see J. Appleton *The Experience of Landscape* (London, 1975).

19 See, for instance, C.O. Sauer ‘The Agency of Man on the Earth’ in W.L. Thomas (ed.) *Man’s Role In Changing the Face of the Earth* (Chicago, 1956), 49–69; W.G. Hoskins *The Making of the English Landscape* (London, 1955).

20 Hartshorne, *Nature of Geography*, 170–72.

21 Studies of different landscapes are collected in J.B. Jackson *Landscape in Sight: Looking at America* ed. H.L. Horowitz (New Haven, 1997).

22 Jackson, *Vernacular Landscape*, 7–8.

With all of this in mind, let us try to arrive at a working definition of the word 'landscape'. The constant that has informed our various approaches to the word has been the idea of perception: thus, as a starting point, we may suggest that landscape is a unit of perceptual experience. This notion of a perceptual unit, however, should not necessarily imply a space that must be contained within a single field of human vision; while the idea of a vista or a prospect was important to the practice of painting – and, by extension, to garden design – if we look within the paintings themselves, we most often find a composite vision of nature in which various elements have been arranged to create an illusion of unity. Landscape should thus be understood as a series of spaces which, taken together, make up an area of fixed extent whose boundaries are understood even if they cannot be perceived within a single glance. If we remove the idea of landscape from the idea of vista, we may use the word to refer to a variety of areas ranging in size from a single region to a whole empire.

Landscape should, in fact, be understood as an area whose boundaries remain outside the limits of first-hand experience; because the physical space cannot be contained by our eyes alone, our ability to conceive of landscape relies upon our willingness to express its limits and its contents through various processes of abstraction. Thus, in order to be perceived, a landscape must be translated into an image of some kind; that image may take the form of a painting, a map or even a textual description. In our present age of scale cartography and satellite photographs, the images that we create tend to be graphical representations that act as a surrogate for first-hand knowledge of a physical area. Because the process of creating a cartographic image is so integral to our own spatial awareness – and has been for the last several centuries – we have a tendency to assume that previous civilisations must have employed similar images in order to come to terms with larger spaces.

Although the natural world provides some topographic indicators that allow us to translate spaces into a perceptual awareness, the forms of nature are often vague and open to interpretation; one river, one mountain, even one tree may look remarkably similar to the next. There is a natural tendency to search for unique identifiers that will help us to come terms with a particular landscape; where such identifiers do not exist, however, our process of assessment may begin with the placement of human artefacts within the natural world. By placing these markers, which contain the reassuring stamp of human endeavour, we are creating the foundation for a system by which land may be translated into landscape.

The present study is an attempt to demonstrate that this process of construction – that is, the creation of a world in which the imprint of human activity is a constant presence – played a considerable role in the Roman ability to conceive of physical space; indeed, it was through the imposition of a coherent built environment that the Romans were able to maintain effective control over the landscapes that, together, constituted their empire. While the Romans may have possessed considerable geographical knowledge – and, indeed, the ability to translate that knowledge into cartographic abstractions of the inhabited world – they may have preferred to express the limits and content of Roman space through the medium of text; it was only with the eventual dissolution of the imperial built environment, during the centuries of late antiquity, that the textual expressions of the world were gradually superseded by the abstract medium of pictorial images.

The Roman world, specifically, provides us with a unique opportunity to study how human intervention within the natural world would have created a framework for spatial perception. Not only do we possess extensive surviving material evidence for large-scale building projects over a wide geographical area, but we also possess a considerable body of textual evidence that allows us to extrapolate meaning from the material record. From the texts we may determine the processes and ideals that guided the creation of a large built environment; from the material remains, we may observe how those ideals may or may not have been put into practice.

The following work is thus divided into two parts. In the first we will examine the creation of the built environment during the Roman imperial period, which is here defined as lasting from the unification of the empire following the battle of Actium in 31 BC to the end of the Severan dynasty in AD 235. Although constructed spaces had been a presence in the Mediterranean world in the centuries leading up to the imperial period, it was not until the time of Augustus that the processes of construction became widely exported; only from the end of the first century BC can we identify a consistent built environment spread out over a large geographic area. Our study will, therefore, begin with a brief account of the various types of construction undertaken during the early imperial period – with a specific focus on cities, field systems and paved roads – and an examination of the ideals that may have governed their implementation.

Once we have assessed the nature of the built environment we may look more closely at how it may have influenced spatial perception in the Roman world. We

will first examine evidence for small- and large-scale cartographic expression and the role that the constructed landscape may have played in the collection of geographical knowledge and the representation of space. From there we will examine how elements from the built environment would have helped to define the rural spaces that existed between cities, and how that landscape of rural and urban spaces was perceived in the writings of contemporary travellers.

In the second part, we will examine how the built environment began to change during late antiquity – the period lasting roughly from the end of the third century to the end of the sixth century – and how those changes may have resulted in new approaches to spatial awareness. We will begin with an examination of how urban forms started to change as a result of new attitudes toward civic space; the transformations in the city, as we will see, were mirrored by changes in the constructed elements that defined the rural landscape. With the dissolution of the imperial built environment, the mechanisms for spatial perception would have necessarily started to adapt themselves to a new physical reality: our study will, therefore, conclude with an examination of how a new understanding of landscape may have resulted in new forms of abstraction that relied specifically on pictorial elements.

It is important to remember that the idea of landscape belongs to us and not to the ancient world; there is no word in Greek or Latin that corresponds precisely with our own definition of landscape, although the Greek *χῶρος* and the Latin *pagus* may come close. The problem of perceiving larger spaces by means of intellectual abstraction, however, is hardly unique to our own time. In examining the methods by which landscapes were perceived in the Roman world and the way that those methods began to change during late antiquity, the present study hopes to address an aspect of Roman life that is still poorly understood and, in doing so, to contribute to a greater understanding of the intellectual transformation that occurred between classical antiquity and the beginning of the Medieval period.



Before we can discuss the effects of the Roman built environment on contemporary spatial awareness, it is first necessary to understand both the extent of imperial construction activities and the ways in which the processes of Roman construction

may have distinguished themselves from the processes that had developed in the Mediterranean world over the previous centuries²³. From the end of the first century BC, we may detect the emergence of a distinctly Roman built environment; however, very few of its constituent elements were unique to the Roman world. The planned city had been in existence for hundreds of years and had been refined during the centuries of Hellenistic expansion²⁴. Similarly, neither the orthogonal survey nor the permanent road were Roman inventions: the survey was already ancient in the time of Herodotus – who credited it to the Egyptians²⁵ – and complex road networks had existed in Asia Minor and the Levant from as early as the second millennium BC²⁶.

The Roman achievement lay not in invention but in implementation. In order to govern an area as large as the Roman empire, there needed to be consistent systems for land management and tax collection, as well as for effective communication between the capital and the provinces. These systems, in turn, would have required the support of a consistent built environment that could carry out the functions required by a centralised administration. More importantly, the systems and the corresponding physical structures would have needed to be simple enough that they could be implemented in any part of the empire.

The aims of the built environment are most clearly expressed in three types of construction that appeared throughout the Roman world of the imperial period: the city, the land survey and the paved road. If we look at these three elements individually, we may see how each offered a particularly effective set of solutions to the problems of large-scale administration; more importantly, we may see how the components of the built environment often seem to have been conceived as a means of apprehending larger spaces. The establishment of cities allowed for the administration of numerous

23 The following section is a heavily abbreviated version of a much longer investigation into the Roman built environment and its underlying ideals; the original version was intended to be the first chapter of the present study, however it has been removed due to considerations of space.

24 Overviews of pre-Roman urbanism in: P. Lampl *Cities and Planning in the Ancient Near East* (London, 1968). Key works on classical planning include P. Lavedan and J. Huguency *Histoire de l'Urbanisme: Antiquité*. Second edition. (Paris, 1966); F. Castagnoli *Orthogonal Town Planning in Antiquity* (Cambridge, MA., 1971); J.B. Ward-Perkins *Cities of Ancient Greece and Italy: Planning in Classical Antiquity* (London, 1974).

25 Herodotus II.109. The Egyptian origin is also recounted by Heron of Alexandria; see chapter four, 198.

26 J. Garstang 'Hittite Military Roads in Asia Minor: A Study in Imperial Strategy with a Map' *AJA*, Vol. 47, No. 1 (1943), 35–62; D. French 'Pre- and Early-Roman Roads of Asia Minor. The Persian Royal Road,' *Iran*, Vol. 36 (1998), 15–43; D.A. Dorsey 'Shechem and the Road Network of Central Samaria,' *BASOR*, No. 268 (November, 1987), 57–70.

geographically diverse regions; the implementation of orthogonal field systems created a structure for understanding regional rural spaces; finally, the road network connected the furthest extremities of the empire to a conceptual and physical centre.

Urbanism was crucial to the processes of imperial expansion. In order for the various regions of the empire to function as a part of the administrative machinery it was necessary to establish centres in which the core institutions of civic life might be contained. The Roman city began with a wall that would define the extent of the urban space²⁷; once the limits of the city had been defined, a series of streets were established and the centre was adorned with temples, porticos, a forum, a theatre, baths and all of the other structures which were understood to be a part of civic life²⁸. The city was essentially conceived as a nucleus, around which an urban population might gather: the institutions established by the state would ensure the city could function properly within the imperial systems, while the street layout would create a framework for regulated urban growth.

The idea that a city could be completely planned and established in a foreign location was something of a revolution in the history of urbanism²⁹; while the earliest cities had been the result of populations coalescing around a spiritual or economic node, the increasing complexity of social and economic structures would have resulted in the emergence of more strongly defined urban forms³⁰. Eventually the organic processes of urbanism would be superseded by the completely planned city. Predetermined urban plans were employed by Greek colonists as early as the fifth century BC and, in the final centuries of republican Rome, colonies were established throughout Italy as a means of maintaining political control³¹. In the early days of the empire, however, the form of the planned city would be further refined.

27 Vitruvius I.5–6

28 Vitruvius V.1–12.

29 Lavedan and Hugueney, *Urbanisme*, 8, differentiates between the *ville créée* and the *ville spontanée*; see also S. Kostof *The City Shaped: Urban Patterns and Meanings Through History* (London, 1991), 43–45.

30 H. Frankfort 'Town Planning in Ancient Mesopotamia', *TPR*, Vol. 21, No. 2 (July, 1950), 99–115.

31 On the emergence of Greek urban planning, see F. Haverfield *Ancient Town-planning* (Oxford, 1913), 19–56; R.E. Wycherley 'Hippodamus and Rhodes', *Historia*, Vol. 13, No. 2 (April, 1964), 135–139; Lavedan and Hugueney, *Histoire de l'Urbanisme*, 98–103; Castagnoli, *Orthogonal Town Planning*, 66–72; Ward-Perkins, *Cities*, 14–17; A. Burns 'Hippodamus and the Planned City', *Historia*, Vol. 25, No. 4 (1976), 414–28. On early Roman towns, see J.B. Ward-Perkins 'Early Roman Towns in Italy', *TPR*, Vol. 26, No. 3 (October, 1955), 126–54; A. Boëthius *The Golden House of Nero: Some Aspects of Roman Architecture* (Ann Arbor, 1960), 26–93; Castagnoli, *Orthogonal Town Planning*, 51–54.

IMAGE REMOVED FROM DIGITAL VERSION
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FIG. 4 Barcelona as seen from above (from Google Maps). A meeting of the *ville créée* and the *ville spontanée*.

Perhaps the most important urban form in the Roman city was the axial through-way³². The orthogonal intersection of two throughways, in turn, provided the baselines for the establishment of a grid, one of the other important urban forms to emerge from the city³³. The straight line and the grid would be used in the Roman world not merely as organising principles of urban space, but also as a means of apprehending the rural landscape. The orthogonal grid, for example, was employed as a means of regulating the agricultural rural spaces that surrounded the cities. By establishing an intersection of principal baselines, the surveyors created a system in which equal areas of land could be divided, allocated and recorded³⁴. Although land surveys that used a system of baselines – or *limites* – are attested from the end of the second century BC³⁵, much of the land was still held according to inconsistent boundary markers and ancient local customs³⁶. There is, however, some evidence to suggest that a large-scale

32 W. MacDonald *The Architecture of the Roman Empire II: An Urban Appraisal* (New Haven and London, 1986), 5–31.

33 On the emergence of the grid, see Castagnoli, *Orthogonal Town Planning*.

34 The establishment of *limites* and orthogonal field systems are discussed in the treatises of Julius Frontinus and Hyginus Gromaticus, collected in the *Corpus Agrimensorum*.

35 One of the earliest surveys for which there is both literary and epigraphic evidence was undertaken by Tiberius Sempronius Gracchus in 133 BC. See Plutarch *Ti. Grac.* XIII.1; Appian *Civil Wars* I.1.13; see also A.H. Bernstein *Tiberius Sempronius Gracchus: Tradition and Apostasy* (Ithaca and London, 1978), 123–59; D. Stockton *The Gracchi* (Oxford, 1979), 40–60; J.S. Richardson ‘The Ownership of Roman Land: Tiberius Gracchus and the Italians’, *JRS*, Vol. 70 (1980), 1–11; D.J. Gargola *Lands, Laws, & Gods: Magistrates & Ceremony in the Regulation of Public Lands in Republican Rome* (Chapel Hill, 1995), 147–74.

36 On *ager arcifinius*, see Frontinus *De Agr. Qual.* L 1 = T 1.3 = C 2.3; Siculus Flaccus *De Cond. Agr.* L 138.18ff = T 102.16ff = C 104.34ff.

land assessment programme was undertaken in the time of Augustus, during which standard *limites* and boundary markers were imposed throughout the empire³⁷; the imperial administration was not merely interested in the measurement and assessment of land, but in a complete and systematic reorganisation of rural space.

In the road network that connected the various cities of the empire, we may perceive an attempt to use the forms of the urban built environment as a means of apprehending the larger spaces of the empire. While roads had existed in the Mediterranean world for centuries, the Roman roads distinguished themselves through their monumentality³⁸; the use of the paving slab was not merely a means of ensuring permanence, but also a means of bringing the iconography of urban space into the wilderness. Furthermore, the establishment of inscribed milestones and the development of a service infrastructure along the routes created a system where long distances could be easily apprehended and difficult journeys could be undertaken without recourse to cartographic guides or imprecise local knowledge³⁹.

In the time of Augustus, the physical space of the Roman world became more vast than it had ever been. Accordingly, roads needed to extend further, new lands needed to be divided and new urban centres were required to oversee the administration of each new region. In order to handle all of this new construction effectively, it became necessary to examine the processes, to discover their essence, and to create a system whereby those processes could be repeated wherever the need for building arose. The need for simplicity, itself, was practical: by reducing the foundation of a city, or the establishment of a land survey, to a simple process – ideally one which did not rely on scientific or mathematical knowledge – it became easier for those processes to be carried out accurately by an unskilled or untrained workforce.

Thus, the standards for building and surveying that emerged in the time of Augustus were not so much imperial directives as simplified guidelines for good practice. In fact, if we look at the surviving evidence we notice that the roads are not all straight, that the field systems are not always regular and that the cities are not always

37 *Liber Coloniarius* L 239 = C 188.2.

38 On the emergence of the Roman road network, see R.J. Forbes *Studies in Ancient Technology* Vol. II. (Leiden, 1965), 145–51; F.T. Hinrichs 'Der römische Straßenbau zur Zeit der Gracchen', *Historia*, Vol. 16, No. 2 (1967), 162–76; T.P. Wiseman 'Roman Republican Road-Building', *PBSR*, Vol. 38 (1970), 122–52; R. Laurence *The Roads of Roman Italy: Mobility and Cultural Change* (London, 1999), 11–26.

39 The use of the road network as a navigational tool will be discussed in chapter two, 79–92.

as rigorously orthogonal as we might imagine them to be. The ideal of Roman building was the perfectly straight line and the perfectly even grid; the reality, however, may have fallen somewhat short of that mark. What is perhaps most impressive about the Roman built environment is how close they often came to achieving the ideals they set out for themselves.

Part One

CHAPTER ONE

translating the landscape

THE ROMANS OF THE IMPERIAL PERIOD WERE ABLE TO CONSTRUCT A WORLD in which the imprint of human activity was a constant presence; however, while the built environment may have facilitated movement through the space of the empire, there is less evidence to suggest that it formed the basis for the creation of large-scale cartographic documents. In fact, the assumption that an advanced civilisation must have possessed detailed cartographic representations of their world is based more on our own preconceptions than on anything that we may adduce from classical sources; nonetheless, the idea that the Romans created reasonably accurate scale maps seems to have infiltrated modern scholarship¹. The fact that almost no cartographic documents have survived from antiquity has not prevented the development of a consensus that, not only did the Romans possess maps, but that those maps must not have been entirely dissimilar to something that the modern individual might recognise as a cartographic document.

In order to discuss ancient traditions of cartographic expression, we must first attempt to distance ourselves from the idea that Roman cartographers would have possessed either the ability or the desire to create scale representations of the world in which they lived. Indeed, the use of the word ‘map’ to describe ancient artefacts has

¹ L. Bagrow *History of Cartography*. Second Ed. rev. R.A. Skelton (Chicago, 1985), 38, claims that ‘doubtless Roman civilisation must have possessed good maps’. See also Dilke in *HoC* 1, 201–11; criticisms of Dilke in R.J.A. Talbert ‘Greek and Roman Mapping: Twenty-first Century Perspectives’ in Talbert and Unger, *Cartography in Antiquity*, 9–27 and Brodersen ‘The Presentation of Geographical Knowledge for Travel and Transport in the Roman World’ in Adams and Laurence, *Travel and Geography*, 7–21.

almost certainly contributed to modern misconceptions about Roman cartography: while recent definitions have attempted to make the idea of ‘maps’ more inclusive – the *History of Cartography* project, for instance, defines them as ‘graphic representations that facilitate a spatial understanding of things, concepts, conditions, processes, or events in the human world²’ – the word nonetheless carries with it unavoidable associations with a certain type of modern artefact³.

Cartography is, indeed, a process by which information about physical space is transformed into a graphical representation; a cartographic artefact is deemed to be accurate if the spatial relationships within the artefact are able to convey a visual sense of what is perceived to exist within the physical world. Objective cartography, however, cannot exist: in order to create a representation of anything at reduced scale, certain editorial decisions need to be made which, in a sense, preserve the illusion of accuracy⁴. Thus, a cartographic document is a reflection of the culture that created it: if the document does not correspond to what is already believed to exist, it will be judged inaccurate⁵.

The problem with many modern treatments of Roman cartography is that they tend to judge the cartography of the past against the standards of the present. Over the past five centuries, the practice of cartography has been dominated by the idea that it is possible to create a representation that might faithfully convey the world as seen from a great enough distance⁶. For this reason, the maps proposed by Ptolemy in the second century AD appeal to the modern scholar because of their empirical basis and their attempt at objective accuracy; we are generally willing to forgive any minor errors arising from insufficient information⁷. Examples from medieval cartography, on the other hand, are often dismissed as defective on account of their distortions and subjectivity.

² *HoC* I, xvi.

³ See discussions by Cosgrove in Cosgrove (ed.) *Mappings* (London, 1999), 1–23 and C. Jacob *The Sovereign Map: Theoretical Approaches in Cartography Throughout History* (Chicago, 2006), 11–101.

⁴ C. Jacob ‘Toward a Cultural History of Cartography’, *IM*, Vol. 48 (1996), 191–98.

⁵ For a recent example of this phenomenon, we may look at reactions to the Peters projection. The projection, which appeared in A. Peters *Peters Atlas of the World* (Harlow, 1989); methodology described in A. Peters *Die Neue Kartographie* trans. W. Kaiser et al. (New York, 1983), was highly controversial; see reviews by H.A.G. Lewis in *GJ*, Vol. 154, No. 2 (1988), 298–99 and N. Pye in *GJ*, Vol. 155, No. 2 (1989), 295–97; *GJ*, Vol. 157, No. 1 (1991), 95–96.

⁶ D. Cosgrove *Apollo’s Eye: A Cartographic Genealogy of the Earth in the Western Imagination* (Baltimore, 2001), 102–38.

⁷ See, for instance, J.J. Tierney ‘Ptolemy’s Map of Scotland’, *JHS*, Vol. 79 (1959), 132–48.

Along with our willingness to interpret ancient cartography according to modern standards of form, there is also a tendency to impose our own ideas of function. In the modern world, maps serve a variety of purposes: they can be educational tools, like the Mercator projections that hang in many classrooms; they can be catalogues of topographical features, like the Ordnance survey maps; or they can be navigational aids like a road atlas or the London A-Z. The creation of cartographic documents in the imperial Roman world, however, may have been undertaken with a completely different set of aims. Thus, if we are to assemble an accurate picture of Roman cartographic traditions, we must leave behind our preconceptions and focus only on the contemporary evidence.

Unfortunately, as we have already mentioned, there are almost no surviving cartographic artefacts from classical antiquity. Indeed we may enumerate, in only a few paragraphs, the material evidence that has survived. The most recent artefact that has come to light is a drawing found on the reverse of a papyrus containing a section from the geographical text of Artemidorus⁸. Scholarly access to the papyrus was first granted in 1997 and since then, there has been continued debate as to the authenticity of the document; while some are willing to concede the antique origins of the papyrus, others have argued that it is most probably a nineteenth-century forgery, perhaps perpetuated by the shadowy Constantine Simonides⁹. The drawing on the reverse – a series of waterways dotted with iconographic settlements – has been identified with Spain and, if genuine, would be one of the earliest known cartographic documents from antiquity¹⁰.

Perhaps the most well-known cartographic artefact is the *Forma urbis Romae*, a monumental plan of the city of Rome that was carved into marble and displayed on the side of the Templum Pacis after it was restored by Septimus Severus sometime

8 The recently published *editio princeps* is C. Gallazzi, B. Kramer and S. Settis et al. (eds) *Il papiro di Artemidoro (P. Artemid.)* (Milan, 2008).

9 The most ardent opponent of the papyrus has been Luciano Canfora; see L. Canfora *The True History of the So-called Artemidorus Papyrus* (Bari, 2007) and the review article R. Janko 'The Artemidorus Papyrus', *The Classical Review*, Vol. 59, No. 2 (2009), 403–10 where Canfora's claims are largely supported. A conference at St. John's College, Oxford (13 June 2008), examined the papyrus from art-historical, papyrological and philological perspectives and was broadly in favour of the artefact being genuine; the proceedings of that conference have been published in K. Brodersen and J. Elsner *Images and Texts in the "Artemidorus Papyrus": Working Papers on P.Artemid.* (Stuttgart, 2009).

10 On the map specifically, see B. Kramer 'The Earliest Known Map of Spain (?) and the Geography of Artemidorus of Ephesus on Papyrus', *IM*, Vol. 53 (2001), 115–120, and R. Talbert 'P.Artemid.: The Map' in Brodersen and Elsner, *Images and Texts*, 57–64. The present author believes the map and text to be unrelated, and that the map is a depiction of the Nile delta.

between AD 203 and 211¹¹. The plan is notable for its level of detail and also for its fairly remarkable adherence to a consistent scale. However, because of its localised scope – it encompasses only the city – the plan does not allow us to draw any conclusions about how larger spaces were expressed using cartographic means. Our remaining pieces of evidence – all of which will be discussed at greater length either in the present chapter or chapter four – consist of: two fragmentary floor mosaics, one discovered in Ammaedara (Tunisia), the other in Madaba (Jordan)¹²; a collection of marble fragments – found in and near Orange – from what may have been a public record of a large land survey; a small fragment of bronze from Spain that may also have been part of a surveyor's record¹³; and, finally, the *Tabula Peutingeriana*, a parchment copy of a cartographic document that is thought to have originated in late antiquity¹⁴.

Because the corpus of available material amounts to so little, it is necessary to base the majority of our investigation on descriptions from textual sources. However, even this approach is not without its problems. Neither Greek nor Latin has one specific word that refers only to a cartographic document¹⁵. Many Greek authors – including Herodotus, Strabo and Diogenes Laertius – use *πίναξ*, which simply means a tablet or panel, but often implies a flat surface for writing or painting; the equivalent in Latin is *tabula*, which, like *πίναξ*, merely suggests the surface rather than the artefact¹⁶. In Latin, however, the term most frequently used is *forma*, which, among several possible meanings, may refer to a shape, an outline or a graphical representation. Furthermore, there are several Latin sources in which the artefacts are mentioned obliquely, and we are left to infer their cartographic nature.

The fact that our sources for cartography in antiquity amount to little more than a handful of artefacts and a selection of reasonably vague literary descriptions has contributed to an unbalanced understanding of how cartographic representations were created and used in the Roman world. Some scholars, for instance, have attempted to

11 A reconstruction of the extant fragments has been published by E. Rodríguez Almeida *Forma urbis marmorea: aggiornamento generale 1980* in 2 vols. (Rome, 1981). A reconstruction with a searchable database of fragments and extensive bibliography may be found online at formaurbis.stanford.edu.

12 See chapter four, 229–34.

13 See below, 33–35.

14 See below, 63–75.

15 A partial list of Greek and Latin words with cartographic meanings may be found in Dilke, *Greek and Roman Maps*, 196–97.

16 In Medieval Latin, however, *tabula* would come to refer to a series of parchment sheets which had been sewn or glued together; see Bischoff, *Latin Palaeography*, 34.

fit all of the sources and artefacts into a unified model of cartographic consciousness¹⁷. At the other end of the spectrum, it has been proposed that none of the surviving literary or material evidence can be used to support claims for a Roman culture of cartography¹⁸. Neither of these approaches offer an ideal solution; however, if we start by re-examining the textual evidence, we may at least arrive at a more plausible model into which the surviving material evidence may be placed.

For the purposes of the present study we may propose the existence of two principal traditions, both of which yielded two very different types of cartographic document. The first is a local- or regional-scale cartography based on the records created by the agrimensores during the course of land-division and allocation. These *formae*, designed specifically for a local public records office (*tabularium*), contained a heavily annotated representation of a local area, and may have been written on parchment, engraved onto bronze tablets or carved into stone. The treatises of the land surveyors, combined with a small quantity of material evidence, allow us to suggest reconstructions for both the *formae* themselves, as well as the record-keeping process of which they were an integral part.

The second tradition – and perhaps the more contentious of the two – involved the representation of larger areas, ranging in size from a single region or province to the whole of the inhabited world. These artefacts may have primarily taken the form of wall paintings, and they would have been created as a means of illustrating geographical information collected from literary sources and ground-level assessment. This second species of cartographic creation seems to have been primarily decorative in nature and may not have presented a picture of the world that the modern viewer would recognise as accurate; for the Roman viewer, however, the accuracy of a representation may have come not from the presence of familiar shapes, but rather from the comprehensive presentation of places and place-names.

Of these two traditions, one was primarily administrative – more a record of land allocation than a pictorial representation – and the other was mostly decorative, albeit with a potential undercurrent of propaganda. We may note that neither of these traditions were concerned with navigation or orientation. As we will see in

¹⁷ See, for example, Dilke's chapters in Harley and Woodward, *HoC* 1, 177–279.

¹⁸ For instance, K. Brodersen *Terra cognita: Studien zur römischen Raumerfassung* (Hildesheim, 1995).

the next chapter, the Roman approach to movement through the space of the empire required only text and roads rather than cartographic diagrams. If the cartographic traditions of the Roman world do not conform to our current ideas of functional mapping, it is perhaps because the cartography produced in antiquity was intended for very different purposes.

regional cartography: the *formae* of the agrimensores

In the writings of the agrimensores, there is evidence to suggest that the act of creating records was an integral part of the survey and, moreover, that some of the records may have taken the form of cartographic documents. Frontinus, Hyginus and Hyginus Gromaticus all discuss the *forma*, a document that may, as we shall see, have represented an intermediate stage in the process whereby surveyed land was translated into a completely textual form; in Siculus Flaccus and Agennius Urbicus, we find examples of how *formae* were used in the arbitration of land disputes, and also how they may have fit into the imperial record-keeping process.

The exact nature of these *formae* is uncertain, and our attempts to reconstruct their appearance must be based largely on what we may infer from textual sources. There is, of course, a tradition of illustrations accompanying the treatises, which dates to the earliest extant manuscript, the Codex Arcerianus A¹⁹; illustrations from an alternative tradition may also be found in the ninth-century Vatican manuscript (Pal. lat. 1564)²⁰. Among these illustrations, several are distinctly cartographic in nature, insofar as they attempt to place topographic features – cities and rivers, for instance – into the context of a centuriated landscape. It was initially thought that the manuscript

19 See F. Castagnoli 'Le "formae" delle colonie romane e le miniature dei codici dei gromatici', *Atti della Reale Accademia d'Italia*, Series 7, Vol. 4/4 (1943), 83–118; O.A.W. Dilke 'Maps in the Treatises of Roman Land Surveyors', *GJ*, Vol. 127, No. 4 (1961), 417–426; id. 'Illustrations from Roman Surveyors' Manuals', *IM*, Vol. 21 (1967), 9–29; Carder, *Art Historical Problems*, 1–35.

20 Illustrations from both Arcerianus A and the Vatican manuscripts are reprinted in Thulin's edition of the *Corpus Agrimensorum*; they are described and classified in Dilke, 'Illustrations', 9–29.

illustrations may have descended from the *formae* of the agrimensores²¹, although it has more recently been demonstrated that the illustrations probably represent later interpretations of the practices discussed in the text²².

We are not, however, completely lacking in material evidence for survey-related cartography. In the nineteenth century, a series of incised stone fragments attracted some scholarly attention for their possible relationship to the agrarian systems described in the *Corpus Agrimensorum*²³; the fragments were thought to be part of a large publically-displayed stone plan depicting the centuriated areas around Roman Arausio (Orange)²⁴. Additional fragments continued to appear during the first half of the twentieth century – including a sizable group discovered in 1949²⁵ – and reconstructions of the stone plans were finally published in 1962²⁶. Not long after the publication, a part of the Musée d'Orange collapsed and a number of the fragments were lost. More recently, a small fragment of bronze containing several squares from what appears to be a centuriation grid was unearthed in Spain²⁷. The fragment is thought to be a small part of a *forma* illustrating the division of lands near the colony of Lacimurga²⁸.

Unlike the manuscript illustrations, the material evidence – fragmentary as it is – can be dated to the imperial period and may therefore be considered roughly contemporary with the practices described by the surveyors. However, if we are to arrive at some idea of how these apparently cartographic fragments fit into the processes of surveying and record-keeping, we must first examine the treatises and attempt to determine the role that *formae* may have played in the world of the agrimensores.

The *forma* probably began with a representation of the centuriation grid. Not only did the *limites* create the fixed units of land that made up the survey but, according to

21 The argument was initially put forward in A. Schulten 'Römische Flurkarten', *Hermes*, Vol. 33, No. 4 (1898), 534–65.

22 See Castagnoli, 'Le formae', 83–118; Dilke, 'Maps', 417–26; Carder, *Archerianus A*, 24–35.

23 For a bibliographical overview of the early scholarship, see A. Piganiol *Les Documents Cadastraux de la Colonie Romaine d'Orange* (Paris, 1962), 11–16.

24 For a brief introduction to the stones, see A. Chastagnol 'Les cadastres de la colonie romaine d'Orange', *Annales. Économies, Sociétés, Civilisations*, Vol. 20, No. 1 (1965), 152–159.

25 See A. Piganiol and J. Sautel 'Inscriptions cadastrales d'Orange', *Gallia*, Vol. 13, No. 1 (1955), 5–39.

26 In Piganiol, *Documents*.

27 Originally published in P. Sáez Fernández 'Estudio sobre una inscripción catastral colindante con Lacimurga', *Habis*, Vol. 21 (1990), 205–227, with a photo in *Habis*, Vol. 22 (1991), 437.

28 See J.-G. Gorges 'Nouvelle lecture du fragment de Forma d'un territoire voisin de Lacimurga', *Mélanges de la Casa de Velázquez*, Vol. 29, No. 1 (1993), 7–23.

Frontinus, they also provided a system by which the disposition of land could be represented graphically: ‘without measurable lines’, he tells us, ‘the truth of locations and their extent cannot be expressed²⁹’. Frontinus was not referring merely to the physical expression of particular areas, but specifically to their representation within a document. In the same passage he describes a method of rationalising irregular boundaries precisely so that they may be more easily transferred to the *forma*; ‘after writing down the boundaries of the space itself’, he says, ‘we render the true nature of the location³⁰’.

Hyginus Gromaticus confirms that the *formae* contained a representation of the centuriation grid. When discussing the merits of using *limites* as a means of dividing land, he comments not only on the utility of the enterprise, but also on the potential visual qualities: ‘the *formae* possess beauty, and moreover the disposition of the fields themselves is impressive³¹’. While the orthogonal properties may not have been immediately apparent from ground level, it may, in some cases, have been possible to command a view over the centuriated landscape; when displayed on a *forma*, however, the pleasing grid pattern of the land could be easily apprehended.

Not only did the *forma* contain a representation of the *limites*, but it may also have preserved the hierarchical distinction between the lesser *linearii* or *subrunciui* and the principal baselines – the *quintarii* and the *kardo* and *decumanus maximus* – which were prescribed, by law, to be of greater width³². According to Hyginus Gromaticus, this distinction was represented in the *forma* itself: when discussing the law providing for a wider *quintarius*, he tells us, ‘certainly the interpretation of this law would be doubtful, had the *formae* of the time not had a sixth *limes* of greater width³³’.

One may detect, in the writings of the surveyors, a curious relationship between the *limites* and their subsequent representation in the *forma*. In the world of the surveyors, the *limites* were not static axes beginning from a single point, but were rather described in terms of their movement across the land. Frontinus, for instance, tells us that the

29 *exprimi enim locorum aut modi ueritas sine rationalibus lineis non potest*. Frontinus *De Arte Mensoria* IV.1 = L 31.12 = T 15.6 = C 12.3.

30 *et adscriptis spatio suo finibus ipsam loci reddimus ueritatem*. Frontinus *De Arte Mensoria* IV.1 = L 31.12 = T 15.6 = C 12.3.

31 *formarum pulcher habitus, ipsorum etiam agrorum speciosa designatio*. Hyginus Gromaticus *Constitutio* I.2 = L 166 = T 131 = C 134.

32 See Hyginus *De Limitibus* L = 111.9 = T 71 = C 76 and Hyginus Gromaticus *Constitutio* L 194.9 = T 157.9 = C 152.22.

33 *erat sane interpretatio legis huius ambigua, nisi eorum temporum formae sextum quemque litem latiore haberent*. Hyginus Gromaticus *Constitutio* III.6 = L 174 = T 139 = C 140.

decumanus goes ‘from the east to the west’ and the *kardo* ‘from the south to the north’³⁴. Hyginus Gromaticus tells us that systems of *limites* sometimes face east or west, but in accordance with the orientation of temples, they should be established to face east³⁵.

The notion of ‘facing’ was central to the surveyors’ conception of the land: the identification of *centuria* – using a perceptual system of right and left (*dextra* and *sinistra*), this side and that side (*citra* and *ultra*) – implied the presence of an observer within the surveyed space. We may wish to suggest that this perceptual system was preserved in the *formae*: the top of the empty page perhaps represented the viewpoint of the surveyor, while the movement and direction implied by the descriptions of *limites* also described how those *limites* were drawn; the movement of the *limes* through the landscape would correspond to the movement of the surveyor’s stylus on the page.

Regardless of how the *forma* was oriented, the centuriation grid would have offered the surveyor a rational framework by which amorphous spaces could be represented, and into which topographical features could be situated. Unlike the irregularities of unsurveyed land, the grid would not have been difficult to translate onto the writing surface. Indeed, it would have been possible for a surveyor to create an approximate representation of the surveyed land without actually seeing the land itself; he would have only needed to know how many lines to draw in any one direction. Indeed, in some of the later manuscript illustrations, the grid is often used simply as an iconographic indicator of surveyed land³⁶.

The centuriation grid would have provided an easy means of translating larger surveyed areas onto the page; it may also have acted as a cartographic foundation for the depiction of unsurveyed land and *ager arcifinius*. Frontinus, for instance, mentions that both measured private land and land that has been excepted from the survey should be included in the *forma* in the same way as centuriated land³⁷. The practice is confirmed by Hyginus Gromaticus, who offers several passages detailing how different types of land should be

34 [...] *decumani ab oriente in occidentem diriguntur, kardines a meridiano in septentrionem*. Frontinus *De Limitibus* L 31 = T 14.11 = C 10.27.

35 *quare non omnis agrorum mensura in orientem potius quam in occidentem spectat. in orientem sicut aedes sacrae [...] sic et limites in orientem constituuntur*. Hyginus Gromaticus *Constitutio* L 170 = T 134.15 = C 136.13.

36 See, for instance, T figs. 35 and 37 (= L figs. 36 and 38).

37 [...] *in formam in modum limitati condiderunt*. Frontinus *De Agr. Qual.* L 5 = T 2 = C 2.12.

entered in the *forma*³⁸. He tells us that boundaries of areas that have been granted or excepted – that is to say, private lands not subject to regional administration – must be marked out in the *forma*, and the status must be written down³⁹; public lands, such as forests and pastures, that exist within the surveyed area should also be included⁴⁰. Furthermore, Hyginus Gromaticus instructs us that we should ‘fill the space with writing, so that the width of the area is represented in the *forma* by the wide disposition of the letters⁴¹’. It is clear from this instruction that the words themselves were being used to represent physical characteristics within the cartographic space of the *formae*⁴².

Although text was clearly essential to the translation of surveyed land, there would have also been room for non-textual or iconographic representation in the *forma*. Both Hyginus and Agennius Urbicus mention the presence of rivers, although it is unclear how they would have been represented. Agennius Urbicus mentions, only in passing, that certain *formae* demonstrate how no width was granted for rivers⁴³; the reference suggests that the rivers were iconographic, even if they were of insufficient width to accurately represent the space occupied by the river.

The passage in Hyginus, on the other hand, suggests a more textual approach; he tells us how, in some *centuriae*, the space occupied by the river has been excluded from the total area. This exclusion took the form of a note, possibly on the *forma*, reading FLVMINI TANTVM and the width of the bed⁴⁴. We cannot be sure if this note was intended to accompany an iconographic depiction of the river, or if it was merely included as text in the record of allocation. In general, it would seem that textual representation was preferable. Hyginus Gromaticus lists several of the other features which should be entered into the *forma* – he mentions groves, sacred places and temples or shrines – but his idea of inclusion seems to consist of merely writing down their names⁴⁵.

38 Hyginus Gromaticus *Constitutio* L 196.15 = T 159.18 = C 154.17 et seq.

39 *eadem ratione terminabimus fundos exceptos siue concessos, et in forma sicut loca publica inscriptionibus demonstrabimus*. Hyginus Gromaticus *Constitutio* L 196.[?] = T 159.[?] = C 154.23.

40 [...] *in forma ita erit ostendemus, SILVAS siue PASCVA PVBLICA siue utrumque*. Hyginus Gromaticus *Constitutio* L 196.15 = T 159.18 = C 154.17.

41 *quatenus erit, inscriptione replibimus, ut et in forma loci latitudinem ravior litterarum dispositio demonstret*. Hyginus Gromaticus *Constitutio* L 196.15 = T 159.18 = C 154.17.

42 This principle is illustrated in T fig. 123 (= L fig. 181).

43 *nam et deductarum coloniarum formae indicant, ut multis fluminibus nulla latitudo sit relicta*. Agennius Urbicus *De Controv.* L 83.9 = T 43.12 = C 40.9.

44 *Fluminium autem modus in aliquibus regionibus intra centurias exceptus est, id est adscriptum FLVMINI TANTVM, quod alueus occuparet*. Hyginus *De Cond. Agr.* L = T 83.7 = C 86.30

45 *Aequae lucus aut loca sacra aut aedes quibus locis fuerint, mensura comprehendemus, et locorum uocabula inscribemus*. Hyginus Gromaticus *Constitutio* L = T 161.8 = C 156.6.

In fact, apart from the grid itself, it is difficult to determine whether or not our *formae* contained anything in the way of iconographic representation. Indeed, from the evidence in the treatises, we would be forced to conclude that in translating the centuriation grid onto the page, the surveyors were merely creating a cartographical frame into which textual information about each *centuria* could then be placed. If this was the case, then we might suspect that the *formae* described by the surveyors were not cartographic documents at all, but were something more like notes for a permanent land record that would be constructed once the whole survey had been completed.

It is necessary, at this point, to say a few words about the surfaces onto which the *formae* were drawn. The widely-held assumption is that they were inscribed onto bronze⁴⁶; we can certainly find evidence of this in Siculus Flaccus, who mentions that ‘some have carved *formae* in bronze, that is to say they wrote them onto a bronze tablet⁴⁷. Hyginus, likewise informs us of a surveyor who, when called upon to divide some land in Pannonia, marked the *limites* ‘in bronze, that is, in the *formae*⁴⁸. Bronze, as we know, was not an uncommon medium on which to record information in the Roman world, and there are numerous descriptions of official or legal texts being inscribed in bronze for public display⁴⁹. However, because bronze may be melted down and refashioned, surviving artefacts from the Roman world are scarce. Despite what the surveyors may tell us, the Lacimurga fragment is, as of thus far, the only evidence we have to confirm that bronze was used as a surface for the *formae*.

While it certainly would have been possible for a *forma* to be inscribed onto bronze, such a practice may have been an exception. It seems more probable that information gathered in the field during the survey itself would have been recorded onto a less demanding surface. The most widely available writing surfaces of the imperial era would have been papyrus, wax tablets, thin pieces of uncoated wood and – with

46 For instance: ‘These maps were normally on bronze’, Dilke, *Roman Land Surveyors*, 112; ‘Maps and some other records were generally carved in bronze’, in Campbell, ‘Shaping’, 88; ‘Their survey maps were also exhibited in bronze’, in Talbert ‘Greek and Roman Mapping’, 9.

47 *quidam formas [...] in aere scalpserunt, id est, in aereis tabulis scripserunt*. Siculus Flaccus *De Cond. Agr.* L 154.13 = T 118.16 = C 120.22.

48 *in aere, id est in formis*. Hyginus *De Cond. Agr.* L 121.7 = T 84.8 = C 88.10.

49 On the use of bronze as a medium for record-keeping, see M.W. Frederiksen ‘The Republican Municipal Laws: Errors and Drafts’, *JRS*, Vol. 55, No. 1/2 (1965), 183–98; C. Williamson ‘Monuments of Bronze: Roman Legal Documents on Bronze Tablets’, *Classical Antiquity*, Vol. 6, No. 1 (1987), 160–83, and A.W. Lintott *Judicial Reform and Land Reform in the Roman Republic* (Oxford, 1992).

greater frequency from the second century AD onward – parchment⁵⁰. These surfaces would have required a stylus or brush and would thus have allowed information to be recorded quickly and efficiently⁵¹. According to Siculus Flaccus, *formae* could be drawn onto wooden tablets, bronze or parchment⁵².

Matters are confused somewhat by the presence of another form of surveyor's record known simply as the bronze (*aes*) or bronze tablet (*tabula aeris*). Although it has been assumed that the *tabula aeris* is simply another name for the *forma*, numerous passages in the *Corpus agrimensorum* suggest that the two items were, in fact, different. Siculus Flaccus, discussing the difficulties of dealing with *ager arcifinius*, informs us that 'there is no bronze record, no *forma*, which provides official evidence for the owners⁵³'. Agennius Urbicus, likewise, describes a scenario where a survey is undertaken 'according to the demands of the bronze and the *forma*⁵⁴'. The distinction is also preserved in Hyginus, who discusses information contained both in the bronze and in the written (or drawn) *forma*⁵⁵. Finally, Hyginus Gromaticus tells us that we should indicate lands of different status 'both in the *forma* and in the *tabula aeris*⁵⁶'. These passages all suggest that the *forma* and the *tabula aeris* represent two distinct elements of the surveyor's record.

If the *forma* made at least some attempt to preserve the arrangement of the land within a cartographic framework, the *tabula aeris*, from what we can tell, appears to have been primarily textual. Once again, it is Hyginus Gromaticus who provides us with our best evidence: he informs us that the land allocations – which are initially noted down on wax tablets – should be inscribed onto the bronze record in the following manner:

50 For an introduction to the writing surfaces of antiquity, see E. Maunde Thompson *An Introduction to Greek and Latin Palaeography* (Oxford, 1912), 21–38; Bischoff, *Latin Palaeography*, 7–16; A.K. Bowman and J.D. Thomas *Vindolanda: The Latin Writing Tablets*. Britannia Monograph Series No. 4 (London, 1983), 32–34; and, L.D. Reynolds and N.G. Wilson *Scribes and Scholars: A guide to the transmission of Greek and Latin literature*. Third Edition. (Oxford, 1991), 34.

51 On the writing implements see, Maunde Thompson, *Greek and Latin Palaeography*, 39–43 and Bischoff, *Latin Palaeography*, 18–19.

52 *quidam in arboreis tabulis, alii in aenis, alii in membranis scripserunt*. Siculus Flaccus *De. Cond. Agr.* L 154.13 = T 118.16 = C 120.22.

53 *horum ergo agrorum nullum <est> aes, nulla forma, quae publicae fidei possessoribus testimonium reddat*. Siculus Flaccus *De. Cond. Agr.* L 138.11 = T 102.9 = C 104.29.

54 *in his agris exigetur fere mensura secundum postulationem aeris formarumque*. Agennius Urbicus *De Controv.* L 83.9 = T 43.12 = C 40.9.

55 [...] *qui aere et in scriptura formae continentur*. Hyginus *De Gen. Controv.* L 131.14 = T 94.20 = C. 96.28.

56 *omnes aeris significationes et formis et tabulis aeris inscribemus*. Hyginus Gromaticus *Constitutio* L 202.11 = T 164 = C 158.26.

D.D. XXXV V.K. XLVII L. TERENTIO L. FILIO POLLIA IVGERA LXVI⁵⁷.

We can see here how the centuriation grid would have provided the record-keeping process with a system of land identification that essentially rendered cartographic representation unnecessary.

Was the *forma*, then, simply a rough draft for the more permanent, and more textual *tabula aëris*? There is definitely a sense that the *tabula aëris* was viewed as having greater authority: Siculus Flaccus, for instance, advises us that ‘what appears in the *tabula aëris* may be seen as the truth⁵⁸’. However, it is apparent that both documents were kept as part of the official records. Hyginus Gromaticus informs us that both the bronze records (*libri aëris*) and a ‘plan of measurements of the whole area as drawn with lines’ should be placed in the imperial *tabularium*⁵⁹; furthermore, ‘signed copies of anything pertaining to the surveyor’s documents should be held not only by the colony, but also in the *tabularium*⁶⁰’.

A similar arrangement is discussed by Siculus Flaccus: the imperial *sanctuarium*, he tells us, contains *formae* of all the lands, divisions and allocations, along with textual records (*commentarii*) of those divisions and allocations⁶¹. It has been suggested that the *commentarii* of Siculus Flaccus and the *libri aëris* of Hyginus Gromaticus – both kept in the imperial *tabularium* – were not, themselves, inscribed onto bronze, but rather were copies on papyrus or parchment of the information from the *tabulae aëris*, which would have been kept in the local *tabularium*⁶².

We may see, in any case, how the process of land allocation involved the creation and storage of two distinct records: a cartographic *forma* and a textual *tabula* existed in duplicate, one kept on site at the colony, and one stored in a central record-office. Although it is possible that records for all colonies were stored in the *tabularium* at Rome, it is equally possible that the records were sent to the *tabularia* in the regional

57 Hyginus Gromaticus *Constitutio* L 200 = T 163 = C 158.

58 *illa tantum fides uideatur, quae aëreis tabulis manifestata est*. Siculus Flaccus *De. Cond. Agr.* L 154.13 = T 118.16 = C 120.22.

59 *libros aëris et typum perticae totius lineis descriptum secundum suas determinationes adscriptis ad finibus tabulario Caesaris inferemus*. Hyginus Gromaticus *Constitutio* L 202.11 = T 164 = C 158.26.

60 *et quidquid aliud ad instrumentum mensorum pertinebit, non solum colonia sed et tabularium Caesaris*. Hyginus Gromaticus *Constitutio* L 202.11 = T 164 = C 158.26.

61 *omnium enim agrorum et diuisionum et assignatorum formas, sed et diuisionum et assignationum commentarios, et principatus in sanctuario habet*. Siculus Flaccus *De. Cond. Agr.* L 154.13 = T 118.16 = C 120.22.

62 See Dilke, *Greek and Roman Maps*, 97 and Nicolet, *Space, Geography and Politics*, 153.

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FIG. 1.1 The Lacimurga Fragment (from *Habis*, Vol. 22 (1991), 437).

capitals⁶³. Either way, it seems that both *forma* and *tabula* were essential to the administration of the land.

If the bronze record was seen as more reliable and authoritative, why was it so important to preserve the *forma*? We have discussed how the *forma* was essentially an intermediate stage between the survey itself and the creation of a purely textual record; when land disputes arose, however, the *forma* allowed the surveyor to translate the information from the bronze record back into an image of the physical landscape. Both Hyginus and Agennius Urbicus describe situations where an individual is in possession of the same quantity of land that he was allocated, even though the land itself does not necessarily occupy the original area of his allocation. ‘How, therefore, can the bronze record be used, if it agrees with the holdings of the two parties in dispute?’ asks Hyginus⁶⁴.

In cases of legal dispute, Agennius Urbicus tells us, the land must be made to conform to the image presented in the *forma*; the measurement of the land may correspond to the written record, but the surveyor must ensure that the disposition of the land reflects the way in which it was initially allocated⁶⁵. Thus, despite the rudimentary

⁶³ On which, see Platner and Ashby, *Topographical Dictionary*, 506–508 and L. Richardson *A New Topographical Dictionary of Ancient Rome* (Baltimore, 1992), 376–7. Dilke, *Greek and Roman Maps*, 97, implies that all records were kept centrally.

⁶⁴ *ergo ad aes quomodo perueniri potest*. Hyginus *De Gen. Controv.* L 132 = T 95 = C 96.28.

⁶⁵ Agennius Urbicus *De Controv. Agr.* L 78 = T 38 = C 34.12f

character of the *formae* that we have been able to determine from the sources, we must conclude that these documents were essential to the record-keeping process precisely because of their cartographic nature. The textual record may have been more desirable as a permanent record, but the *forma* was necessary to translate back and forth between the text and the land.

The two surviving pieces of material evidence associated with Roman land surveying practices – the Lacimurga fragment and the cadastral stones from Orange – are both inscribed onto durable materials, in this case, bronze and stone. Although it is possible to suggest that they were designed as permanent records, their appearance is more consistent with the cartographic documents created during the survey itself; they are both, it may be argued, examples of *formae* rather than *tabulae*.

The Lacimurga fragment preserves one partial and two full *centuriae*; each one is marked CCLXXV, indicating presumably that each of the squares represents 275 *iugera*⁶⁶. The *centuriae*, however, are not labelled in terms of their distance from the *kardo* or *decumanus maximus*, nor is there any indication that the land has been allocated. If we accept the suggestion that the fragment represents the edge of a surveyed area (bordering the region of Lacimurga), it may be that the *centuriae* represented had been surveyed, but were simply unoccupied⁶⁷. We may also suggest that the fragment is part of a bronze *forma* created during the initial survey but before the allocation stage. Until further fragments are discovered, it remains difficult for us to draw any firm conclusions.

We may, however, note several interesting iconographic details. Firstly, there is a representation of the river Ana cutting through the partial *centuria*⁶⁸. Although the river is named, it is not annotated in any way and is represented merely as a single line; it would seem to indicate only that a river passed through the *centuria* in question. Secondly, the two complete *centuriae*, although nominally representing areas of equal size, do not, in fact, occupy the same cartographic space. From this, we may suggest that the representation was not meant to convey an accurate image of the land, so much as provide a semblance of the grid that could later be populated with text.

66 Centuria of larger than 200 *iugera* were not uncommon in the provinces; see, Frontinus *De Limitibus* L 30.5 = T 14 = C 10.16; Siculus Flaccus *De Cond. Agr.* L 159.9 = T 123.19 = C 126.6; Hyginus Gromaticus *Constitutio* L 170.17 = T 135.15 = C 136.28.

67 For suggestions concerning what the fragment represents, see Gorges, 'Lacimurga', 15–22.

68 Sáez, 'Lacimurga', 206; Gorges, 'Lacimurga', 12.

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FIG. 1.2 Cadastre B, III J
(from Piganiol, *Documents
Cadastraux*, facing 229)

In the cadastral stones from Orange we find similar iconographic elements. The central graphic presence in the cadasters is the centuriation grid, which appears as a series of largely undifferentiated lines; only the *kardo* and the *decumanus maximus* are rendered as a double line, thus granting them a greater width. Rivers are also a frequent presence: unlike in the Lacimurga fragment, they are identified within the cartographic space as two wavy lines⁶⁹; the varying width of the rivers could suggest

⁶⁹ See, especially, Cadaster B, III J (Piganiol, facing 229) and Cadaster C *Insulae Furianae* section (Piganiol, facing 295).

some attempt to convey topographic reality, and might therefore correspond to the descriptions in Hyginus.

The most prominent feature of the cadasters, however, is text. The centuriation grid merely divides the stones into discreet units that may then be filled with a location – given in terms of the distance from *kardo* and *decumanus maximus* – information about the type of land, the number of *iugera* and, in some cases, the names of the land-holders. The presentation of such information suggests that the cadasters were inscribed after the allocation process; from this, one may wish to argue that they are an example of the more permanent records kept in the *tabularium*, like a *tabula aeris*, but carved in stone instead of bronze.

However, for all that the cadasters may resemble a record of landholding, their immense size – it has been suggested that Cadaster B was nearly twenty roman feet in height⁷⁰ – would imply that they were intended for public display, perhaps on the outer wall of the local *tabularium*⁷¹. The arrangement of the surveyor's *forma* may, thus, have provided the foundation for what is, essentially, just a monumental inscription. Given the importance of monumental writing within the Roman built environment, it does not seem unreasonable to suggest that, despite whatever cartographic characteristics the cadastral stones may have possessed, it was the presentation of text that had the greatest resonance for the audience in Arausio⁷².

The grid of *limites* established by the Roman land surveyors may have enabled the easy translation of the landscape into a cartographic representation; however it does not appear that the surveyors went much further than the grid in what they chose to represent. Although the grid seems to have had the cartographic side-effect of offering a framework for plotting the courses of rivers, its real advantage was that it provided a series of empty squares that could be filled with text. In the end, the textual presentation

⁷⁰ Piganiol, *Documents Cadastraux*, 136, proposes a height of 5.90 metres, which he translates as twenty Roman feet.

⁷¹ On the presentation of the stones, see J.H. Oliver 'North, South, East, West at Arausio and elsewhere' in R. Chevallier (ed.) *Mélanges d'archéologie et d'histoire offerts à A. Piganiol* Vol. 2 (Paris, 1966), 1075–79 and F. Salviat 'Orientation, extension et chronologie des plans cadastraux d'Orange' in *Revue Archéologique de Narbonnaise* Vol. 10 (1977), 107–18.

⁷² On the presence and uses of monumental inscriptions in the Roman world, see R. MacMullen 'The Epigraphic Habit in the Roman Empire', *AJP*, Vol. 103, No. 3 (1982), 233–46; E.A. Meyer 'Explaining the Epigraphic Habit in the Roman Empire: The Evidence of Epitaphs', *JRS*, Vol. 80 (1990), 74–96; and G. Woolf 'Monumental Writing and the Expansion of Roman Society in the Early Empire', *JRS*, Vol. 86 (1996), 22–39.

of land was of greater importance to the Roman surveyor – and, perhaps, the Roman viewer – than any kind cartographic display.

The cartographic stage of the process, however, was a necessary mid-point between the land itself and its subsequent textual representation; it was through the *forma* that surveyed land could be allocated, and it was the *forma* that allowed the textual records of allocation to be compared to what existed on the ground. Although the cartographic stage could, in some cases, result in a monumental display, the value of such a display would not have been the graphical representation of spatial relationships within the landscape, so much as the textual evidence for landholding.

From the treatises of the agrimensores and the few pieces of surviving material evidence, we are forced to conclude that regional cartography in the Roman world was not necessarily a goal unto itself, but was rather the by-product of a desire to create efficient records of larger areas of land. The *formae* that resulted from the survey may not have offered anything close to a scale representation of the topographical features within a particular area, but they were very much an illustration of the construction processes that allowed them to exist.

large-scale cartography I: *chorographia* and the emergence of a roman tradition

In the Greek tradition, geography and cartography were inseparable; if we struggle to find a word that refers specifically to the creation of a cartographic document, it is simply because γεωγραφάφω would have sufficed⁷³. According to Strabo and his predecessor Hipparchus, it was the poetic descriptions of Homer that provided the classical world with its first comprehensive body of geographical knowledge⁷⁴; in the centuries that followed, Homer's vision continued to be refined and expanded. As Greek geographers developed a more precise understanding of world's limits and contents, it

⁷³ See, for instance, Strabo II.1 and Ptolemy *Geog.* I.1–2.

⁷⁴ ἀρχηγέτην εἶναι τῆς γεωγραφικῆς ἐμπειρίας Ὀμηρον. Strabo I.1.2. For an overview of Homer's geographical understanding, see Strabo I.1.2–10.

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FIG. 1.3 The *oikoumene*, as described by Strabo (from H.L. Jones, Strabo).

would have become possible to transform that geographical knowledge into a pictorial representation of increasing accuracy.

By the fourth century BC – and perhaps much earlier – there would have been a reasonably well defined understanding of the inhabited world and its place within the larger cosmological order. The world itself was a sphere divided into five zones: the northern- and southernmost zones were uninhabitable due to extreme cold, while the central zone was too hot to permit human existence. Only the two temperate zones offered a suitable climate in which life could flourish⁷⁵. In the northern temperate zone, there was an island – the *oikoumene* – which represented the whole of the inhabited world. The *oikoumene* itself was understood to be an elliptical land mass, roughly twice as long as it was high, and divided into three continents – Europe, Asia and Libya (or Africa) – that surrounded a central sea. The tripartite model of the *oikoumene* would go largely unchallenged until the end of the Medieval period.

Using this arrangement as a starting point, classical geographers sought to refine both the shapes and the measurements associated with geographical knowledge. One of the most celebrated geographers of the classical world, Eratosthenes of Cyrene – writing in the third century BC – had little time for the geographical descriptions of poets, claiming that they were prone to fabrication and exaggeration⁷⁶; instead, Eratosthenes sought a mathematical basis for understanding the world. Not only did he arrive at a

⁷⁵ A summary of the different theories about the arrangement of the world may be found in Strabo II.ii–iv. However a similar model is attested, centuries earlier, in Aristotle *Meteor.* II.5.

⁷⁶ Strabo I.2.3, 7, 12 and 17.

remarkably accurate calculation of the earth's circumference, but he also composed a three volume work which – although it has not survived – would act as the foundation for geographical knowledge throughout classical antiquity⁷⁷.

Over the centuries to follow, geographers such as Hipparchus, Poseidonius, Polybius and Artemidorus would challenge, dismiss or refine the image of the world proposed by Eratosthenes⁷⁸. Indeed, by the time Strabo was composing his own geographical work, at the end of the first century BC, both the broad outline and the internal topographical features of the *oikoumene* would have been well established⁷⁹; however, in Strabo's *Geography* there is a sense that information obtained during the recent wave of Roman military expansion had contributed greatly to the geographer's understanding of the world. As Strabo himself acknowledges:

the spread of the empires of the Romans and of the Parthians has presented to geographers of today a considerable addition to our empirical knowledge of geography, just as did the campaign of Alexander to the geographers of earlier times⁸⁰.

While classical geographers may have been primarily interested in the empirical knowledge that came from astronomical observations and calculations of distance, many of them would have also included extensive descriptions of the inhabited world alongside the more explicitly mathematical passages of their treatises. While Eratosthenes and his successors are considered representatives of the Greek mathematical tradition, we should not imagine that their works consisted only of arguments about numbers. There was, however, a tradition of geography that was purely literary; these works – often in verse – ignored the mathematical aspect entirely, and sought only to describe the arrangement of places within the *oikoumene*.

77 On the life and achievements of Eratosthenes, see E.H. Bunbury *A History of Ancient Geography* in 2 vols. (London, 1879), I, 615–60. While his text has not survived, attempts have been made to collect and edit the various fragments which have been preserved in other classical texts: see *Die Geographischen Fragmente des Eratosthenes* ed. H. Berger (Leipzig, 1880) and the more recent english translation in D.W. Roller *Eratosthenes' Geography* (Princeton, 2010).

78 The lives and theories of these geographers are preserved primarily in Strabo, especially books I and II. See also, Bunbury, *Ancient Geography* I, 1–101; J.O. Thomson *History of Ancient Geography* (Cambridge, 1948) 152–168; see also C. Nicolet *Space, Geography and Politics in the Early Roman Empire* (Ann Arbor, 1991) 57–74 and Dilke, *Greek and Roman Maps*, 21–38.

79 On the life of Strabo, see D. Dueck *Strabo of Amasia: a Greek man of letters in Augustan Rome* (London, 2000). On his contributions to geography, see For an overview Strabo's conception of the world, see C. van Paassen *The Classical Tradition of Geography* (Groningen, 1957), 1–31 and G. Aujac 'Greek Cartography in the Early Roman World' in *HoC* 1, 161–76 (at 173–75). A reconstruction of Strabo's *oikoumene* may be found in the second volume of Bunbury, *Ancient Geography* II, facing 238. The dating of Strabo's text is discussed below, 56.

80 και γὰρ δὴ πολὺ τι τοῖς νῦν ἢ τῶν Ῥωμαίων ἐπικράτεια καὶ τῶν Παρθυαίων τῆς τοιαύτης ἐμπειρίας προσδέδωκε, καθάπερ τοῖς μετὰ τὴν Ἀλεξάνδρου στρατεία. Strabo I.2.1 (trans. H.L. Jones).

From Cicero and Strabo we learn of a poem in three parts – one part for each continent – composed by Alexander of Ephesus, perhaps at the beginning of the first century BC⁸¹. Although Alexander’s poem has not survived, it appears to have been well-known in the century after its initial appearance; it is thought to have inspired the Latin poet Varro Atacinus to write a descriptive geographical work of his own⁸², and was also used as source by Cicero, who contemplated – but soon abandoned – the idea of writing a literary geography⁸³. While Cicero may not have been up to the task, the idea of the literary geography appears to have remained popular during the early imperial centuries: the two best surviving examples – Pomponius Mela’s prose description of the world and the verse description of Dionysius Periegetes – will be discussed in the following chapter⁸⁴.

Sources from antiquity suggest that, from the outset, pictorial representations of the world were produced alongside textual geographies⁸⁵. The first cartographical image of the *oikoumene* is thought to have been created by Anaximander of Miletus, who lived during the sixth century BC: Strabo, quoting Eratosthenes, claims that Anaximander produced the first geographical panel⁸⁶, while Diogenes Laertius, writing in the third century AD, informs us that he was the first to ‘draw the world and the sea’ and also the first to ‘construct a globe’⁸⁷. From a handful of references in ancient literature – notably two passages in Herodotus – we may suggest that cartographic representations of some description continued to be produced in the following centuries⁸⁸.

Cartographic practices may have undergone something of a revolution in the third century. Eratosthenes, in the third book of his geographical treatise, is said to have provided instructions for the creation of an image of the world; while such

81 Strabo XIV.i.25. Cicero *Ad Atticum* II.22.7 claimed that Alexander was no great poet, but valued the poem for its geographical information.

82 Varro’s poem has survived only in fragments, which are collected in A.S. Hollis *Fragments of Roman Poetry c.60 BC–AD 20* (Oxford: Oxford University Press, 2007).

83 Cicero *Ad Atticum* II.4.3 and II.7.1, writes of immersing himself in geographical source material – including Eratosthenes – in preparation; he later pronounced himself ill-suited to the task (*Ad Atticum* II.6.1).

84 See chapter two, 94–98.

85 On the earliest classical cartography, see G. Aujac ‘The Foundations of Theoretical Cartography in Archaic and Ancient Greece’ in *HoC* 1, 130–47.

86 τὸν μὲν οὖν ἐκδοῦναι πρῶτον γεωγραφικὸν πίνακα. Strabo I.i.11. Agathemerus *Geographiae Informatio* I.i (*GGM* II, 471), also credits Anaximander with drawing a ‘panel of the inhabited world’ (τὴν οἰκουμένην ἐν πίνακι γράψαι). The significance of the word πίναξ is discussed below, 48.

87 καὶ γῆς καὶ θαλάσσης περίμετρον πρῶτος ἔγραψεν [...] ἀλλὰ καὶ σφαῖραν κατεσκεύασε. Diogenes Laertius *Vit. Phil.* II.i.

88 Herodotus IV.36 and V.49.

images had existed previously, the older versions apparently possessed numerous errors and were in need of extensive revision⁸⁹. As a way of correcting these inaccuracies, Eratosthenes may have proposed a completely new method for creating a cartographic representation, one that involved projecting locations onto a grid of meridians. The system may not have been perfect in its original form; Hipparchus apparently devoted much of his own treatise to criticising and correcting the baselines proposed by Eratosthenes⁹⁰. However, the basic idea of projected cartography became widely adopted among classical geographers.

At the beginning of the imperial period, the cartographic methods employed by Strabo may not have differed much from those proposed by Eratosthenes; just over a century after Strabo, the geographer Marinus of Tyre is reported to have used a similar projection⁹¹. The central problem with this projection, however, is that it attempted to transpose a segment from a sphere onto a flat rectangular surface. For Strabo this was a minor concern: while the geographer should ideally project his image of the *oikoumene* onto a globe, it was equally possible – and in some cases more desirable – to project it onto a flat panel using a system of orthogonal meridians; according to Strabo, the distortion resulting from such a projection would be negligible⁹².

Ptolemy, however, was not of the same opinion: in his famous geographical treatise – composed around the middle of the second century AD – he proposed two new projections that took into account the curvature of the earth and allowed the *oikoumene* to be represented more accurately on a flat surface⁹³. Ptolemy's *Geography* was a further refinement of the Greek tradition that had started with Eratosthenes; however it was also a reaction to the unscientific practices that were starting to compromise the standards of that tradition, and an attempt to re-assert the primacy of mathematical geography. Throughout his introduction Ptolemy remains sceptical of any information that was gathered from road distances, descriptive texts or, essentially, any source that was not an astronomical sighting; in the body of his text we find that any potentially

89 Strabo II.1.1–2.

90 See, especially, Strabo II.1.22 and 27.

91 The work of Marinus – who lived and wrote in the time of Trajan – is known only through fragments preserved in Ptolemy's *Geography*; on the projection used by Marinus, see Ptolemy *Geog.* I.22. See also Bunbury, *Ancient Geography*, 519–45 and Dilke, *Green and Roman Maps*, 78–79.

92 Strabo II.5.10.

93 On the Ptolemaic projections, see Berggren and Jones, *Ptolemy's Geography*, 31–41; Dilke, *Green and Roman Maps*, 78–79.

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FIG. 1.4
Ptolemy's second projection
(from *HoC* 1, 187)

misleading descriptions have been removed, and in their place we find only lists of locations and their coordinates.

While Ptolemy may have been creating new standards of accuracy for cartographic representation, it seems probable that his work did not reflect the cartographic practices that had become prevalent in the imperial Roman world. The existence of Ptolemy's treatise has led many nineteenth- and twentieth-century scholars to assume that Ptolemaic cartography – that is to say, images of the world that were accurate and roughly to scale – was the dominant form of cartographic expression in the imperial period. In fact, Ptolemy's geographic ideals may have been too abstract and theoretical to meet the cartographic aims of the Roman world.

If the existence of a Roman cartographic tradition remains obscure, it is not necessarily because we lack the evidence, but rather because the assumption that imperial Rome simply adopted the Greek mathematical tradition has caused us to misinterpret the evidence that survives. In fact, from the time of Augustus onward, we can trace the emergence and development of a uniquely Roman tradition of cartographic display. This alternative tradition – which we shall investigate presently – reflected the imperial desire for enumeration and monumental presentation; while the Greek mathematical tradition continued to be refined by specialists such as Marinus and Ptolemy, it may

have been largely eclipsed by a mode of expression that was better able to convey the *oikoumene* as it was understood in the Roman world.

We may begin our search for this alternative tradition by examining the literary evidence for cartography in pre-Augustan Rome. There are, in particular, four passages worth mentioning. The first is a description from Livy of a tablet set up by Tiberius Sempronius Gracchus in 174 BC; on this tablet was inscribed ‘the shape (*forma*) of Sardinia, along with paintings of battles that had taken place there⁹⁴. Although Livy is probably not using *forma* in a strictly cartographic sense, the attempt to situate depictions of historical events within the spatial framework of a recognisable shape should, at very least, suggest some cartographic ambitions.

A further example can be found in Varro’s agricultural manual *De Re Rustica*: near the beginning, the author arrives at a temple to find some acquaintances looking at a ‘painting of Italy’ on the wall⁹⁵. Again, the nature of the artefact is uncertain: the painting could easily be something along the lines of a landscape. However, the subsequent conversation, which discusses the place of Italy within the larger world – and which, interestingly, makes specific reference to Eratosthenes – allows us to consider the possibility that the painting had some kind of cartographical function.

We may also briefly mention an elegy of Propertius in which Arethusa, writing to her husband who is away on campaign, describes how she is compelled to study a *tabula* containing images of the various parts of the world⁹⁶. Although none of our examples employ a single word which refers unquestionably to a cartographic document, it is curious to notice the presence of variations on ‘*picta*’, a word which can simply refer to drawing or embroidery, but is often used in the sense of painting. Our examples, therefore, consist of a painted image of Sardinia, a painting of Italy and a panel painted with images of the various nations; each of the three seem to imply that the artefact in question was intended for public display.

The possible connection between wall paintings and representations of geographical knowledge is further strengthened by a passage from Vitruvius. In the eighth book – which deals primarily with water – there is some discussion of the theory that rivers

94 *Sardiniae insulae forma erat, atque in ea simulacra pugnarum picta*. Livy XLI.28.10.

95 [...] *spectantes in pariete pictam Italiam*. Varro *De Re Rust.* I.2.1.

96 *Cogor et e tabula pictos ediscere mundos*. Propertius *Eleg.* IV.3.37.

travel underground; in order to back up his argument, Vitruvius informs us that ‘evidence of this may be found in the sources of rivers as they are depicted and described in chorographies of the world⁹⁷’. The chorographies in question would certainly appear to be cartographical in nature: even from this brief description we may surmise that they contained a pictorial representation, possibly painted, of the whole world⁹⁸.

Chorography, of course, is problematic, both as a word and a concept. Etymologically, it is a simple compound of the verb *γράφω* – to write, or draw – and either *χώρος* or *χώρα*⁹⁹. Both are spatial words: *χώρα* often refers to land or country in an indefinite, non-political sense, while *χώρος* refers to a piece of finite or bounded land, neither as large and encompassing as *γῆ* or *κόσμος*, but less specific than *τόπος*; as with our definition of landscape, *χώρος* may suggest a unit of land whose existence depends on the apprehension or experience of an observer¹⁰⁰. In modern scholarship, chorography – when discussed at all – tends to be treated as an imprecise mid-point between topography, the description of a particular place, and geography, an examination of the whole world; it is understood as a geography of regions¹⁰¹.

Perhaps the greatest problem with chorography is that we lack a nuanced understanding of the word’s classical usage. Although Greek and Roman forms appear in the literary and epigraphic records, our only contemporary definition comes from Ptolemy. Indeed, Ptolemy’s treatise opens with a chapter that distinguishes between the practices of geography and chorography: geography, he tells us, is a drawn representation encompassing all parts of the world as a single continuous whole¹⁰²; geography is very much a mathematical science and, therefore, a geographical representation would be one in which the accurate shape of the world had been determined through sightings and celestial observations.

97 *Haec autem sic fieri testimonio possunt esse capita fluminum, quae orbe terrarum chorographiis picta itemque scripta...* Vitruvius VIII.ii.6

98 The formulation *orbis terrarum* can refer both to the whole world, but can also refer to the ‘circle of lands’ (i.e. Europe, Asia, Africa) which make up the *oikoumene*.

99 Both *χώρος* and *χώρα*, when combined with *γράφω*, would result in the same compound; I am indebted to Prof. B. Bravo for this observation.

100 The definition of *χώρος* and its connection with modern landscape is discussed in K. Olwig, ‘Has ‘geography’ always been modern?: *choros*, (non)representation, performance, and the landscape’, *Environment and Planning*, Vol. 40 (2008) 1843–61.

101 See, for instance, the definition in Johnson et. al, *Dictionary of Human Geography* 4th. ed., 79–80. A recent translation of Ptolemy’s *Geography* has rendered the greek *χωρογραφία* as ‘regional cartography’; see Berggren and Jones, *Ptolemy’s Geography*, 57 et seq.

102 ἡ γεωγραφία μίμησις ἐστὶ διὰ γραφῆς τοῦ κατελημμένου τῆς γῆς μέρους ὄλου μετὰ τῶν ὡς ἐπίπαν αὐτῷ συνημμένων. Ptolemy *Geog.* I.1.1.

Chorography, on the other hand, deals with the particular contents of a region – Ptolemy lists towns, harbours and tributaries – and is generally restricted to a smaller area; it is characterised by Ptolemy as being decidedly unscientific, a task best undertaken by someone with skills in drawing or painting¹⁰³. Ptolemy's assertion is that chorography may contain more in the way of local topographic detail, but that it lacks the scientific basis and representational accuracy of geography; the analogy he gives is that chorography is like a drawing of an eye or an ear, while geography is the rendering of the entire head¹⁰⁴. The localised nature of chorography would seem to make it an unsuitable means of displaying the world as a whole. Nonetheless, both geography and chorography are essentially cartographic practices; what differentiates them would appear to be the scope of the artefact and the skill of the craftsman.

It is Ptolemy's definition that has come to dominate modern understanding of chorography. When Ptolemy's treatises were rediscovered by Western humanists at the beginning of the fifteenth century, so too did chorography experience its own brief renaissance: for cartographers of the fifteenth through the seventeenth centuries, chorographies were a reasonably common way of representing, in pictorial form, the extent and content of smaller areas¹⁰⁵. These early-modern chorographies could take the form of a bird's-eye view of a larger region – the most spectacular example may be the sixteenth century *galleria delle carte geografiche*, a long gallery in the Vatican decorated with regional maps of Italy¹⁰⁶ – but they would more often take the form of 'views,' drawings or paintings of the land that existed at the halfway point between plan and elevation and which focused heavily on local topographical features¹⁰⁷.

¹⁰³ ὅθεν ἐκείνη μὲν δεῖ τοπογραφίας, καὶ οὐδὲ εἰς ἄν χωρογραφῆσειεν, εἰ μὴ γραφικὸς ἀνήρ. Ptolemy *Geog.* I.1.5.

¹⁰⁴ Ptolemy *Geog.* I.1.2

¹⁰⁵ On the use of chorography in sixteenth- and seventeenth-century Britain see R. Helgerson 'The Land Speaks: Cartography, Chorography, and Subversion in Renaissance England', *Representations*, No. 16 (Autumn, 1986), 50–85; S. Mendyk 'Early British Chorography', *The Sixteenth Century Journal*, Vol. 17, No. 4 (Winter, 1986), 459–81.

¹⁰⁶ A complete reproduction of the maps in the galleria has been published as L. Gambi and A. Pinelli et. al. *La Galleria delle carte geografiche in Vaticano* 3 vols. (Modena, 1994); see also F. Fiorani 'Post-Tridentine 'Geographia Sacra': The *Galleria delle Carte Geografiche* in the Vatican Palace', *IM*, Vol. 48 (1996), 124–48 and W. Goffart 'Christian Pessimism on the Walls of the Vatican *Galleria delle carte geografiche*', *Renaissance Quarterly*, Vol. 51, No. 3 (1998), 788–827.

¹⁰⁷ For a discussion of chorography in the renaissance, see T. Frangenberg 'Chorographies of Florence: The Use of City Views and City Plans in the Sixteenth Century' *Imago Mundi*, Vol. 46 (1994), 41–64; the words chorography and topography, he points out, could be used interchangeably, 59 n.2.

Early-modern definitions of chorography were very much indebted to Ptolemy¹⁰⁸, and the notion of chorographic representation as a form of local area cartography has persisted even to the present day. Perhaps for this reason, chorography is rarely considered within the context of large-scale geographic enquiry in the classical world¹⁰⁹. However, we have already seen – in the quotation from Vitruvius – that chorography could, indeed, refer to a representation of the entire world. If we wish to investigate the possibility of an alternative cartographic tradition in the Roman world, it is certainly worth examining the practice of chorography outside the context of Ptolemy.

The earliest attested usage of the word is found in a long inscription from Magnesia on the Maeander, which may be reliably dated to 139 BC; here *χωρογραφιῶν* is used to refer to the plan of a particular area, perhaps one which may be taken in at a single glance¹¹⁰. The epigraphic record also provides us with several examples of individuals who were responsible for the creation of chorographic documents, often in a military capacity¹¹¹: a soldier who worked as a chorographer is attested in an inscription from Pselcis in Egypt (AD 35)¹¹²; in a funerary inscription from Verona, we find a soldier listed as ‘chorographer and engraver’ (*chorographiarum item caelatori*)¹¹³; a third inscription, this one from Carthage, mentions a soldier with the occupation of *chorograpus* (sic)¹¹⁴.

We should not suppose that the role of the chorographer would have been unique to the Roman army: a passage in Diogenes Laertius makes reference to one Archelaus,

108 See, for instance, the claim of Egnatio Danti (1536–1586): ‘chorography can [...] be practiced by a simple painter, whereas geography can be apprehended only by a geometer’, quoted in Frangenberg, ‘Chorographies of Florence’, 55–56.

109 There are some notable exceptions: C. Nicolet ‘De Vérone au Champ de Mars: *Chorographia* et Carte d’Agrippa’, *MEFR*, Vol. 100, No. 1 (1988), 127–138 examines non-Ptolemaic evidence for the role of the chorographer in the imperial Roman world; J.F. Moffitt ‘Medieval Mappaemundi’, and ‘The Palestrina Mosaic with a »Nile Scene«: Philostratus and Ekphrasis; Ptolemy and Chorographia’, *Zeitschrift für Kunstgeschichte*, Vol. 60, No. 2 (1997), 227–47 both examine chorography as a precursor to Medieval cartography.

110 *Sylloge Inscriptionum Graecarum*, Third Edition. ed. W. Dittenberger (Leipzig, 1917), 685.71.

111 On the role of geographical assessment in the military, see R.K. Sherk ‘Roman Geographical Exploration and Military Maps’ in *ANRW* II.1 (Berlin, 1974), 534–562.

112 Τίτος Σερουίλιος στρατιώτης | λεγεῶνος III Κυρηναϊκῆς | χωρογραφήσας ἐμνήσθη | τῶν γονέων παρὰ τῷ κυρίῳ | Ἔρμ[ῆ], κα’ ἔτος Τιβερίου Καίσαρος Σεβασ[τοῦ] | Μεσορ[ῆ] β’. *Inscriptiones Graecae ad Res Romanas pertinentes* ed. R. Cagnat (Paris, 1911), I.1365.

113 [.. T]ENATIO | L(uici) F(ilio) | [P]RIMIONI | [MI]LITI PRAETOR(iano) | CHORT(is) IIII | [CH]OROGRAPHIAR(um) | [ITE]M CAELATORI | [FIL]IO PISSIMO MATER. *Epigraphica*, Vol. VII (1945), 35–38. For a discussion and reconstruction of this inscription, see Nicolet, ‘De Vérone au Champ de Mars’.

114 [d • m •] s • | s • AVG • CHO | [rog]RAPUS • PIVS • | VIXIT • ANNIS • LXVI | CONIVNX • CONIVGI | BENE DE SE MERENTI | FECIT • H • S • E. *CIL* VIII, 12914.

a chorographer who described the lands crossed by Alexander¹¹⁵. Admittedly, Laertius was writing in the third century AD and may have been using a designation more common to his own time; however, there is no reason to suppose that Archelaus would not have been referred to as a chorographer in the time of Alexander. Nor should we imagine that the role of chorographer would have been limited to the military: chorographers are also attested in fragmentary tax records preserved on ostraca from Egypt in the second century AD¹¹⁶. The suggestion from these fragments is that the chorographer may have been someone – much like the agrimensor – whose job was to be familiar with the disposition of the land.

Perhaps the most illuminating instances of chorography appear in Strabo. While Strabo does not define the word – nor, indeed, is he entirely consistent in his usage – it is clear that he regarded both chorographies and chorographers as being components of the broader cartographic tradition. Strabo refers to the ‘history of chorography’ and mentions an account given by Polybius of ‘the chorographers of Europe¹¹⁷, suggesting that the practice had been in existence for some time. He even puts the word into the mouth of Polybius, in what appears to be a direct quotation from one of that earlier author’s lost geographical chapters: ‘but I’ Polybius says, ‘shall show the facts as they now are, as regards both the position of places and the distances between them; for this is the most appropriate function of chorography¹¹⁸’.

The above passage provides us with something close to an historical definition. Chorography, according to Polybius, is concerned with arrangement of features within a larger area of land. Chorographical assessments would not have been based upon astronomical observation, but there is no evidence to suggest that they would have necessarily been restricted to a local area. Furthermore, while chorographic documents may not have been scientific, accuracy would have remained important. Strabo is, for instance, critical of a description in Apollodorus, saying ‘it is ignorance and not knowledge of chorography to call such a four sided figure

115 Diogenes Laertius *Vit. Phil.* II.17. This Archelaus is mentioned only so that we do not confuse him with the fifth-century BC philosopher of the same name.

116 *Greek Ostraca in the Bodleian Library at Oxford*. Vol. II ed. J. G. Tait and C. Préaux (London, 1955), nos. 1725, 1738 and 1759.

117 τῆς ἱστορίας γραφῆ χωρὶς Strabo VIII.1.1. and τὴν Εὐρώπην χωρογραφῶν, Strabo II.4.1.

118 ἡμεῖς δέ, φησί, τὰ νῦν ὄντα δηλώσομεν καὶ περὶ θέσεως τόπων καὶ διαστημάτων; τοῦτο γὰρ ἐστὶν οἰκειότατον χωρογραφία. Strabo X.3.5 (trans. H.L. Jones).

triangular. Yet he published a chorography in comic metre called *A Description of the Earth*¹¹⁹.

Chorography is also very much a part of Strabo's contemporary vocabulary. In books five and six, Strabo cites a source known as 'the chorographer' (ὁ χωρογράφος) as an authority for distances in Italy and Sicily¹²⁰; in one instance a measurement is taken directly from the chorographer's document (τῆ χωρογραφίᾳ)¹²¹. It is difficult to determine precisely what kind of document Strabo is referring to: it has been assumed that the chorographer in question is Agrippa and that the chorography refers to his cartographic presentation in the porticus Vipsania. However depending on when Strabo was writing – and indeed, when Agrippa's monument was completed – it is possible that Strabo would not have had access to this particular source¹²²; his figures may, thus, have come from Agrippa's notes or from a different chorographical source altogether.

Many of Strabo's references to chorographers and chorographies suggest a literary, rather than a cartographic source; at one point Strabo even refers to his own work as a chorography¹²³. For a Greek audience of the first century BC, the word chorography may simply have referred to a text that sought to describe the shape and contents of the world in a systematic fashion, while dispensing with the mathematical and astronomical information associated with theoretical geography. For Strabo, however, science and description were not so easily separated: 'whoever undertakes to make a chorography' he tells us 'must first establish many of the physical and mathematical principles'¹²⁴. Even in its most literary form, chorography may have still required a great degree of learning, despite what Ptolemy's later definition would have us believe.

While much of the evidence in Strabo suggests that chorography was a literary undertaking, there is one crucial passage which demonstrates that not only could chorography be translated into pictorial form, but that Strabo's conception of chorography may be entirely compatible with the tradition of painted wall-maps suggested by Vitruvius and Varro. For Strabo, as with Ptolemy, the ultimate goal of geography was the creation of a

119 [...] ἀμαθία τὸ λέγειν τριγωνοειδῆς τὸ τοιοῦτον τετράπλευρον, οὐδὲ χωρογραφικόν. ὁ δὲ καὶ χωρογραφίαν ἐξέδωκεν ἐν κωμικῶ μέτρῳ γῆς περιόδον ἐπιγράψας, Strabo XIV.5.22 (trans H.L. Jones).

120 Strabo V.2.8, VI.1.11, VI.2.11 and VI.3.10.

121 Strabo VI.2.1.

122 The dating and content of Agrippa's monument – and its possible use by Strabo – is discussed below, 53 and 56.

123 Strabo VIII.3.17.

124 ὅτι δεῖ τὸν χωρογραφεῖν ἐπιχειροῦντα πολλὰ τῶν φυσικῶς τε καὶ μαθηματικῶς λεγομένων ὑποθέσθαι. Strabo II.5.1.

cartographic document; while such a document should ideally be drawn onto a spherical surface (σφαιρικῆς ἐπιφανείας) – thus demonstrating the position of the *oikoumene* within the world as a whole – it was not often possible to create a globe large enough to accommodate a detailed representation of the inhabited world. It was therefore permissible to project the *oikoumene* alone onto a panel (πίναξ) of at least seven feet¹²⁵.

Strabo proceeds to describe the shape of the *oikoumene* which should be drawn within this surface. He tells us how it is the sea most of all, but also the rivers and mountains that define the distinctive shape of the *oikoumene*:

It is through such natural features that that we gain a clear conception of the continents, nations, favourable positions of cities and all the other diversified details with which our chorographical panel (ὁ χωρογραφικὸς πίναξ) is filled¹²⁶.

The word πίναξ, as we have mentioned, had a specifically cartographical association: it appears in Herodotus to describe a bronze tablet onto which a cartographic representation was engraved¹²⁷; Diogenes Laertius, discussing the will left by Theophrastus, mentions a series of panels (πίνακες) containing images of the explored world (γῆς περίοδοι), which were to be displayed in a portico¹²⁸. Strabo himself uses it to refer to cartographic artefacts from the past, including the ‘geographical panel’ of Anaximander, or the ‘panel of the *oikoumene*’ (τὸν τῆς οἰκουμένης πίνακα) created by Eratosthenes which was, itself, a revision of an earlier ‘geographical panel’ (τὸν ἀρκαῖον γεωγραφικὸν πίνακα)¹²⁹.

For Strabo, there may have been few differences between a chorographical and a geographical πίναξ. Chorographers may have been responsible for describing the lands, while geographers were responsible for calculations and observations; both, however, would have been necessary for the creation of a cartographic artefact. The work of Eratosthenes was both geography and chorography, in that it provided a mathematical basis for creating a cartographic document, as well as a detailed description of the various regions and their topographic contents with which the geographic outline

¹²⁵ Strabo II.5.10.

¹²⁶ διὰ γὰρ τῶν τοιούτων ἡπειροὶ τε καὶ ἔθνη καὶ πόλεων θέσεις εὐφρεῖς ἐνενοήθησαν καὶ τᾶλλα ποικίλματα, ὅσων μεστός ἐστιν ὁ χωρογραφικὸς πίναξ. Strabo II.5.17. Translation adapted from H.L. Jones, who has somewhat misleadingly rendered the final words of the sentence as ‘geographical map’.

¹²⁷ Herodotus V.49.

¹²⁸ ἀναθεῖναι δὲ καὶ τοὺς πίνακας, ἐν οἷς αἱ τῆς γῆς περίοδοι εἰσιν, εἰς τὴν κάτω στοάν. Diogenes Laertius *Vit. Phil.* V.51.

¹²⁹ Strabo II.1.1 and II.1.2.

would be populated. Strabo's treatise, similarly engages with both the descriptive and mathematical elements of the geographical science. If the practice of chorography was perceived as a lesser science – as Ptolemy would later suggest – these negative connotations are not immediately apparent in Strabo.

As a textual practice, chorography dealt with the collection of topographic information and the description of physical features that defined a particular region; such information may have initially been gathered by military forces as they explored new lands, however it would have been the job of a geographer to compile and arrange that information into longer, mathematically informed descriptions of the *oikoumene*. Strabo, as we have seen, was attempting to create a composite picture of the world based on the most current information available. In questioning the measurements of his predecessors, he was refining the basic known shapes that defined the world; by incorporating chorographical information, he was also able to refine the content of those shapes.

As a cartographic practice, chorography may have simply referred to an image of the world – possibly one painted onto a large panel, or the wall of a building – that included representations of the topographical features enumerated in descriptive or 'chorographical' sources. The shape of the world, as determined by the mathematical geographers, would have provided a cartographic space into which topographic features such as rivers, mountains, cities and harbours could be situated. In fact, at the beginning of the imperial period, chorography and geography may well have been components of the same basic cartographic process; however, as the cartographic aims of the Roman world became more fully developed, the two practices may have started to diverge.

large-scale cartography II: imperial presentation and the problem of agrippa's monument

Although we may be reasonably certain that chorography represented a process of collecting topographical information about the world, and that the information collected could then be translated into a cartographic image, the nature and form of these images remains largely unknown. From the evidence in Strabo, it is not unreasonable

to assume that a chorographic representation would have consisted of the basic established shape of the *oikoumene* – that is, a large island, surrounded by ocean, consisting of the three continents arranged around a central sea – and within that shape would be rivers, mountains, cities and other known features of the world. These chorographical images would have struck a balance between geographical accuracy – Ptolemy’s ‘imitation by means of drawing’ – and the presentation of useful topographic information.

Geography and chorography may thus be understood as two distinct layers of a cartographic document: geography was the foundation onto which chorographical information could be superimposed. At the beginning of the imperial period, however, there may have been a subtle shift in this cartographic model. The collection and establishment of information about the content of the world may have come to dominate imperial cartographic presentation; and while the shape of the world continued to be refined by geographers such as Marinus and Ptolemy, such theoretical accuracy may have simply been less valuable to the Roman viewer than facts about the world that had been established by exploration and ground-level observation.

We may perhaps discern the beginnings of a collection-based geographical approach by examining evidence for a project thought to have been undertaken in the time of Julius Caesar¹³⁰. A text known as the *Cosmographia Iulii Caesaris* – itself thought to be based on a geographical work by Julius Honorius, dating from the fourth or fifth century¹³¹ – informs us that:

In the consulship of Julius Caesar and Mark Antony, the whole world was travelled by four chosen men of great wisdom: Nicodemus to the East, Didymus to the West, Theodotus to the North and Polyclitus to the South¹³².

Caesar’s four geographers each worked for some twenty to thirty years and eventually enumerated 28 seas, 74 islands, 35 mountains, 70 provinces, 264 towns, 52 rivers and

¹³⁰ See, in the first instance, C. Nicolet and P. Gautier Dalché ‘Les «quatre sages» de Jules César et la «mesure du monde» selon Julius Honorius: réalité antique et tradition médiévale’, *Journal des savants* (1986), 157–218 and T.P. Wiseman ‘Julius Caesar and the Hereford World Map’, *History Today*, Vol. 37, No. 11 (1987), 53–57; the two articles reach very different conclusions about the existence of Caesar’s project. See also Dilke, *Greek and Roman Maps*, 40–41.

¹³¹ The figure of Honorius cannot be dated with any certainty, however it has been suggested that his initial text may have been composed sometime before AD 376; see Nicolet and Gautier Dalché, ‘Quatre Sages’, 161–62. On the text and transmission of Honorius, see Thomson, *Ancient Geography*, 381 and Lozovsky, *The Earth is Our Book*, 16–17. We will be return to this text in chapter four.

¹³² *Iulio Caesare et Marco Antonino consilibus omis orbis peragratus est par sapientissimos et electos viros quattuor: Nicodemo orientis, Didymo occidentalis, Theudoto septemtrionalis, Polyclito meridiani. Cosmographia Jul. Caes. 1 (GLM, 21).*

129 races¹³³. A related text, the *Excerpta eius sphaerae* – the source of which is also thought to be Julius Honorius¹³⁴ – provides greater elaboration: for each of the ‘regions’ (i.e. the cardinal points), we are given a detailed list of the seas, islands, mountains, provinces and towns found therein. The bulk of the text, however, is devoted to rivers. The name of each river is given, followed by its source, its destination and its distance in miles.

The topographical information preserved in the texts is not dissimilar to the chorographic elements mentioned in our literary sources. The dominance of rivers, especially, should call to mind the passage in Vitruvius where he refers to the content of world chorographies¹³⁵. The other elements listed – the cities and various natural features – would also seem to conform to the description of the chorographical panel described by Strabo¹³⁶. In this project, what is intriguing is not only the type of information collected, but the way in which the collection was undertaken: the work of the four geographers appears to be neither a survey nor a gathering of astronomical figures. Rather, it is an enumeration of features that might be used to populate a geographical representation.

If the project was actually started in the consulship of Caesar and Mark Antony – that is, 44 BC – Caesar would not have lived to see the results¹³⁷. Nonetheless, the information collected by the four geographers may well have been translated into an image of the world somewhere in Rome; this would certainly explain the references to cartographic artefacts that we find in Vitruvius, in Propertius and perhaps even in Strabo¹³⁸. It has even been proposed that the artefact was located in the portico of the *Saepta Iulia*¹³⁹.

Unfortunately, the evidence for Caesar’s project is problematic for a number of reasons. Firstly, the idea that Caesar would commission four geographers (one for each cardinal point) rather than three (one for each of the continents) seems anachronistic;

133 The text mentions precisely how long each geographer worked, although the figures are probably incorrect: see Nicolet and Gautier Dalché, ‘Quatre Sages’, 166–69 and Dilke, *Greek and Roman Maps*, 40.

134 The surviving text of the *Excerpta* admits to being copied from Honorius: *Haec omnia in descriptione recta orthographiae transtulit publicae rei consulens Iulius Honorius magister peritus atque sine aliqua dubitatione doctissimus. Excerpta* 50 (*GLM*, 56). See also Nicolet and Gautier Dalché, ‘Quatre Sages’, 161 and the discussion in chapter five.

135 See above, n. 97.

136 See above, n. 126.

137 Wiseman ‘Caesar and Hereford’, 56, argues that the project was actually initiated ten years earlier, in 54 BC.

138 See C. Rodriguez ‘The Porticus Vipsania and Contemporary Poetry’, *Latomus*, Vol. 51 (1992), 79–93.

139 Wiseman ‘Caesar and Hereford’, 56–7; Rodriguez ‘Porticus Vipsania’, 91–93.

there is almost nothing in the classical sources to suggest that the *oikoumene* was commonly divided into quadrants¹⁴⁰. Secondly, while the the story of Caesar's four wise men continued to be recounted throughout the Medieval period – it appears, for instance, in the eighth-century *Cosmography of pseudo-Aethicus* and in the early ninth century *Liber de mensura* of Dicuil¹⁴¹ – the exact details were subject to change: an illustration in the lower left corner of the Hereford *mappamundi*, for instance, features Augustus (not Caesar) commissioning three (not four) geographers¹⁴². While we should not discount the possibility that the tradition of Caesar's project contains a kernel of truth, it is equally possible that the story represents a piece of late antique myth-making – or misunderstanding – rather than any kind of early-Imperial reality.

While there may be little in the way of convincing evidence to support Caesar's project, we do, however, possess contemporary evidence for geographical assessment undertaken by Marcus Agrippa, that may have formed the basis for a cartographic monument in Rome. During his long career in the service of the state, Agrippa would have had ample opportunity to travel through many parts of the world which had newly come under Roman control¹⁴³. He was the governor of Gallia Narbonensis in 39 BC and spent the final seven years of his life using Syria as a base from which to travel the eastern provinces. When not engaged in military activity – his famous campaigns included a foray across the Rhine and a decisive role in the battle at Actium¹⁴⁴ – Agrippa engaged in a tremendous amount of building work, including numerous aqueducts and several roads in Gaul¹⁴⁵. The nature of his activities would have placed him in an ideal position to collect geographical information about the expanding Roman world.

¹⁴⁰ Although, see the division of geographical labour proposed in Wiseman, 'Caesar and Hereford', 55.

¹⁴¹ Pseudo-Aethicus (= *Cosmographia* in *GLM*, 71–103); Dicuil 6.20. On these texts, see P. Gautier Dalché 'Du nouveau sur Aethicus Ister? À propos d'une théorie récente', *Journal des savants* (1984), 175–186 and J.J. Tierney *Diculi liber de mensura orbis terrae* (Dublin, 1967).

¹⁴² Both A. Hiatt 'The Cartographic Imagination of Thomas Elmham', *Speculum*, Vol. 75, No. 4 (2000), 859–886 and Wiseman 'Caesar and Hereford', 53–4 argue that the appearance of Augustus may be due to a particular reading of Luke 2.1 and that the 'taxation' (i.e. census) of Augustus and the geographical project of Caesar may have been conflated.

¹⁴³ On the life and activities of Agrippa, see M. Reinhold *Marcus Agrippa: A Biography* (Geneva, NY, 1933) and J.-M. Roddaz *Marcus Agrippa* (Rome, 1984).

¹⁴⁴ On the German campaign, see Dio XLVIII.49.3; on Actium, see Dio LIII.11–13.

¹⁴⁵ The aqueducts are mentioned in Frontinus *De Aquis* I.9 and 25; the road building is mentioned in Strabo IV.6.11; see also Reinhold, *Agrippa*, 89–90 and Roddaz, *Agrippa*, 389–92.

After Agrippa's death in 12 BC, a monument, said to be based on his geographical notes, was erected in Rome¹⁴⁶; despite the fact that the artefact itself has not survived, the evidence for its existence has received a good deal of scholarly attention over the past century and a half¹⁴⁷. In fact, the bulk of our reliable contemporary evidence consists of only a few lines in one of the geographical books of Pliny's *Natural History*. Agrippa, who is often cited as a source by Pliny, is mentioned specifically in book three, when one of his measurements turns out to be inaccurate. Pliny's surprise at the inaccuracy leads to this remark:

Indeed, Agrippa was, in many ways, a scrupulous man and devoted great attention to his work. Thus, when he was about to display the whole world for Rome to see, who would believe that both he and the deified Augustus made a mistake? For it was Augustus who completed the portico which had been started by Agrippa's sister from the specification and notes of Agrippa himself¹⁴⁸.

The portico in question is almost certainly the porticus Vipsania, which is thought to have been located along the east side of the Via del Corso, across from the Piazza Colonna¹⁴⁹. Dio informs us that a portico built by Agrippa's sister Vipsania Polla was still unfinished in 7 BC, although he does not specifically mention how the portico was decorated¹⁵⁰; while there are no sources that mention the completion of this monu-

¹⁴⁶ See Roddaz, *Agrippa*, 573–91. It is unclear what form Agrippa's notes might have taken, although various reconstructions have been proposed; see below, 57–59.

¹⁴⁷ A considerable body of German scholarship on the *Weltkarte*, started to appear at the end of the nineteenth century; the major contributions are: K. Müllenhoff 'Über die Römische Weltkarte', *Hermes*, Vol. 9, No. 2 (1875), 182–95; E. Schweder 'Ueber die Weltkarte und Chorographie des Kaisers Augustus', Part I (*Philologus*, Vol. LIV (1895), 319–44), Part II (*Philologus*, Vol. LIV (1895), 528–59) and Part II (continued) (*Philologus*, Vol. LVI (1897), 130–62); D. Detlefsen *Ursprung, Einrichtung und Bedeutung der Erdkarte Agrippas* (Berlin, 1906); and, P. Schnabel 'Die Weltkarte des Agrippa als wissenschaftliches Mittelglied zwischen Hipparch und Ptolemaeus', *Philologus*, Vol. XC (1935), 405–40. Much of the German scholarship is summarised (and sometimes refuted) in J.J. Tierney 'The Map of Agrippa', *PRLA*, Vol. 63 (1963), 151–166. The best modern treatment is probably Nicolet, *Space, Geography and Politics*, 95–122; but see also: Dilke, *Greek and Roman Maps*, 39–54; Dilke in *HoC* 1, 207–209; P. Troussel 'La "carte d'Agrippa": nouvelle proposition de lecture', *Dialogues d'histoire ancienne*, Vol. 19, No. 2 (1993), 137–57; Brodersen, *Terra Cognita*, 268–87.

¹⁴⁸ *Agrippam quidem in tanta viri diligentia praeterque in hoc opere cura, cum orbem terrarum urbi spectandum propositurus esset, errasse quis credat et cum eo divum Augustum? is namque complexam eam porticum ex destinatione et commentariis M Agrippae a sorore eius inchoatam peregit.* Pliny *Hist. Nat.* III.1.17

¹⁴⁹ Platner and Ashby, *Topographical Dictionary*, 430 and Richardson *New Topographical Dictionary*, 319–20. See also the topographical discussions in Roddaz, *Agrippa*, 291–93 and Rodriguez, *Porticus Vipsania*, 83–85.

¹⁵⁰ Dio LV.8.4. Rodriguez, *Porticus Vipsania*, 79–93, argues that the cartographic part may have been completed as early as 19–17 BC, and that Polla and Augustus merely built the portico to surround it.

ment, it has been suggested that the portico may have been finished by 2 BC¹⁵¹. Based on the possibility that the portico had similar dimensions to an adjacent portico, one writer has suggested that the porticus Vipsania may have been up to 200 feet wide and 1,500 feet long¹⁵².

While we are able to make vague assumptions about the size and shape of the portico, we have no evidence that would allow us to suggest how it was decorated. Certainly the idea of having a cartographic display in a portico is not unattested in the classical world. We have already discussed the passage in Diogenes Laertius where the will of Theophrastus requested that panels with cartographic information be displayed in the portico next to the museum¹⁵³. A later panegyric given by the orator Eumenius, and dated to the end of the third century, discusses how the schoolchildren of Augustodunum (Autun) should be able to look at images of all the lands and seas in the local porticos¹⁵⁴.

Unfortunately, these brief descriptions offer few hints as to how the *oikoumene* may have appeared within the portico. One writer has proposed that the image of the world was round and therefore would have taken up a comparatively small section of the portico as a whole¹⁵⁵. Others have argued that it would have conformed more closely to the proportions of the *oikoumene* as established by Eratosthenes and described by Strabo; thus, the cartographic representation would have been a roughly elliptical shape set within a rectangle approximately twice as long as it was high¹⁵⁶. While several authors have proposed exact dimensions – one has offered thirty feet by sixty feet – the size and shape of Agrippa's cartographic monument remain essentially unknowable¹⁵⁷.

151 Nicolet, *Space, Geography and Politics*, 99, suggests that it would have been complete in time for the dedication of the temple of Mars Ultor.

152 Tierney, 'Map of Agrippa', 151.

153 Diogenes Laertius V.51; see n. 128, above.

154 *Videat praeterea in illis porticibus iuventus et cotidie spectet omnes terras et cuncta maria...* Eumenius *Pro Inst. Schol.* 20 in *XII Panegyrici Latini* ed. R.A.B. Mynors (Oxford, 1964), 242. We will return to this passage.

155 K. Miller *Mappaemundi: Die ältesten Weltkarten*. Vol 6 (Stuttgart, 1898), 145–47.

156 'There can be no reasonable doubt that the map was a rectangular one,' Tierney, *Map of Agrippa*, 152; 'Agrippa's *oikoumene* is clearly a rectangular shape,' Nicolet, *Space, Geography and Politics*, 104; '[The map] must have been rectangular,' Dilke in *HoC* 1, 208. Dilke's further assertion (n. 34), that a circular map would have been unsuited to a long portico, could easily be applied to his own proposed rectangular arrangement which, as Tierney points out, would only have covered one-third of the shortest side.

157 The measurement is suggested in Tierney, 'Map of Agrippa', 152. Tierney may be following Müllenhoff, 'Römische Weltkarte', 194, who suggests forty feet by sixty feet. Dilke in Harley

Although many writers clearly imagine that the artefact would have resembled the projected cartography of the Greek tradition, they are equally convinced that the monument's principal Roman development was the extensive use of measurements based on the road network. This assumption has persisted over the past century. 'These [measurements] were doubtless derived from the itineraries, wherever such existed', wrote one scholar in 1879¹⁵⁸. Fifty years later, another writer reports that: 'Agrippa was *par excellence* a practical man, and the map probably served practical rather than scientific ends. Its measuring rods were no doubt the milestones of the Roman roads rather than latitude and longitude¹⁵⁹'. Finally, in 1987, we read that: 'Agrippa's world map represented a new work of a practical Roman type, which must often have been based on data from the extensive network of Roman roads¹⁶⁰'.

This idea of Agrippa's monument as an oversized road-map – perhaps more crudely rendered than a Greek geographical work, but making up for it with an abundance of practical information – has remained popular despite the lack of supporting evidence. At the other extreme, it has been convincingly argued that the porticus Vipsania was home to little more than a monumental inscription, in which the names of regions and relevant distances had been written out in a manner not dissimilar to the *Res Gestae* of Augustus¹⁶¹.

Despite these claims, nearly every issue surrounding the monument is open to debate. We do not know if it was painted, like the chorographies of Vitruvius, or if it was engraved onto marble like the *Forma urbis Romae*¹⁶²; we do not know if the measurements were based on itineraries or on celestial observation; we do not know if the measurements were inscribed on the walls of the portico, or recorded in an accompanying text; we do not know if the topographic features were projected using a system of meridians; indeed, we cannot even be sure that the representation in the portico conformed to the Eratosthenean image of the *oikoumene*.

and Woodward, *HoC* 1, 208, suggests a more modest height of between two and three meters (i.e. between six and ten feet). Nicolet, *Space, Geography and Politics*, 108, reminds us that all of these figures are merely guesses.

158 Bunbury, *Ancient Geography* II, 177.

159 F.W. Shipley *Agrippa's Building Activities in Rome* (St. Louis, 1933), 77.

160 Dilke in *HoC* 1, 209.

161 The argument is put forth in Brodersen, *Terra Cognita*, 285–86. See also S. Carey *Pliny's Catalogue of Culture: Art and Empire in the Natural History* (Oxford, 2003), 61–74, which supports Brodersen's assessment.

162 Tierney, 'Map of Agrippa', 152, opts for marble.



Perhaps the central problem in discussing Agrippa's cartographic monument is that the very brief passage in Pliny, quoted above, constitutes our only source of information about its visual appearance. Pliny's description, alas, does not refer to the artefact in the portico as a *forma* or a *tabula*, or even, for that matter, a *chorographia*; it is simply the *orbis terrarum*, displayed for the people of Rome to see¹⁶³. Other writers who mention the porticus Vipsania – Dio, Tacitus, Martial and Plutarch¹⁶⁴ – neglect to comment on its decoration.

It is tempting, in the first instance, to turn to Strabo for further illumination. As we have already mentioned, Strabo makes extensive use of 'the chorographer' and a 'chorography' in books five and six of his treatise, and it has been assumed that the source in question is Agrippa's monument¹⁶⁵; the argument can be made based on a rough correspondence to figures that also appear in Pliny, and the fact that when Strabo cites 'the chorographer' the distances are given in miles rather than stades. Our ability to use Strabo, however, depends on exactly when we believe he was composing his treatise; this is, itself, a subject of some debate. It has been argued that the bulk of Strabo's *Geography* must have been composed before 7 BC; although he does refer to events that occurred as late as AD 23, it has been argued that these are minor revisions to a text that had already been largely established¹⁶⁶.

One may, of course, argue for a post-Augustan dating, in which case Strabo – known to have been living in Rome – would certainly have had access to the cartographic monument in the porticus Vipsania¹⁶⁷. However, we also know from the evidence in Vitruvius – who had certainly composed his work well before the construction of the portico – that there was already a tradition of painted wall chorographies

¹⁶³ Brodersen, *Terra Cognita*, 277–78, argues that Pliny elsewhere uses *spectandum* specifically to mean reading a text, rather than observing an artefact.

¹⁶⁴ Tacitus *Hist.* I.31 and Plutarch *Galba* XXV both mention an Illyrian legion camped in the porticus Vipsania. Martial *Epig.* I.108, suggests that his upper floor may have looked out onto the portico, but mentions only that laurels grow there.

¹⁶⁵ The connection, which appears in Bunbury, *Ancient Geography*, 177 n.1, was most extensively argued by Detlefsen, *Erdkarte Agrippas*; the theory has met with broad acceptance (see Tierney, 'Map of Agrippa', 152). However, Dilke, *Greek and Roman Maps*, 43–4, suggests that Strabo may have been using an earlier source.

¹⁶⁶ See, for instance, E. Pais *Ancient Italy* (Chicago, 1908), 384ff. and R. Syme *Anatolica: Studies in Strabo* (Oxford, 1995) 356–67. Both find it implausible that Strabo, by then in his eighties, would have composed such an extensive work in the final year of his life.

¹⁶⁷ The argument for a later dating is made, most persuasively, in D. Dueck 'The Date and Method of Composition of Strabo's *Geography*' in *Hermes*, Vol. 127, No. 4 (1999), 467–78.

in the Roman world. Thus, while Strabo may indeed have been using a cartographic source – a source of Roman origin, which gave distances in miles – there is insufficient evidence to claim, with any certainty, that the source was Agrippa's monument.

If we are unable to use Strabo reliably, we must then turn to other sources which appear to have drawn upon the monument in the porticus Vipsania. Agrippa's figures, as we have mentioned, are cited extensively in the geographical books of Pliny; in addition, the figures given by Pliny are strikingly similar to those preserved in the *Divisio orbis terrarum* and the *Dimensuratio prouinciarum*, two texts that can be roughly dated to the fourth or fifth century¹⁶⁸. Despite the later dating, the connection between these two texts and Agrippa's monument – or at very least, to the source used by Pliny¹⁶⁹ – has been reasonably well established and the figures have been used to propose reconstructions of Agrippa's *commentarii*¹⁷⁰.

Both the *Divisio* and the *Dimensuratio* are presented in a similar format: for each region, the topographical boundaries are listed by cardinal point – usually in the order east, west, north and south; the length and breadth (*longitudo* and *latitudo*) of the region are then given in miles (*milia passus*)¹⁷¹. Thus, a sample entry reads:

Narbonne Province. It is bounded in the east by the Alps; in the west by a mountain pass through the Pyrenees; in the north by the territory of Vienne and the Cevenne mountains; and in the south by the Gallic sea. It is 334 miles in length and 189 miles in breadth¹⁷².

Of the two texts, the *Divisio* is especially interesting because it makes an explicit connection between its own measurements and a chorographical work. It begins:

The world is divided into three sections: Europe, Asia and Libya, or Africa. It was the divine Augustus who first displayed this by means of chorography¹⁷³.

168 The texts appear in Riese, *GLM*, 9–14 (*Dimensuratio*) and 15–20 (*Divisio*), and were re-edited by Schnabel, 'Weltkarte', 425–40; an alternative edition of the *Divisio* appears in L. Bieler 'The Text Tradition of Dicuil's *Liber de mensura orbis terrae*', *PRLA*, Sec. C, Vol. 64 (1965/1966), pp. 1–31. On the dating, see Riese, *GLM*, xvii–xix.

169 See Tierney, 'Map of Agrippa', 152–54 and Nicolet, *Space, Geography and Politics*, 119, n. 27.

170 The most extensive is A. Klotz 'Die geographischen commentarii des Agrippa und ihre Überreste', *Klio*, Vol. 24 (1931), 386–466, which also incorporates figures from Strabo and Orosius.

171 The words *longitudo* and *latitudo* refer simply to length and breadth and do not, therefore, imply cartographic projection. On their use as technical terms, see Tierney, 'Map of Agrippa', 162–63 and Nicolet, *Space, Geography and Politics*, 102.

172 *Prouincia Narbonensis. Finitur ab oriente Alpibus, ab occidente saltu Pyrenaeo, a septentrione finibus Viennensium et montibus Cebennicis, a meridie mari Gallico. Longitudo milia passus CCCXXXIII, latitudo CLXXXVIII. Divisio 8 (GLM, 16).*

173 *Orbis dividitur tribus nominibus: Europa, Asia, Libya uel Africa. Quem diuus Augustus primus omnium per chorographiam ostendit. Divisio 1 (GLM, 15).*

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FIGS 1.5 AND 1.6 Two reconstructions of Agrippa's monument, based on figures from the *Divisio* and the *Dimensuratio* (top: K. Sallmann, *Die Geographie des älteren Plinius*, facing 208; below: R. Moynihan 'Geographical Mythology, fig. 6).

Given that the figures in the *Divisio* are so closely related to Pliny, we may cautiously suggest that this opening line is a direct reference to Agrippa's monument; furthermore, we may conclude and that the 'chorography' in question, which displayed the disposition of the inhabited world, was indeed a pictorial artefact. Augustus, of course, was not the first to display the tripartite structure of the world but, by the fifth-century, Agrippa's monument may have been remembered as something like an official standard, against which subsequent Roman geographical endeavours were measured. Alas there is no way of knowing if Agrippa's monument still existed at the time the *Divisio* was composed, or whether it had survived only as a series of measurements.

Nonetheless, the reconstructed *commentarii* give us a reasonable idea of the geographical information that would have been amassed by Agrippa, and these

reconstructions have, in turn, been used to reconstruct the physical appearance of the monument¹⁷⁴. The problem with this approach, however, is that we are largely unclear on the relationship of the *commentarii* to the monument itself. It has been suggested that the *commentarii* may have been published separately, that they may have been inscribed in the portico – either nearby or as an integral part of the cartographic composition¹⁷⁵ – and, indeed, that the portico contained little more than a monumental inscription, meaning that the artefact and the *commentarii* were one and the same¹⁷⁶.

What, then, can we say about the appearance of Agrippa's monument? It is frequently assumed that the cartographic element of the monument corresponded to something like the elongated *oikoumene* of Eratosthenes – that is, the kind of *oikoumene* that would fit inside a rectangle twice as wide as it was tall. Our reconstructions of Agrippa's *commentarii* offer both topographical information and hard data about the regions themselves, but offer little clue as to how the regions may have fit together into a continuous whole. Thus, it is not unreasonable to suggest that the information was designed to be incorporated into an established image of the world.

It is, however, worth considering other possible configurations. It has been suggested – although the suggestion has never caught on in modern scholarship – that the cartographic representation may, in fact, have stretched out to fill the entire length of a portico wall. Such a mode of presentation may be seen as not only representing a decisive break from the Greek tradition, but also potentially acting as an archetype for later Roman cartographical works, of which the *Tabula Peutingeriana* is our only surviving example¹⁷⁷. More recently, it has been suggested that the monument may have been divided into three separate cartographic representations, one continent for each wall of the portico¹⁷⁸.

174 See K.G. Sallmann *Die Geographie des älteren Plinius in ihrem Verhältnis zu Varro* (Berlin, 1971), facing 208; and R. Moynihan 'Geographical Mythology and Roman Imperial Ideology' in R. Winkes (ed.) *Age of Augustus* (Louvain-la-neuve, 1985), 149–162, fig. 6.

175 The theory that the *commentarii* formed a part of the monument is argued in Detlefsen, *Erdkarte Agrippas*, but disputed by Tierney, 'Map of Agrippa', 152.

176 Brodersen, *Terra Cognita*, 286, following the *Divisio*, provides a reconstruction of how the inscription may have read.

177 The connection between the *Tabula Peutingeriana* and Agrippa's portico is criticised by Nicolet, *Space, Geography and Politics*, 102–3, as arbitrary. The *Tabula Peutingeriana* is discussed at greater length below, 63–75.

178 See Troussel 'La carte d'Agrippa', 137–57, whose suggestion is indebted to the reconstruction of the cadastral *tabulae* proposed in Salviat, 'Orientation, extension et chronologie'.

Given what we know about geographic and chorographic presentation, it would not be too much of a stretch to propose that Agrippa's cartographic monument could have consisted not merely of a single image of the *oikoumene*, but rather – in the style of the Vatican's *Galleria delle carte geografiche* – a series of cartographic images, one for each region, arranged along the length of the portico. In accordance with the surviving textual evidence, each image may have contained the name of the region (or regions) depicted, along with an indication of their length and breadth, and their topographical boundaries; each region may have also included chorographic details. Such an arrangement would, indeed, conform to Pliny's description of 'the whole world for Rome to see'; it would also explain why texts such as the *Divisio* and *Dimensuratio* have preserved the information from the monument in such an episodic fashion: the text of the *Divisio* may actually be a region-by-region walk around the portico¹⁷⁹.

Although we are unsure about the arrangement of the *oikoumene* in Agrippa's monument, we are at least able to suggest some of the elements contained within it. Strabo, as we recall, suggested that the chorographical panel should contain an idea of the shape of the earth as created by the meeting of land and sea; within that shape would be found rivers and mountains, in addition to the position of cities and the names of nations¹⁸⁰. We find a similar list of contents in the portico-based cartographic display described in the panegyric of Eumenius.

The panegyric, probably given at the very end of the third century, describes an image of the world in which 'the names of all places and the distances between them are displayed, along with the sources and destinations of the rivers, and the shape of the coastline as determined by the ocean'¹⁸¹. Although he may have been writing three centuries later, the features listed by Eumenius are not dissimilar from those enumerated by Strabo. In the context of the panegyric, however, we may suggest that the chorographical features within the portico may have served an educational function; it is, after all, features such as rivers and cities that act as the most common topographic indicators in history and literature.

179 A connection between the structure of *Divisio* and the *Dimensuratio* and the physical arrangement of Agrippa's monument was recently proposed by the present author in a paper presented to the Oxford Seminars in Cartography series, 17 November 2011.

180 See above, n. 126.

181 [...] *omnium cum nominibus suis locorum situs spatia intervalla descripta sunt, quidquid ubique fluminum oritur et conditur, quacumque se litorum sinus flectunt, qua vel ambitu congīt orbem uel impetu inrumpit Oceanus*. Eumenius *Pro Inst. Schol.* 20.2.

Eumenius also suggests that such a cartographic display could have a more propagandistic function: he mentions specifically that the audience of the display should look upon ‘the cities, peoples and nations which the invincible emperors have restored out of piety, subdued by virtue or subjugated by fear¹⁸²’. Eumenius is not, of course, describing Agrippa’s monument, however the cartography he describes may have had a similar agenda: one cannot claim to have conquered the world if they are not able demonstrate what they have conquered¹⁸³. From the age of Augustus onward, the chorographical image may have been the most effective means of displaying the realised ambitions of the imperial Roman world.

Agrippa’s cartographical monument was almost certainly not the first of its kind. It may have been the largest and perhaps even the most accurate of its time, but it was probably part of an established tradition of world cartography that had been adapted, without major modifications, to the Roman world of the first century BC. Textual evidence drawn from Livy, Varro, Vitruvius and Propertius suggests the presence of various painted cartographic monuments dating from before the completion of the porticus Vipsania: Strabo may well have seen Agrippa’s monument, but Vitruvius could not have. Even if we remain sceptical about the reality of Julius Caesar’s geographical project, we may still be reasonably certain that large-scale world cartography was a feature of the pre-Augustan Roman world.

As attractive as the ‘large inscription’ theory may be, we have no reason to believe that that the monument did not contain at least some cartographic element. Furthermore, we may suggest that the cartographic representation was painted onto the wall of the portico rather than inscribed. However, it is difficult to say what the *oikoumene* itself would have looked like. If there is, in fact, a direct correlation between the artefact and the surviving textual evidence – that is, Pliny, the *Divisio* and the *Dimensuratio* – it allows us only to make very tentative statements about what the artefact did not contain. There is, for instance, no evidence to suggest that it contained a depiction of the road network; neither is there reason to suspect that the cartographic elements were projected according to a system of coordinates.

182 [...] *inuictissimi principes urbium gentium nationum aut pietate restituunt aut uirtute deuincunt aut deuinciunt*. Eumenius *Pro Inst. Schol.* 20.2.

183 On the political implications of Eumenius, see Nicolet, *Space, Geography and Politics*, 111–13 and N. Lozovsky, ‘Maps and Panegyrics: Roman Geo-Ethnographical Rhetoric in Late Antiquity and the Middle Ages’ in Talbert and Unger, *Cartography*, 169–88.

We may, however, question whether or not there was a close relationship between the physical appearance of the monument and the information on which it was based. It seems possible that the pictorial elements of the monument may have been something close to the chorographical *πίναξ* described by Strabo, that is, a geographical rendering of the *oikoumene*, projected onto a flat surface and overlaid with chorographic details. If the cartographic representation was designed to be accompanied by text – either inscribed in the monument or written in a separate volume – the cartography would not have had to mirror the text exactly, rather it would have only needed to provide a plausible arrangement of relevant topographic reference points.

While such chorographic representations may not have presented a mathematically accurate image of the world, they may nonetheless have appealed to the imperial spirit of the age. The administration may have wished to demonstrate control over the known world precisely by displaying a familiarity with the world's contents. Instead of presenting a theoretical world, as determined by mathematical knowledge, a chorographical presentation would demonstrate that the lands had been experienced first-hand, that their features had been enumerated, and that they were all, in a sense, within reach of Rome. Theoretical geography displayed a world that may not have existed. Chorography, on the other hand, presented only what was known to be true.

Agrippa's monument in the porticus Vipsania may thus represent the point where the geographical and chorographical approaches to cartographic representation began to diverge. We need not suggest that the monument in the portico deviated in any serious way from the Eratosthenean model; however, a subtle shift in perceptual desire had undoubtedly occurred, and the importance of topographical knowledge was dictating a new standard for cartographic expression in the Roman world. In the centuries to come, it may have been precisely the desire for chorographic accuracy that caused the geographic shape of the *oikoumene* to become increasingly distorted.



large-scale cartography III: world chorography and the *tabula peutingeriana*

In its attempt to present chorographical information to the people of Rome, Agrippa's monument may not have deviated too seriously from the accepted image of the *oikoumene*. However, subsequent cartographic endeavours in the Roman world may not have been quite so rigorous. Less than two centuries after the completion of the porticus Vipsania, Ptolemy found ample reason to be critical of contemporary practices that he viewed as unscientific. When we return to the opening passages of his treatise with a more advanced understanding of chorography, we get a sense that the pursuit of chorographical depiction may have been corrupting the geographical foundations of the cartographer's science.

We have already discussed how Ptolemy opened his treatise by asserting the mathematical basis of geography and reminding us that the purpose of geography is to create an image that is faithful to the proportions of the real *oikoumene*¹⁸⁴. In order to create such an image, one required data drawn primarily from astronomical observation: he was critical of the unrefined nature of surveying, and elsewhere informs us that we should not use data derived from accounts of travel¹⁸⁵.

Perhaps the most revealing passage in Ptolemy is found in book eight. Here, Ptolemy discusses the need to create smaller regional cartographic representations, so that the chorographical information (in this case, *ἐφοδευόμενα*, or information that had been collected through exploration) may be displayed at a more legible scale. When one is dealing with a representation of the *oikoumene*, he explains, topographical information about a well-known area will be crowded together, whereas in more distant areas about which less is known, there will be an overabundance of empty space¹⁸⁶. He then informs us that:

¹⁸⁴ Ptolemy *Geog.* I.1.4 and I.2.1.

¹⁸⁵ Ptolemy *Geog.* I.2.1 and I.4.

¹⁸⁶ Ἐπὶ μὲν γὰρ τῆς ὑφ' ἐν καταγραφῆς ἀναγκαῖον γίνεται, διὰ τὸ δεῖν συντηρεῖν τοὺς πρὸς ἀλλήλα τῶν μερῶν τῆς οἰκουμένης λόγους, τὰ μὲν στενοχωρεῖσθαι διὰ τὸ συνεχῆς τῶν ἐντασσομένων, τὰ δὲ παρέλκειν ἀπορίᾳ τῶν ἐγγραφισομένων. Ptolemy *Geog.* VIII.1.2.

To get around this, a great many are often compelled, on account of the panels themselves, to distort the measurements and the shapes of the lands¹⁸⁷.

Ptolemy then goes on to cite a few examples, mentioning geographers who have made Europe larger than Asia or Libya, simply because there was more information about Europe that needed to be incorporated into the representation. Ptolemy is essentially describing a scenario in which the chorographic information was beginning to supersede geographical accuracy and, indeed, had started to play an active role in the determination of the shape of the land. We may infer, from Ptolemy's examples, that such distortions may not have been uncommon within the cartographic culture of the Roman world.

If chorographic information was changing the shape of the *oikoumene* from the inside, it may well have been the portico that provided a frame into which the *oikoumene* could expand. In the previous section, we discussed evidence which suggested that the portico may well have been the preferred venue for large-scale cartographic representation; it does not seem unreasonable to suggest that the long and narrow dimensions of these spaces may also have started to have an effect on the presentation of the world.

One of the few surviving pieces of material evidence for cartography in antiquity – the *Tabula Peutingeriana*¹⁸⁸ – may offer some clues as to how the chorographic and geographic traditions had started to diverge. The surviving document – a series of eleven parchment sheets designed to run together as a continuous whole – presents an image of the *oikoumene* that is some twenty-two feet long, but only around one foot high. Such an oddly compressed and elongated shape would certainly be consistent with the dimensions of a portico; however, the *Tabula* is sufficiently problematic that we can not use it as evidence in our investigation, before first arguing for its origins in antiquity.

The *Tabula Peutingeriana*, as it exists today, represents a copy of a lost archetype. The eleven pieces of parchment that make up the document were probably produced

187 Ὅπερ οἱ πλείστοι περιιστάμενοι πολλαχῆ διαστρέφειν ἠναγκάσθησαν τὰ τε μέτρα καὶ τὰ σχήματα τῶν χωρῶν ὑπὸ τῶν πινάκων αὐτῶν. Ptolemy *Geog.* VIII.1.2.

188 Initially published as the *Tabula Peutingeriana* – *tabula*, in this case, referring simply to connected sheets of parchment – the document was traditionally referred to in English-language scholarship as the 'Peutinger Table'. Dilke, *Greek and Roman Maps*, 113–20, uses this designation; however two years later, in Harley and Woodward, *HoC* 1, the same author suggested that it should be known as a 'map' to avoid confusion with other possible meanings of the word 'table' (238 n. 25). In the last quarter century, 'map' has become the accepted designation; however, in the interest of avoiding the word 'map', as stated in the introduction of this chapter, the Latin name has been retained for the present study.

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FIG. 1.7 The *Tabula Peutingeriana* (detail from Folio III).

around AD 1200, perhaps at Reichenau or somewhere in Alsace¹⁸⁹. The document was acquired by Konrad Celtes around 1500, and was subsequently bequeathed to Konrad Peutinger in 1508; its whereabouts during the previous centuries, however, remain a mystery¹⁹⁰. The distinctly Roman qualities of the document have been noted at least since the time of Peutinger, and the published versions that have appeared over the centuries have attracted no shortage of hypotheses concerning its origin¹⁹¹.

However, if the problem with Agrippa's monument is the fact that it has not survived, the problem with the *Tabula* is that it has survived without any obvious historical context. It is a completely unique document, and one that does not appear to have originated from within any known geographical tradition. While palaeographic evidence can offer some clues about the surviving folios – and may even offer hints about their direct antecedents – the more distant origins of the archetype itself are virtually impossible to trace. Thus, if we are to use the surviving document as a window onto possible geographic traditions from antiquity, we must do so with caution.

189 The dating, on palaeographic grounds, was proposed by B. Bischoff in Weber, *Tabula Peutingeriana*, 11; a similar conclusion has been reached by M. Steinmann in Talbert *Rome's World*, 83–84. The place of production cannot be known, but the evidence for Reichenau is presented in E. Albu 'Rethinking the Peutinger Map' in Talbert and Unger, *Cartography*, 111–19. P. Gautier Dalché 'La trasmissione medievale e rinascimentale della *Tabula Peutingeriana*' in F. Prontera (ed.) *Tabula Peutingeriana. Le Antiche Vie Del Mondo* (Florence, 2003), 43–52, argues that the document is not the *mappamundi* copied by a monk at Colmar in AD 1265.

190 See P. Gautier Dalché 'Du nouveau sur la transmission et la découverte de la *Tabula Peutingeriana*: la «*Cosmographia vetustissima*» de Pellegrino Prisciani (†1518)', *Geographia Antiqua*, Vol. 13 (2004), 71–81; on the discovery of the map, see Gautier Dalché, 'La trasmissione', 48–52 and Talbert, *Rome's World*, 10–13.

191 On the publication history and scholarship since the sixteenth century, see Talbert, *Rome's World*, 14–72.

We should, perhaps, begin by describing the document that survives¹⁹². Taken as a whole – and we do have evidence to suggest that the individual folios were bound together to form a single unbroken surface¹⁹³ – the *Tabula Peutingeriana* presents an image of the *oikoumene*. The image, of course, is subject to immense horizontal distortion; where the Eratosthenean *oikoumene* would have fit in a space with proportions of 2:1, the proportions of the *Tabula Peutingeriana* are roughly 25:1. The image of a land mass, surrounded on all sides by water and arranged around a central sea is nonetheless recognisable¹⁹⁴. The document, however, is incomplete: the folios containing the westernmost part of the *oikoumene* – Spain, Ireland and most of Britain – have not survived, although it has been proposed that these regions may have added an additional three folios to the total length¹⁹⁵. Even without the extra folios, it is interesting to note how the European land mass occupies substantially more of the document than either Libya – which consists of a narrow band in the lower third of the *Tabula* – or Asia, which occupies only the final three folios.

Within this elongated *oikoumene*, we find a number of the ‘chorographic’ features that, according to Strabo, Vitruvius and even Ptolemy, may be associated with classical cartography. Rivers and tributaries appear throughout the land-masses, as do mountain ranges and lakes; forests also appear, although with much less frequency¹⁹⁶. In addition to these natural features, elements from the built environment appear as iconographic depictions. Major towns are identified with a small and reasonably consistent ‘double-

192 The surviving document has appeared several times and in several forms over the past hundred and fifty years; for a detailed publication history, see Talbert, *Rome's World*, 62–68. Prior to Weber's edition of 1976, the most frequently reproduced was Konrad Miller's 1888 lithograph, which has been reissued numerous times, most recently (in colour) in Prontera, *Tabula Peutingeriana*. In 1916, Miller divided each folio (including his own reconstructed segment) into five vertical parts, effectively creating an apparatus for citation. This system was updated in Weber, *Tabula Peutingeriana*, with the addition of horizontal division, and subsequently adopted, with further alterations, in the digital version prepared by the Ancient World Mapping Center at UNC Chapel Hill, under the direction of R.J.A. Talbert. The present study will provide references to the digital edition, which may be accessed at: www.cambridge.org/us/talbert/index.html.

193 Weber, *Tabula Peutingeriana*, 20; Steinmann in Talbert, *Rome's World*, 73–4.

194 cf. Strabo I.1.3 and I.1.8.

195 Palaeographic evidence suggests that the exemplar from which the surviving document was copied was also incomplete. K. Miller *Die Peutingersche Tafel oder Weltkarte des Castorius* (Stuttgart, 1916), proposed a reconstruction of what he thought to be a single missing folio; however, R.J.A. Talbert 'Konrad Miller, Roman Cartography, and the Lost Western End of the Peutinger Map' in U. Fellmeth, P. Guyot and H. Sonnabend *Historische Geographie der Alten Welt: Grundlagen, Erträge, Perspektiven* (Hildesheim, 2007), 353–66 has argued for three missing folios.

196 The appearance of the Black Forest (*silva Marciana* at M III.5 = T 2A5) and the Vosges Forest (*silva Vosagus* at TP 2B2) are iconographically unique and may be Medieval additions; see Talbert, *Rome's World*, 124. There are, however, trees around Daphne, outside of Antioch (TP 9B4).

house' icon, and spas or watering places (*aquae*) appear as slightly larger buildings surrounding a courtyard¹⁹⁷. Other topographic features from Antiquity – the lighthouse at Alexandria or the harbour at Ostia – are also illustrated, and the three major cities of Rome, Constantinople and Antioch appear as personifications.

The document also preserves a considerable amount of text. Most of the towns and natural features are labelled, as are the provinces and regions. While much of the text serves only to identify a particular location, as one moves further east, more fanciful additions begin to appear. The Nile, for instance, bears the inscription 'the river Nile, which divides Asia and Libya'¹⁹⁸. Further east are empty spaces marked: 'plains empty and inhospitable due to lack of water'¹⁹⁹; even further east, a location is marked 'in this place, elephants are born'²⁰⁰.

Perhaps the most surprising feature of the *Tabula Peutingeriana* – and one which has dominated a great deal of scholarship²⁰¹ – is the presence of an extensive road network, seemingly emanating from Rome and stretching out to the very ends of the world. Along these routes – which are represented as simple lines – appear the names and distances of stations and towns; however, rather than receiving any kind of iconographic representation, the towns along the routes are indicated only with a crook in the line. This linear presentation of places and distances – combined with the fact that many of the names along the routes are written in oblique cases²⁰² – should immediately call to mind the *itineraria*, those lists of places and distances used for travel in the Roman world²⁰³.

Although the orientation of the *Tabula* nominally places north at the top and runs from west to east, there is a considerable eastern bias throughout, as if the display of certain areas had been rotated slightly to conform to a perceptual norm. In Rome, for instance, the northbound Via Flaminia leaves Rome to the left and the Via Appia leaves to the right. Greece and the Peloponnese, likewise, appear rotated, and the west coasts of both Gaul and Asia minor stretch out along the horizontal axis. We may attribute some of this to the vertical distortion of the document, but we should not

¹⁹⁷ The iconographic elements of the *Tabula* are elaborated most fully in A. and M. Levi *Itineraria Picta: Contributo allo studio della Tabula Peutingeriana* (Rome, 1967).

¹⁹⁸ *Fl. Nilus qui diuidit asiam (et) libiam* (TP 8C1).

¹⁹⁹ *Campi Deserti et in habitabiles propter aqu(a)e inopiam* (TP 10B2).

²⁰⁰ *In his locis elephantum nascuntur* (TP 11C4).

²⁰¹ The most exhaustive treatment is K. Miller *Itineraria Romana: Römische Reisewege an der Hand der Tabula Peutingeriana dargestellt* (Stuttgart, 1916).

²⁰² See Salway, 'Travel, *Itineraria* and *Tabellaria*', 26–28.

²⁰³ *Itineraria* and their function are discussed in the following chapter, 79–92.

discount the possibility that this bias reflects a cartographic culture where East was the principal cardinal point²⁰⁴.

There can be little doubt that the surviving document incorporates a great deal of genuine material from antiquity. The problems arise when one attempts to analyse that material in order to discover the nature of the archetype. Many of the attempts at dating have focused on named features which, themselves, can be securely dated²⁰⁵; thus, the presence of Constantinople, for instance, might suggest that the archetype dates from sometime after AD 330. Other scholars have pointed to various features within the document – the inclusion of the province of Dacia, incorporated into the empire after AD 106²⁰⁶; the appearance of *Aquae Labodes* in Sicily, probably completed in AD 352²⁰⁷ – to suggest possible terminal dates; and yet, if the topography tends toward a fourth-century dating, how do we explain the presence of Pompeii, famously buried by the eruption of Vesuvius in AD 79?²⁰⁸

Because so much of the material on the map is suggestive of itineraries, it has been proposed that the archetype was, in fact, a representation of data from the *Itineraria Antonini*, or from an otherwise lost record of the *cursus publicus*²⁰⁹. One may note similarities between the place-names in the document and those preserved in the text of an anonymous cosmographer from Ravenna, probably writing around AD 700²¹⁰. One of the sources used by the cosmographer is an otherwise unattested treatise by Castorius, and it has been noted that the places and distances attributed to Castorius often correspond to the information preserved in the *Tabula*²¹¹. While we cannot, alas,

204 East was an important cardinal point in the Roman world, and its cartographic significance survived in Medieval *mappaemundi*, many of which placed east at the top; see Woodward 'Medieval *mappaemundi*' in *HoC* 1, 286–370.

205 See discussions in P. Arnaud 'L'origine, la date de rédaction et la diffusion de l'archetype de la Table de Peutinger', *BSNAF* (1988), 302–321 and Salway, 'Nature and Genesis', 123–127.

206 Salway, 'Nature and Genesis', 124; Talbert, *Rome's World*, 134.

207 Dilke, *Greek and Roman Maps*, 115.

208 Dilke, *Greek and Roman Maps*, 210 n. 10, suggests that the site of Pompeii had been resettled by the late antique period.

209 See, especially, Levi, *Itineraria Picta*, 97. The Antonine Itineraries and the *cursus publicus* are both discussed in chapter two.

210 The text has been published as *Ravennatis Anonymi Cosmographia*, in J. Schnez (ed.) *Itineraria Romana* 2. The most extensive commentary on the text is L. Dillemann *La Cosmographie du Ravennate* (Brussels, 1997).

211 K. Miller attributed the *Tabula Peutingeriana* directly to Castorius, although the attribution has never been widely accepted. See discussions in Dillemann, *Cosmographie*, 52–53; Gautier Dalché, 'La transmission', 43–44; Talbert, *Rome's World*, 133–34.

make any claims for the existence of Castorius, the evidence may at least suggest that the Ravenna cosmographer was using a textual source based on the archetype or the pictorial artefact itself. From this we may conclude that the archetype itself was in existence sometime before the eighth century.

It has also been argued, however, that the archetype of the *Tabula Peutingeriana* is Carolingian in origin and can only be dated as far back as the ninth century²¹². The hypothesis is not unattractive: if we envisage the surviving document as a pastiche of Roman imperial authority, assembled from sources available in the time of Charlemagne, we may explain more easily the temporal inconsistencies of the topographic material. While such a dating would coincide with a period of renewed interest in Roman geographical traditions²¹³ – and while it has been conjectured that a version of the document was known in the Carolingian world²¹⁴ – the evidence for such a proposal is ultimately no stronger than the evidence that places the origin of the archetype firmly in antiquity.

Even if we leave aside the confusing mix of topographical information and focus on the iconographic presentation of the document, a clear dating continues to elude us. We may, perhaps, note iconographic similarities in the display of towns and rivers between our document and the cartographic sketch on the reverse of the Artemidorus Papyrus, thought to date as early as the first century BC²¹⁵; iconographic similarities with the *Forma urbis Romae*, dated to the early third century AD, have also been noted²¹⁶. To these observations, we may add that the delineation of the central seas by means of wavy lines, bears some similarity to the depiction of rivers in the cadastral stones from Orange²¹⁷. None of these features, however, provide us with a firm basis from which to suggest a date.

If it is difficult to make any clear pronouncements about the dating, it is virtually impossible to ascertain how the archetype was presented or what functions it may have served. The shape of the document combined with the information about road

²¹² The theory is proposed in Albu, 'Imperial Geography', 136–48.

²¹³ See, for instance, N. Lozovsky 'Roman Geography and Ethnography in the Carolingian Empire', *Speculum*, Vol. 81 (2006), 325–64.

²¹⁴ Gautier Dalché, 'La trasmissione', 47.

²¹⁵ See Kramer, 'Map of Spain', 115–20 (esp. fig. 1, 117) and Brodersen and Elsner, *Artemidorus Papyrus*, 158.

²¹⁶ See R.J.A. Talbert 'Rome's Marble Plan and Peutinger's Map: Continuity in Cartographic Design' in F. Beutler and W. Hameter (eds) *Festschrift Ekkehard Weber* (Vienna, 2005), 627–34.

²¹⁷ Note, especially, the rivers in the *Insulae Furianae* section of Cadastre C (Piganiol, *Documents*, 295–307).

networks has led some scholars to believe that the original document may have existed as a scroll and was designed as something like a road atlas for travellers²¹⁸. Although the document does not appear to have any military function, it has been suggested that the presentation of the archetype may reflect what Vegetius referred to in his military handbook as ‘itineraries of the provinces, not only annotated but also illustrated’²¹⁹. Even if we accept that the surviving copy faithfully represents the dimensions of the original, the widely spaced arrangement of features in the *Tabula* may not have been as useful for a traveller as a simple written itinerary.

It seems more probable that the archetype was intended not for personal use but rather for public display. The most recent of these suggestions has placed the original in an apse behind the throne of Diocletian, a decorative statement of peace restored to the world under the tetrarchy²²⁰; however, if the archetype was displayed as part of a larger apse decoration, the topographic information would not have been easily viewable and the *oikoumene* would have thus been reduced to an abstract shape. On the other hand, the proportions of the *Tabula* would not have been incompatible with dimensions of a portico; in such a setting, the topographic information could be experienced episodically, and the extreme distortion of the *oikoumene* would not have been as apparent.

We have examined some of the problems associated with the *Tabula Peutingeriana* and its elusive archetype; it is now time to examine where this problematic document may fit within the Roman tradition of large-scale cartography that we have assembled over the course of the present chapter. This will involve making three assertions about the archetype: firstly, that the archetype had reached a terminal stage by the mid-fourth century – possibly in the era of Julian – after which it continued to be copied, largely without topographic additions; secondly, that the archetype – as it existed in the fourth century – did not contain a representation of the road network; and finally, that the archetype was based on a chorographic image of the *oikoumene*, originally displayed in a portico.

Perhaps the single most persuasive argument for an imperial or late antique dating of the archetype is the nearly-complete absence of Christian topographical features.

²¹⁸ The scroll theory is discussed in Dilke, *Greek and Roman Maps*, 114; Salway ‘Nature and Genesis’ 122.

²¹⁹ *itineraria provinciarum [...] non tantum adnotata sed etiam picta*. Vegetius III.6. On the civilian nature of the document, see Dilke, *Greek and Roman Maps*, 115.

²²⁰ Talbert, *Rome’s World*, 143–57.

In the whole of the surviving document we find numerous temples – identified by a fairly consistent temple symbol – and four altars, two of which are located at the easternmost end of the *oikoumene*²²¹. There is, however, a distinct lack of churches and Christian holy sites. Jerusalem appears as Helyacapitolina, although above the town name is written ‘Formerly called Herusalem’²²²; the town itself is not celebrated iconographically, and appears as the standard town symbol. Nearby, in the desert of the Sinai peninsula, we find the annotation ‘the desert where, for forty years, the children of Israel wandered, led by Moses’ and beneath, closer to Mount Sinai itself, we read ‘here, on Mount Sinai, they received the law’²²³. These legends, however, are probably later additions, and reflect a medieval rather than Roman tradition²²⁴.

The only identifiable Christian feature is a building outside of Rome labelled AD S(AN)C(TU)M PETRUM²²⁵. The building, although it appears to be several miles out of the city, appears as a standard temple symbol and may be reasonably identified as the original basilica of St Peter, built by Constantine. The symbol, however, must certainly be a later addition; whereas all but two of the building symbols are angled up and to the right, the building marked as St Peter’s is angled to the left; furthermore, the building is raised on a small hill, an iconographic feature which suggests St. Peter’s, but which is not found elsewhere²²⁶. In a document that is otherwise consistent in its iconography, the basilica stands out immediately as a careless imitation of the document’s style.

If we accept that the basilica is probably a later addition, we are left with a document that contains no traces of Christian topography. While this striking characteristic may not allow us to conclude that the archetype pre-dated the adoption of Christianity in the early fourth century – the craftsmen in charge of cartography may not have been immediately affected by a change of state religion – the absence of crosses, churches and emphasis on the holy land should, at least, rule out the possibility of a Carolingian dating. It seems doubtful that any Carolingian scribe would have been able to ignore Christianity so consistently.

221 At TP 7C2 and 11B4.

222 The whole indication thus reads: *Antea dicta Herusalem, m(odo) helyacapitolina* (TP 9C1).

223 *Desertum u(bi) quadraginta annis erraver(un)t filii isrl(is) ducente Moyse* (TP 8C5) and *Hic legem acceperunt i(n) monte Syna* (TP 8C4).

224 On which, see Gautier Dalché, ‘La trasmissione’, 44 and Talbert, *Rome’s World*, 165–66, both of whom note similarities to a map which accompanied the *Commentary on the Apocalypse* by Beatus of Liébana, written in AD 776.

225 TP 4B4.

226 The other two buildings represented by symbols with inconsistent perspective are a temple marked *Templ(um) Augusti* (TP 11C5) in the south-easternmost corner of the *oikoumene*, and the temple of Apollo at Daphne (TP 9B4), discussed below.

Furthermore, we may suggest that the archetype predates any large-scale Christian building and restoration projects, such as those undertaken by Justinian in the sixth century. Indeed, the rigour with which Christianity is ignored should lead us to the conclusion that the archetype was either the product of a pre-Christian empire or at very least that it was made before the acceptance of Christianity had had any serious effect on the built environment. It is also possible that the *Tabula* was designed as a specifically anti-Christian vision of the *oikoumene*. This latter option, combined with the presence of topographical features from mid-fourth century might point us in the direction of the emperor Julian. A Julianic dating for the archetype would also explain the prominence of Antioch, which is the largest and most detailed of the three personified cities.

Certainly, Julian is known to have spent time in Antioch in AD 362; moreover, because of his military ambitions in the East, Julian envisaged Antioch as a potential imperial capital²²⁷. The personification of Antioch, as it appears in the document, contains echoes from an episode in Ammianus Marcellinus: during Julian's sojourn, he decided to re-open a spring near the temple of Apollo at Daphne which had been covered over since the time of Hadrian²²⁸; shortly afterward, however, the temple of Apollo caught fire and burned to the ground²²⁹. In the representation of Antioch we find, immediately to the left of the city, a unique temple symbol surrounded by trees and featuring a spring which flows into an aqueduct that surrounds the city. There were, of course, other springs known at Daphne – Libanius, in his famous oration of AD 360, mentions the waters of a *nymphaeum*²³⁰ – but the presence of the temple may at least allow us to place the representation before AD 362.

Like the church of St. Peter, however, the symbol representing the temple does not conform to either the look or perspective of any other building in the *Tabula*; furthermore, the presence of trees – which, as we have mentioned, appear infrequently in the surviving document – might allow us to suggest that the entirety of Antioch is, in fact, a later addition. We may, in this case, suggest that the archetype – that is, the version which was

²²⁷ For an overview of Julian's time at Antioch, see G. Downey 'Julian the Apostate at Antioch', *Church History*, Vol. 8, No. 4 (1939), 303–15.

²²⁸ Ammianus Marcellinus XXII.12.8; see also, S.N.C. Lieu (ed) *The Emperor Julian: panegyric and polemic*. Second edition. (Liverpool, 1989), 47–54.

²²⁹ Ammianus Marcellinus XXII.13.1; see also Libanius *Monody on the Daphnean Temple of Apollo* in J. Duncombe *Select Works of the Emperor Julian* Vol. II (London, 1784), 243–51.

²³⁰ Libanius *Or.* XI.240. Commentary and English translation may be found in G. Downey 'Libanius' Oration in Praise of Antioch (Oration XI)', *Proceedings of the American Philosophical Society*, Vol. 103, No. 5 (1959), 652–86.

copied, with only minor changes, throughout the Medieval period – represents a Julianic update of an extant cartographic model, a sketch, perhaps, for some never-completed cartographic project destined for an Antiochene portico. We would certainly be justified in viewing the archetype as being representative of later Roman monumental cartography. The topographic points may have accumulated over the course of several phases, but both the types of information and the basic format seem consistent with the notion of the chorographic image that we have been able to assemble from our various sources.

The only feature of the *Tabula* that is not attested in the literary sources is the road network. In describing what the image of the *oikoumene* should contain, Vitruvius mentions rivers, Strabo mentions oceans, rivers, mountains, nations and cities, Ptolemy mentions harbours, towns and tributaries and Eumenius – perhaps the closest contemporary of the archetype – mentions named locations, rivers and the ocean as well as cities, nations and peoples. The road network – a conspicuous feature of the Roman world – is conspicuous in our cartographic descriptions only by its absence.

Even if we discount the dating problems arising from information preserved in the route network, the roads do not sit well within the geographic space of the *tabula*. There does not appear to be much consistency in the way that the roads connect together the various iconographically depicted features. It is strange also that no roads lead to the imperial capital of Constantinople. We may, however, start to make some sense of the road network if we are willing to imagine that the surviving document contains two distinct layers: the first layer is a drawing of a fourth-century chorographical display; the second layer consists of information compiled from earlier itineraries, but added to the document at a later stage, possibly several centuries after the first layer of the archetype had assumed its final form.

We have already seen that information about the fourth-century road network was still available to the Ravenna cosmographer at the beginning of the eighth century. It is certainly not beyond the realm of possibility to suggest that a Carolingian scribe, realising the Roman character of the original, would have sought to improve upon it by copying information from antique itineraries into the geographical space of the archetype. This, as much as anything else, would explain both the archaic place names and the reason we are unable to use the locations to arrive at a secure dating: this hypothetical later scribe may well have been using a variety of source materials from different eras, with little care for chronology.

If we are willing to strip away the road network from the archetype, we are left with an entirely plausible image of what a Roman chorographical display may have looked like: it is the shape of the *oikoumene*, elongated to fill the space in which it is displayed, and distorted to favour the areas for which the most information was available. The shape itself is defined by oceans and seas, and within it are found the positions of important cities, the sources and destinations of rivers, the locations of mountain ranges, and other topographical details that might have been known from historical and geographical texts.

As a navigational aid, the *Tabula Peutingeriana* would have been useless. A traveller, as we will see in the next chapter, would have relied more on the linear format of the itinerary for navigation, and would have had little use for a document that attempted to situate the viewer within the context of the *oikoumene*. As a document intended for public display, however, the *Tabula* would have provided an adequate – if not, strictly speaking, accurate – collection of locations known from history and literature, along with their disposition within the known world. By presenting chorographical information within a cartographic space, it would have fulfilled the needs for an educational tool as outlined by Eumenius; and in reducing the size of the areas about which less information had been gathered, it would have also served as a statement of imperial control over the *oikoumene*. For Eumenius, Roman-ness was an especially reassuring element of cartographic expression: ‘it is a pleasure,’ he says, ‘to look upon an image of the world, for in it we see nothing foreign²³¹’.

The unwieldy dimensions of the *Tabula* make it virtually impossible for the viewer to see everything in a single glance; to appreciate the details, a more sequential mode of viewing would have been necessary. If the archetype was, in fact, displayed in an apse, it may have been possible to get a sense of the whole from a single vantage point, but such a display would also remove any educational utility it may have had, reducing the whole thing to a kind of abstract decoration. In order to read the topographical indications within the document, it would have been necessary to display it in such a way that the viewer could be reasonably close.

It is possible that the archetype was designed as decoration for a room or private space. We know that a similar document – possibly an earlier version, now lost – was displayed

²³¹ *Nunc enim, nunc demum iuuat orbem spectare depictum, cum in illo nihil uidemus alienum.* Eumenius *Pro Inst. Schol.* 21.3.

in the antechamber of the bishop of Padua in the mid-fifteenth century; alas, this later usage hardly offers any clues as to the original display of the archetype²³². However, given the evidence for a tradition of portico-based world chorographies, we may reasonably suggest that a portico seems the most probable location for such a cartographic display. Even if the archetype only represents a sketch for a project that was never completed, we may perhaps understand the *Tabula Peutingeriana* as an example of how Roman cartography had evolved since the time of Augustus, and had come to take on a form that, as much as Ptolemy might have protested its inaccuracies, provided a more accurate reflection of how the Roman world understood its own extent. By focussing on the presentation of gathered information and retaining only a nominal sense of the geographic framework in which those locations existed, chorography offered a means of cartographic expression where perceived reality was favoured over mathematical abstraction.



If cartography is the translation of a larger space into a representation that allows the space to be more readily apprehended, then there can be little doubt that cartography existed in the Roman world. However, the cartographic artefacts that we have been able to identify hardly constitute a tradition of scale cartography. The regional *formae* of the agrimensores can be described as representational only insofar as they drew upon the artificial structures imposed by centuriation in order to create a largely textual record of land-holdings. The large-scale chorographic documents, on the other hand, were essentially public displays of topographic knowledge, and the cartographic frame was ultimately less important than the information contained within it.

Of the two traditions, the processes of construction that shaped the Roman world had far more effect on the regional cartography of the surveyors. The regional *formae* were a direct result of the land survey and, as such, preserved the imposed framework of the grid, while simultaneously attempting to transform the topographic realities of the site into text. Our larger chorographies, on the other hand are notable precisely for their focus on natural topography – rivers, specifically, but also mountains – and their failure, as far as we can tell, to represent significant human additions to the landscape. Cities, harbours

²³² On the fifteenth century copy, see Gautier Dalché, 'La trasmissione', 48; Salway, 'Nature and Genesis', 122; Talbert, *Rome's World*, 166–70.

and *aquae* were the only elements from the built environment translated into the cartographic space and even then – if the *Tabula Peutingeriana* is any indication – it was not a complete record of urban centres, but rather a selection of the more important ones.

We may characterise the *formae* of the surveyors as practical cartographic documents, but based on the textual and material evidence available to us, we should not think of them as being anything like a scale representation of the local-area landscape. The imposition of the centuriation grid onto the ground created a textual system that rendered cartographic representation largely unnecessary; situations involving *ager arcifinius* were problematic for the surveyors not so much because of the lack of cartographic representation, but because there was no textual record against which to compare the findings from the land. In the case of the cadastral stones from Orange – where the *forma* acted as the basis for a public display – the cartographic elements of the presentation were reduced to a level of pure decoration.

Decoration was certainly one of the guiding principles behind the large-scale chorographic displays. Based on what we know, the portico chorographies can be characterised as cartographic in the sense that they employed a received idea of the world's shape as a vessel in which to display the collected topographic knowledge of the empire. However, the accurate representation of the *oikoumene* – a cartographic ideal espoused by Ptolemy – may have been eclipsed by the desire to create a more comprehensive catalogue of the world's known contents. There is, indeed, a sense that the cartographic space was treated more as an abstract frame – an idea of the *oikoumene* rather than a representation of it – and that the real value of the chorographic display was the textual evidence of an explored world.

We must, therefore, conclude that the extensive building which defined the physical space of the Roman world affected the way that local areas were perceived, but did not provide the conceptual foundation for pictorial representation of the larger world. Indeed, pictorial representation may have played a fairly small role in the apprehension of larger spaces. Chorographic displays provided an impression of the *oikoumene's* extent – and, by extension, the extent of the Roman presence within it – but, as we shall see in the coming chapter, it was the built environment that would provide a means for the individual to move through, and situate himself within, the space of the known world.

CHAPTER TWO

apprehending the landscape

*T*HE CARTOGRAPHIC CREATIONS FROM ANTIQUITY THAT WE DISCUSSED IN the previous chapter do not ultimately represent any kind of engagement with the land; instead, they were an attempt to render a particular geographical understanding of the *oikoumene* into pictorial form. The understanding itself was the result of a long tradition of mathematical investigation combined with an ever-increasing knowledge of the natural topographical features that made up the inhabited world. While cartography may have offered a convenient means of displaying chorographical information in a public setting, it would not have provided the Roman citizen with a means of apprehending the space of the empire – or, indeed, the world – in any practical way.

For the purposes of our present study, we should consider apprehension of the landscape as consisting of two distinct – albeit interrelated – halves. First there is the concept of navigation, which we use here not in its original maritime sense, but rather to denote the act of situating oneself within a given space and, subsequently, of finding the way from one location to another. Secondly, there is interpretation, which is essentially the act of perceiving features within the landscape through the filter of one's own historical, mythological or geographical knowledge. Both processes involve an assessment of the land and a translation of physical space into spatial understanding.

Natural topography may have provided the structure for large-scale conceptions of the world, and it may have even served to define the boundaries between regions; however, it was the built environment that provided a physical index for practical apprehension of the Roman world. The extensive network of roads allowed navigational

instructions to be recorded as simple, linear text, thus making it possible to traverse the long distances of a large empire. Furthermore, the presence of constructed elements within the landscape – not merely roads and cities, but also the temples, statues, altars and other man-made objects placed within the natural world – provided a topographic structure through which an understanding of the land could develop.

By examining our source material in light of what we know about the road network itself, we may propose a reasonably convincing reconstruction of how it was possible to traverse the geographical space of Roman land, and how it was possible to conceive of a journey from one part of the empire to another. As we noted in the previous chapter, textual information was viewed as highly authoritative: the permanent textual record was more highly regarded than the surveyor's *forma* when it came to questions of land division; textual chorographies were always the foundation on which pictorial ones could be constructed. In the process of navigation, text was equally important: the act of successfully travelling from one place to another depended on an ability to convey the complexity of movement through a multi-directional space as simply and sequentially as possible. As we shall see, it was the built environment that made this possible.

The question of interpretation is slightly more difficult to address. It is, of course, impossible for the modern writer to position himself within the perceptual space of the Roman traveller. Our ability to discuss how the landscape was experienced by the contemporary viewer is, therefore, limited to what we can discern from those accounts of travel that bother to engage with the world around them. Even with reliable texts it can be difficult to draw conclusions about matters as vague as perception and interpretation. Nonetheless, by examining three different texts from three different centuries – each containing a different approach to the idea of moving through the landscape – we may note the recurrence of similar themes. Specifically, we may be able to detect a sense of the way that features from the built environment acted as a locus around which cultural notions of history, mythology and memory could coalesce. As we shall demonstrate, it is this collected memory, a memory preserved largely in the built environment, that provided the most consistent means of apprehending the landscape.



the mechanics of navigation I: itineraries

The construction and maintenance of paved roads had been an integral part of Roman expansions since at least the third century BC. By the time of Augustus, many of the roads leading directly out of Rome had been in existence long enough to require repair, and new road-building projects were being undertaken throughout the provinces¹. However, as extensive as the road network may have been, it appears to have had little effect on Roman geographical perceptions of the larger world: roads are notably absent from the brief world-descriptions of Pomponius Mela and Dionysius Periegetes², as well as from the more detailed topographic catalogues of Strabo and Pliny.

Roads also appear to have been absent from cartographic representations. Even if there was a tradition of scale cartography in antiquity, the suggestion that Roman travellers would have relied on any kind of ‘road maps’ for navigation presupposes a level of cartographic literacy for which there is simply no evidence. Our failure, in the previous chapter, to locate a mapping tradition that included the road network might suggest that movement through the landscape – and thus, perception of the landscape – did not rely on any kind of cartographic assistance.

In recent years it has been proposed that spatial perception in the Roman world was fundamentally linear, and that an understanding of geographical space was dictated almost exclusively by the road network³. According to this theory – which we may refer to as the ‘hodological’ approach⁴ – the entirety of the world was essentially understood as a series of straight lines leading from one location to another. The locations, however,

1 On the road repairs commissioned by Augustus see, Dio LIII.22.1 and LIV.8; on road building in Gallia Narbonensis, see Strabo IV.6.11.

2 Pomponius Mela and Dionysius Periegetes are discussed below, 94–98.

3 The pioneering work is P. Janni *La mappa e il periplo: cartografia antica e spazio odologico* (Rome, 1984); see also C.R. Whittaker ‘Mental Maps: Seeing Like a Roman’ in P. McKechnie (ed.) *Thinking Like a Lawyer: essays on legal history and general history for John Crook on his eightieth birthday* (Leiden, 2002), 81–112.

4 The term – from the greek ὁδός – was initially used in behavioral psychology; see K. Lewin ‘Field Theory and Experiment in Social Psychology: Concepts and Methods’, *American Journal of Sociology*, Vol. 44, No. 6 (1939), 868–96 (at 891). Janni, *La mappa e il periplo*, 13 has applied Lewin’s concept to the ancient world. The idea has also been repurposed for landscape studies – without any apparent reference to Lewin – in Jackson, *Vernacular Landscape*, 21.

existed only in relation to the paths and were not perceived within anything that we might recognise as a relational or multi-directional space. In short, the network of roads would have rendered cartographic perception of the world completely unnecessary.

While such a theory is perhaps overly restrictive – navigation, as we shall demonstrate, probably relied on a combination of hodological and relational understanding – we cannot deny that roads played a role of vital importance in the process of moving through the space of the Roman world. Like the centuriation grid, the roads acted as a physical presence within the land that allowed for both standardised assessment, and the creation of simplified textual records. The road network and its attendant infrastructure did not merely provide the physical surface for movement, it also provided the conceptual framework that allowed the mechanics of travel to be codified and communicated.

The primary means of communicating the information necessary to get from one place to another seems to have been the itinerary. We should, perhaps, mention from the beginning that the itinerary is not as a particular type of document, but rather a format of textual presentation: itineraries were, of course, written down on papyrus and parchment, but it would have been equally possible to find similar information in monumental inscriptions, or preserved on small, portable artefacts. While the modes of presentation may have varied, the format of the textual information remained fairly consistent. The two major textual examples that have survived from antiquity are the Antonine Itineraries and the Bordeaux Itinerary⁵. The latter, which we shall return to at the end of this chapter, is a reasonably brief document offering instructions for a single journey, in this case from Bordeaux to Jerusalem; the Antonine Itineraries, on the other hand, offer a more complex – and in some ways, more problematic – vision of travel within the imperial world⁶.

5 Although the two works are not related – except by genre – they have traditionally been published together: in *Vetera Romanorum Itineraria, sive Antonini Itinerarium* ed. P. Wesseling (Amsterdam, 1735), in *Itinerarium Antonini Augusti et Hierosolymitanum* ed. G. Parthey and M. Pinder (Berlin, 1848), and in *Itineraria Romana* vol. 1 ed. O. Cuntz (Leipzig, 1929), which is now the standard edition. The two latter editions have preserved Wesseling's apparatus for citation.

6 Some of the major treatments of the Antonine Itineraries include: D. van Berchem 'L'Année Militaire dans L'Empire Romain au IIIe Siècle', *MSNAF*, Vol. 24 (1937), 117–202; A.L.F. Rivet and K. Jackson 'The British Section of the Antonine Itinerary', *Britannia*, Vol. 1 (1970), 34–82; N. Reed 'Pattern and Purpose in the Antonine Itinerary', *AJP*, Vol. 99, No. 2 (1978), 228–254; P. Arnaud 'L'Itinéraire d'Antonin: un témoin de la littérature itinéraire du Bas-Empire', *Geographia Antiqua*, Vol. 2 (1993), 33–49; Salway, 'Travel, *Itineraria* and *Tabellaria*', 22–66; R.J.A. Talbert 'Author, Audience and the Roman Empire in the Antonine Itinerary' in R. Haensch and J. Heinrichs (eds) *Herrschen und Verwalten: Der Alltag der römischen Administration in der Hoben Kaiserzeit* (Köln, 2007), 256–70. See also Thomson, *Ancient Geography*, 376–78; Chevallier, *Roman Roads*, 34–37; Dilke, *Greek and Roman Maps*, 125–28.



The published text of the Antonine Itineraries has been divided into two sections: the second, and shorter of the two, describes a series of maritime journeys and offers a list of islands⁷; the first, and by far more substantial section contains a series of land journeys (*itineraria*) covering much of the empire, although often in no particular order⁸. When taken together, the journeys of the Antonine Itineraries seem to represent an attempt to convey the multi-directional complexities of the road network in a textual format that is necessarily linear and sequential.

The format of each journey is fairly simple: itineraries are little more than lists, where each item consists of a place name followed by a distance in Roman miles. A sample itinerary, this one from Neapolis (in Palestine) to Ascalon, reads:

Item a Neapoli Ascalona	mp LXIII sic
Aelia	mp XXX
Eleutheropoli	mp XX
Ascalona	mp XXIII ⁹

It is a remarkably efficient method of presentation: in no more than four lines of text, we are given the total distance from Neapolis to Ascalon, followed by a breakdown of the journey into stages, and the distances travelled on each day. Everything non-essential has been stripped away. The use of oblique cases means that, even without prepositions, each journey can be read as a simple sentence¹⁰. Furthermore, the introductory ‘*item*’, which introduces many of the itineraries in a particular group or area, suggests that the journeys were designed to be read, if not in sequence, then at very least with a sense of regional continuity.

It is the names of cities, towns and established stopping-points that dominate the textual information and, indeed, these are often all we are given. However in certain of

7 Maritime itineraries: *Itin. Ant.* 487.1–508.2. Islands: *Itin. Ant.* 508.3–529.6.

8 On the structure of the land itineraries, see van Berchem, ‘L’Annone Militaire’, 166–81; Reed, ‘Pattern and Purpose’, 235–43; and Salway ‘Travel, *Itineraria* and *Tabellaria*’ 39–43. Most modern scholarship – following the published heading *Itinerarium Prouinciarum* – renders the title in the singular. The present study has adopted the plural (thus, Antonine Itineraries) simply because, as we shall demonstrate, there is no evidence to suggest that the individual journeys should be read together as a single corpus.

9 *Itin. Ant.* 200.1–3.

10 See Chevallier, *Roman Roads*, 53–4 and Salway, ‘Travel, *Itineraria* and *Tabellaria*’, 27; the use of oblique cases is discussed most extensively in C. Pallu de Lessert ‘Syntaxe des routiers Romains et les déformations des noms de lieux dans l’Afrique Romain’, *MSNAF*, Series 7, Vol. 5 (1904–5), 115–38 and J. Heurgon ‘La fixation des noms de lieux en latin d’après les itinéraires routiers’, *Revue de philologie, de littérature et d’histoire anciennes*, Series 3, Vol. 26 (1952) 169–78.

the itineraries – mostly those in Italy, but also in several of those in Africa – the nature of the stopping point is also specified. Thus, the places in the itinerary are sometimes designated as *ciuitas*, *vicus*¹¹, *colonia*¹² or *municipium*¹³. Occasionally other topographic designations will appear: there are examples of bridges (*pontes*), forts (*castella*) fortified encampments (*castra*) and villas scattered throughout the various journeys¹⁴.

A further designation – which appears infrequently in the Antonine Itineraries but much more so in the Bordeaux Itinerary – is the *mansio*, which refers, specifically, to a non-urban stopping-point along the route¹⁵. Unlike the various cities and towns, the *mansiones* – which were a part of the built infrastructure maintained by the *cursus publicus*¹⁶ – appear to be the one feature that existed solely for the convenience of the traveller; for this reason, they may serve as a reminder that the itineraries were practical documents, not merely records of distances. We should note, however, that these designations do not appear in all, or even in the majority of the journeys: in the interest of presenting the information as efficiently as possible, we are most often presented with little more than a place name.

While the itineraries feature numerous words denoting constructed locations – from as large as a city to as small as a single building – we may note the absence of those natural topographic features that were so integral to the literary geographies and their cartographic representations. Only a handful of mountains appear over the course of the various journeys¹⁷; rivers, likewise do not appear with great frequency, and when they do, it is presumably to alert the traveller that there is no bridge to cross¹⁸. Unlike the

11 *Vicus*, meaning literally a row of houses rather than any kind of established urban centre, appears notably in the journey from Trier to Agrippina (372.3–373.5) where all of the stopping-points are listed as *vicus*.

12 *Coloniae*, as discussed in chapter two, were settlements founded by the state, often to house veterans. In the itineraries, the majority of the *coloniae* appear in the African section (*Itin. Ant.* 2.1–78.3). See, Arnaud, ‘L’Itinéraire d’Antonin’, 35 and Salway, ‘Travel, *Itineraria* and *Tabellaria*’ 41.

13 *Municipium* refers to a town under Roman rule, but governed by its own laws. Like the *coloniae*, the *municipia* appears almost exclusively in the African itineraries, with the exception of one stopping-point in Pannonia, which is simply listed as ‘*Municipio*’ (*Itin. Ant.* 134.1).

14 While the villas are concentrated around *Itin. Ant.* 59.4–63.2, the other items appear with greater regularity.

15 Arnaud, ‘L’Itinéraire d’Antonin’, 36 has demonstrated that *mansio* and *vicus* may have been used synonymously.

16 Jones, *LRE*, 831–2; Kolb in Adams and Laurence, *Travel and Geography*, 97.

17 The mountains mentioned are Aureus (132.2–3, 243.6), Brisiacus (239.1, 252.3, 350.1), Celius (250.7), Seleucus (357.8) and Mariorum (432.4).

18 Rivers in the Italian section are designated *fluuius* (cf. *Itin. Ant.* 103.1, 105.5 (=110.7), 106.1.), whereas in Africa and Hispania, they are referred to as *flumen* (cf. 11.6, 12.4, 13.3 in Africa; 418.2, 446.10 in Hispania). The Nile (164.1) is sufficiently well known to require no designation other than its name.

literary accounts of Strabo or Pliny, the Antonine Itineraries offer a vision of the world where the constructed elements are the only reference points worth mentioning.

There is, of course, one element from the constructed world that is not mentioned anywhere in the itineraries, but which provides the greatest reference point of all; that is, the road network itself¹⁹. Even if we cannot precisely reconcile all of the journeys to known roads, we must nonetheless concede that it is the idea of the fixed path that provides the necessary connection between the places listed in the itineraries and the physical spaces being traversed. The efficient presentation of the itineraries depends completely on the guidance of the roads. Not only did the roads provide a physical reference for travel, but they also provided a foundation for the distances given in the itineraries. For the most part, distances are presented in *milia passuum* – abbreviated in the manuscripts as *mp* or *mpm*²⁰ – which is, of course, the standard Roman mile. In fact, the word *passus* refers to a stride – that is, two full steps (*gradi*) or five feet (*pedes*)²¹ – and thus *milia passuum* is simply one thousand strides. Although the units of measurement contain etymological echoes of their pedestrian origins, by the time of the itineraries, both the *pes* and the *milia passuum* would, in fact, have represented a fixed distance²².

Miles, however, are not the only unit used in the itineraries. In a few of the journeys through Gallia or Germania, the distances are given in leagues (*leugae*), which were an officially recognised unit of measurement equal to roughly one-and-a-half Roman miles²³. Where distances are given in leagues, they often appear in tandem

19 There are numerous regional studies which attempt to map the itineraries to the surviving material evidence; see, for instance: W.B. Harris ‘The Roman Roads of Morocco’, *GJ*, Vol. 10, No. 3 (1897), 300–303; R. D. Oldham ‘The Antonine Itinerary of the Aurelian Road between Aix and Arles’, *GJ*, Vol. 72, No. 1 (1928), 58–60; Rivet and Jackson, ‘British Section’, 39–67; N.G.L. Hammond ‘The Western Part of the via Egnatia’, *JRS*, Vol. 64 (1974), 185–94; W. Rodwell ‘Milestones, Civic Territories and the Antonine Itinerary’, *Britannia*, Vol. 6 (1975), 76–101. For a more extensive bibliography, see Chevallier, *Roman Roads*, 232–33.

20 In the edition of Parthey and Pinder – the standard edition for some eighty years – *mpm* is expanded to ‘*milia plus minus*’ suggesting that the distances given are somehow imprecise; this reading is adopted in Oldham, ‘Aurelian Road’, 58, who claims that the interpretation is ‘generally accepted’. It is apparent, however, that this reading – which does appear in some of the manuscripts – represents a misunderstanding of the itinerary format on the part of a much later copyist.

21 For a contemporary account of Roman units of measurement, see Balbus *Expositio* (in *CAR*: L 94 = C 206.11).

22 The standard Roman foot is thought to have been 11.65 inches, thus 5,000 Roman feet (i.e. one Roman mile) would be equivalent to 4,854 feet; see the opening paragraphs of R.P. Duncan-Jones ‘Length-Units in Roman Town Planning: The Pes Monetalis and the Pes Drusianus’, *Britannia*, Vol. 11 (1980), 127–33.

23 Confirming the later assertion of Isidore that ‘our road distances are given in miles [...] those in Gallia are given in leagues’ (*mensurum viarum nos miliaria dicimus [...] Galli leugas*). *Etymologiae* XV.16.1. The league is defined by Isidore as 1,500 *passus* (*leuga finitur passibus mille quingentis*. *Etymologiae* XV.16.1); see also the definition given by Ammianus: ‘to the barbarian camp it was

with their equivalent distances in *milia passuum*²⁴; however, in two of the journeys – both involving Trier – the distances are given in leagues only²⁵. There is evidence to suggest that in some parts of Gallia, there were milestones that gave distances only in leagues²⁶; thus, the information preserved in the itineraries probably reflects the distances as taken from the roads themselves.

However, the itineraries cannot be seen as merely an impartial record of the road network; the utility of a traveller's document is encoded even into the names and distances that make up each journey. It is rare, for instance, to find distances of fewer than twelve miles and, equally, one rarely encounters distances of more than thirty-two miles; the reason for this is that each line represents a single day's travel²⁷. Each itinerary is, therefore, not an account of every station along the road, but rather an enumeration of the places where the traveller might be able to spend the night.

In the itineraries we find a method of presentation that is both economical and practical; by starting from the roads themselves and drawing upon the resources of road-related infrastructure – both the milestones, as well as the *mansiones* of the *cursus publicus* – the itineraries were able to reduce travel instructions to their simplest form. There are no potentially confusing topographic markers and no needless descriptions; if one simply followed the path, with the itinerary as their guide, one could move effortlessly throughout the Roman world.

Although we have a number of examples of the itinerary format from the classical world – as well as later texts, like the Ravenna cosmography, which may have been based on earlier compilations – there is still no clear idea of how the itineraries were put into practical use. In particular, the form and content of the Antonine Itineraries have raised numerous questions about how and when the information was compiled, how it may have been used, and how it was subsequently transmitted.

fourteen leagues, that is twenty one miles' (*ad usque vallum barbaricum quarta leuga signabatur et decima id est unum et viginti milia passuum*. XVI.12.8).

24 For example, the journey from Gunzburg to Strasbourg (*Itin. Ant.* 250.6–252.5) and Lyon to Reims (356.1–358.4).

25 Reims to Trier (*Itin. Ant.* 365.7–366.4) and Trier to Agrippina (372.3–373.5).

26 For instance, *L'année épigraphique* (1968) 313, 106.

27 On the speed of road-travel in the Roman world, see L.W. Hunter 'Cicero's Journey to His Province of Cilicia in 51 BC', *JRS*, Vol. 3, Part 1 (1913), 73–97; A.M. Ramsay 'The Speed of the Roman Imperial Post', *JRS*, Vol. 15 (1925), 60–74; C.W.J. Eliot 'New Evidence for the Speed of the Roman Imperial Post', *Phoenix*, Vol. 9, No. 2 (1955), 76–80.

Early in the twentieth century, it was proposed that the itineraries were, in fact, copied from a map²⁸; this theory, which has never gained wide acceptance²⁹, is based on the assumption that ancient cartography would have featured a depiction of the road network, a proposition which – from the evidence discussed in the previous chapter – seems less than probable. Even if we accept that the road network in *Tabula Peutingeriana* is contemporary with the pictorial elements, the various textual problems and temporal discrepancies in the itinerary information suggest that they were based upon pre-existing sources.

A more commonly accepted theory is that the Antonine Itineraries represent something like an official state record of the road network; there has, however, been little agreement as to what kind of record the itineraries may represent. It has been suggested, for instance, that the information may be related in some way to the *cursus publicus*, although this is not widely accepted³⁰; it has also been argued that the itineraries were not designed specifically for travel, but rather were records of tax collection linked to Diocletian's reforms of the *annona*³¹.

On the other hand, the itineraries may simply represent records of, or plans for imperial travel. There is certainly some literary evidence to suggest that arrangements for imperial travel would have been prepared and announced in advance; specifically there is a passage in the *Historia Augusta* – from the *Life of Severus Alexander* – where the author discusses how the emperor would issue an edict two months before his campaigns, in which the various stopping points and provisioning stations were listed in order³². The edict, which was displayed publicly, sounds not dissimilar to an itinerary.

Further connections to imperial travel may be found in a close examination of the itineraries themselves. One of the longer itineraries – describing a journey from Rome to Egypt³³ – has been convincingly linked to actual travels undertaken by Caracalla

28 The theory was proposed by W. Kubitschek in *Realencyclopädie* Vol. IX (s.v. *Itinerarien*).

29 See, for instance, G.H. Wheeler 'Textual Errors in the Itinerary of Antoninus', *EHR*, Vol. 35, No. 139 (1920), 377–82 and Rivet and Jackson, 'British Section', 37.

30 Rivet and Jackson, 'British Section', 36, and Salway, 'Travel, *Itineraria* and *Tabellaria*', 36.

31 See van Berchem, 'L'Annone Militaire', 166–81; Reed, 'Pattern and Purpose', 244–47.

32 *itinerum autem dies publice proponebantur, ita ut edictum penderet ante menses duos [...] deinde per ordinem mansiones, deinde stativae, deinde ubi annona esset accipienda, et id quidem eo usque quamdium ad fines barbaricos veniretur. HA Sev. Alex.* 45.2

33 *Itin. Ant.* 123.8–162.4.

at the beginning of the third century AD³⁴. However, the presence of a single imperial journey within the collection should not necessarily lead us to the conclusion that the collection itself was assembled for a single emperor³⁵. Indeed, if we attempt to date the itineraries on internal evidence we quickly find that the temporal inconsistencies between various journeys make it very difficult to establish consistent dating for the compilation as a whole. Caracalla's journey from Rome to Egypt would have taken place in AD 214–15; however, some of the earliest material – collected in the maritime section of itineraries³⁶ – may predate Caracalla's journey by over a century³⁷. Furthermore, the appearance of Diocletianopolis in one itinerary would suggest that some of the material originated after AD 286³⁸.

The nature of the manuscript tradition is unable to shed further light on the origins of the compilation. Although the itineraries exist in numerous manuscript copies, all of them seem to derive from a single exemplar in the Codex Spirensis, a now-lost ninth-century manuscript that contained, among other works, the *Notitia Dignitatum*, the cosmography of Aethicus, and Dicuil's *Liber de Mensura*³⁹. While we should not doubt that the material itself is of classical origin, we cannot say with any certainty that the arrangement is a reflection of how the material would have existed in the Roman world.

Even though the information in the Antonine Itineraries is presented with reasonable consistency, there is, as we have already seen, ample evidence to suggest that the individual journeys represent material collated from various sources. The consistent use of *flumen* for river in some itineraries, and *fluuius* in others, might imply the

34 See van Berchem, 'L'Annone Militaire', 172–75; additional evidence is presented and discussed in R. Mouterde 'Une dédicace d'Apamée de Syrie à l'approche de Caracalla et l'Itinerarium Antonini', *CRAI*, Vol. 96, No. 3 (1952), 355–363, and D. van Berchem 'L'itinéraire Antonin et le voyage en Orient de Caracalla (214-215)', *CRAI*, Vol. 117, No. 1 (1973), 123–26.

35 Reed, 'Pattern and Purpose', 231–32, points out the dangers of reading too much into the imperial title of the collection.

36 Specifically, the maritime journey from Rome to Arles, *Itin. Ant.* 497.9–508.2.

37 On the dating of this section, see R. Lugand 'Note sur l'itinéraire maritime de Rome à Arles', *Mélanges d'archéologie et d'histoire*, Vol. 43 (1926), 124–39.

38 At *Itin. Ant.* 330.6. See Rivet and Jackson, 'British Section', 37 and Arnaud, 'L'itinéraire d'Antonin', 41.

39 The manuscripts are enumerated in Parthey and Pinder, xxii–xxxiv. On the Codex Spirensis, see E.A. Thompson *A Roman Reformer and Inventor* (Oxford, 1952), 6–17. On the later copies of the Spirensis, see O. Seeck 'Zur Kritik der Notitia Dignitatum', *Hermes*, Vol. 9, No. 2 (1875), 217–242; E.T. Merrill 'The Bodleian MS of the Notitia', *CP*, Vol. 3, No. 2 (1908), 190–195; Bieler, 'Text Tradition of Dicuil', 5–9.

hand of different authors or editors⁴⁰. Likewise, the fact that some itineraries preserve administrative distinctions between *civitas*, *vicus* and *municipium*, while others do not, might also suggest the presence of a diverse and unconnected pool of source material.

We must, therefore, view the Antonine Itineraries as a compilation of disparate journeys drawn from equally disparate records; any consistency in the overall presentation should be understood as evidence not for a common source, but rather for the normalising hand of an editor. Furthermore, while we may propose the end of the third century as the earliest possible date for the compilation, we should not discount the possibility that the itineraries were ordered into a single work in the first half of the fourth century, or perhaps even later⁴¹.

If the source material for the Antonine Itineraries was not originally intended as part of a single coherent work, we may start to question whether or not they constitute any kind of official record or, indeed, if they are even as imperial as the title would lead us to believe⁴². While certain of the individual journeys may represent plans for imperial travel, or routes used by the *cursus publicus*, the surviving text is most probably neither an official route-book, nor a record of all possible travel on the road network. Rather, the text that has come down to us with the title *Itinerarium Antonini* may, in fact, be little more than a series of unrelated journeys assembled from publicly available sources.

It is not, then, the Antonine Itineraries themselves, but rather their hypothetical sources that are of most interest to us. Specifically we need to determine if the written itineraries gathered by our compiler actually began life as written documents, or if they were drawn from some other source. If we can arrive at an idea of how the surviving itineraries took shape – and on what sources they may have been based – we may, in turn, be able to reach some conclusions about how the road network in particular – and the built environment in general – influenced the Roman perception of space.

We should perhaps begin by proposing that most of the itineraries, in their initial form, were not records of actual travel. They would almost certainly have been used for travel, and some of the entries in the Antonine Itineraries can be read as traveller's

40 On the appearance of rivers, see above, n. 18.

41 For suggestions about dates and the process of compilation, see Arnaud, 'L'itinéraire d'Antonin', 33–49.

42 P. Arnaud 'À propos d'un prétendu itinéraire de Caracalla dans l'itinéraire d'Antonin: les sources tardives de l'itinéraire de Rome à Hierasycaminos', *BSNAF* (1992), 374–80; Salway, 'Travel, *Itineraria* and *Tabellaria*', 47.

annotations. There is, however, enough evidence to suggest that the information was probably copied from pre-existing source material. The use of place designations – such as *civitas*, *vicus* and *municipium* – in some of the African itineraries might imply an official record; we can hardly expect the traveller to have been aware of the political status of every town he passed through. Similarly, the presence of *mansiones* in stretches where there are no towns, seems like precisely the kind of information that the traveller would want to be aware of in advance. Finally, although there were certainly milestones along the roads, the distances in the itineraries probably represent official distances recorded during the building process, rather than the tabulation of a traveller.

Where, then, did the itineraries come from? The earliest surviving example of the Roman itinerary format comes not from a written document, but rather from the material record: a series of four silver goblets – known as the Vicarello goblets – were found near the site of Aquae Apollinares on Lake Bracciano, about twenty-five miles north-west of Rome⁴³. The goblets are notable not only for their resemblance to a milestone, but also for the fact that, inscribed onto the sides there is an itinerary detailing the journey from Cadiz to Rome⁴⁴.

Although the four goblets cover the same basic journey, there are enough important textual differences between them to suggest that they represent different stages in the both the evolution of the road network and the development of imperial urban centres. For instance, the presence of Augusta Taurinorum in Goblet IV – replacing Taurini in the earlier goblets – suggests that the final goblet was updated to reflect the new colonial status conferred upon the town during the reign of Augustus⁴⁵. Furthermore, the line ‘IN ALPE COTTIA’ in the fourth goblet has been linked to the construction of a road through the mountains, built during the latter years of the Augustan period⁴⁶.

We may also note that the itinerary in the fourth goblet – unlike the previous three – is broken into smaller segments. Instead of a simple journey from Cadiz to Rome, we are presented with the distances from Cadiz to Seville, Seville to Cordoba, Cordoba to

43 On the goblets see J. Heurgon ‘La Date des Gobelets de Vicarello’, *REA*, Vol. 54 (1952), 39–50; see also Chevallier, *Roman Roads*, 47–50.

44 The itineraries themselves have been published as *CIL* XI 3281–4; a reproduction of Goblet I and a drawing of Goblet IV may be found in Heurgon, ‘Gobelets’, facing 42 and facing 44, respectively.

45 Goblet IV = *CIL* XI 3284. Augusta Taurinorum at Col. 3.23. See Heurgon, ‘Gobelets’, 44.

46 Heurgon, ‘Gobelets’, 45. The construction of the road is described in Ammianus Marcellinus XV.10.2.



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FIG. 2.1 Itinerary from Cadiz to Rome (*CIL XI 3282*)

Tarragona, Tarragona to Narbonne, Narbonne to Turin, and finally onward to Rome. Although these breaks do not change the essential nature of the journey, they certainly serve to highlight the major regional centres; Cordoba, Tarragona and Narbonne would have been provincial capitals during the time of Augustus.

The goblets may, thus, be considered artefacts from the early days of the imperial road network: the first three are the earliest, probably dating from the beginning of Augustus's reign, while the fourth can be dated to the final years of Augustus or the first years of Tiberius⁴⁷. The changes to the itinerary text over the span of around fifty years may be seen to reflect the dynamic nature of imperial organisation and the continual improvements being made to the built infrastructure of the Roman world. These changes also suggest a definite connection between the itinerary format and the road network that it sought to represent: in order to remain useful, the itinerary needed to be updated so that it would reflect the reality on the ground.

47 Heurgon, 'Gobelets' 44–5; Chevallier, *Roman Roads*, 49.

Certainly, the goblets provide an intriguing model of how itineraries may have been used in the process of travel. Instead of the potential traveller having to copy down the itinerary, the information would have been incorporated into a practical and portable artefact. However, the fact that we have several different versions of the artefact reflecting different stages in the development of the journey might suggest that the itinerary itself was based on a more publicly visible source.

It has been suggested, for instance that the Vicarello goblets may have been based on an actual monument located in Cadiz, perhaps a regional variant of the *miliarium aureum* in Rome⁴⁸; if the monument was altered to reflect changes in the route to Rome, these alterations might thus be reproduced in the goblets. It has been suggested, more generally, that we look to the epigraphic record for the source of the itineraries⁴⁹. However, apart from the goblets, as well as a few isolated inscriptions from Gaul, we have not yet uncovered enough examples of epigraphic itineraries to demonstrate that they were a widespread phenomenon.

A series of three stone fragments discovered in Autun have been used to suggest the existence of an itinerary monument⁵⁰. The monument itself is thought to have been rectangular and around ten feet in height; on each side there would have been a list of names and distances in *milia passuum*⁵¹. One of the fragments seems to describe a route north-west toward Auxerre; however, one face of the monument is claimed to have contained distances between Bologna and Parma along the Via Aemilia⁵². Given the proposed size of the monument, it is not impossible that one face of the itinerary would – like the Vicarello goblets – have described the route to Rome.

More recently, the discovery of a monument from Patara, on the Lycian coast, has strengthened the argument for epigraphic itineraries⁵³. The monument – which was some eighteen feet in height and which is thought to have formed the base for an equestrian statue – dates to the reign of Claudius, and features itinerary descriptions

48 Chevallier, *Roman Roads*, 48; Salway, 'Travel, *Itineraria* and *Tabellaria*', 55. On the *miliarium aureum* see Dio LIV.8.4, Plutarch *Galba* XXIV.4; Platner and Ashby, *Topographical Dictionary*, 342.

49 The argument is put forward, most persuasively, in Salway, 'Travel, *Itineraria* and *Tabellaria*', 48–60.

50 *CIL* XIII 2681a–c.

51 On the monument, see E. Thévenot *Les Voies Romaines de la Cité des Éduens* (Brussels, 1969), 59.

52 The inscription itself (*CIL* XIII 2681a) was described in a letter of 1706, but is now lost. For a reconstruction based on other itineraries, see Thévenot, *Voies Romaines*, 60–62.

53 'Patara. The stadiasmos provinciae Lyciae', *SEG* 44, 1205. The monument has been published, in full, in F. Isik (et al.) *Miliarium Lyciae: Das Wegweisermonument von Patara* (2001), although it has, thus far, not been possible to consult this volume.

for three roads leading out of Patara⁵⁴. The format is instantly recognisable, although unlike our other itineraries, the place names appear in Greek, and the measurements are given in stades; from this we may suggest that the information was probably based on extant roads and local sources, and are not a record of any new Roman construction projects⁵⁵. Furthermore, the itineraries themselves are relatively localised, with none of the journeys extending very far beyond the Lycian boundaries. It has even been suggested that the itineraries are merely an incidental feature of a monument whose primary aim is to celebrate the emperor Claudius⁵⁶.

Nonetheless, the idea of public monuments as the source for itineraries is attractive, if somewhat problematic. We may, perhaps, explain their absence from the material record in the same way that we explain the lack of surveyor's *formae*: because the information presented was subject to frequent change, the displays themselves may have been viewed as highly disposable. Once the information on a stone itinerary became obsolete, it may – as in the case of the Autun and Patara monuments – have found itself put to new use as building material. It is also possible – even though we have no surviving examples – that stone itineraries were a rarity and that they were more commonly displayed on tablets of bronze; as we have discussed in the previous chapter, bronze seems to have been an ideal material for the preservation of semi-permanent records⁵⁷.

The problem with epigraphic itineraries is not, however, their scarcity within the material record, but rather the scope of their possible coverage. In over three thousand lines of text, the Antonine Itineraries are still unable to provide a complete picture of the extant road network; thus, we could not realistically expect local itinerary inscriptions to contain information about anything beyond the surrounding region or province. A group of itineraries in one provincial capital might contain information on how to get to notable towns in the region, to the capitals of neighbouring provinces, and perhaps even all the way to Rome; however it seems improbable that a monument in Autun would have contained instructions on how to get to Caesarea in Palestine.

54 On the text of the monument, see Salway, 'Travel, *Itineraria* and *Tabellaria*', 56–8, and C.P. Jones 'The Claudian Monument at Patara', *ZPE*, Vol. 137 (2001), 161–68, who focuses primarily on the non-itinerary text of the inscription.

55 Salway, 'Travel, *Itineraria* and *Tabellaria*', 58.

56 Jones, 'Claudian Monument', 168.

57 See the discussion of *tabulae aeris* in chapter one, 29–33.

It may be that major administrative centres would have contained monuments – like our hypothetical Cadiz monument – which gave the directions to Rome. Such monuments, however, may not have been strictly necessary. If one could get from Cadiz to Cordoba on the strength of regional information displayed in Cadiz, they would then be able to obtain the necessary information for their onward journey by consulting inscriptions in Cordoba. Epigraphic itineraries would, thus, have provided a public record for the traveller which would allow them to piece together their journey one stage at a time. Of course, the problem with this modular approach to travel is that it raises the question of how the traveller was able to determine where he was going within the larger space of the empire.

the mechanics of navigation II: a picture of the world

So long as there is a path to follow, the act of travelling does not necessarily require a mental image of the world: one would not, for instance, have needed to know the shape of Italy in order to travel from Rome to Ravenna. The presence of a road network and the availability of an itinerary would have made it possible to get from place to place with relative ease. If, however, the available itineraries were reasonably local in scope, we may wonder how the Roman traveller would have known which sequence of roads and towns would lead him to more distant destinations.

In the past it has been assumed that the Roman traveller would have had access to some form of ‘road map’ – perhaps not unlike the *Tabula Peutingeriana* – that would guide them from place to place; more recently, proponents of the hodological approach have suggested that all navigation was based entirely upon route books like the Antonine Itineraries. However, if the cartographic displays of the time did not feature roads and the individual itineraries were not, for the most part, collected into a single volume, we are still faced with the problem of explaining long-distance navigation in the Roman world.

There is, perhaps, a solution that is neither dependent on cartography nor as extreme as the hodological approach: essentially we should not suppose that the path-based system of navigation would have precluded a rough geographical understanding

of the larger world. Indeed, we should imagine that there was a common foundation of geographic knowledge – that is, a reasonably detailed mental picture of the peoples, lands and cities that, together, formed the inhabited world – which would have made it easy to travel from place to place using only localised itineraries.

This notion of the *oikoumene* as a geographical space would have come primarily from literary works; the literature, in turn, would have formed the basis for a commonly held cultural knowledge. Vitruvius, for instance, was able to discuss how people's physical and mental characteristics were, to some extent, determined by the climate in which they lived. According to Vitruvius, the damp air and cold temperatures in the north made the people who lived there larger of build and deeper of voice; the cold also had a dulling effect on their intellect but, on the plus side, tended to make them braver in battle⁵⁸. The people who lived in the south, on the other hand, were smaller, darker, had higher voices and were generally more quick-witted, although they were also more cowardly in battle⁵⁹. His conclusion, unsurprisingly, is that the people of Italy, by virtue of their placement within the centre of this spectrum, struck an ideal balance between the two extremes⁶⁰.

While this view was undoubtedly informed by no small amount of proto-Imperial propaganda – Vitruvius was, after all, writing in the thirties BC – there is also a definite geographic awareness: Vitruvius is able to demonstrate a knowledge of Rome's position within the vertical space of the world. He may have had his suspicions confirmed by consulting one of the painted chorographic displays discussed in the previous chapter, but the knowledge itself would have probably come from a tradition of geographic literature.

It is difficult to determine the nature and extent of geographical education in the Roman world at the beginning of the imperial period⁶¹. Certainly geography was not considered an essential component of an orator's education: Cicero does not mention

58 Vitruvius VI.1.3 and 9.

59 Vitruvius VI.1.4.

60 *cum ergo haec ita sint ab natura rerum in mundo conlocata et omnes nationes inmoderatis mixtionibus disparatae, veros namque temperatissimae ad utramque partem et corporum membrorumque vigoribus pro fortitudine stin Italia gentes.* Vitruvius VI.1.10–11.

61 For an overview of early imperial education, see: J.B. Poynton 'Roman Education', *Greece & Rome*, Vol. 4, No. 10 (1934), 1–12; H.I. Marrou *A History of Education in Antiquity* (London, 1956), 265–91; J.J. Eyre 'Roman Education in the Late Republic and Early Empire', *Greece & Rome*, Vol. 10, No. 1 (1963), 47–59.

geography anywhere in his *De Oratore*, and Quintilian, in his survey of disciplines to be studied alongside literature, directs his attention to geometry and music⁶². Rather, geography appears to have been more important to the historian: Strabo – whom, we should remember, was an historian himself⁶³ – tells us that both Polybius and Ephorus wrote geographical chapters as part of their historical works⁶⁴. Several hundred years later, Ammianus Marcellinus considered geography to be an essential part of the historical narrative, as we can tell from the number of geographical digressions in his work⁶⁵.

We should not imagine that the Roman citizen of average education would have studied geographers like Eratosthenes or Strabo, at least not directly; indeed, while the basic teachings of Eratosthenes appears to have been known in the Latin world⁶⁶, there is little evidence that Strabo was widely read in the centuries following his death. However, even if geography was not taught as a subject unto itself, the student would have nonetheless acquired a certain amount of geographical knowledge in the course of his education.

The primary source of this knowledge may well have been Homer; according to Quintilian, it was a common (and commendable) practice to start children on Homer and Virgil⁶⁷. Certainly Homer's geographic world-view is well attested in Strabo, and – in the following section of this chapter – we will see how the poet may have influenced the geographic perceptions of Pausanias and Philostratus. It is also possible that a literary education would have involved, among other things, the study of specifically geographic poems: there were, as we noted in the previous chapter, a number of verse descriptions of the world available in the first century BC, including those of Alexander of Ephesus and Varro Atacinus⁶⁸.

While neither of those poems have survived, we do possess two literary works that may have been associated with geographical education. The first – in fact, a prose

62 Quintilian *Inst. Or.* I.10.

63 Strabo I.1.22–23; his historical volumes have not survived.

64 Strabo VIII.1.1.

65 On the geographic knowledge of Ammianus, see L. Dillemann 'Ammien Marcellin et les pays de l'Euphrate et du Tigre', *Syria*, Vol. 38, Fasc. 1/2 (1961), 87–158; G.A. Sundwall 'Ammianus Geographicus', *AJP*, Vol. 117, No. 4 (1996), 619–643; J.W. Drijvers 'Ammianus Marcellinus on the Geography of the Pontus Euxinus', *Histos*, Vol. 2 (1998), 268–78.

66 Eratosthenes, as we have seen, is mentioned in Varro *De Re Rust.* I.2, and was also named as a source by Pliny (esp. *Hist. Nat.* Books V and VI).

67 *Ideoque optime institutum est ut ab Homero atque Vergilio lectio inciperet.* Quintilian *Inst. Or.* I.8.5.

68 See chapter one, 39.

work – is the three volume *De Chorographia* of Pomponius Mela⁶⁹. We know virtually nothing about the author, save for the few hints provided by the text itself: we know that he was from Tingentera in Hispania Baetica, and that he lived in the first half of the first century AD⁷⁰. The treatise itself was probably composed during the reign of Claudius; the date most commonly proposed is AD 44⁷¹.

Compared to the seventeen volumes of Strabo, or even to the extensive geographical sections of Pliny's *Natural History*, Mela's work is notable for its brevity. The three books – which do not, incidentally, correspond to the three continents – take us on what is, by the author's own admission, a fairly superficial tour of the *oikoumene*⁷². Staring from the pillars of Hercules, he moves anti-clockwise around the provinces of the Mediterranean and then, arriving back at the pillars, he proceeds to take us on a clockwise journey around the outside edge of the inhabited world⁷³.

Pomponius Mela begins his work with a brief description of the structure of the world and the way in which the various lands fit together to form the *oikoumene*; he then goes through a second time and gives a more detailed description of each region. Unlike Strabo or Pliny, Mela's text is completely free of the mathematical debates that had been simmering since the time of Eratosthenes⁷⁴. Instead, Mela's descriptions focus on the contents of the region itself; apart from the occasional historical or ethnographic note, the text is limited to such obvious topographic features as rivers, mountains and cities.

Mela's descriptions are notable not only for their brevity but also for their coastal focus: almost all of the cities and towns listed by Mela are near the sea or located along a river⁷⁵. Indeed, there are few attempts to define the boundaries of any given region with

69 There have been several editions in recent years, including those of P. Parroni (*Pomponii melae de chorographia libri tres* (Rome, 1984)) and the Budé edition of A. Silberman (*Chorographie* (Paris, 1988)) with translation and commentary. An English translation (without the Latin text) has been published in F.E. Romer *Pomponius Mela's Description of the World* (Ann Arbor, 1998). We cannot be completely certain of the title: *De Chorographia* appears in the earliest MS (Vat. Lat. 4929); see C.W. Barlow 'Codex Vaticanus Latinus 4929', *MAAR*, Vol. 15 (1938), 87–124. The title, however, appears corrupted (as *cosmographia*) in later MSS; see Silberman, xiv. The work was entitled *The Cosmography* when first published in English in 1591, however by the eighteenth century, many editions referred to it as *De Situ Orbis*.

70 Mela *Choro.* II.96. On Mela's life, see R. Batty 'Mela's Phoenician Geography', *JRS*, Vol. 90 (2000), 70–94.

71 On the dating of the text, see Silberman, *Chorographie*, ix–xiii.

72 Mela *Choro* I.1

73 Mela *Choro* I.2.

74 See A. Silberman 'Le premier ouvrage latin de géographie: la Chorographie de Pomponius Méla et ses sources grecques', *Klio*, Vol. 71 No. 2 (1989), 571–81.

75 Silberman 'Le premier ouvrage', 574–75, has suggested that a Greek *periplus* (maritime itinerary) may have been one of Mela's principal sources.

reference to topographic features and, in fact, Mela rarely bothers to take us inland at all. As a geographical text which aims to describe the complexity of the inhabited world, *De Chorographia* is undeniably deficient; however, as a reduction of the *oikoumene* into a sequential and rigorously linear form, it can only be described as a success.

Pomponius Mela has not received especially kind treatment in the twentieth century: even his editors and translators tend to disparage his work, claiming that his geographical knowledge is poor and that his text represents the usual fate of Greek learning in Latin hands⁷⁶. Such criticisms, however, are only valid if we believe that Mela was writing a scholarly geography in the mould of Eratosthenes. However, there is little to indicate that this was Mela's aim: indeed, the elements in his text which are often cited as shortcomings – the failure to include distances or to name his sources – may be taken as evidence that Mela was not attempting to work within the established parameters of the geographical genre.

Instead, we should consider the possibility that Mela's text was designed as an educational device⁷⁷. The structure of the work – which goes through everything once, then retraces its steps in greater detail – seems designed for easy memorisation. Mela even hints at the educational tedium of learning geography in his opening line: he describes it as 'a difficult task, and one which offers little room for eloquence, for it is composed, for the most part, of the names of peoples and places, and also of their complex arrangement⁷⁸'. There would, indeed, have been no place for extraneous distances or ancient metrological disputes in a simplified work that was designed to be committed to memory. Instead, Mela's text proceeds through the names and arrangements of places in order to build, in the mind of a young student, a mental image of the world's contents.

Unfortunately we have no real idea of how Mela's text may have been used at the time it was written, or who his audience may have been. However, we do know that Mela – along with the even more abbreviated geographical work of Julius Solinus – was used for educational purposes throughout the Medieval period; indeed Mela's Latin text, with updated maps, could even still be found in use as a geographical textbook in

⁷⁶ 'It is bad work, concerned only to show how cleverly he can write up an unreadable subject' says Thomson, *Ancient Geography*, 2.26; for Silberman, 'Le premier ouvrage', 571–72, Mela's text is proof of Strabo's famous criticism that the Romans were imitators of the Greeks who added little to the learning (Strabo III.4.19).

⁷⁷ See Silberman, *Chorographie*, xxvii, although see also the criticism of this view in Batty, 'Mela's Phoenician Geography', 89.

⁷⁸ [...] *impeditum opus et facundiae minime capax, constat enim fere gentium locorumque nominibus et eorum perplexo satis ordine*. Mela *Choro*. I.1.

the late eighteenth century⁷⁹. It would not be unreasonable to suggest that Mela's work could have been put to educational use not long after its composition.

Our other surviving geographical text from the imperial period that may have been put to educational use is the *Orbis descriptio* of Dionysius Periegetes⁸⁰. The text, consisting of just under 1,200 lines of hexameter, was composed in Alexandria in the time of Hadrian, probably before AD 130⁸¹. In recent times, Dionysius has been criticised for his poor command of geographical knowledge⁸²; however, much like Pomponius Mela, the goal of Dionysius was not the creation of a geographical work, but rather a literary work whose subject happened to be the disposition of the *oikoumene*⁸³.

The structure of the *Orbis descriptio* is similar to that of Mela's *Chorographia*: Dionysius begins with a description of the three continents, followed by a more detailed description of the inner circle of the Mediterranean and the outer circle of the ocean. Once he has established the basic layout, he provides us with more detail about the lands that make up the various continents, starting with Africa, moving to Europe and concluding with a long, and perhaps somewhat fanciful section on Asia.

Like Mela, Dionysius also makes explicit the aim of his work: however, while Mela's focus is on presenting the 'names of peoples and places' in a way that is not wholly uninteresting, Dionysius is drawing upon the traditions of epic poetry in order to construct an image of the world in the mind of his audience: after taking us on the preliminary tour of the *oikoumene*, he tells us that he will describe the shape of the land, so that even though we have not seen it, we will have a clear conception⁸⁴.

79 No fewer than five editions of Pomponius Mela were produced at Eton between 1761 and 1797; its use as a geographical text is attested in H.C.M. Lyte *A History of Eton College 1440–1875* (London, 1875), 317.

80 The standard edition is still Müller's in *GGM*², 104–176; there are also two more recent, if less widely available editions: *Διονυσίου Ἀλεξανδρέως Οἰκουμένης Περιήγησις. Κριτική ἔκδοσις* ed. I.O. Tsavari (Ioannina, 1990); and *Dionysios von Alexandria: Das Lied von der Welt* ed. K. Brodersen (Hildesheim, 1994). A translation has been published in C. Jacob *La Description de la terre habitée de Denys d'Alexandrie, ou, la leçon de géographie* (Paris, 1990).

81 Pharos appears in an acrostic at lines 112–134 and Hadrian appears at lines 513–532; for a brief discussion of the dating, see E.L. Bowie 'Denys d'Alexandrie: un poète Grec dans l'empire Romain', *REA*, Vol. 106, No. 1 (2004), 177–85.

82 Thomson, *Ancient Geography*, 228–29, describes the work as 'excruciating pseudo-epic verse' with little value; M.L. West 'Notes on Dionysius Periegetes', *CQ*, Vol. 42, No. 2 (1992), 568–69, describes the poet as 'a rotten geographer but a competent versifier'.

83 On the poetic lineage of Dionysius, see R. Hunter 'The *Periegesis* of Dionysius and the Traditions of Hellenistic Poetry', *REA*, Vol. 106, No. 1 (2004), 217–31.

84 νῦν δὲ τοὶ ἡπίερον μνησομαι εἶδος ἀπάσης, ὄφρα καὶ οὐκ ἐσιδὼν περ ἔχοις εὐφραστον ὀπωπήν. *Orb. Descr.* 170–1.

We cannot be sure of Dionysius's contemporary audience, although it is often assumed that he was writing for the classroom⁸⁵. It is clear, however, that in the centuries immediately following its composition, the poem found favour in the Roman world as an educational work: there are two surviving Latin translations from antiquity, one by Rufus Festus Avienus from the fourth century, and another by Priscian from the sixth⁸⁶. The work also appears to have flourished in the Byzantine world: even as late as the twelfth century it was sufficiently well known to form the basis for an exhaustive commentary by Eustathius of Thessalonica⁸⁷.

Neither Pomponius Mela nor Dionysius Periegetes have written works rigorous enough to be considered geographies in the tradition of Eratosthenes; however, there is also no evidence to suggest that this was their intent and we should not, therefore, judge them according to geographical standards. Instead we should understand these texts as systematic presentations of the countries, cities and peoples that made up the inhabited world, simplified to facilitate memorisation. Furthermore, we may suggest that these essentially literary texts would have served to elaborate on the image of the world found in more traditional works, like Homer. The student in antiquity may – as Eumenius suggests⁸⁸ – have been able to consult a chorographical panel depicting the various nations and cities; this image, however, would have been largely meaningless without the mental image and knowledge of place names that had already been created from a thorough study of literature.

The process of land navigation in the Roman world may thus be broken down into two distinct layers of understanding. First, there was a knowledge of the larger *oikoumene*, which would have come primarily from literature; secondly, there was a knowledge of the path. A mental image of the *oikoumene* would have made it possible for the traveller to determine roughly where he needed to go, but the information on the ground would have made it possible for him to choose the right road.

This mental image of the world would have come not from geographical texts – which would have certainly been too elaborate for the purposes of standard education

85 Bunbury, *Ancient Geography* II, 480–90; Thomsen, *Ancient Geography*, 228–29; Dilke, *Greek and Roman Maps*, 143–44;

86 Both appear in *GGM*²; see xxix–xxxii.

87 Published in *GGM*², 201–407.

88 See chapter one, 60–61.

– nor even necessarily from cartographic displays; rather it would have come from poetic descriptions in literary works, and also from works specifically composed to present the world in its most simplified and easily accessible shape. The image created from these works would have formed the basis of a common geographical understanding.

Using this received knowledge of the inhabited world as a starting point, the Roman traveller would have been able to rely upon the built infrastructure of the empire to get from place to place. The roads themselves would have acted as the path to follow, a path so fixed and unmistakable that it would have rendered topographic directions wholly unnecessary. Rather than having to worry about the vagaries of the landscape, the traveller would have moved through the wilderness in the reassuringly urban company of the paving stone.

However it was not merely the road and its attendant milestones which provided the basis for navigation in the Roman world. Information about the routes to various places may have been displayed in urban centres along the road network, making it easy for the traveller to choose his path and also to determine how long it would take to get from one place to another. The traveller may have copied down this information and carried it with him, but he may also have been able to purchase practical artefacts onto which the information had been inscribed.

Thus we have a system of moving through and apprehending the world that is both hodological and geographical, but where navigation does not rely on any kind of cartographic intermediary. It was, in the first instance, the built environment which provided the physical reference that, subsequently, allowed the multi-dimensional space of the world to be presented in a textual format. By transposing the text of the itineraries back onto the roads and milestones, it became possible to situate oneself within the larger space of the Roman world.

interpreting the built landscape: three travellers

The itineraries give us some idea of how it would have been possible to move through the Roman landscape, but they tell us little about how the landscape was perceived. Although there can be little doubt that the road network was used extensively for both

personal travel and state transportation, the land itself is rarely a presence in classical literature and, for that reason, may be easily overlooked. There have, of course, been studies of travel in the ancient world, but they tend to focus on process rather than perception⁸⁹; investigations of trade, on the other hand, will often dwell on the high cost of land transportation and the general superiority of maritime logistics.

Our sources for land travel can be curiously silent on the issue of apprehension: the surviving itineraries and the laws in the Theodosian code relating to the *cursus publicus* can allow us to reconstruct the systems and conventions that made movement through the land possible, but they do not offer much insight into how the land was perceived. In the more literary accounts of travel within the Roman world, the process is often pushed to the background, or rendered completely transparent; characters are able to move from location to location without ever needing to explain the mechanics of the journey.

The exception to this may be found in a Satire of Horace which describes a road journey from Rome to Brindisi⁹⁰. Here, Horace places the process of travel at the forefront of his description, usually to highlight the tedium or difficulties that face the traveller. He mentions the long days on the road and the different stopping-places that may have been written down in his itinerary. Although he is more concerned with the stomach problems, the bad bread, the drunken sailors and anything else of potential comic value, the experience does not come across as wholly negative; on several occasions he mentions the delights of travelling in good company.

Horace's description, however, is unusual; most literary accounts of travel concentrate primarily on describing the places visited and do not pay much attention to the mundane concerns of moving between them. However, the experience of place would still have been determined by constructed elements within the environment. Livy, for instance, recounts a tour of Greece undertaken by Aemilius Paulus in 167 BC so that he could see for himself sites 'which were more celebrated than actually seen'⁹¹; from the oracle at Delphi to the Acropolis at Athens, his journey is largely defined by the constructed world.

89 On classical travel, see L. Casson *Travel in the Ancient World* (London, 1974) and J.-M. André and M.-F. Baslez *Voyager dans l'Antiquité* (Paris, 1993).

90 Horace *Satires* I.5

91 *cuius temporis initio ad circumeundam Graeciam visendaque, quae nobilitata fama maiora auri-bus accepta sunt, quam oculis noscuntur, uti statuit.* Livy XLV.27.

Indeed we may mention more briefly the two elements of his journey that are not specifically tied to the built environment: there is the Isthmus at Corinth – well known from literary texts and easy to appreciate as a natural wonder – and there is the city of Sparta which is described as having nothing much to see, but nonetheless notable for its institutions and education⁹². The inclusion of Sparta in Paulus' journey is curious, for it is the one destination where there is nothing specific to see: the allure is, perhaps, the sense of being in a place where great things once happened. For the most part, however, the landscape of the past would have been more easily accessible through its obvious monuments.

If we examine the accounts of three travellers composed between the second and fourth centuries AD, we may start to see more clearly how interpretation of the landscape was defined, to a great extent, by the built environment. Our three authors – Pausanias, Philostratus and an anonymous traveller from Bordeaux – have left us three texts with very different aims: Pausanias has written a description of places he visited during various tours through Greece, Philostratus has written about the fantastic travels undertaken by the itinerant philosopher Apollonius of Tyana, and the anonymous traveller has merely kept a record of his journey from Bordeaux to Palestine. Despite the marked contrasts of genre and style, there are similarities to be found in the approaches to apprehension described by each of our authors.

At the beginning of the imperial period – which, as we have noted in chapter two, was a period of widespread construction – the Mediterranean world would have possessed an extensive material record corresponding to places that had grown famous through their celebration in literature, or their role in a particular historical event. The traveller of antiquity may not have perceived any great distinction between the topography of historical events and the topography of poetry and mythology; so long as they were able to align the events from their cultural knowledge with a physical location, the place could be deemed real.

In all three of our travellers there is an attraction to the past and, specifically, an attraction to places in which the past may be clearly perceived. Indeed, our authors will often attempt to push the contemporary landscape completely aside, choosing instead to evoke a parallel landscape constructed from history and memory. However,

⁹² *inde Lacedaemonem adit, non operum magnificentia, sed disciplina institutisque memorabilem.* Livy XLV.28.

as much as they may try to ignore the present in favour of an imagined past, it is ultimately the contemporary built environment that provides the topographic structure for their experience of the landscape.

In the second half of the second century AD, an author named Pausanias wrote an account of his travels throughout Greece⁹³. His *Periegesis*, in ten books, not only provides us with a detailed picture of what existed at the time, but also serves as a literary monument to the different layers of memory, mythology and history that may be discovered in the built environment⁹⁴. Indeed, Pausanias does not set out merely to describe what he sees, but rather to reveal the wealth of possible narratives hiding in the constructed world.

The ten books of the *Periegesis* were written over a period of several years – the first book was probably written after AD 155 while the last may have been composed between AD 176 and 180⁹⁵ – but the approach of Pausanias remains consistent throughout; although his work may be viewed as a straightforward traveller’s account, it can also be understood as an historical work in which topography, rather than chronology, provides the underlying structure. For this reason, a good deal of modern scholarship has tended to describe the *Periegesis* as something like the classical version of a tourist’s guidebook⁹⁶.

This assessment is fair only up to a point: Pausanias is certainly interested in demonstrating to his audience why certain locations are worth seeing, and he does so by giving continual precedence to the historical details which may not be immediately apparent to the casual viewer. However, while many guidebooks present the landscape of the past within the context of the present, Pausanias, for the most part, seems intent on isolating and describing a topographical layer that exists independently of any

93 On the various authors named Pausanias and their possible relationship to one another, see A. Diller ‘The Authors Named Pausanias’, *TPAPA*, Vol. 86 (1955), 268–79.

94 The standard greek text is *Pausaniae Graeciae descriptio* in 3 vols. ed. F. Spiro (Leipzig, 1903); two notable English translations are J.G. Frazer *Pausanias’s Description of Greece* in 6 vols. (London, 1898) and Pausanias *Description of Greece* in 5 vols. trans. W.H.S. Jones (Cambridge, MA., 1918–1935).

95 On the dating, see Frazer, *Pausanias’s Description I*, xv–xix; C. Habicht *Pausanias’s Guide to Ancient Greece* (Berkeley, 1985), 8–12; E.L. Bowie ‘Inspiration and Aspiration: Date, Genre and Readership’ in Alcock et al. (eds) *Pausanias: Travel and Memory in Roman Greece* (Oxford, 2001), 21–32.

96 See, for instance, Frazer, *Pausanias’s Description I*, xxiv; Casson *Travel in the Ancient World*, 292–299, whose chapter on Pausanias is entitled ‘Baedeker of the Ancient World’; C. Habicht ‘An Ancient Baedeker and His Critics: Pausanias’ “Guide to Greece”, *Proceedings of the American Philosophical Society*, Vol. 129, No. 2 (1985), 220–24; for a critique of this approach, see J. Elsner ‘Pausanias: A Greek Pilgrim in the Roman World’, *Past & Present*, No. 135 (1992), 3–29.

contemporary reality⁹⁷. His interests lie not in the Roman Greece of his own day, but in the Greek Greece of an ancient and unrecoverable era⁹⁸; fortunately for Pausanias, the history of that era has been preserved in the stones, walls, statue bases, temples and ruins that, together, form the contemporary built environment.

For Pausanias, the features of the built environment act as the nodes around which history and memory are gathered. Every artefact within the visible landscape has the potential to trigger at least one narrative aside; the most prominent artefacts or places may lead to several pages worth of historical digression. However, while there are numerous historical passages of considerable length to be found throughout the books of Pausanias, it is rare that he bothers to narrate a story that does not ultimately contribute to our ability to interpret the landscape of objects⁹⁹. Even in his extensive history of the Messenians (in book four), he continually refers back to monuments and structures that illustrate the narrative.

Chronological history, however, is not the aim of the *Periegesis*. Instead, Pausanias uses the structure of the built environment as a point of departure for his extensive knowledge of the Greek past. Thus, the narratives and descriptions that may arise as Pausanias works his way down an Athenian street move freely from century to century and from historical to mythological. Any definite place within the landscape can act as a source: Pausanias is equally able to expand upon a magnificent temple, a statue, or sometimes even a simple rock¹⁰⁰.

Despite what we may characterise as a preference for the past, the travels of Pausanias necessarily take place within the landscape of his own time¹⁰¹. Thus, Pausanias is able draw our attention not merely to the great antiquities that define the Greek world, but also to more recent additions to the built environment. In his description of the sanctuary of Olympian Zeus at Athens, he describes two statues of Hadrian, as well

97 Pausanias' attitude to the past has been much discussed: see K.W. Arafat 'Pausanias' Attitude to Antiquities', *The Annual of the British School at Athens*, Vol. 87 (1992), 387–409; E.L. Bowie 'Past and Present in Pausanias' in D. Musti and J. Bingen *Pausanias historien: huit exposés suivis de discussions* (Geneva, 1996), 207–30; H. Sidebottom 'Pausanias: Past, Present, and Closure', *CQ*, New Series. Vol. 52, No. 2 (2002), 494–99.

98 On Pausanias' willful exclusion of the contemporary world, see Habicht *Pausanias' Guide*, 117–140 and Elsner, 'A Greek Pilgrim', 17–20; however, see also the study by K.A. Arafat *Pausanias' Greece: Ancient artists and Roman rulers* (Cambridge, 1996), which elaborates on Pausanias' attitude to the Romans.

99 On Pausanias as historian, see Habicht *Pausanias' Guide*, 95–116.

100 See, for instance, his description of 'the bed of Actaeon', a stone near a spring in IX.2.3.

101 Indeed, Pausanias often uses the phrase 'in my time'; see Habicht *Pausanias' Guide*, 176–80.

as several buildings which that emperor built for the city¹⁰²; elsewhere he talks about recent buildings erected by the senator Antoninus¹⁰³. If he has less to say about these monuments, it may simply be that the artefacts themselves have not yet had enough time to acquire the historical value of their more ancient counterparts.

The fact that the *Periegesis* is set within the landscape of the second century AD – rather than the more distant past that Pausanias so often strives to evoke – means that among the surviving artefacts, there is also a considerable amount of neglect, decay and absence. In the city of Tegea, in Arcadia, Pausanias draws our attention to pedestals where bronze statues no longer stand¹⁰⁴; the bases are the only thing left to remind us of their existence. Ruins are also a consistent presence¹⁰⁵: throughout the various regions, there are numerous temples and sanctuaries that Pausanias is able to identify and explain, despite their state of disrepair.

Sometimes whole cities have fallen to ruin: Onchestus in Boeotia consisted of only a temple, while in Zarax there was nothing save for a temple and a statue holding a lyre¹⁰⁶. However, even when there is nothing left of a place, Pausanias is still able to assign a topographic value to the absence: on his way to Olympia, Pausanias mentions his inability to identify the ruins of Arene, telling us that ‘no Messenian and no Elean could point them out to me with certainty¹⁰⁷’; later, he mentions the city of Parapotamii for which there remained no ruins, nor even a memory of where it stood¹⁰⁸. For Pausanias, even the remembered built environment provided a means of engaging with the past.

What we rarely find in Pausanias are descriptions of the land itself. The natural topographic features that were so important to chorographical understanding – mountains and rivers, primarily – certainly appear in the *Periegesis*, however they are often relegated to a minor role. Pausanias most frequently employs rivers – and, to a lesser extent, mountains – as a means of situating elements from the built environment. He mentions, for example, that the river Larisus acts as the boundary between Achaia and

102 Pausanias I.18.6–9.

103 Pausanias II.27.7–8. The Antoninus in question is probably not Antoninus Pius, but rather a later senator; see Habicht, *Pausanias’ Guide*, 10, for a summary of the arguments.

104 Pausanias VIII.49.1.

105 On the use of ruins, see J.I. Porter ‘Ideals and Ruins: Pausanias, Longinus, and the Second Sophistic’ in Alcock et al., *Pausanias*, 63–92.

106 Pausanias IX.26.5 (Onchestus); III.24.1 (Zarax).

107 Pausanias V.6.2.

108 Pausanias X.33.8.

Elis; however, the river appears mostly as a topographic reference point for a temple of Larisaean Athena¹⁰⁹. In a later chapter, the river Peirus is useful only in that it allows Pausanias to situate the city of Olenus, which no longer exists¹¹⁰. Even when a river is described in its own right – as in the description of the Alpheius¹¹¹ – it quickly becomes the source of a mythological digression.

For the most part, however, the natural world remains absent from the *Periegesis*. Even when Pausanias finds himself at the uninhabited edges of the various regions, he presents them in terms of whatever constructed features he is able to find. When he is describing the boundary land between Arcadia and Elis, for instance, he identifies a ruined sanctuary of Heracles and a ruined temple of Asclepius¹¹². The impression we get from Pausanias is that land on its own constitutes a featureless mass and that, without the presence of buildings, ruins or some form of human presence, it would remain unworthy of comment.

Perhaps for this reason, Pausanias pushes the act of travel as far into the background as possible. His journeys from place to place are described, if at all, by brief notices along the lines of ‘from Oetylus to Thalamae the road is eighty stades long’¹¹³. Unless there is something along the road specifically worth mentioning, the journey itself is passed over without comment. However, Pausanias is not able to exclude travel entirely. Incidental references throughout the text suggest that his travels through Greece were very much dictated by the network of roads, a fact which is emphasised by his continual references to distances in stades¹¹⁴.

Furthermore, it has been demonstrated that Pausanias was reasonably systematic in his approach to each region, moving from the capital or central node of a region out toward the boundaries along each available road¹¹⁵. This method of structuring his travels may, of course, be a literary construction – that is, a means of presenting the topographic information from his multi-directional journeys in such a way as to

109 Pausanias VII.17.5.

110 Pausanias VII.18.1.

111 Pausanias V.7.1.

112 Pausanias VI.21.3–6.

113 Pausanias III.26.1.

114 On the modes of travel in Pausanias, see M. Pretzler ‘Turning Travel into Text: Pausanias at Work’, *Greece & Rome*, Vol. 51, No. 2 (2004), 199–216 (esp. 202–4).

115 The system of movement adopted by Pausanias is suggested in Frazer, *Pausanias’s Description I*, xxiii–xxiv, although see also the extensive discussion in W. Hutton *Describing Greece: Landscape and literature in the Periegesis of Pausanias* (Cambridge, 2005), 83–126.

include everything – rather than an actual record of his progress¹¹⁶. Nonetheless, the road still plays an important part in his organisation of physical space: as much as he may downplay it within his text, the cities, monuments and ruins that make up the world of Pausanias are all organised according to the principle of the path.

The travels of Pausanias are an attempt to read the landscape as if it were a text. Every temple, every sanctuary and every statue – in short, every piece of evidence for human activity within the land – contains a story that may be revealed by the learned observer. Pausanias is, of course, reading selectively: he is most interested in revealing those glories of the past that lie dormant in the landscape of the present. However, his ability to interpret the world around him is informed almost exclusively by the built environment: it is both beneath his feet, dictating the form of his journey, and within his field of vision, bearing witness to the past. For Pausanias, construction is essential; everything else is invisible.

Our second traveller is slightly more problematic insofar as he is fictional. Apollonius of Tyana, a widely renowned philosopher who lived during the first century AD, is said to have spent the majority of his life travelling from place to place, spreading wisdom and performing the occasional miracle. However, while Apollonius was almost certainly a real person, our only detailed source for his life is the fanciful account written by Philostratus in the first half of the third century, which is to say more than a century after Apollonius is said to have died¹¹⁷.

The question of how much historical truth can be gleaned from the text of Philostratus – a subject of some scholarly debate – is not easily resolved¹¹⁸. Philostratus, himself, claimed to be using the notes of Damis, a disciple who accompanied Apollonius on the majority of his travels¹¹⁹; however, for the sceptical reader, the notes of Damis may sound suspiciously like a literary attempt to create an illusion

¹¹⁶ Frazer, *Pausanias's Description I*, xxiv.

¹¹⁷ Philostratus *The Life of Apollonius of Tyana* in 2 vols. ed. and trans. C.P. Jones (Cambridge, MA., 2005). Apollonius is said to have died during the reign of Nerva (AD 96–98); the *Life of Apollonius* was probably written sometime after AD 217, perhaps in the 220s; see Jones 2–3.

¹¹⁸ See, for instance, B.F. Harris 'Apollonius of Tyana: Fact and Fiction', *Journal of Religious History*, Vol. 5 (1969), 189–199; E.L. Bowie 'Apollonius of Tyana: Tradition and Reality' in *ANRW* II 16.2 (1978), 1652–1699; M. Dzielska *Apollonius of Tyana in legend and history* (Rome, 1986); J.A. Francis 'Truthful Fiction: New Questions to Old Answers on Philostratus' "Life of Apollonius", *AJP*, Vol. 119, No. 3 (1998), 419–441.

¹¹⁹ The notes of Damis are first mentioned at Philostratus *VA* I.3. Damis joins Apollonius at I.19.

of authenticity. The fact that Damis is often invoked to overrule other accounts of Apollonius – and perhaps also to distinguish the work of Philostratus from an earlier biography written by a certain Moeragenes¹²⁰ – suggest that Damis may have sprung from the biographer's imagination¹²¹.

Even if Philostratus was primarily engaged in creating a work of fiction, we need not go so far as to say that the *Life of Apollonius* is completely devoid of truth about its subject; however, when we approach the more literary elements of the text – and the accounts of travel are most certainly literary constructions – we must assume that they reflect the era of the author, far more than that of the titular character¹²². The *Life of Apollonius* may, therefore, have little to tell us about Apollonius, but is able to tell us a great deal about geographical understanding in the third century AD.

While the specific details of Apollonius' journeys may be fictional, he is very much travelling within an established geographical space that we might recognise from Pomponius Mela, Dionysius Periegetes and, perhaps also, from our chorographical panels. Many of his travels focus on the extremities of the *oikoumene*: the most substantial journey – occupying the greater parts of books two and three – follows Apollonius and Damis to India, where they encounter an assortment of wise men. Later they travel to Cadiz (book five) and Ethiopia (book six), places which, in the third century, would have been recognised as the limits of the world¹²³.

Mountains and rivers provide the principal topographic reference points for the journey to India. The Caucasus, in particular, act as a point of departure for geographical and mythological digressions: at one point Philostratus informs us that the Caucasus are part of the Taurus mountains, familiar to residents of Asia Minor¹²⁴; elsewhere he informs us that the locals in the Caucasus tell a story similar to the Greeks about Prometheus being bound to the mountain¹²⁵. The mountains also act as a convenient

120 On the biography of Moeragenes and its possible attitudes toward Apollonius, see Bowie, 'Apollonius of Tyana', 1673–79 and D.H. Raynor 'Moeragenes and Philostratus: Two Views of Apollonius of Tyana', *CQ*, Vol. 34, No. 1 (1984), 222–26.

121 For opposing views on the existence of Damis, see Bowie, 'Apollonius of Tyana', 1673–79 and G. Anderson *Philostratus: Biography and belles lettres in the third century AD* (London, 1986), 155–73.

122 On the literary character of Apollonius' travels, see J. Elsner 'Hagiographic Geography: Travel and Allegory in the Life of Apollonius of Tyana', *JHS*, Vol. 117 (1997), 22–37.

123 Philostratus admits as much: *καὶ ἄλλως τὸν θεὸν οἶδα κέρατα τῆς γῆς ξυμπάσης Αἰθιοπίας τε καὶ Ἰνδοῦς ἀποφαίνοντα μελαινοντά τε τοὺς μὲν ἀρχομένου ἡλίου*. *VA* II.18 (I know that god has made Ethiopia and India the limits of the earth (trans. C.P. Jones)).

124 Philostratus *VA* II.2.

125 Philostratus *VA* II.3.

boundary: once on the other side, the travellers begin to see such exotic sites as black people and elephants¹²⁶.

Rivers, however, are what give structure to the distant lands. Apollonius and Damis seem to be constantly crossing rivers in the course of their Indian journey, starting from the familiar Tigris and Euphrates and moving on to the more exotic Indus, Hyphasis and Ganges. The rivers afford Philostratus ample opportunities for geographical asides: book three opens with a description of the Hyphasis which is said to be as wide as the Danube, itself the largest known river in Europe¹²⁷. The Indus, crossed in book two, is described as being forty stades (nearly four miles) at the point of crossing¹²⁸.

The fact that all river descriptions mention the source – the Tigris and Euphrates originate in the foothills of the Taurus; the Indus emerges from the Caucasus; the Hyphasis begins in a flat plain – may perhaps call to mind the chorographical descriptions and panels from the previous chapter which, we are told, should contain the source and destination of all major rivers. Indeed, when discussing the Euphrates, Philostratus mentions the theory that the river travels underground and emerges in Egypt, a description which is reminiscent of the passage in Vitruvius where the underground journeys of rivers are discussed¹²⁹.

While Philostratus draws upon the information about rivers and mountains that may have been available from chorographic sources, his geographical knowledge also owes a debt to legends of Alexander, perhaps the most celebrated figure to have ventured into the eastern lands¹³⁰. Evidence of Alexander is scattered throughout the journey to India: in the city of Taxila, Philostratus describes statues and pictures commemorating Alexander and King Porus, whom Alexander fought¹³¹; later, Apollonius and Damis travel through the plain where the battle itself took place¹³². At the end of

¹²⁶ Elephants are mentioned frequently by Philostratus, perhaps to remind his readers of the exotic setting. See, especially, *VA* II.11–15. We may also be reminded of the inscription ‘*in his locis elephanti nascuntur*’ from the *Tabula Peutingeriana* (11C4).

¹²⁷ Philostratus *VA* III.1.

¹²⁸ Philostratus *VA* II.18.

¹²⁹ Philostratus *VA* I.20; cf. Vitruvius VIII.2.

¹³⁰ We may recall Strabo’s assertion (I.2.1) that Alexander’s passage added considerably to the geographer’s knowledge; see chapter one, 38. On the literary significance of Alexander’s presence see Elsner, ‘Hagiographic Geography’, 30 n. 49, and C.P. Jones ‘Apollonius of Tyana’s Passage to India’, *GRBS*, Vol. 42 (2001), 185–99.

¹³¹ Philostratus *VA* II.20.

¹³² Philostratus *VA* II.42.

book two, they reach the altars where Alexander is said to have turned back, a place which, we may note, constitutes one of the few topographic features recorded on the eastern edge of the *Tabula Peutingeriana*¹³³.

The knowledge of India displayed by Philostratus appears to have been influenced by a tradition of literary preconceptions, but, perhaps more importantly, it seems to draw upon the type of material that would have found its way into chorographical descriptions or representations. Thus, it is not surprising to find that the topographic reference points used to form the geographical foundation of the Indian journey are primarily rivers and mountains, supplemented in only a few instances by specific features from the constructed world. Only when Apollonius and Damis return to the familiar setting of the Mediterranean does the built environment reassert itself as a means through which the landscape may be interpreted.

In the fourth book, we follow Apollonius through several cities in Asia Minor – notably Ephesus, Smyrna and the remains of Troy – then onward to Greece, Crete and finally Rome. By taking us on a journey from the edge of the world (India) back to the centre (the Mediterranean), Philostratus carries us from a land of rivers and mountains to a land of statues, temples, shrines and other recognisable landmarks. We return also to a land where – for the educated biographer of the third century AD – the topographical landscape was very much defined by history, mythology and, of course, the ever-present geographical shadow of Homer.

From the beginning, Apollonius and his followers – he has, by this point, gathered an entourage of disciples – display a penchant for tourism. Many of the sites they choose to visit can be said to have a connection to the spiritual life: at Pergamon they visit the Asclepion, and in Greece they are said to have visited ‘all the sanctuaries’¹³⁴. Some of the tourism, however, is simply inspired by mythological events; for instance, when Apollonius has a dream that he should go to Crete, his companions visit the labyrinth¹³⁵. In a curious parenthetical aside, Philostratus adds: ‘I believe it once contained the Minotaur’¹³⁶. Apollonius himself, who has no interest in the labyrinth, goes to nearby Gortyn to visit the sacred sites.

133 The altars are described in *VA* II.43; cf. *Hic Alexander responsum accepit: usque quo Alexander. TP* 11B4.

134 Philostratus *VA* IV.11 (Asclepion), IV.24 (sanctuaries).

135 Philostratus *VA* IV.34.

136 ξυνείχε δὲ, οἶμαί, ποτε τὸν Μινώταυρον. Philostratus *VA* IV.34.

It is not difficult to find evidence of Homer in Philostratus's geographical conception of Asia Minor and Greece. There is, however one episode of specifically Homeric tourism: when Apollonius and his disciples arrive at the site of Troy, Apollonius announces his plan to spend the night on the mound where Achilles was buried¹³⁷. Later, while the company is sailing to Greece, Apollonius recounts how he was able to ask the dead hero about certain events in the Trojan war and how they corresponded to Homer's version¹³⁸.

On one level, the episode may be little more than a crafty excuse for some light Homeric criticism. However, we may also see in this section a fairly obvious metaphor for why it is desirable to visit the sites of historical events: for Apollonius, the visit to Troy brings the narrative of Homer to life in a very literal sense; more importantly, in seeing the remains of Troy, Apollonius is able to align his knowledge of a famous text with the reality of the landscape. He is able not only to converse with history, but to inhabit temporarily that historical layer which, as we saw in the previous section, was so appealing to Pausanias.

Philostratus demonstrates a fairly advanced awareness not only of the value of historical topography, but more specifically of the role that the built environment can play in lending authenticity to historical events. This awareness is perhaps nowhere more apparent than in an episode where Apollonius banishes the plague from Ephesus. Philostratus begins by recounting how Apollonius brought the Ephesians to a statue of Heracles, which he initially refers to only as *Ἀποτροπαίος*, the averter of evil. At the statue, Apollonius encourages the citizens to stone an old beggar who, it is revealed, was actually a demon in disguise. The episode ends with a reminder that 'the statue of the averter of evil – that is, Heracles – stands next to the place where the monster was stoned'¹³⁹.

Although the statue undoubtedly serves a literary purpose – the fact that Philostratus refers to it as *Ἀποτροπαίος* is perhaps meant to echo the evil which has been averted by our hero¹⁴⁰ – what is interesting to us is the way that it is used to bookend the story and to situate it, unmistakably, in a particular location. Within the

137 Philostratus *VA* IV.11.

138 Philostratus *VA* IV.16.

139 τὸ μὲν δὴ τοῦ Ἀποτροπαίου ἔδος, ἔστι δὲ Ἡρακλῆς, ἰδρυται περὶ τὸ χωρίον, ἐν ᾧ τὸ φάσμα ἐβλήθη. Philostratus *VA* IV.10.

140 The description of the demon as being the size of the largest lion (*μέγεθος δὲ κατὰ τὸν μέγιστον λέοντα*) may also be a reference to the Nemean lion, famously killed by Heracles.

narrative, the statue – which, we can only imagine, would have been a well-known landmark in Ephesus¹⁴¹ – acts not merely as the setting of the event, but also serves as a permanent reminder of where the event took place. Philostratus is essentially creating his own topography for Apollonius. In the same way that Apollonius himself wanted to visit the famous sites of the Homeric past, so perhaps did Philostratus intend that sophists of the future would wish to visit the sites made famous by Apollonius.

It would be easy enough to conclude that Philostratus merely used topography as a literary device to lend authenticity to what was, essentially, a work of fiction. Indeed, we may even suggest that his topographical descriptions are an adequate reflection of contemporary geographical knowledge; readers of Philostratus might have known the names of a few rivers and mountains in India, but would have demanded greater exactitude for those parts of the world that had long been known in detail. However, Philostratus also demonstrates a remarkably nuanced understanding of what we might term the ‘allure of place’; it is an allure that not even Apollonius himself can resist.

Philostratus may also be attempting to manufacture a topography of his own. In the same way that Apollonius was able to communicate with Achilles by visiting the ancient site of the Trojan war, there is perhaps a sense that the reader will be able to bring Apollonius to life by visiting those locations where episodes from his life took place. Topography is, therefore, not merely employed to create confidence in the claims of the narrator or to create a plausible setting for the narrative; it is being used to transpose the fictional Apollonius onto the built environment, that place where history and memory are preserved, as it were, in stone. Had more of a cult developed around Apollonius, perhaps the locations described by Philostratus would still be visited to this day. Instead, it would be the sites associated with a different historical figure that would, in the following century, come to redefine the topographical interests of the Mediterranean world.

Our final traveller lived in the fourth century and undertook his travels roughly a hundred years after Philostratus was composing the life of Apollonius. We do not, alas, know the traveller’s name or the purpose of his journey¹⁴². What we do

141 There is a relief of Heracles in Ephesus dating from the second century AD, although this may not be the statue referred to by Philostratus.

142 We are not, for that matter, entirely certain about his gender, although there has been some debate: the possibility that the traveller was female was suggested in J.E. Taylor *Christians and the*

know is that, in AD 333, he travelled from Bordeaux to Jerusalem via Milan and Constantinople, then back to Bordeaux via Macedonia and Rome. The journey has been preserved in the form of an itinerary which has received heavy annotation from the traveller himself¹⁴³.

The presentation of the Bordeaux Itinerary is instantly recognisable: like the Antonine Itineraries, it is a list of places and the distances between them in *milia passuum*, except in the very first section of the journey (Bordeaux to Toulouse) where distances are given in leagues¹⁴⁴. Although the itinerary follows a single journey, it is broken up, like the fourth Vicarello goblet, into several smaller journeys between major centres; at each of the centres, the traveller stops to provide a summary of all the miles travelled, and the number of places where he stopped. The first segment of the itinerary thus consists of journeys from Bordeaux to Arles, Arles to Milan, Milan to Aquileia, Aquileia to Sirmium, Sirmium to Serdica and finally Serdica to Constantinople.

Between Bordeaux and Constantinople, the itinerary remains an impersonal record, distinguishable from its Antonine counterparts only by virtue of its completeness. The traveller has not merely noted the name and designation of every stop along the way (the *mansiones* and *civitates*, plus one *vicus*) but has also included the *mutationes*, or places where the animals were changed. Otherwise, the traveller consistently notes the regional boundaries – stating either the beginning of a province, the boundary between two provinces or, in one case, the fact that you cross a bridge into a province¹⁴⁵ – and will very occasionally make a note of mountains¹⁴⁶. Only once are we presented with information that is not strictly related to the journey: the city of Viminacium, in Moesia, is annotated ‘where Diocletian killed Carinus’¹⁴⁷.

Holy Places: The Myth of Jewish-Christian Origins (Oxford, 1993), 313, and taken up in L. Douglass ‘A New Look at the Itinerarium Burdigalense’, *J ECS*, Vol. 4, No. 3 (1996), 313–33; however, see also S. Weingarten ‘Was the Pilgrim from Bordeaux a Woman? A Reply to Laurie Douglass’, *J ECS*, Vol. 7, No. 2 (1999), 291–97. The traveller will be referred to as male in the present study, on the grounds that he was probably travelling on state business (see 113, below).

143 The *Itinerarium Burdigalense* (also sometimes known as the *Itinerarium Hierosolymitanum*) has traditionally been published with the Antonine Itineraries. The most current edition is that of O. Cuntz, which appears in his *Itineraria Romana* (Leipzig, 1929), and has been reprinted in *Itineraria et Alia Geographica. CCSL* 175 (Turnhout, 1965) 1–26. As with the Antonine Itineraries, the pagination of P. Wesseling has been preserved. The translation in A. Stewart and C.W. Wilson *Itinerary from Bordeaux to Jerusalem* (London, 1887) provides useful topographical notes.

144 *It. Burd.* 549.10–551.2.

145 For example *inde incipit Italiae* (*It. Burd.* 556.5); *finis Italiae et Norci* (560.10).

146 *inde ascenditur Gaura mons* (*It. Burd.* 555.1); *inde incipiunt Alpes Cottiae* (555.9); *inde sunt Alpes Iuliae* (560.3).

147 *ubi Diocletianus occidit Carinum* (*It. Burd.* 564.9).

When the traveller arrives at Constantinople, after some three months on the road¹⁴⁸, he stops to provide a summary of the entire journey: he enumerates the number of *mansiones* and *mutationes* as well as the total number of miles travelled¹⁴⁹. The detail with which the stopping points – especially the *mutationes* – are recorded may suggest that the journey was undertaken using the services of the *cursus publicus*; this, in turn would suggest that the traveller was either on official business or was well-connected enough to have obtained an *evectio* by semi-legitimate means¹⁵⁰. We need not, perhaps, assume the worst; the fact that our traveller treats Constantinople as a destination would certainly support the idea that he is simply travelling on business.

It is only after Constantinople that the Bordeaux Itinerary begins to develop into a more idiosyncratic record of travel¹⁵¹. We do not know precisely when our traveller arrived in the new imperial capital, or for how long he stayed; however we do know that on the thirtieth of May, in the consulship of Dalmatius and Zenophilus (that is, AD 333), the traveller set out from Chalcedon on a six month round-trip to the province of Palestine; his use of the first person plural (*ambulavimus, reversi sumus*) may or may not imply that he was travelling either with companions or with a retinue, but at very least suggests a level of personal engagement with the journey¹⁵².

From the very beginning, there is a sense that the journey from Constantinople to Palestine might be a trip for pleasure rather than business. Although the itinerary format is retained – at least until the Levant – and there is still evidence that the traveller is relying on the *cursus publicus*, we notice almost immediately that there are more topographical asides. Two days out of Chalcedon, in the *mansio* of Libissa, the traveller notes that ‘Hannibal, who was king of the Africans, is buried there¹⁵³’; later,

148 Assuming that the traveller stopped at every place listed as *mansio*, *ciuitate* or *vicus* and spent only one night in any place, the journey would have taken 89 days.

149 *It. Burd.* 571.3–5. The figures, which do not correspond to the number of stops listed in the itinerary, are probably corrupt.

150 Although abuse of *cursus publicus* appears as early as AD 326 (*CTh* 8.5.3–4), serious attempts to control the distribution of *evectioes* are not made until ca. 354–362 (*CTh* 8.5.5–12).

151 For two approaches to the structural complexity of the itinerary, see G. Bowman ‘Mapping History’s Redemption: Eschatology and Topography in the Itinerarium Burdigalense’ in L.I. Levine (ed.) *Jerusalem: Its Sanctity and Centrality to Judaism, Christianity and Islam* (New York, 1998), 163–87 and J. Elsner ‘The Itinerarium Burdigalense: Politics and Salvation in the Geography of Constantine’s Empire’, *JRS*, Vol. 90 (2000), 181–95.

152 *Item ambulavimus Dalmatio et Zenofilo cons. III. kal. Iun. a Calcidonia, et reversi sumus Constantinopolim VII. kal. Ian. Cons suprascript.* (*It. Burd.* 571.6–8).

153 *ibi positus est rex Annibalianus, qui fuit Aforum* (*It. Burd.* 572.4); in the modern Turkish town of Gebze, there is a monument which purports to be Hannibal’s grave.

in Cappadocia, the traveller draws our attention to the city of Tyana, birthplace of Apollonius the *magus*¹⁵⁴.

The topographical asides in the itinerary suggest a man of average education. He is aware of events from recent political history, such as Diocletian killing Carinus, but also seems to possess some context for appreciating places which have a connection to famous historical figures: apart from Hannibal and Apollonius, our traveller – on his way home through Macedonia – is able to point out the birthplace of Alexander and the final resting place of Euripides¹⁵⁵. From these diverse references, we may infer that our traveller has, if nothing else, received something of an education in the classics. Of course, we cannot say for sure that he had read Euripides, or any of the available biographies of Apollonius; however, there is one text with which our traveller was intimately familiar. It is, as we shall soon see, a text that would act as the very definition for his topographic knowledge of the Levantine lands.

The bible, as we know it today, did not exist at the time when our traveller was making his journey; Jerome would not consolidate the various extant versions into a single standardised text for nearly another eighty years. However, the scriptures, in some form, would have certainly been in circulation and available to the reader of Latin or Greek. Of course we should not assume that our traveller was any great scholar of the Christian texts: the knowledge that he brings to the topography of the Levant seems limited mostly to episodes from the four gospels, Genesis, and the four books of Kings¹⁵⁶.

Nonetheless, our traveller was certainly a Christian. He reveals himself as such on his arrival in Tarsus, when he informs us that the city happens to be the birthplace of the apostle Paul¹⁵⁷. From this point forward, as the journey progresses from Cilicia to Syria to Palestine, the regular sequence of the itinerary format is increasingly interrupted by topographical asides; by the time our traveller reaches Jerusalem, the familiar lists of names and distances have been almost entirely replaced by lengthy passages of description.

Unlike many later Christian visitors to the Levant – with whom the author of the Bordeaux itinerary is sometimes unfairly compared¹⁵⁸ – our traveller does not seem

154 *inde fuit Apollonius magus* (*It. Burd.* 578.1).

155 *ibi positus est Euripidis poeta* (*It. Burd.* 604.7); *civitas Pelli unde fuit Alexander Magnus Macedo* (606.1).

156 That is, I and II Samuel and I and II Kings.

157 *inde fuit apostolus Paulus* (*It. Burd.* 579.4).

158 For a treatment of the Bordeaux traveller within the context of early-Christian pilgrimage, see E.D. Hunt *Holy Land Pilgrimage in the Later Roman Empire AD 312–460* (Oxford, 1982) 57–8 and

particularly interested in uncovering every possible piece of scriptural allusion hiding within the landscape. This is, perhaps, unsurprising, given that he would have been travelling at a time when an understanding of Christian topography was starting to emerge, but before the landscape of Palestine had solidified into an intractable cluster of sacred places¹⁵⁹. Instead, he is drawn primarily to those places relating to the historical figures that interest him the most. Thus, while a certain amount of his descriptions are necessarily given over to the life of Christ, episodes from the time of King Solomon and the prophet Elijah also appear with great frequency.

The closer our traveller gets to Palestine, the more he finds worthy of comment. From Tarsus, he goes to Antioch – where he visits, without comment, the temple at Daphne¹⁶⁰ – then follows the coast, via Tripolis and Beirut, all the way to Caesarea. Outside the city of Sidon, he mentions that ‘this is the place where Elijah begged a widow for food¹⁶¹’; later, near the boundary of Syria and Palestine, he points out Mount Carmel, where Elijah made his sacrifice¹⁶².

Our traveller appears to be using his knowledge of scriptural narratives – and, especially, of the place-names within those narratives – to interpret the places he encounters on his journey. He may also have been relying on local knowledge for clarification. However, it is important to remember, that there would have been three centuries separating our traveller from events in the life of Christ and more than a millennium separating him from the time of Elijah; we cannot expect topographical information to have been transmitted over such a span of time without some corruptions. Thus, when our traveller reaches Stradela (Jezreel) he reports that ‘this is the plain where David killed Goliath¹⁶³’. In fact, that episode took place in the Valley of Elah, some fifteen miles south-west of Jerusalem; the plain near Jezreel is actually the site of King Saul’s defeat at the hands of the Philistines¹⁶⁴. Either the traveller was,

83–5. The rise of christian travel is discussed in chapter four, 208–13.

159 On the fourth century development of the christian sacred place, see R.A. Markus ‘How on Earth Could Places Become Holy? Origins of the Christian Idea of Holy Places’, *J ECS*, Vol. 2 (1994), 257–71.

160 *ad Palatium Dafne* (*It. Burd.* 581.7). We know from Libanius that it was a popular destination for visitors.

161 *ibi Helias ad viduam ascendit et petiit sibi cibum.* (*It. Burd.* 583.12). cf. I Kings 17.9–13; the town of Sarepta (Zarephath) appears in some MSS of the itinerary.

162 *ibi est mons Carmelus, ibi Helias sacrificium faciebat* (*It Burd.* 585.1); cf. I Kings 18.

163 *ibi est campus ubi David Goliath occidit* (*It. Burd.* 586.5).

164 I Samuel 17 (David kills Goliath); I Samuel 29 (defeat of Saul).

himself, confused, or his report was based on the information – in this case, incorrect – that he was able to extract from local sources¹⁶⁵.

The scriptural landscape of our traveller is defined by some natural features, primarily mountains: apart from Mount Carmel, there is a passage on the significance of Mount Gerizim outside Neapolis, and a description of the sites that may be seen on Mount Zion, outside Jerusalem¹⁶⁶. For the most part, however, it is the built environment that gives structure to the traveller's journey; and, as in Pausanias, it is the material remains of the constructed world that allow the narrative to become untethered from the constraints of chronology.

We should note, however, that our traveller was not interested in the scriptural landscape to the exclusion of everything else. While his descriptions of Jerusalem may be focussed primarily on isolating places of scriptural relevance, his discoveries must necessarily take place within the context of the contemporary Roman city. Thus, he will occasionally mention places or artefacts that do not have any particular scriptural significance, like the two statues of Hadrian or the cisterns that provide water to the city's pools¹⁶⁷. Christianity may be our traveller's most obvious defining characteristic, but we should not forget that he was also a Roman and may, thus, have had some interest in the city's more recent past.

Nonetheless, it is the landscape of the scriptures that provides the greatest attraction for our traveller. However, while his appreciation of Jerusalem is clearly informed by a knowledge of the sacred texts, the extensive annotations in his itinerary may owe something to the presence of tour guides and other forms of received local knowledge. Although certain features would have been obvious – and, indeed, some locations, like the tomb of Christ and the mount of Olives, were already being celebrated with Constantinian buildings¹⁶⁸ – we cannot expect our traveller to have accurately identified the house of Pontius Pilate, or the chamber where Solomon wrote the book of Wisdom, without some external guidance¹⁶⁹.

165 The later itinerary, *De situ terrae sanctae*, composed by archdeacon Theodosius in the sixth century (see chapter four, 212–13) offers the correct location of the fight between David and Goliath.

166 *It. Burd.* 587.3–588.9 (Gerizim); 591.11–592.12 (Zion).

167 *sunt ibi et statuae duae Adriani* (*It. Burd.* 591.5); *sunt ibi et excepturia magna aquae subterraneae et piscinae magno opere aedificatae* (590.10).

168 At the tomb: *ibidem modo iusso Constantini imperatoris basilica facta est* (*It. Burd.* 594.3); at the mount of olives: *ibi facta est basilica iusso Constantini* (595.9).

169 *ibi etiam constat cubiculus in quo sedit et Sapientiam descripsit* (*It. Burd.* 590.8); *ubi domus fuit siue Pontii Pilati* (593.3).

Similarly, one suspects that, if left to his own devices, he may not have concluded that certain marks in the pavement of the temple enclosure were, in fact, impressions of nails from the shoes of the soldiers who killed Zacharias¹⁷⁰. In addition, the traveller also mentions certain places – for example, the crypt where Solomon tortured demons¹⁷¹ – which are simply not attested elsewhere and are, perhaps the fabrication of an imaginative guide. From these examples we may wish to suggest that the notes kept by our traveller do not represent a personal topographical vision so much as a record of interesting things that other people had pointed out to him.

Using Jerusalem as a base, our traveller makes several smaller excursions, one to Jericho, the Dead Sea and the river Jordan, and another to Bethlehem and Hebron. After approximately three months of sight-seeing, he returns to Caesarea, via a different road. The fact that he does not include any further details about his return journey from Caesarea to Constantinople suggests that he probably retraced the route described in the earlier part of the itinerary¹⁷².

Indeed, when the traveller reappears it is in Heraclea, in Thrace: rather than repeating the entire journey back to Bordeaux, he seems to have passed through Macedonia and Epirus, crossed to Italy by boat, and made his way via Rome to Milan where the itinerary concludes. In this final section of the journey, there are only three topographic asides, all in Macedonia. Although he pauses in Rome to count his miles and *mansiones*, he has nothing to say about the great city itself.

What, then, can we conclude about the traveller and his itinerary? About the man, we can say little with certainty: only that he was a Christian who had read, at very least, the gospels and the books of Kings, and that he had received enough education to be aware of Alexander, Euripides and Apollonius. He may have been of high enough rank to have access to the *cursus publicus* and he may, indeed, have been no stranger to road travel in Gaul and Italy; we can, if nothing else, excuse his silence on the topography of these regions by suggesting that they would have been so familiar as to be unworthy of comment.

Although it goes against the general trends of modern scholarship, we should perhaps be cautious about characterising our traveller as an early pilgrim; even those who

¹⁷⁰ *etiam parent vestigia clauorum militum qui eum occiderunt* (*It. Burd.* 591.3).

¹⁷¹ *est ibi et cripta ubi Salomon daemones torquebat* (*It. Burd.* 589.16).

¹⁷² On the lack of return journeys in the itinerary, see Elsner, 'The Itinerarium Burdigalense', 183.

include him within the pilgrimage tradition tend to fault him for his lack of interest in theological matters, and compare him unfavourably with the more rapturous accounts of sacred places – like that of the nun Egeria – left behind by later visitors to the East¹⁷³. Based on the account our traveller has left us, it is perhaps easier to envisage him as an enthusiastic, if somewhat credulous tourist, approaching the Levant in the same way that a casual reader of Homer might approach the western coast of Asia Minor.

We may thus propose the following scenario: at the beginning of AD 333, our traveller was called to the newly consecrated imperial capital on business. Using the services of the *cursus publicus*, he set out on a three month journey to Constantinople, roughly twice as long as it would have taken to get to Rome. He was, of course, a Christian living in an age when Christianity was no longer something that needed to be hidden. Thus, given that he was already travelling much further East than he had ever been before, he decided to take the opportunity to add a side trip to Palestine in order to see some of the places that he knew only as names from his Christian upbringing.

The text which bears witness to his journey is, therefore, very much a work of two distinct layers. At the foundation we have the simple itinerary, which may, itself, have been a compilation of shorter itineraries copied down in regional centres along the way. On top of that we have the annotations of a traveller, initially limited to obvious points of general historical interest, but growing more detailed as the topographic connections became more obscure. The point of the itinerary would have been to present the journey as efficiently as possible; the point of the annotations would have been to reveal the relationship between the physical landscape of the Roman world and the topographical landscape of the scriptures.

The sole appearance of the first person plural allows us to confirm that the itinerary is a genuine record of an actual journey; however, the scattered use of second person singular throughout the text, suggests that our traveller may have been conscious of his itinerary's future utility¹⁷⁴. While it is true that the majority of his text consists of impersonal descriptions, his occasional lapses into a more instructive mode allow

173 On lack of theological interest, see R. Wilken *The Land Called Holy: Palestine in Christian history and thought* (New Haven and London, 1992), 109–10; for unfavourable comparisons to Egeria, see Hunt, *Holy Land Pilgrimage*, 58 and 86, although see also the discussion in Bowman. We shall return to Egeria in chapter four.

174 The second person is found in the itinerary itself – eg. *transis pontem, intras Pannoniam inferiorem* (*It. Burd.* 561.5); *a Constantinopoli transis Pontum, venis Calcedoniam, ambulas prouintiam Bithiniam* (571.9) – but is also scattered throughout the passages describing his journeys around Jerusalem: eg. *item exeuntibus in Hierusalem ut ascendas Sion* (591.11).

for the possibility that he later transcribed his itinerary and his notes into a single document specifically for an audience of fellow Christians who would be interested in recreating some of his travels.

At the time our traveller was annotating his itinerary, the Levant would have been a trove of neglected religious topography waiting to be rediscovered. However, because of that neglect it was not always easy to align the stories from the scriptures with the reality on the ground. Unlike the Mediterranean world of Homer, which had been established for centuries, the Levant was a topographic puzzle waiting to be reassembled. Over the next thousand years, geographical thought would increasingly come to be dominated by the invention of a new and official Christian topography.



Beneath the descriptions of the built environment left behind by our travellers, one may perceive a distinct unease about the idea of the natural world. It is, perhaps, most pronounced in the writings of Pausanias, who manages to cover a large portion of Greece while rarely describing a natural landscape or commenting on a natural feature; however, we may see it also in the Mediterranean journeys of Apollonius – which move from one identifiable location to another without ever engaging with the world around it – and in the Bordeaux itinerary, where the natural world must be read into the spaces between the names and distances.

We cannot know if the natural world was terrifying or merely tedious for the Roman traveller; we can, however, suggest that it was best ignored. In the city, one was constantly surrounded by the evidence of human endeavour and the presence of history. In the country, one could at least take some consolation in the ploughed fields and boundary markers that attested the normalising presence of the agrimensores. Beyond that, however, there was nothing but empty space to which no memory could be attached.

For this reason, the road network was especially important in defining the space of the empire. Of course, the network of roads that expanded with the empire in the first imperial centuries were essentially a practical undertaking; their unique engineering feature – the paved surface – allowed for efficient vehicle transport, rapid movement of military forces and effective lines of communication. As a side effect, however, they also provided a conspicuous presence within the landscape. Pausanias may not discuss the

road in his *Periegesis*, but in those long journeys between sites, where there are no remains of human civilisation left to describe, the road becomes the last reminder of the built environment, the only thing separating the traveller from the formless chaos of nature.

The road network essentially transformed the Roman world into a navigable space by removing the uncertainty from navigation. If travel occurred on a fixed path leading from one place to another, there would have been no need for elaborate topographical directions or references to unreliable features from the natural world; one would only need to know that they were on the right road and going in the right direction. The itinerary format, which may have been developed alongside the road network, offers us a vision of travel where everything that is not directly related to the journey itself has effectively been written out.

A system of navigation based entirely on the built environment would have made long-distance travel relatively straightforward. It would not necessarily have been easy – and, as we can see from the Bordeaux itinerary, it still would have taken a long time – but the basic process would have been largely free of uncertainty. In the few accounts of travel that have survived, we rarely get the sense that the characters or authors do not know where they're going; if the act of travelling appears transparent in literary sources, it is perhaps only because the mechanics of navigation were too commonplace to mention.

In the accounts of our travellers, the road is just one of many features that defines the landscape. The natural topographic features which were so essential to chorographic presentation are not wholly absent, but their presence is reduced. In the fictional India of Philostratus, the names of distant rivers are used – along with elephants and mentions of Alexander – primarily to create a sense of the exotic. In Pausanias and the Bordeaux Itinerary, rivers and mountains are useful only insofar as they may help us situate an historical event.

Ultimately, it is the topography of the built environment that most fascinates our travellers; the history, memory, mythology and poetry of their world and culture was written into the monuments and buildings that surrounded them. When they wrote about features from the built environment, they were not describing what they saw, so much as informing us what it was possible to see. Of course, Pausanias and Philostratus were essentially describing a world whose histories and mythologies – and the topographic markers that preserved them – had been well established for centuries. The traveller from Bordeaux, on the other hand, was interested in a different world.

Although his travels took place within the same built environment – and within the geographical frame of the Roman itinerary – the specific sites that interested him existed, for the most part, outside of the established historical landscape. However, by the time the traveller from Bordeaux undertook his journey to the East, the established landscape was already starting to change.

Part Two

CHAPTER THREE

changes in the urban landscape

DURING THE IMPERIAL CENTURIES, A NEW STANDARD OF URBANISM SPREAD throughout the Roman world: in those parts of the empire where cities had not previously been a major part of life – primarily the western provinces – new urban centres were constructed as a means of incorporating those regions into the systems of Roman administration. In the eastern Mediterranean, where cities had existed for centuries before the arrival of Roman rule, older centres were renamed, refounded and rebuilt so that they might correspond more closely to the Roman ideals of urban form and urban function.

Because the city had increasingly come to act as a tool for imperial expansion, it would have been necessary for the empire to possess a clear understanding of how urban centres functioned, and the role they played within the administrative framework; moreover, the empire would have required a coherent strategy for translating that understanding of function into a physical nucleus around which an urban society might coalesce. Such was the success of Roman urbanism that, even if we did not possess the urban guidelines set out in the text of Vitruvius, we would still be able to detect a governing ideal in the plans of ancient cities.

Imperial cities thrived, to some extent, because they formed part of a larger network that was connected to a well-defined centre. From as early as the third century, however, a series of events and transformations occurred within the Roman world that would eventually bring about an end to the imperial urban order. This is not to say that the city itself disappeared: although there was a broad decline in urban life in the

western provinces, the cities of the east continued to flourish until at least the seventh century. What had changed was the meaning of the city within the structure of the Roman state, and the ideals that had once presided over urban form.

If we are to understand the wider transformations that occurred in the built environment, we must first consider the degree to which urban ideals from the imperial period continued to inform the physical space of the late antique city. Certainly, it would be easy to attribute the major transformations in urban form to the disappearance of a centralised urban strategy, or to a more general decline in attitudes toward civic institutions. A review of surviving textual sources, however, may reveal that the urban ideals of the imperial period remained largely intact well into the sixth century; what had changed was the ability of the state to enforce those ideal forms through legislation. In fact, the fate of urbanism in late antiquity may be best understood as a process whereby the physical state of the cities grew further and further from the ideals that had once governed their construction.

We possess no single work that discusses the ideal urban form of late antiquity; while Vitruvius may have remained in use, later authors valued his text primarily as a source for matters relating to rural private dwellings. We may, however refer to a number of legal and technical works that deal with the management and maintenance of civic space: in the *Codex Theodosianus* we are given a series of laws that attempt to regulate construction in the public sphere, while in a sixth-century treatise ascribed to Julian of Ascalon we can see how order was maintained among private building projects in the long-established urban centres of the East. Finally, in the *Buildings* of Procopius, we have a valuable record of imperial involvement with late antique urban spaces. By examining these sources, we may arrive at a better understanding of how the later Roman city was perceived by its audience, and how that perception may have differed from the urban ideals of the classical past.

There are, specifically, two transformations that may have had a considerable effect on the urban forms of late antiquity. Firstly, we may note a deterioration in the divide between public and private space. During the imperial period, the planned city had essentially taken the form of a series of public structures that would act as a focal point for an urbanised population; in late antiquity, however, a lack of organised public construction combined with a rise in large privately-funded building projects may have started to undermine the urban forms that had once been so carefully maintained.

Secondly, there is the problem of new foundations. The idea of bringing an urban administrative centre into being had been an integral part of early imperial expansion programmes. While the idea of the new urban foundation would continue to survive into late antiquity – and would be attempted most notably by the emperor Justinian – the state found itself increasingly unable to dictate the form of a lasting urban centre. Even though the city was still an important part of social and political life in the later Roman world, the imperial ideals that informed the construction of a city no longer reflected the needs or desires of the urban population.

The supposed end of classical urbanism has become a popular and widely discussed topic over past several years. However, while there were any number of major catastrophes in the late sixth and early seventh centuries that may have posed a serious threat to the urban foundations of the eastern Roman world – the most frequently cited are: a long war against Sasanian Persia, a series of earthquakes, outbreaks of plague and, finally, the Islamic conquests – we shall soon see that the fundamental idea of the city had started to change much earlier, perhaps as early as the fourth century; with those changes in the urban ideal, transformations in urban form would inevitably follow.

regulating the urban ideal

For Vitruvius, the city was essentially a public entity; although he acknowledged the existence of private life in the sixth book of his treatise – in which he discusses individual houses and their decoration – he was concerned primarily with the establishment of an urban centre that would embody all the functions expected of a city. The hypothetical city described by Vitruvius contained theatres, places of business, temples and administrative offices, all surrounded by a strong defensive wall; it was a complete venue in which political, spiritual and cultural life could flourish.

There can be little doubt that the text of Vitruvius survived into the later Roman world and even into the Medieval period: manuscripts of the ten books were not uncommon in Western Europe from the ninth century onward¹. His treatise, however,

¹ See the catalogue in C.H. Krinsky 'Seventy-Eight Vitruvius Manuscripts' in *Journal of the Warburg and Courtauld Institutes*, Vol. 30 (1967), 36–70.

may have had little influence on either architecture or urban planning. By as early as the third or fourth century, the content of the ten books may have been deemed overly obscure by those whose job it was to construct buildings. For this reason, an author named M. Cetus Faventinus compiled a manual in which relevant sections of Vitruvius were extracted and rendered into a simplified contemporary Latin².

The figure of Faventinus is obscure: the author's name only came to light at the end of the nineteenth century, and the manual itself is essentially undatable³. Although the concepts and sentences have been substantially re-ordered and, in many cases, rephrased, the concepts remain remarkably close to those in Vitruvius; Faventinus reveals nothing about himself, and gives us nothing in the way of helpful interjections that might allow us to date the manual securely. Our only certainty is that it was written after Vitruvius, probably by several centuries. The fact that the abridgement of Faventinus was used as a source by the agricultural writer Palladius – who may have flourished in the second half of the fifth century⁴ – gives us a fairly broad window in which to place the composition⁵. It has been suggested, however, that Faventinus was most probably active during the third century⁶.

Because Faventinus appears to add little to Vitruvius, his manual has been largely ignored in modern scholarship. At best it is cited as evidence for the transmission of Vitruvius, or for the state of building technology in the later Roman world⁷; at worst, its omissions are taken to signal a decline in classical knowledge. If, however, we are willing to undertake a more thorough examination of the editorial decisions made by

2 The text appears as an appendix in Vitruvius *De architectura libri decem* ed. V. Rose (Leipzig, 1867 and 1899) and Vitruvius *De architectura libri decem* ed. F. Krohn (Leipzig, 1912). An English translation of Rose's earlier text appears H. Plommer *Vitruvius and Later Roman Building Manuals* (Cambridge, 1973). The most recent edition, with translation and commentary is M.-T. Cam *Cetus Faventinus Abrégé d'Architecture Privée* (Paris, 2001).

3 The name of Faventinus appears in two manuscripts discovered in the late 1860s. See Plommer, *Manuals*, 2; Cam, *Faventinus*, vii–x.

4 On the dating of Palladius see R. Martin *Palladius: Traité d'agriculture*. Tome 1 (Paris, 1976), vii–xx. Martin cautiously suggests a date of between AD 460–480 although he has been placed as much as a century earlier.

5 The fact that Palladius was using Faventinus, rather than Vitruvius, as a source, was established by H. Nohl 'Palladius und Faventinus in ihrem Verhältniss zu einander und zu Vitruvius' in *Commentationes Philologicae in Honorem Theodori Mommseni* (Berlin, 1877), 64–74. See also Martin, *Palladius*, xxxii–xxxix.

6 Cam, *Faventinus*, xiii–xvii suggests the first part of the third century; Plommer, *Manuals*, 33 tentatively dates the treatise to AD 300.

7 See, for instance, the brief appearances in N. Pevsner 'Terms of Architectural Planning in the Middle Ages', *Journal of the Warburg and Courtauld Institutes*, Vol. 5 (1942), 232–37 and T.N. Howe 'Vitruvian Critical Eclecticism and Roman Innovation', *MAAR*, Vol. 50 (2005), 41–65. For a discussion of building technology, see Plommer, *Manuals*, 3–33.

Faventinus, we soon realise that his treatise was not conceived as a manual for architects, and that it has much to tell us about the building culture of his age.

The manual of Faventinus – the full title of which may be rendered as *A book on the art of architecture, abbreviated for personal use*⁸ – makes its intentions clear from the outset. In the preface, Faventinus writes:

Vitruvius and other learned authors have written about the practical knowledge of architecture. However, lest the length and eloquence of these writers alienate people of a lesser capacity, one may extract from them a few passages relating to private use and render them in common speech⁹.

In this opening passage, Faventinus identifies both his aims and his source material, although given his nearly complete reliance on Vitruvius, we may question the existence of the ‘other learned authors.’ It is not impossible that the texts of the other authors are, in fact, earlier epitomes of the ten books. The preface continues with a brief list of the types of information that will be covered in the treatise, including how to keep out noxious breezes, how to orient one’s building, and how to identify a good water supply¹⁰. We may note that the items listed by Faventinus are not specifically related to the physical building; indeed, they represent what we might term para-architectural elements, those parts of the process which, while not related to construction itself, are nonetheless necessary for the success of the building.

The manual of Faventinus is, indeed, brief – it occupies a mere twenty-two printed pages in Krohn’s edition – and is also highly selective: there are no Corinthian orders, no public buildings and the theoretical digressions favoured by Vitruvius are kept to a minimum. Faventinus, however, neither restricted himself to the passages in Vitruvius that deal specifically with private buildings, nor did he merely extract relevant passages in their original order; through careful editing and meticulous restructuring, Faventinus managed to create an entirely unique work that would serve a very different purpose than its source.

The treatise opens with a condensed version of the Vitruvian components of architecture and it is one of the few sections where Faventinus does not display a

8 The title *Artis architectonicae privatus usibus abbreviatus liber* appears in the earliest manuscript, the ninth century Par. lat. 10277; see Cam, *Cetius Faventinus*, xxxix–xl. It has also appeared as *De diversis fabricis architectonicae* – notably in Rose’s 1867 edition – although this title is probably not correct.

9 *de artis architectonicae peritia multa oratione Vitruvius Polio aliique auctores scientissime scripsere. uerum ne longa eorum disertaque facundia humilioribus ingeniis alienum faceret studium, pauca ex his mediocri licet sermone priuatis usibus ornare fuit consilium.* Faventinus pf.

10 Faventinus pf.

great understanding of his source¹¹; where Vitruvius divides and subdivides concepts, Faventinus simply lists eight parts – in this case order, arrangement, beauty, measurement, distribution, construction, situation and mechanics¹² – which seem carelessly assembled from various unrelated passages in the first book of Vitruvius. Faventinus is far more comfortable with the practical material that comprises the bulk of the treatise.

Roughly the first half of his manual is devoted to issues that need to be addressed before any structure is actually built. He begins with a section about the winds which follows Vitruvius closely – even going so far as to include the references to Eratosthenes and to the octagonal tower of Andronicus Cyrrhestes – but which identifies twelve winds, rather than eight¹³. We may recall that for Vitruvius, the direction of the winds dictated nothing less than the orientation of the city; for Faventinus, however, the winds appear to inform little more than the placement of windows and doors in a single building¹⁴.

The fairly brief section on the winds is followed by a slightly more substantial section on water, drawn mostly from the eighth book of Vitruvius. Here we begin to see the editorial hand of Faventinus at work: the section begins with a description of how to find water, then follows with a passage on the digging of wells; these, in turn, are followed by passages on the quality of water, and on the different methods by which it may be conveyed¹⁵. Faventinus, however, has not merely followed Vitruvius, but has arranged the passages from different chapters in such a way as to guide us through the process of creating a private water supply. The exclusions are also revealing: Faventinus has not only removed the scientific digressions, but has also isolated the notion of the water supply from its original urban context. After the section on water, Faventinus returns to the second book of Vitruvius for a discussion of building materials. Once again, the rearrangement of information is intriguing: where Vitruvius begins with bricks then moves on to sand and lime – the ingredients of concrete – Faventinus places his recipe for concrete first, perhaps suggesting that it had surpassed bricks in

11 Faventinus 1; cf. Vitruvius I.2.

12 *nam architecturae partes sunt octo, quae sunt ordinatio, dispositio, uenustas, mensura, distributio, aedificatio, conlocatio, machinatio*. Faventinus 1. *Ordinatio* and *dispositio* are two of the three parts of architecture listed in Vitruvius I.2.1; *distributio* is a sub-component of the third part. *Venustas* is part of the famous trio 'strength, utility and beauty' describing the qualities of an individual building (Vitruvius I.3.2), while *aedificatio* and *machinatio* are different disciplines of architecture (Vitruvius I.3.1).

13 Faventinus 2; cf. Vitruvius I.6.4–6.

14 *observabis ergo ne ianuas aut fenestras contra nocivos flatus facias*. Faventinus 2.

15 Faventinus 3–7; the passages correspond to Vitruvius VIII.1, 7, 5 and 7 again.

common construction¹⁶. The section concludes, like the second book of Vitruvius, with a discussion of various types of timber and their properties¹⁷.

From here, the focus of the text shifts to domestic architecture: Faventinus ventures into the middle of the sixth book of Vitruvius to extract information about how to situate one's villa, then goes back a few chapters to discuss practical matters relating to house construction¹⁸. It is here that one may begin to perceive more clearly the subtlety and focus of Faventinus' editorial decisions. In Vitruvius, the section on house construction precedes the section on villas and refers specifically to houses in the city; by placing the section on villa situation first, Faventinus has created a new context for the information that is to follow.

Vitruvius, in his discussion of villas, tells us that if we wish to create a more distinguished and more elegant villa, we should follow the proportions for city houses, already specified in an earlier chapter¹⁹. While Faventinus uses a similar formulation to introduce his own section on domestic architecture²⁰, he has completely altered the context: through careful structuring, the Vitruvian description of urban architecture has been transformed into instructions on how to construct a villa. Suddenly the intentions of Faventinus become clear: everything that he has included in his manual, from the location of a water supply to the properties of building materials, are passages relevant to the situation of a private residence in the country.

Faventinus continues with passages on the situation and vaulting of baths (from book five of Vitruvius), on the creation of paved floors, on finishing walls, and on the various colours (all from book seven), and on the creation of a sun-dial (book nine)²¹. Regardless of their original placement in the text of Vitruvius, the passages chosen by Faventinus may all be read in the context of private rural building. We may also note that the subjects addressed by Faventinus are predominantly ones related to either the situation or decoration of a building rather than to the process of construction itself.

16 Faventinus 8–9 (sand and lime), 10 (bricks); Vitruvius II.3 (bricks), 4–5 (sand and lime). Plommer, *Manuals*, 34–37 suggests that Faventinus had a more advanced understanding of concrete than Vitruvius.

17 Faventinus 12; cf. Vitruvius II.9–10.

18 Faventinus 13–14; cf. Vitruvius VI.6 and 4.

19 *si quid delicatus in uillis faciundum fuerit, ex symmetriis quae in urbanis supra scripta sunt constituta, ita struantur, uti sine inpeditione rusticae utilitatis aedificentur.* Vitruvius VI.6.5.

20 *si quid uero melius et nitidius facere uolueris, exempla de urbanis fabirics sumes.* Faventinus 13.

21 For an analysis of the sun-dials and the differences introduced by Faventinus, see P. Pattenden 'Sundials in Cetus Faventinus', *CQ*, Vol. 29, No. 1 (1979), 203–212.

We may, therefore, suggest that Faventinus was writing either for an audience of builders – that is to say, people who knew how to construct a building, but who did not necessarily possess any architectural training – or land-owners who had hired local builders. Certainly there is evidence for a sharp increase in villa construction starting around the end of the third century and perhaps corresponding to the restoration of peace under the tetrarchy²². If these new villas were privately constructed without the input of a trained architect, it may have been necessary for the owner or the builders to refer to a manual that discussed water supply, building materials and other practical matters.

The shadow of Vitruvius has perhaps obscured the rural objectives of Faventinus; we may note, however, that Palladius – author of a thirteen volume agricultural manual – was easily able to adapt Faventinus for the first book of his *Opus agriculturae*, which deals with rural building²³. Where Faventinus was concerned with the construction of rural dwellings for what may still have been an urbanised population, Palladius has provided us only what was necessary for the practical establishment of a farm. Thus Palladius reduced the text even further, omitting and restructuring as necessary; however, the fact that Palladius was able to incorporate so much of his source suggests that the text of Faventinus had already, to some extent, been tailored to a rural audience.

Despite his efforts at simplification, Faventinus cannot ultimately be viewed as an example of intellectual decline, nor as direct evidence for the abandonment of urban culture. In fact, Faventinus has succeeded in his task of transforming Vitruvian knowledge into practical manual for a definite audience of rural landholders wishing to construct private dwellings. We should not, therefore, be surprised to find that the urban focus of Vitruvius has not survived in the manual Faventinus; in the country there would have been no need for street layouts, temples or public buildings. The city, however, is not entirely absent from Faventinus: it is still able to provide an example of elegance to which rural constructions may aspire.

22 On villas generally, see J.T. Smith *Roman Villas: A Study in Social Structure* (London, 1997). For an introduction to the rise of late antique villas in the West, with extensive bibliography, see J.-P. Sodini 'Habitat de l'Antiquité Tardive', *Topoi Orient-Occident*, Vol. 5, No. 1 (1995), 151–218; see also A. Chavarría and T. Lewit 'Archaeological Research on the Late Antique Countryside: A bibliographic essay' in Bowden et al. (eds) *Late Antique Countryside*, 3–54 (esp. 26–30).

23 The most widely available modern edition of the whole text is *Opus agriculturae* ed. R.H. Rodgers (Leipzig, 1975); Martin's edition (see above, n. 4) only contains the first two books. For a history of the text, see R.H. Rodgers *An Introduction to Palladius* (London, 1975), 3–13; on the use of Faventinus, rather than Vitruvius, as a source, see Martin, vii–xxxix.



‘We have, in this book, arranged as much as is necessary for private use’ says Faventinus as he brings his treatise to an end. ‘However, we leave civic institutions and other things to be recounted by someone of superior knowledge²⁴. If, indeed, there were other authors from the era of Faventinus who undertook to write about civic architecture, their work has not survived. Indeed, after Vitruvius, there are remarkably few texts that address the urban built environment, and certainly nothing that approaches the city with such a clearly prescriptive ideology. The one major text from late antiquity that offers a prescriptive approach to urbanism is the sixth-century treatise ascribed to Julian of Ascalon²⁵; however, unlike Vitruvius, Julian is not concerned with the ideal form of a city, but rather with regulating the urban spaces that already exist.

As an historical figure, Julian of Ascalon is somewhat obscure. From the evidence in his text, we may suggest that he was a practicing architect, and that he was indeed based in the Palestinian city of Ascalon²⁶; although the treatise is difficult to date reliably, it is generally accepted that Julian flourished during the early part of Justinian’s reign, or perhaps slightly earlier²⁷. Unfortunately, his treatise has only survived as a series of extracts from a lost longer work, a fact that is made clear in the title which appears in several of the manuscripts: *From the treatise of the architect Julian of Ascalon, drawn from the laws and customs of Palestine*²⁸. From the title, we might also infer that the treatise was not, in itself, a legal text, but rather a collection of official statutes and local knowledge compiled by an architect who had been called upon to enforce the building codes.

It has been suggested that the laws and customs preserved in Julian’s treatise are related to the legal compilations of Justinian, and also to the laws of the Talmud which were still observed in Palestine²⁹; one scholar has found – alas, in a passage which is

24 *quantum ergo ad priuatum usum spectat, necessaria huic libello ordinavimus. ciuitatum sane et ceterarum rerum institutiones praestanti sapientiae memorandas reliquimus.* Faventinus 29.

25 The text of Julian’s treatise appears in C. Saliou *Le traité d’urbanisme de Julien d’Ascalon: droit et architecture en Palestine au VIe siècle* (Paris, 1996), 32–77.

26 In Jul. Asc. 35.2 the author momentarily shifts to the first person when describing a particular custom of Ascalon.

27 On the dating, see J. Geiger ‘Julian of Ascalon’, *JHS*, Vol. 112 (1992), 31–43 and C. Saliou, *Julien d’Ascalon*, 27–29.

28 Ἀπὸ τῶν τοῦ Ἀσκαλωνίτου Ἰουλιανοῦ τοῦ ἀρχιτέκτονος ἐκ τῶν νόμων ἧτοι ἐθῶν τῶν ἐν Παλαιστίνῃ. On the manuscript tradition, see Geiger, ‘Julian’, 31–33 and Saliou, *Julien d’Ascalon*, 9–21.

29 On the legal sources for Julian, see H.J. Scheltema ‘The *nomoi* of Iulianus of Ascalon’ in M. David et al. (eds) *Symbolae ad jus et historiam antiquitatis pertinentes Julio Christiano Van Oven*

probably a later interpolation – a reference to a law of the emperor Zeno³⁰. However, while much of the text was written in a prescriptive voice – and many of the passages have a precision that suggests practical experience – the wisdom preserved in the treatise more often suggests local knowledge than official legislation³¹.

Julian's text was not composed as a manual for all the cities of the empire, but rather is focussed only on the cities of Palestine. However, the fact that his text has survived in the fourteenth century *Hexabiblos* – and that it was preserved in manuscript alongside the *Book of the Eparch* – might suggest that his prescriptions had become more widespread and taken on a greater legal force in the centuries that followed³². Even if the scope of the original treatise was limited only to the city of Ascalon, Julian's text nonetheless provides us with one of our best pieces of written evidence for the life of a functioning city in the late antique east.

Julian opens with an intriguing nod to the natural sciences: he tells us that there are four elements – fire, air, water and earth – and that these elements are the source of conflicts between men³³; for this reason the treatise is divided into four books, each of which deal with problems that may arise on account of a different element. The structure, however, is somewhat tenuous: the section on fire does deal mostly with artisans in the city who would have required some kind of kiln or oven, and the section on air deals with windows and doors; however in the same section, we also find information about wall repairs and drainpipes. Additionally there is a section on 'views' that does not appear to fit with Julian's structure and may, in fact, be the work of a different author.

The majority of Julian's treatise focuses on the world of private building. Indeed, the few references to public space are almost incidental: at one point we learn that it is forbidden to build animal troughs beneath a public portico or on a major thoroughfare (*platea*) because of the inconvenience to passers-by³⁴; elsewhere we find that tavern

dedicatae (Leiden, 1946), 349–60 and Saliou, *Julien d'Ascalon*, 84–91; on the possible connection see S. Lieberman 'A Few Words on the Book by Julian of Ascalon The Laws of Palestine and its Customs', *Tarbiz*, Vol. 40 (1971), 406–17 (in Hebrew, with an English summary).

30 Scheltema 'Nomoi', 353; Geiger, 'Julian', 40–41.

31 For a detailed analysis of Julian's text in the context of urban planning, see B.S. Hakim 'Julian of Ascalon's Treatise of Construction and Design Rules from Sixth-Century Palestine', *JSAH*, Vol. 60, No. 1 (2001), 4–25 and id. 'Mediterranean urban and building codes: origins, content, impact, and lessons' *Urban Design International*, Vol. 13 (2008), 21–40.

32 Scheltema 'Nomoi', 359–60; Saliou, *Julien d'Ascalon*, 9–21.

33 τεσσάρων ὄντων τῶν στοιχείων, πυρρός, ἀέρος, ὕδατος, γῆς, ἀπὸ δὲ τούτων ἀμφισβητήσεις τοῖς ἀνθρώποις ἐγγίνονται. Jul. Asc. 1.

34 Jul. Asc. 20.4.

owners should not be allowed to install an awning or outdoor seating and that drinks should not be served to customers on the street³⁵. There are also a handful of references to matters of urban repair: in one section we find that the residents of a particular block are responsible for the maintenance of the sewer system up to the point where it joins the public sewer³⁶; the treatise also specifies that shop owners are responsible for maintaining the roofs of porticos but that if anything happens to the columns it is the responsibility of the city³⁷. From these examples, we get a sense that, in the city of the sixth century, the division between private and civic responsibility was fairly well-defined. Such examples, however, are infrequent: the bulk of the treatise is devoted to regulations which will ensure that the building activity of one private individual will not inconvenience his neighbours.

Julian's city is dominated by industry: in the opening section, he enumerates bakers, potters, glassmakers, blacksmiths, inn-keepers, launderers and cheese makers, all of which rely on the presence of an oven or a kiln³⁸. Because these industries are located within a crowded city, where buildings of two or more storeys are not uncommon, the fires of these various businesses must be positioned so as not to damage surrounding buildings, nor to fill residences with smoke, harmful fumes or noxious odours. A bread oven, for instance, need only be placed six cubits away from a one storey building, but as much as twenty cubits from a taller building³⁹. Facilities for glassmaking, on the other hand, should be located in less populous neighbourhoods on account of their dangerous fumes⁴⁰; cheese-makers, which apparently produced the most noxious fumes of all, should be placed outside the city by at least three stades⁴¹.

The laws concerning ovens and kilns are often expressed as a relationship between the oven and the nearby building. In later sections of the treatise, however, prescriptions deal more specifically with the relationship between neighbouring individuals. If, for instance one person wants to build a roof terrace adjacent to another roof terrace,

35 Jul. Asc. 17.3.

36 Jul. Asc. 45.

37 Jul. Asc. 37.2–3

38 Jul. Asc. 4–14.

39 Jul. Asc. 4.1; 5.1–2. If the oven is located to the south or east of the building, it need only be placed twelve cubits away; twenty cubits if located to the north or west.

40 Jul. Asc. 11.1

41 Jul. Asc. 14.

he must construct a wall of at least three cubits in height to separate them⁴². If the owner of one property wants to place a window in the wall of the building, he is only allowed to do so if the facing property is at least twenty feet away⁴³.

In Julian's city, relations between neighbours are not limited to adjacent buildings, but to individuals living within the same structure. Indeed, if Julian's treatise is an accurate reflection of urban space, we may determine that residential buildings of at least three storeys – perhaps with a shop or workshop on the ground floor – were fairly common. The idea of vertical ownership and vertical responsibility would have been something of a grey area and Julian must therefore provide a series of specific guidelines for where one floor ends and the next begins⁴⁴.

If an exterior wall of a building needs to be repaired, each resident is responsible for a percentage of the total cost proportional to vertical space; thus, if the height of one storey, from floor to ceiling, is ten cubits and the total height of the building is thirty cubits, the owner of that storey will be liable for one third of the cost⁴⁵. If the owners of a particular building want to extend their building, perhaps to occupy an adjacent vacant lot, the owner of each floor is responsible for paying one third of his own floor and two thirds of his own ceiling⁴⁶. In this way, a sense of agreement and joint responsibility is created among the owners.

While Julian is concerned with neighbourly accord and with the situation of various constructed elements – what we might today call zoning laws – he rarely addresses the issue of building. There are a few passages – notably those concerning the placement of windows in blind walls – where he discusses technical matters relating to a particular structure; for the most part, however, his prescriptions are para-architectural. As in the manual of Faventinus, both the design and the construction of buildings appear to have occurred without the guiding presence of an architect.

It is perhaps worth saying a few words about the nature of the architectural profession and how it may have changed in late antiquity⁴⁷. The Greek ἀρχιτέκτων referred

42 Jul. Asc. 31.1.

43 Jul. Asc. 26.2. The use of feet instead of cubits may suggest a different source for this particular law.

44 See, for instance, Jul. Asc. 33.4.

45 Jul. Asc. 33.2; the example presented here has been simplified.

46 Jul. Asc. 35.2.

47 On the role of the architect in late antiquity, see G. Downey 'Byzantine Architects: Their Training and Methods', *Byzantion*, Vol. 18 (1946–48), 99–118; N. Schibille 'The Profession of the Architect in Late Antique Byzantium', *Byzantion*, Vol. 79 (2009), 360–79.

to the director of a building project, and it is this sense that is preserved in Vitruvius. Indeed, the very first chapter of his first book informs us that the practice of architecture required a mastery of several disciplines, including a knowledge of materials and design, situation and construction, mathematics and history⁴⁸; for Vitruvius, the architect was responsible for overseeing the construction of a building, from the initial design to the final decoration⁴⁹.

In Faventinus the architect appears to have disappeared completely; the manual may open with a description of the parts of architecture, but the process of construction may have been commissioned by a private individual and carried out by builders who were perhaps working from, or modifying, a previous plan. Procopius – who wrote about building in the sixth century and to whom we shall return in the next section – uses the designation *ἀρχιτέκτων* only once, to refer to Apollodorus, who had constructed buildings in the time of Trajan and Hadrian⁵⁰. The contemporary builders Anthemius and Isidore, responsible for the construction of Hagia Sophia, are referred to as *μηχανικός* or *μηχανοποιός*⁵¹. For large scale civic projects, at any rate, the master-builder of ancient days had been replaced by something closer to a structural engineer.

The treatise of Julian of Ascalon allows us to suggest what the role of the architect may have been within an urban environment where building was directed and funded by private individuals and constructed by local builders. The architect would not have been responsible for the design of the building, nor for overseeing the construction; instead he would have been called upon when a private individual wished to modify or expand his property in some way, or in the event of a building-related dispute. Although the architect may not have had any specific legal powers, his knowledge of laws and customs would have made him qualified to ensure that the urban building activity undertaken by private individuals occurred within certain accepted standards.

The city that appears in Julian's treatise is nothing like the formal urban space described by Vitruvius: where Vitruvius imagined a rational arrangement of public institutions,

⁴⁸ *Architecti est scientia pluribus disciplinis et variis eruditionibus ornata, quae ab ceteris artibus perficiuntur.* Vitruvius I.1.1; on the various disciplines, see I.1.1–5. The idea of the specialist requiring a great deal of varied education must have been a literary topos, as we find a very similar assessment of geographers in the opening of Strabo.

⁴⁹ Vitruvius describes his own role in the construction of a basilica at V.1.6.

⁵⁰ Procopius *De aed.* IV.6.13. Apollodorus also appears in HA *Hadrian* 19 and Dio LXIX.4.

⁵¹ Procopius *De aed.* I.1.24.

Julian's city is a complex and slightly chaotic agglomeration of private buildings, regulated by a series of laws and customs designed to prevent disagreements between neighbours. Public space, insofar as it appears in Julian's treatise, is largely relegated to the background and rarely intrudes into the world of private construction; the reason for this omission may be that the nature and appearance of public spaces were still largely dictated by the laws of the state.

In the two great law codes of late antiquity – the *Codex Theodosianus*, compiled in the fifth century and the *Corpus Iuris Civilis*, compiled in the sixth⁵² – there are, a number of constitutions pertaining to the functions and appearance of the city. The *Codex Theodosianus*, especially, preserves a series of laws from an extended period – lasting from the mid-fourth to the early-fifth century – during which unregulated private building and misuse of public money were beginning to challenge the formal order of urban life. While the ideals of the imperial period are still apparent in the laws designed to govern public space, they may have no longer reflected the attitudes of the individuals responsible for maintaining order in the city.

In terms of civic institutions, the city of the fourth and fifth centuries may not have differed considerably from its classical predecessor. The *Codex Theodosianus* reveals that urban spaces still contained a forum, a governor's residence, porticos, theatres, storehouses and public baths, all surrounded by a publicly maintained circuit wall⁵³. Furthermore, the language of the Codex suggests that the city was still perceived as a venue for human existence that embodied both practical and monumental characteristics; more than one constitution is justified using the language of civic beauty (*pulchritudine ciuitatis*)⁵⁴.

However, even from the beginning of the fourth century, we find evidence that the boundaries between public and private space were being challenged by the urban population. The Codex contains several examples of private structures built either too close to public buildings or, in some cases, right up against them. A constitution from AD 326 specifies that private structures should not be built within 100 feet of a state storehouse, lest the private building catch fire and take the storehouse with it⁵⁵. Although the reason

⁵² The standard text of the *Codex Theodosianus* is still *Theodosiani Libri XVI* ed. T. Mommsen and P.M. Meyer (Berlin, 1905); new laws introduced by Justinian are collected in *Corpus Iuris Civilis* Vol. 3: *Novellae* ed. R. Schoell. Sixth edition (Berlin, 1954).

⁵³ *CTh* 15.1.4, 8, 12, 22, 35 and 50; additionally, unspecified *aedificia publica* appear throughout *CTh* 15.1.

⁵⁴ See especially *CTh* 15.1.25, 45 and 50.

⁵⁵ *CTh* 15.1.4.

for this constitution may have been largely pragmatic – the wording suggests that such a fire had recently occurred – laws from the end of the fourth century imply that private buildings in public spaces had started to degrade the appearance of the city. Another constitution, this one from AD 389, describes it as shameful that public buildings should be corrupted by the addition of private ones, and grants power to the Prefect of the city to have private structures removed at his discretion⁵⁶.

The continual reiteration of these laws suggests that they may have been largely ignored in practice. A constitution of AD 383 orders the demolition of any private structures built in the forum of any city⁵⁷; a pair of constitutions from AD 398 enforce the removal of both buildings around the storehouse and semi-permanent structures – known as *aedificia parapetasia* – built onto side of public buildings⁵⁸. In AD 406, it is specified that there should be a space of at least fifteen feet between public and private structures, and that any private structures that do not comply with this rule are liable to be destroyed⁵⁹. Finally, a law from three years later states that no private buildings may be built within the grounds of the imperial palace⁶⁰.

Although the appearance of unwanted private structures within public urban spaces would have been an annoyance, a far greater problem facing the city of the fourth and fifth centuries may have been the inability – or an unwillingness – of the urban administration to maintain ancient public structures; instead, governors were devoting public money to new buildings while older buildings fell to ruin. Thus, in AD 365, we find a constitution calling for a halt to new construction until older structures had been repaired⁶¹. The substance of this law is reiterated three more times in the same year, then again in 376, twice in 380, twice in 390 and yet again in 394⁶².

Governors were expected to use a certain proportion of the municipal fund – that is, the annual collection of taxes within a particular region – for public building

⁵⁶ *Turpe est publici splendoris ornatum privatarum aedium adiectione conrumpi et ea. CTh* 15.1.25. The law is addressed to the Prefect of Constantinople.

⁵⁷ *adque ideo diruenda sunt omnia, quae per diuersas urbes uel in foro uel in quocumque publico loco ciuitatis extracta noscuntur. CTh* 15.1.22.

⁵⁸ *CTh* 15.1.38 and 39.

⁵⁹ *CTh* 15.1.46. See also *CTh* 4.24.1, sadly undated.

⁶⁰ *CTh* 15.1.47.

⁶¹ *praesertim cum neque nouam constitui fabricam iusserimus, antequam uetera reformentur. CTh* 15.1.14. A similar constitution – but directed only at the city of Rome – appeared in the previous year; cf. *CTh* 15.1.11.

⁶² cf. *CTh* 15.1.15, 16, 17, 20, 21, 26 and 27.

and essential restoration projects⁶³; only if there were still funds left over would the governor be allowed to commission new urban buildings⁶⁴. During a time of peace and prosperity, there may have been enough in the municipal fund to cover both repairs and new monumental projects. It is possible that economic conditions in the fourth century would have resulted in diminished municipal funds⁶⁵; however, it may have been that the governors of the fourth century were simply more concerned with projects of personal interest than with civic maintenance.

To make matters worse, governors were starting work on public buildings and failing to complete them; subsequent governors, not wishing to complete the unfinished works of their predecessors, appear to have simply undertaken new projects, leaving the city with a loose collection of uncompleted structures⁶⁶. For this reason, it became necessary to regulate municipal expenditure on building; a law of AD 376 – directed only at the city of Rome – specifies that anyone wishing to undertake a new building, had to do so with their own funds and could neither destroy any earlier foundations, nor use material from other buildings to construct their own⁶⁷. The only exceptions to this law were stables and public storehouses, which could be constructed from new, without imperial permission⁶⁸.

While earlier constitutions merely stated the rules for public building, subsequent laws began to specify penalties. A constitution from AD 390 states that any governor who attempted to use municipal funds for new building projects would not only be compelled to complete the building at his own expense, but would also be subject to a fine of ten pounds of gold⁶⁹. Four years later, the law was restated with the important addition that anyone who placed their own name on a completed public work would be guilty of trea-

63 *CTh* 15.1.18 (AD 365) specifies that one-third of the total taxes should go toward public works (including new buildings); *CTh* 15.1.32 (AD 395) specifies that one-third of taxes go toward the restoration of public works.

64 *Iudex, qui ad prouinciam fuerit destinatus, duas partes uel incuria uel uetustate collapsas ad statum pristinum nitoris adducat adque tertiam construat nouitatis, si tamen famae et propriis cupit laudibus prouidere. CTh* 15.1.20.

65 Taxation and the rural economy in the fourth century will be discussed in the next chapter, 178–187.

66 *CTh* 15.1.2 and 21.

67 *Nouum quodque opus qui uolet in urbe moliri, sua pecunia, suis operibus absoluat, non contractis ueteribus emolumentis, non effossis nobilium operum substructionibus, non rediuiuis de publico saxis, non marmorum frustis spoliatarum aedium deformatione conuulsis. CTh* 15.1.19.

68 *CTh* 15.1.17 and 37.

69 *CTh* 15.1.28.

son⁷⁰. According to the constitution itself, such measures were taken specifically so that ‘no governor should make their reputation from the construction of new buildings’⁷¹.

From the evidence of the Codex Theodosianus, we can hardly conclude that the cities of the fourth and fifth centuries had fallen into decline due to a lack of public funds or building activity. While the governors may still have been able to collect the resources necessary to maintain an imperial city, they may not, ultimately, have directed those resources toward state-approved works of public construction. Instead, governors used urban maintenance funds to construct – or, in some cases, partially construct – buildings that were not directly relevant to the public functions of the city. Although the state may have attempted to enforce imperial urban ideals through the medium of the law, the laws themselves demonstrate how the desires of the state and the desires of the urban authorities had started to diverge.

The urban ideal of the imperial era imagined the city as a series of planned public spaces around which private life could develop. In order for those public spaces to survive, it would not have been necessary for the residents of the city to possess a shared belief in civic institutions, so long as the legal prescriptions dictating urban order remained strictly enforced. In late antiquity, however, we can sense the beginning of dissatisfaction with the imperial model preserved in the legal codes. The types of building and maintenance required by the state were no longer to the taste of the governors who oversaw the civic budget; once the governors themselves had started to ignore the will of the state, there would have been little to stop other urban notables who possessed both the money and the desire to build.

Without the enforcement of an urban ideal, the city would have been dictated by the competing interests of individual builders. Private building, as illustrated in Faventinus and Julian of Ascalon, may not have been undertaken by people who possessed the requisite architectural training, and the resulting structures may not have given due consideration either to their immediate surroundings or to their place within the formal arrangement of the city. While private building may have been contained, to some extent, by the existing urban layout, the examples of encroachment

⁷⁰ *Si qui iudices perfecto operi suum potius nomen quam nostrae perennitatis scripserint, maiestatis teneantur obnoxii. CTh 15.1.31.*

⁷¹ *ut nemini iudicum liceat novis molitionibus industriae captare famam. CTh 15.1.31.*

in Julian of Ascalon and the *Codex Theodosianus* demonstrate that private individuals would not have been above pushing their constructions into public space if they thought they could get away with it. The failure of the urban administration to regulate public space combined with the willingness of individuals to undertake privately funded construction may have contributed to an increased lack of coherence in the established urban order.

However the ideals that once governed the city had not disappeared completely. In late antiquity, the city still acted as the focus of culture and administration in the Roman world and, as we shall discuss later in this chapter, many of the institutions that defined urban life continued to exist, in some form, even in the cities of the sixth and seventh centuries. What had started to change was the idea of the city as a space defined by its public functions. As much as the prescriptions of the state may have tried to dictate an ideal for civic life, the laws may not ultimately have been strong enough to regulate the activities of the private builder.

new foundations

The continued presence of an urban ideal in late antiquity may be discernible in the attempts of the state to regulate the cities that already existed; the existence of that ideal, however, may become more apparent if we investigate how the state approached the establishment of new urban foundations. During the imperial period, the construction of cities had allowed for the effective administration of a large area by a central authority. However, in the reduced space of the Eastern Roman world – an empire that, by the fifth century, consisted primarily of those lands that had been urbanised since the time of Alexander – the need for new urban foundations may have been largely unnecessary. Certainly the majority of our surviving textual sources from late antiquity are concerned primarily with the maintenance of old urban spaces rather than the construction of new ones.

While new foundations may have been relatively infrequent in late antiquity, they were not completely unknown; indeed, the idea of building a city from new is addressed as late as the mid-sixth century in an anonymous treatise on military

strategy⁷². Unfortunately we know nothing about the author – neither his name nor the title of his treatise has survived – although the work itself has been dated to later in the reign of Justinian⁷³. As we would expect from a treatise on strategy, the majority of the text is devoted to military matters; at the beginning of the work, however, we find several brief chapters devoted to the built environment.

A chapter on the construction of forts is followed by three chapters on the planning and construction of a city. In the space of a few paragraphs, the author takes us through a series of pragmatic prescriptions that sound distantly reminiscent of Vitruvius. He opens by telling us that ‘anyone intending to found a city must first examine the site⁷⁴’: this involves checking the water supply to see that it is both healthy and plentiful, making sure that there is local stone available and also making sure that the area will produce enough food⁷⁵. Although Vitruvius demonstrates some concern for security, our anonymous author makes it a point of absolute necessity: if it is not possible for the city to survive an enemy siege, it is best to abandon the town altogether.

As with the classical city, the wall represents the first stage of urban space; once a suitable site has been found – preferably one on high ground or surrounded by rivers – a wall may be constructed. Indeed, our author seems concerned only with the wall, devoting several fairly technical paragraphs to the ways that they should be constructed, and the ways that enemy attackers may seek to overcome them⁷⁶. On the subject of the city itself, our author has only this to say:

I am not unaware that many people look to the present prosperity and believe it increasing in every way. When they start to found large cities, they give no less weight to nice appearance than to security. They have built a number of such cities on level ground and beautified them with gardens, parks, and lawns. But the way I look as it is that the outcome of what is happening these days in uncertain. Security, I think, is more important than a pleasing appearance⁷⁷.

⁷² *Anonymi Byzantini Peri Strategikes* ed. G. Dennis in *Three Byzantine Military Treatises*. CFHB 25 (Washington, D.C., 1985), 9–135.

⁷³ On the dating, see Dennis, *Military Treatises*, 2–4.

⁷⁴ δὲ δὲ μέλλοντας πόλεις κτίζειν πρῶτον μὲν κατασκοπήσαι τὸ χωρίον. Anon. Byz. 10.3. (trans G. Dennis). cf. Vitruvius I.4.

⁷⁵ Anon. Byz. 10.6–20.

⁷⁶ Anon. Byz. 11–13.

⁷⁷ οὐκ ἀγνοῶ δὲ ὅτι πολλοὶ τὴν προσοῦσαν εὐδαιμονίαν ὀρώντες καὶ ταύτην διὰ παντὸς ἐστάναι νομίζοντες, ἐπειδὴν πόλεις μεγάλας ποιεῖν ἐμελλον, οὐ μᾶλλον τῆς ἀσφαλείας ἢ τῆς εὐπρεπείας ἐφρόντιζον, διὸ κατὰ πεδίων ταύτας πολλάκις ἀνωκοδόμουν κήποις τε καὶ παραδείσοις καὶ λειμῶσιν ὠραϊζόμενοι. ἡμεῖς δὲ τὸ ἀδηλον τῶν ἐπισυμβαινόντων ὀρώντες καὶ τὴν ἀσφάλειαν μᾶλλον τῆς εὐπρεπείας προκρίνοντες ἐκεῖ ταύτας ποιεῖν βουλευόμεθα καὶ τείχη περιβαλεῖν. Anon. Byz. 11.25 (trans. G. Dennis).

The passage appears to be suggesting that not only were there new urban foundations at the time our author was writing, but that there may even have been planned cities in the classical style. Of course, it is possible that the author was basing his material on earlier sources: the manual of Aeneas Tacticus⁷⁸ – written in the fourth century BC, but well-known throughout the classical period and into late antiquity⁷⁹ – focuses specifically on the defence of the city and withstanding sieges; in the treatise of Aeneas, however, the cities are established urban centres rather than new foundations. In later military treatises, such as those of Arrian and Aelian, the city is barely mentioned⁸⁰.

While it is also possible that our anonymous author was drawing upon lost or non-military sources for his sections on urban planning, the very fact that he chose to include such information in his treatise – and the fact that he appears to have repurposed the material to address specifically military concerns – would suggest that new urban foundations were still a reality for the sixth-century audience. However, despite the allusion to prosperity giving rise to cities, our author's pragmatic approach to strategy appears to predict the *kastron*, or fortified-stronghold model for urbanism that may have characterised the Byzantine world of the seventh and eighth centuries⁸¹.

Although our author suggests that new foundations may not have been uncommon, it is difficult to identify examples of completely new cities founded in late-antiquity. The colonial urbanisation that characterised the era of Julius Caesar and Augustus had effectively ended in the first century AD. Even the great builder-emperors of the second and third centuries – Trajan, Hadrian, Septimus Severus and Diocletian – seems to have focussed mostly on the improvement of extant urban centres. In the time of Constantine, however, we find evidence for at least one large-scale urban foundation.

Although the town of Byzantium appears in numerous classical sources, we know reasonably little about its pre-Constantinian appearance⁸²: it was founded in the seventh century on a site that was acknowledged to be superior to the land on the other side

78 *Aeneas Tacticus* ed. and trans. W.A. Oldfather et al. (Cambridge, MA., 1923).

79 On the transmission of Aeneas, see J.V. Tejada 'Warfare, History and Literature in the Archaic and Classical Periods: The Development of Greek Military Treatises,' *Historia*, Vol. 53, No. 2 (2004), 129–46 (at 141–43); the article suggests that Aeneas may have been a source for our author.

80 On these authors, see P.A. Stadter 'The Ars Tactica of Arrian: Tradition and Originality,' *CP*, Vol. 73, No. 2 (1978), 117–28 and A.M. Devine 'Aelian's Manual of Hellenistic Military Tactics: A New Translation from the Greek with an Introduction,' *The Ancient World*, Vol. 19 (1989), 31–64.

81 On which, see C. Mango *Byzantium: The Empire of New Rome* (London, 1980), pp. 60–87.

82 On the earlier city, see C. Mango *Le développement urbain de Constantinople (IV^e–VII^e siècles)* (Paris, 1990), 13–21; S. Bassett *The Urban Image of Late Antique Constantinople* (Cambridge, 2004), 18–22.

of the Bosphorus and, by the third century BC, it had become a town of some stature⁸³. A description in Polybius suggests a major centre with numerous strategic advantages, although the later description in Strabo implies a town of no real significance⁸⁴. By the end of the second century AD, Byzantium possessed enough defensive capabilities to hold out against a three year siege mounted by the forces of Septimus Severus⁸⁵. When the Roman forces finally took the city in AD 196 Septimus Severus ordered that the land walls be destroyed; the same emperor, however, may have subsequently restored parts of the city in the early third century⁸⁶.

In terms of its layout and amenities, Byzantium may not have been substantially different from other eastern imperial cities of the early fourth century⁸⁷. According to the accepted narrative, Constantine began work on his new monumental capital shortly after his victory over Licinius in AD 324; some six years later, in 330, the completely new city of Constantinople was formally dedicated⁸⁸. Given that much of the potential archaeological evidence is now inaccessible, it is impossible to determine how much of the older city was integrated into the new plan.

Constantine extended the area of the urban space and adorned it with monuments and monumental buildings – he may even have established a new street layout in parts of the city that had been outside the original boundary⁸⁹ – but he probably did not bring a fully-formed city into being in the space of six years. The great achievement of Constantine was not the creation of a city, but rather the creation of an urban framework that would support an increasing population. The original Byzantium had not been a large city; the fact that Constantinople was able, over the following century, to develop into one of the most populous urban centres in the Mediterranean world – rivalled only by Antioch and Rome – is perhaps the greatest evidence for the presence of an ambitious urban plan⁹⁰.

Constantinople, however, may be the last example of a city effectively brought into being by the will of the state. In subsequent centuries, we find evidence for imperial

83 Herodotus 4.144.

84 Polybius *Histories* 4.43–44; Strabo 7.6.2.

85 Dio 74.10–14; the event is alluded to in HA *Caracalla* 1.

86 Severan constructions are discussed in Malalas XII.20.

87 See the study by A. Berger ‘Streets and Public Spaces in Constantinople’, *DOP*, Vol. 54 (2000), 161–72, for possible reconstruction of the pre-Constantinian street plan.

88 Mango, *Développement*, 23–36; for an assessment of literary and numismatic sources, see A. Alföldi ‘On the Foundation of Constantinople: A Few Notes’, *JRS*, Vol. 37, (1947), 10–16.

89 Berger, ‘Streets and Public Spaces’, 161–72.

90 On the urban achievements of Constantine, see Mango, *Développement Urbain*, 23–36.

building and for cities being renamed in honour of particular emperors – there were at least two cities refounded as Theodosiopolis in the fifth century⁹¹ – but there are few if any examples of whole cities being constructed from new. Indeed, the idea of the new imperial foundation would not return until the reign of Justinian; however, as we shall soon see, the monumental ideals that informed the urban projects of Justinian may have been ill-suited to the political and economic realities of the sixth century.

At some point between AD 550 and 560, the historian Procopius of Caesarea composed the *Buildings*, a singular work that sought to record all of the new construction and restoration projects undertaken during the reign of Justinian. The text may certainly be read as a straightforward panegyric designed to cast Justinian as the great master builder of his age; however, if we consider it in light of the author's more critical works – specifically the *Anecdota* – the unrestrained glorification of the *Buildings* becomes puzzling. The *Buildings* is most certainly a valuable source for the state of the built environment in the sixth century and for the imperial ideals that may have shaped it; however, before we take Procopius at his word, we must first evaluate both the motives and methods behind the text.

The biographical details of Procopius are reasonably well known: he was born and educated in Caesarea in the late fifth or early sixth century, and in AD 527 he became an advisor to the general Belisarius⁹²; he travelled with Belisarius from eastern Asia Minor to Carthage and finally to Italy before returning to Constantinople in 540⁹³. He would spend the next decade composing seven books detailing the three major wars for which he had been an eye-witness; the books appeared together in 551⁹⁴. The final years of his life would be devoted to a continuation of the *Wars*, as well as the composition of his two most thematically disparate works, the *Anecdota* and the *Buildings*.

Although there are several passages in the *Buildings* that might allow us to date the text exactly, there are also enough inconsistencies to preclude a consensus among

91 Procopius *De aed.* II.5.1 and III.1.1.

92 Procopius *Wars* I.12.24.

93 For an overview of the life of Procopius, see E. Stein *Histoire du bas-empire* II (Paris, 1949), 709–23; J.A.S. Evans 'Justinian and the Historian Procopius', *Greece & Rome*, Second Series, Vol. 17, No. 2 (1970), 218–23 and A. Cameron *Procopius and the Sixth Century* (London, 1985), 5–18.

94 Evans, 'Justinian and Procopius', 221.

modern scholars⁹⁵. In book five, Procopius mentions a bridge over the Sangarius river that Justinian had started but not yet completed⁹⁶; the construction of the bridge is attested in Theophanes – who suggests that work began in 559 – and its completion is mentioned in a poem of Paul the Silentiary dating from 562⁹⁷. On this evidence, the *Buildings* may be dated to around 558/9⁹⁸. There are, however, numerous events that Procopius fails to mention – the most notable being the collapse of the dome of Hagia Sophia in AD 558 – that have been used to suggest an earlier dating. It has also been argued that Procopius may have died at some point between 553 and 555, which would place the *Buildings* in the earlier half of that decade⁹⁹.

The more intriguing question is why Procopius would have composed such a work. Procopius expresses frustration with Belisarius during his account of the Gothic campaigns and is increasingly critical of Justinian in the eighth book of the *Wars*; the criticisms turn to vitriol in the *Anecdota*, which sets out to portray Belisarius as weak-willed and Justinian as nothing less than a demon in human form who, in the space of thirty-two years, managed to single-handedly destroy the greatness of the Roman world. Among Justinian's numerous and unforgivable sins, Procopius lists – although does not dwell upon – the fact that the emperor ruined the appearance of Constantinople and all of the other cities¹⁰⁰.

Regardless of their factual accuracy, the outpourings of the *Anecdota* are so clearly genuine – they are the work of a man who has been unable, in his official writings, to express what he believes to be the absolute truth – that one must approach the straightforward panegyric of the *Buildings* with a certain amount of scepticism. Certainly the

95 There have, however, been many suggestions: see G. Downey 'The Composition of Procopius, *De Aedificiis*', *TPAPA*, Vol. 78 (1947), 171–183; Stein, *Histoire* II, 722–23; J.A.S. Evans 'The Dates of the *Anecdota* and the *de Aedificiis* of Procopius', *CP*, Vol. 64, No. 1 (1969), 29–30; Cameron, *Procopius*, 9–12; M. Whitby 'Justinian's Bridge over the Sangarius and the Date of Procopius' *de Aedificiis*', *JHS*, Vol. 105 (1985), 129–48; R. Scott 'Justinian's Coinage and Easter Reforms and the date of the Secret History', *BMGS*, Vol. 11 (1987), 215–21; G. Greatrex 'The dates of Procopius' works', *BMGS*, Vol. 18 (1994), 101–14; J.D. Howard-Johnston 'The Education and Expertise of Procopius', *Antiquité Tardive*, Vol. 8 (2001), 19–30.

96 Procopius *De aed.* V.3.8–10.

97 Whitby 'Justinian's Bridge', 136–37.

98 A later dating is proposed by Downey, 'Composition', 181–82; Evans, 'Dates', 30; Whitby 'Justinian's Bridge', 141–47; and Scott, 'Justinian's Coinage', 221.

99 Additional arguments for an earlier dating may be found in Greatrex 'Dates', 107–114, who places the composition in 554. Cameron, *Procopius*, 12, who also proposes a date of 554, suggests that Procopius may have died shortly thereafter. Stein, *Histoire* II, 723, places the death in 555, while Howard-Johnston, 'Education', 21–22 proposes 553.

100 Procopius *Anecdota* XXVI.

image of Justinian as benevolent ruler and architectural savant who, through his building activities, restored the empire to a state of glory could not be more different from the demonic figure of the *Anecdota* who destroyed the beauty of the cities.

Those who favour a later date for the composition of the *Buildings* have suggested that Procopius may have changed his attitude toward Justinian in the final years of his life¹⁰¹. It is perhaps more plausible that the *Buildings* was commissioned by Justinian shortly after the initial appearance of the *Wars*, and that Procopius suddenly found himself on the receiving end of imperial favour¹⁰². However, while the commission may have made Procopius more favourably disposed toward his benefactor, it was not entirely able to erase the contempt that had accrued over the previous decade; there are a few instances where one may detect an undercurrent of sarcasm beneath the praise. It is here that an exact date of composition would help to clarify the intentions of the author; if, for instance, the work was composed after 558, the association of Justinian's architectural intervention with the very part of Hagia Sophia that caused the dome to collapse transforms a passage of unreserved praise into a cleverly veiled criticism.

It is not certain that the *Buildings* was commissioned by the emperor, although there are numerous reasons why Justinian would have wanted such a work to exist. Procopius – who was aware of the public works of Trajan, and may have also known the *Res Gestae* of Augustus¹⁰³ – suggests that the panegyric was composed so that future generations would not refuse to believe that so much building was the work of one man¹⁰⁴. It has also been suggested that Justinian used the *Buildings* to take credit for projects – most notably circuit walls and fortifications – that had been started in the time of Anastasius¹⁰⁵. However, several explanations have been put forth as to why Procopius may have undertaken the work of his own accord¹⁰⁶.

Even if the *Buildings* was not a direct imperial commission, we may at very least suggest that Procopius was given extensive access to imperial records. A constitution on public works from the *Codex Theodosianus* – which we have mentioned in the previous section – requests that completed public works be reported to the office of

101 See, especially, Whitby, 'Justinian's Bridge', 146–47.

102 Procopius *De aed.* I.1.4 suggests that money can buy praise.

103 Procopius *De aed.* III.4.17 and IV.6.13 (Trajan). Augustus is not mentioned in the *Buildings*, but there are faint echoes of the *Res Gestae* in the enumeration of restored churches.

104 Procopius *De aed.* I.1.17.

105 B. Croke and J. Crow 'Procopius and Dara', *JRS*, Vol. 73 (1983), 143–59.

106 See Downey, 'Composition', 181–82; Howard-Johnston, 'Education', 24–26.

the emperor¹⁰⁷; the passages in the *Buildings* where prose gives way to lists might give us some idea of what those imperial records would have looked like¹⁰⁸. It has, indeed, been suggested that Procopius copied out the lists but abandoned the project – or died – before getting the chance to render them into prose. This reliance on imperial information may also explain why Italy – which would not have been under decisive Roman control until the victories of Narses in the early 550s – is excluded from the *Buildings*.

If Procopius composed the *Buildings* near the end of his life, it does not seem likely that he would have travelled extensively to confirm his sources; we may, therefore, suggest that records of some description must have formed the foundation of the work. These records – which may have consisted of little more than lists – were then expanded into a literary text by Procopius, who drew upon his rhetorical skills, his knowledge of history and his memories of certain places. In order to write convincing descriptions of those places he had not visited, he may have also drawn upon geographical source material¹⁰⁹; we may certainly note how rivers and mountains – common features of literary geographies – are used frequently as topographic references throughout the text.

The monotonous nature of the source material may perhaps be detected in the way that Procopius is continually forced to recycle his own descriptions. Numerous cities are described as having been ‘prosperous in ancient times’, but having suffered either as a result of neglect or barbarian invasions; it is rare to find a rebuilt circuit wall in the *Buildings* where the city is not described as being ‘stronger than it had been previously¹¹⁰. Procopius also employs an arsenal of rhetorical devices to disguise the fact that he has not seen a particular place: the fortifications of Palmyra, for instance, are described as being ‘impossible to put into words¹¹¹. However, while Procopius can be unimaginatively generic when he is unable to augment the official records with his own knowledge, his descriptions often display a reasonable command of local topography when he has occasion to discuss a place that he has personally visited¹¹².

¹⁰⁷ *CTh* 15.1.2.

¹⁰⁸ Procopius *De aed.* IV.4, IV.11 and V.9

¹⁰⁹ The availability of geographical material in the sixth century is discussed in the next chapter, 215–24.

¹¹⁰ For example, Procopius *De aed.* II.11.2, IV.2.23, IV.10.11.

¹¹¹ Procopius *De aed.* II.11.12.

¹¹² See, for instance, P.A. Mackay ‘Procopius’ *De Aedificiis* and the Topography of Thermopylae’, *AJA*, Vol. 67, No. 3 (1963), 241–55. Procopius’ description of Dara was questioned Croke and Crow ‘Procopius and Dara’, 143–59, although the accuracy of Procopius has been asserted in M. Whitby

Procopius possessed extensive first-hand experience of the lands of the empire, an historian's knowledge of geography, and access to an extensive, if not complete, record of state building projects undertaken from at least the beginning of the sixth century. More importantly, he had an appreciation of how to measure imperial achievements: his description of Hagia Sophia conveys a sense of monumentality and his enumeration of repaired churches contains an echo, perhaps unintentional, of the *Res Gestae*. For all that Procopius may have been no great supporter of Justinian, and for all that he may have invented certain details about the projects he describes, the *Buildings* may nonetheless be seen to reflect a late antique ideal for imperial involvement with the creation and maintenance of the built environment.

In the six books of the *Buildings*, Procopius describes construction projects of every type and from nearly every part of the Roman world. The projects ranged in scale from simple repairs to magnificent new structures such as the new Hagia Sophia, built in the aftermath of the Nika riots, or the church of St John at Ephesus. The major projects are, unsurprisingly, outnumbered by the forts, churches, circuit walls and bridges that occur throughout the text. Justinian also carried out several road-repair projects, to which we will return in the next chapter¹¹³.

Among the descriptions of urban building, there are three episodes of particular interest; the first concerns the city of Antioch, in Syria. While Antioch had experienced a period of growth in the mid-fourth century and may have continued to flourish in the fifth, its fortunes changed in the time of Justinian¹¹⁴; two earthquakes – a major one in AD 526 followed by a second in 528 – are said to have destroyed most of the buildings and killed a large number of people¹¹⁵. Then, in 540, the Sasanian king Khusro attacked the city, captured the residents and set most of the buildings on fire¹¹⁶.

'Procopius' Description of Dara' in P. Freeman and D. Kennedy *The Defense of the Roman and Byzantine East* (Oxford, 1986), 737–83. Procopius' descriptions of the Danube region are discussed in A. Poulter 'The Transition to Late Antiquity' in Poulter (ed.) *The Transition to Late Antiquity*, 1–50 (at 8–11).

113 See chapter four, 206–8.

114 On the fortunes of Antioch from the time of Julian to the time of Justinian, see G. Downey, *A History of Antioch in Syria from Seleucus to the Arab Conquest* (Princeton, 1961), chs. 13–18.

115 Malalas *Chronographia*, 17.16, suggests that 250,000 died in the earthquake. Procopius, who mentions the earthquakes in *Wars* II.14.6–7 and *Anecdota* XVIII places the casualties at 300,000; both figures are, perhaps, unrealistically high.

116 Procopius *Wars* II.8–9.

According to Procopius, Justinian rebuilt Antioch, making it stronger and more beautiful than it had previously been¹¹⁷. The description, however, is oddly structured: Procopius begins with a lengthy description of the new circuit wall and an even lengthier description of how Justinian altered the course of the Orontes so that waters from the mountains would no longer flood parts of the city¹¹⁸. Only after all of this does Procopius mention that Justinian also rebuilt the entirety of Antioch after its destruction by Khusro¹¹⁹.

We may, perhaps, explain the odd balance in the description by suggesting that Procopius was basing his account on a series of chronological records, each concerning a specific location; if this was the case, it is entirely possible that the new circuit wall was a much earlier project, perhaps undertaken after the earthquakes but before the agreement of endless peace in 532¹²⁰. Procopius was either intrigued by the diversion of the river, or at very least aware of the literary value of having his subject successfully alter the course of nature. However, it was necessary for him to include the new circuit wall with the later reconstruction of Antioch, because if he had not, it would have implied that the new wall was insufficient to keep out the Sasanian forces.

It is in the description of the reconstruction that we find echoes of the imperial urban ideals. In the aftermath of the Sasanian attack, according to Procopius, there were no longer any colonnades, stoas or agoras, and, perhaps most importantly, the city was no longer divided by streets¹²¹. Justinian's task was, therefore, to clear the ground of rubble, to cover the area of the city with large paving stones, to construct the necessary public buildings and to divide the residential areas with streets¹²². Once this had been accomplished, he constructed baths, theatres and all of the other buildings necessary for a city¹²³.

Procopius is probably not describing the actual reconstruction of Antioch, but rather, an idealised version based on his own understanding of classical urban form. Indeed, his description is wholly impractical: one would not cover the whole area of the city with paving stones before establishing the sewers. Nonetheless it is intriguing

117 Procopius *De aed.* II.10.2.

118 Procopius *De aed.* II.10.3–18.

119 Procopius *De aed.* II.10.19.

120 On the endless peace, see Procopius *Wars* I.22.17.

121 Procopius *De aed.* II.10.20.

122 Procopius *De aed.* II.10.21.

123 Procopius *De aed.* II.10.22.

that Procopius would have chosen pavement as the symbolic division between vacant land and urban space. The other essential features of the city listed by Procopius are similar to the public buildings specified by Vitruvius six centuries earlier; the only major difference is that the temple has been replaced by the church.

Procopius does not describe the reconstruction of Antioch so much as provide an outline of what a city should have. In fact, the reality of the reconstruction may have been somewhat different¹²⁴. Excavations have revealed that there was a major colonnaded thoroughfare built after 540 and that it appears to have been constructed to the same scale as the previous street¹²⁵. Other parts of the city may not have been quite so meticulously restored. Indeed, it has been suggested that, despite the claims of Procopius, the city may never have fully recovered from the setbacks of the sixth century¹²⁶.

While, the failure of Justinian to revive the original urban plan does not imply an end to the city itself – indeed, the city appears to have survived, albeit on a much reduced scale, into the Islamic period¹²⁷ – the nature of the urban forms may have changed. Excavations have revealed that the open space of the colonnaded street were used as the foundation for newly constructed private buildings¹²⁸; although it was initially thought that this development came after the Islamic conquest, it has been more recently suggested that the incursion of private dwellings onto this most public of spaces may have occurred not long after Justinian's reconstruction¹²⁹.

Only two years after the departure of Khusro – who took with him a great number of captured citizens – Antioch was struck by an outbreak of plague¹³⁰. In a city that possessed a much reduced population and an incomplete urban infrastructure, it is certainly

124 The fate of Antioch after 540 is discussed in Downey, *Antioch*, 546–59; Kennedy, 'Polis to Madina', 5–6; H. Kennedy and J.H.W.G. Liebeschuetz 'Antioch and the Villages of Northern Syria in the Fifth and Sixth Centuries AD: Trends and Problems', *Nottingham Medieval Studies*, Vol. 32 (1988), 65–90; C. Foss 'Syria in Transition, AD 550–750: An Archaeological Approach', *DOP*, Vol. 51 (1997), 189–269 (at 190–97).

125 J. Lassus *Antioch on-the-Orontes V: Les Portiques d'Antioche* (Princeton, 1972), *passim*; Kennedy and Liebeschuetz 'Antioch', 65–66; Foss 'Syria in Transition', 193.

126 Downey, *Antioch*, 559 claims that 'the real greatness of the city must have come to an end in AD 540'.

127 Downey, *Antioch*, 577–78 claims that the Islamic forces regarded the conquest of Antioch as important; Foss, 'Syria in Transition', 197, however, suggests that the Islamic armies would have found Antioch largely abandoned.

128 Lassus, *Antioch V*, 148–50.

129 For the later dating, see Lassus, *Antioch V*, 150 and Foss, 'Syria in Transition', 194; for the earlier date, see H. Kennedy 'The last century of Byzantine Syria: a reinterpretation', *Byzantinische Forschungen*, Vol. 10 (1985), 141–183.

130 Downey, *Antioch*, 553.

possible that construction would have reverted to a less regulated state. The reduced city may simply have had no need for a monumental colonnaded street, and the private constructions – which the legal prescriptions attempted to keep separate from public space – may have used the solid pavements of the street to their advantage. These constructions, however, would have brought an effective end to the ceremonial thoroughfare, arguably Antioch's last remaining connection to the urban plan of an earlier age.

We may note, however, that the destruction of Antioch did result in at least one successful building project: when Khusro returned to Persia he built a city to the south of Ctesiphon to house the Roman citizens he had taken captive. The city – known as *Veh Antiok Khusro*, or The Better-than-Antioch of Khusro – is said to have been equipped with baths and a hippodrome¹³¹. Although the new city would undoubtedly have been different in appearance from its namesake, Khusro at least appears to have had an appreciation of the urban features that were essential to the Roman city.

The reconstruction of Antioch may not have involved any extensive replanning. However there are instances in the *Buildings* where it is suggested that entire cities were brought into being under Justinian. Once such passage concerns the fortress of Mocesius in Cappadocia. Almost nothing is known about the actual town of Mocesius; apart from one appearance in Polybius – which is almost certainly incorrect¹³² – the name does not appear until the sixth century, when it is mentioned by Procopius and Stephanus of Byzantium¹³³. Even the location is uncertain: while it was formerly associated with the modern town of Kırşehir, recent archaeological research has identified Viranşehir – located some sixty miles south of Kırşehir, near Yenipınar in Aksaray province – as a more probable site¹³⁴.

Although it is listed as a 'polis of Cappadocia Secunda' in Stephanus of Byzantium, Procopius describes it as little more than a fort or fortified watch-tower (φρούριον)

131 Procopius *Wars* II.14.1–2. See also R.N. Frye 'The Political History of Iran Under the Sasanians' in E. Yarshater (ed.) *The Cambridge History of Iran III: The Seleucid, Parthian and Sasanian Periods* (Cambridge, 2000), 116–80.

132 P. Beagon 'A Note on Polybius 24.14.8–9', *CQ*, New Series, Vol. 45, No. 1 (1995), 245–48.

133 Procopius *De aed.* V.4.15 uses the spelling Μωκισός, while Stephanus *Ethnica* (457), uses Μουκισσός.

134 A. Berger 'Viranşehir (Mokisos), eine byzantinische Stadt in Kappadokien', *Istanbulier Mitteilungen*, Vol. 48 (1998), 349–429. For the identification with Kırşehir, see W.M. Ramsay *The Historical Geography of Asia Minor* (London, 1890), 300; see also Beagon 'Note on Polybius', 247.

on the verge of collapse¹³⁵. According to the *Buildings*, Justinian had the structure demolished and had a complete city built from new on a site nearby. Procopius tells us that the city was raised to the status of metropolis, although he fails to mention that it was renamed Justinianopolis or that it became the capital of the newly created province of Cappadocia Tertia¹³⁶.

While the description is brief – perhaps overly brief for a site that would become a regional capital – we may nonetheless identify an approach not dissimilar to the classical urban model: after removing the remains of the fortress, Justinian's first action is reported to have been the construction of a wall on a more defensible site¹³⁷. Only after the extent of the city had been thus defined could it be filled with holy buildings, guest-houses and baths, along with the other buildings that constitute a city¹³⁸. The order of construction might not have seemed foreign to Vitruvius.

As with his description of Antioch, however, Procopius is vague about the 'other buildings that make up a city'; indeed, we may wish to suggest that the 'other buildings' are a literary device designed to convince the reader that a real urban space had been created. Procopius implies that Justinian was able to accomplish the feat of Alexander and Augustus, that is, the act of creating a populous and fully functional city. While the churches discovered in the vicinity of Viranşehir indicate that a certain amount of urban construction occurred during the time of Justinian, it is difficult to determine the extent to which urban life would have flourished in this new settlement. However, given the absence of Moccus in classical literature, and given its subsequent appearance in church records from the seventh century onward, we may at least concede the possibility that Justinian was able to create the foundation for a new settlement that would survive well into the Byzantine period¹³⁹.

Of all the instances of urban construction in the *Buildings*, the passage concerning the construction of Justiniana Prima is perhaps the most intriguing; despite using many words to describe the emperor's new city, Procopius manages to tell us almost

135 πόλις Καππαδοκίας δευτέρα. Stephanus *Ethnica* (457); Procopius *De aed.* V.4.15.

136 Procopius *De aed.* V.4.17. The name Justinianopolis is associated with Moccus in records of the Ecumenical Council of 681.

137 Procopius *De aed.* V.4.16.

138 Procopius *De aed.* V.4.18.

139 Μωκισσός appears in numerous official records from the seventh century onward. The survival of a metropolitan bishop, however, does not necessarily imply the survival of a town.

nothing. Justiniana Prima is doubly fascinating because, unlike Antioch, the site does not appear to have been occupied previously, and it seems to have been abandoned by the seventh century; thus, not only are the archaeological remains easily accessible, but they also give us considerable insight into what was arguably the final monumental urban building project of antiquity¹⁴⁰.

Justiniana Prima might initially seem like a vanity project: unlike all of the other Justinianas and Justinianopoleis founded in the sixth century – of which Procopius lists at least three, not counting Mocesus¹⁴¹ – Justiniana Prima was located near the birthplace of the emperor. The emperor's actual birthplace – an extremely small settlement called Taurisium¹⁴² – was improved, according to Procopius, with a square wall and four towers. On a more defensible site not far away, Justinian set about building, in the words of Procopius, 'a most illustrious city'¹⁴³.

From the description that follows, we may wish to suggest that Procopius probably never visited Justiniana Prima. He mentions the construction of an aqueduct, which may have been something of a rarity for a new foundation of the sixth century, or which may have been listed separately in the building records¹⁴⁴. This is followed by a list of familiar urban features that might convey the idea of a fully formed city. However, it is not the features themselves that arouse suspicion, but the way they are presented:

To enumerate the churches is not easy, and it is impossible to tell in words of the official lodgings, the great stoas, the fine marketplaces, the fountains, the streets, the baths and the shops¹⁴⁵.

Procopius may have been attempting to amplify the scale of Justinian's creation while simultaneously confessing – as he does elsewhere – that he had never actually seen the place. It is also possible that Procopius found it impossible to describe the grandeur of Justiniana Prima because the grandeur did not exist. Excavations over the

¹⁴⁰ The best introduction to the site is B. Bavant 'Caričin Grad and the Changes in the Nature of Urbanism in the Central Balkans in the Sixth Century' in Poulter (ed.) *The Transition to Late Antiquity*, 337–374; see also C.A. Ralegh Radford 'Justiniana Prima (Tsaritsin Grad): a 6th cent. City in Southern Serbia', *Antiquity*, Vol. 28, No. 109 (1954), 15–18 and B. Bavant and V. Ivanišević *Iustiniana Prima / Caričin Grad* (Belgrade, 2003).

¹⁴¹ Adrianopolis was renamed Justinianopolis (*De aed.* IV.1.36); there is a fortress Justinianopolis on the Ister (*De aed.* IV.11); Justinian builds a town near the deserted Diocletianopolis which he names after himself (*De aed.* IV.3.4).

¹⁴² Procopius *De aed.* IV.1.17 classifies Taurisium as a χωριον.

¹⁴³ πόλιν ἐπιφανεστάτην. Procopius *De aed.* IV.1.19.

¹⁴⁴ Procopius *De aed.* IV.1.21.

¹⁴⁵ θεοῦ μὲν τεμένη διαριθμεῖσθαι οὐ ῥάδια, καταγωγή δὲ ἀρχόντων φράζεσθαι λόγω ἀμήχανα, στοῶν μεγέθη, ἀγορῶν κάλλη, τὰς κρήνας, τὰς ἀγυιάς, τὰ βαλανεῖα, τὰ πωλητήρια Procopius *De aed.* IV.1.23.

course of the twentieth century have revealed an urban centre with walls, churches, lodgings, streets and, indeed, an aqueduct, but which is otherwise lacking in the coherence that we might associate with a classical city. Justiniana Prima appears to have been conceived not as a framework for civilisation, but rather as a fortified ecclesiastical centre around which urban life was expected to coalesce.

In keeping with his silence on matters of dating, Procopius does not inform us precisely when construction began on Justiniana Prima; it may have been shortly after Justinian became emperor in 527, or possibly even at some point during the previous decade. By the time the city first appears in the literary record – in a novel dated to 535 – it was well-enough established to act as the seat of the archbishop of Illyricum¹⁴⁶. The presence of an archbishop, however, does not necessarily imply a thriving urban centre; indeed, by the time Procopius was writing the *Buildings*, Justinian's manufactured regional centre may have already started down the path of decline.

Reconstructions of Justiniana Prima reveal only the most distant echoes of an imperial city plan. There is a central intersection, but it is not strictly orthogonal, nor does it mark the cultural centre of the city; that centre – no longer the forum, but a basilica complex – is located away from the central intersection in a separately fortified acropolis area. It has recently been proposed that the main thoroughfare of the acropolis, along which the basilica was located, formed the *decumanus* of an orthogonal plan that was subsequently abandoned: the space where the major streets should have intersected was needed for the fortification of the acropolis, and the central intersection was shifted east, resulting in the oddly angled main streets that have been discovered on the site¹⁴⁷.

This proposal allows us to consider the possibility that Justiniana Prima was, in fact, planned according to a classical model; the failure of the builders to see the design through to its completion may be attributed to the topography of the site or the need for a fortified acropolis. However, while the city appears to be organised around a *cardo* and *decumanus* – and while those streets appear to have been suitably colonnaded – there is little evidence to suggest that the intersection was used as the starting point for any kind of street plan. It may be that the iconography of the monumental street and

¹⁴⁶ Justinian *Nov.* XI; cf. Procopius *De aed.* IV.1.25.

¹⁴⁷ On the urban plan, see Č. Vasić 'Le plan d'urbanisme de la ville haute: essai de reconstruction', in B. Bavant, V. Kondić and J.-M. Spieser (eds) *Caričin Grad II: Le quartier sud-ouest de la ville haute* (Belgrade, 1990), 307–15; Bavant, 'Caričin Grad', 347–52.

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FIGS 3.1 AND 3.2 Vasić's proposed reconstruction of Justiniana Prima's planned central intersection, and the arrangement that was eventually built (from Bavant, 'Caričin Grad', 348 and 349).

the central intersection survived into the urban consciousness of late antiquity, but that they had become detached from any strong idea of their original function.

Perhaps the most conspicuous feature of Justiniana Prima – and perhaps the reason for its ultimate failure – is its singularity of purpose. Unlike the classical cities, which were founded as centres of trade and culture as well as administration, there is a sense that Justiniana Prima was conceived as little more than a monumental setting for an archiepiscopal seat and a small military presence. Instead of having blocks of commercial and residential space emanating from a formal centre, in Justiniana Prima the functional centre of the city, that is the basilica complex, was placed at the highest and most inaccessible point.

Indeed, the separation of official and residential buildings in Justiniana Prima correspond roughly to their relative elevation within the site. In the acropolis we find primarily buildings related to the church, and in the upper city we find administrative and military facilities along with official residences; only in the lower city do we find residential structures¹⁴⁸. Artisanal workshops have been found outside the walls of the city, but there has been little to suggest the widespread presence of industry¹⁴⁹.

148 Bavant, 'Caričin Grad', 361–67 (official buildings), 367–72 (residential buildings).

149 Bavant and Ivanišević *Iustiniana Prima*, 34.

For all the money and effort that must have gone into making Justiniana Prima a viable provincial capital, monumentality was not enough to sustain the city. There are no records of it after 602 and the latest coin discovered on the site dates from 615¹⁵⁰. A city that did not even manage to last for a hundred years could not have been very populous, even at its peak. Justiniana Prima appears to have been furnished with monumental buildings, but lacking in the necessary infrastructure to maintain an urban population; it was an attempt to create the impression of an imperial city, yet constructed without a sound knowledge of what had made those ancient cities so durable.

Even if Procopius had never visited the site, he may well have received reports of a sparsely populated capital that had failed to become a real city. As much as he would have liked to convey the impression of a thriving metropolis, he was ultimately forced to conclude his description with the lines:

It is impossible to describe everything in detail, for since the city is the emperor's own, any account of it necessarily falls short of reality¹⁵¹.

In fact, the reality of Justiniana Prima may have fallen considerably short of any description that Procopius was able to write.

Even during the expansions of the imperial period, the state would not have wished to create complete urban units; rather, the role of the state was to encourage urban settlement by constructing a core of functional public spaces within an extensible formal plan that could accommodate further private construction. If we strip away the rhetorical flourishes from Procopius, we can see that Justinian was attempting to do roughly the same thing with his own new foundations: he selected a location, surrounded it with a defensive wall and then established a series of buildings in which the skeletal functions of an administrative centre could be performed.

What had changed was not the approach to urbanism so much as the contents of the predetermined urban nucleus. The ideal cities of the imperial period had been provided with a diverse series of political and cultural amenities ranging from basilicas, treasuries and administrative offices to baths and theatres. The Justinianic foundations, on the other hand, may have consisted primarily of complexes to house the regional

150 Bavant, 'Caričin Grad', 337–38.

151 ἅπαντα γὰρ ἐς τὸ ἀκριβὲς λεπτολογεῖσθαι ἀμήχανον, ἐπεὶ τῷ βασιλεῖ προσηκούσης τῆς πόλεως ἐλασσοῦσθαι αὐτῆς ἅπαντα λόγον ἐπ'ἀναγκας. Procopius *De aed.* IV.1.27. (trans. H.B. Dewing).

ecclesiastical authority, combined with ill-conceived monumental gestures that were not ultimately integrated into the urban plan. The resulting spaces may have resembled the classical city in neither form nor function.

The church, as we shall see in the next section, had become an important part of urban life and had even started to act as the focal point for the development of new urban forms. On its own, however, an ecclesiastical presence may not have provided the necessary catalyst to transform a series of buildings into a thriving urban centre; neither were isolated monumental buildings sufficient to create a foundation for urban life. While it may have been possible for the sixth century writer to enumerate, in a brief passage, the elements that an imperial city should contain, the political and economic realities of late antiquity may have made it increasingly difficult to bring such a city into existence.

urban realities in late antiquity

In the period of late antiquity, the patterns of urbanism in the East and in the West begin to diverge¹⁵². In the West, broadly speaking, we find a decline in urban public building that was initially matched by a rise in rural private building¹⁵³; from the fourth century onward, it appears that a villa in the country may have been preferable to life in the city¹⁵⁴. Thus, between a lack of new urban constructions and a failure to maintain what had previously been built, many of the larger cities that had come to prominence in the imperial period would have continued to function, but on a much reduced scale; some of the cities with fewer connections to the administrative infrastructure were largely abandoned.

The decline of urbanism in the west may initially have come about as a reaction to the new political geography of the empire; by the end of the third century, Rome

152 For an overview of urbanism in the west, see J.H.W.G. Liebeschuetz 'The end of the ancient city' in Rich (ed.) *The City in Late Antiquity*, 1–49; B. Ward-Perkins 'Urban Continuity' in Christie and Loseby (eds) *Towns in Transition*, 4–17; J.H.W.G. Liebeschuetz *Decline and Fall of the Roman City* (Oxford, 2001), 74–103; L. Lavan and W. Bowden (eds) *Recent research in late-antique urbanism*. JRA Supplement 42 (Portsmouth, R.I., 2001).

153 On the decline of public building in Italy, see B. Ward-Perkins *From Classical Antiquity to the Middle Ages: Urban Public Building in Northern and Central Italy AD 300–850* (Oxford, 1984), 14–37.

154 See above, n. 22.

had become a symbolic capital rather than a centre of true authority. When Diocletian restructured the empire in 286 he used Nicomedia as his principal residence, although he spent considerable amounts of time in Sirmium and Antioch; his co-emperor Maximian supervised the western empire from Milan and Aquileia¹⁵⁵. Although Constantine's dedication of a new imperial capital on the former site of Byzantium was perhaps the most definitive shift in imperial power, it was merely a reflection of the new Roman reality: the interests of the empire had moved east and, for the first time since its foundation, Rome was no longer the centre of its own world.

The lack of a strong connection to the imperial centre, combined with a population that was already inclined toward a rural existence, may have started to undermine the value of civic institutions. Of course, in the fifth century, an extensive period of migrations and invasions would effectively sever the western provinces from the control of what was now an Eastern Roman empire¹⁵⁶. Although Justinian would briefly reconquer Italy in the sixth century, the cities of the west would never again be under Roman control. However, while the political ramifications of the fifth century may have hastened the decline of Western cities, the movement away from urban life may have already been in a fairly advanced stage.

In the East, which remained under continuous imperial control – and where many of the more prominent settlements were already centuries old at the beginning of the imperial period – we find that urbanism continued to thrive. Areas in the Balkans and Asia Minor, especially, may have benefitted from their newfound proximity to the imperial capital¹⁵⁷; however, even in the more eastern provinces of Syria and Palestine, the fourth through the sixth centuries were a time of increased prosperity. Many of the cities in these regions experienced late antique phases of development, and in certain areas, economic conditions were conducive to the foundation of entirely new urban communities¹⁵⁸.

155 See T.D. Barnes *The New Empire of Diocletian and Constantine* (Cambridge, MA., 1982), 49–56 (Diocletian) and 56–60 (Maximian); see also S. Corcoran 'Before Constantine' in N.E. Lenski *The Cambridge Companion to the Age of Constantine* (Cambridge, 2006), 35–58 (esp. 43–44).

156 On the end of Roman rule in the west, see P. Heather 'The Huns and the End of the Roman Empire in Western Europe', *EHR*, Vol. 110, No. 435 (1995), 4–41.

157 See the recent studies by H. Vanhaverbeke *The Chora of Sagalassos: the evolution of the settlement pattern from prehistoric until recent times* (Turnhout, 2003) and D. Baird 'Settlement Expansion on the Konya Plain, Anatolia: 5th–7th Centuries AD' in Bowden et al. (eds) *Late Antique Countryside*, 247–80.

158 Several edited volumes on late antique urbanism have appeared in the last two decades, notably: J. Rich (ed.) *The City in Late Antiquity* (London, 1992); N. Christie and S.T. Loseby (eds) *Towns in*

Our understanding of the urban spaces that existed in the eastern empire of late antiquity has been growing steadily over the last half-century; this has been due in part to an increase in archaeological evidence and also to a willingness on the part of scholars to dispense with the narrative of decline that is so often applied to the west¹⁵⁹. Our knowledge, however, is still limited and we are often forced to draw conclusions from a comparatively small body of evidence. Nonetheless, we may at least attempt to identify some of the major developments that demonstrate how the urban forms of late antiquity had started to diverge from the imperial ideals preserved in the textual sources.

The *Codex Theodosianus* suggests that, during the fourth and fifth centuries, the public spaces of the city were beginning to suffer because of financial mismanagement; the money that the governors should have been spending on public maintenance was being redirected toward private projects that may have contributed little to the urban environment. However, while there were almost certainly instances of public money being misspent, we should not interpret the evidence from the Codex as reflecting an empire-wide decline in civic maintenance. In Ephesus, for example, many of the monumental elements of the city were well tended into late antiquity; not only do we find evidence for the continued repair of streets and public squares, but we even find new monumental decoration in the form of honorific statues¹⁶⁰; there is similar evidence for civic repairs and renovation in Aphrodisias¹⁶¹. In Sagalassos, the porticoes and fountains appear to have been quickly repaired following an earthquake early in 500¹⁶², and in Caesarea in Palestine, we find evidence for new street paving activity as late as the mid-sixth century¹⁶³.

Transition: Urban Evolution in Late Antiquity and the Early Middle Ages (Aldershot, 1996); L. Lavan and W. Bowden (eds) *Recent research in late-antique urbanism*. JRA Supplement 42 (Portsmouth, R.I., 2001); and A. Poulter (ed.) *The Transition to Late Antiquity* (Oxford, 2007).

159 For overviews of the archaeological contribution, see J.-P. Sodini 'La contribution de l'archéologie à la connaissance du monde byzantin (IVe-VIIe siècles)', *DOP*, Vol. 47 (1993), 139–184 and A. Poulter 'The Transition to Late Antiquity' in Poulter (ed.) *The Transition to Late Antiquity*, 1–50.

160 Foss, *Ephesus after Antiquity*, 96–99; S. Ladstätter and A. Pülz 'Ephesus in the Late Roman and Early Byzantine Period: Changes in its Urban Character from the Third to the Seventh Century AD' in Poulter (ed.) *The Transition to Late Antiquity*, 391–433 (esp. 402–3).

161 R.R.R. Smith 'Late Antique Portraits in a Public Context: Honorific Statuary at Aphrodisias in Caria, AD 300–600', *JRS*, Vol. 89 (1999), 155–89.

162 H. Vanhaverbeke et al. 'Another View on Late Antiquity: Sagalassos (SW Anatolia), its Suburbium and its Countryside in Late Antiquity' in Poulter (ed.) *The Transition to Late Antiquity*, 611–48 (at 626–28).

163 R.L. Vann 'Byzantine Street Construction at Caesarea Maritima' in Hohlfelder (ed) *City, Town and Countryside*, 165–81.

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FIG. 3.3 The transformation from the colonnaded street into the souq
(from Sauvaget, 'Laodicée-sur-Mer', 100)

One of the more prominent urban constructions overseen by the state would have been the circuit walls. There is extensive evidence for defensive wall construction in the fifth centuries, especially in the Balkans and the Danube region which had been subject to recent Hunnic invasions¹⁶⁴; in many cases, these new walls enclosed a reduced urban area. However, not all of the late antique fortifications represented a direct reaction to an enemy threat or a reduction in urban space. In Aphrodisias, for instance, a new city wall was constructed in the mid-fourth century – perhaps in AD 350–360 – a time when peace and security had largely been restored in Asia Minor¹⁶⁵. Nor did all of the new walls reflect a decrease in urban area: in Caesarea (Palestine), a new wall containing a larger area was constructed, perhaps in the fourth or fifth century¹⁶⁶.

Circuit walls in late antiquity were still very much a state responsibility. However, while the trend toward reduced urban fortifications may have been a military necessity – a smaller circumference would have been easier to defend – it also represents a change in imperial attitudes toward urban space. The wall, as we recall from Vitruvius, was the first stage of the classical city, the statement of definition into which the civic structures would be placed¹⁶⁷. The reduced circuit walls of late antiquity would have not only redefined the extent of the city, but they would have created a hierarchy of

¹⁶⁴ On fifth century fortification generally, see A.W. Lawrence 'A Skeletal History of Byzantine Fortification', *The Annual of the British School at Athens*, Vol. 78 (1983), 171–227. For regional studies, see: T.E. Gregory 'Fortification and Urban Design in Early Byzantine Greece' in R.L. Hohlfelder (ed) *City, Town and Countryside in the Early Byzantine Era* (New York, 1982), 43–61 and J.-P. Sodini 'The Transformation of Cities in Late Antiquity within the Provinces of Macedonia and Epirus' in Poulter (ed.) *The Transition to Late Antiquity*, 311–36 (esp. 318–20).

¹⁶⁵ P.D. De Staebler 'The city wall and the making of a late-antique provincial capital' in R.R.R. Smith and C.J. Ratté *Aphrodisias Papers 4: New research on the city and its monuments*. JRA Supplement 70 (Portsmouth, R.I., 2008), 285–318.

¹⁶⁶ Holum, *King Herod's Dream*, 164–65.

¹⁶⁷ Vitruvius I.5.

urban institutions: notably the reduced circuit wall may have protected religious and administrative buildings but excluded much of the urban population¹⁶⁸.

Even in cities that had not been forcibly redefined by the contraction of a circuit wall, the forces of private construction may have been starting to play a more active role in the determination of urban form. There is a now famous drawing which theorises the gradual transition from colonnaded Roman street to the narrow seemingly unplanned passages which characterise the Arab *souq*¹⁶⁹. Although this development was initially thought to have occurred after the Islamic conquests – and would, therefore, have been the result of a different building culture imposing its presence onto the remains of the Roman city – it seems more plausible that this transition had already started in late antiquity¹⁷⁰.

In his oration about the city of Antioch, Libanius describes a city that is both well-situated and prosperous; for this reason, he tells us, construction was a constant presence. Everywhere there were old structures coming down and new structures going up; areas that had once been vegetable gardens, he tells us, were now the sites of buildings¹⁷¹. Libanius also discusses the encroachment of private buildings into public space: in praising the economic prosperity of the town, Libanius mentions that, in the porticos of Antioch, the people have turned the spaces between the columns into shops¹⁷². If a man can find even the smallest piece of land, he will build on it; ‘people cling to these places’ says Libanius, ‘as they would to ropes¹⁷³’.

Throughout the empire, monumental public spaces were gradually being overtaken by private constructions. In Scythopolis, the colonnade was transformed into shops in the fifth or early sixth century¹⁷⁴. In Ephesus, Sardis and Sagalassos there is evidence to suggest that the navigable space of the major streets was narrowed by the

168 This phenomenon has been especially noted in the Danube region; see A. Poulter ‘Urbanism in the Danubian provinces’ in Rich (ed.) *The City in Late Antiquity*, 99–132.

169 J. Sauvaget ‘Le plan de Laodicée-sur-Mer’, *Bulletin d’Études Orientales*, Vol. 4 (1934), 81–114 (map at 100).

170 H. Kennedy ‘From Polis to Madina: Urban Change in Late Antique and Early Islamic Syria’, *Past & Present*, No. 106 (1985), 3–27.

171 Libanius *Or.* 11.2.27.

172 Libanius *Or.* 11.2.54.

173 Libanius *Or.* 11.2.54. The translation is that of G. Downey.

174 On Scythopolis see Y. Tsafir and G. Foerster ‘From Scythopolis to Baysan – Changing Concepts of Urbanism’ in King and Cameron (eds) *The Byzantine and Early Islamic Near East II*, 95–116 and ‘Urbanism at Scythopolis-Bet Shean in the Fourth to Seventh Centuries’, *DOP*, Vol. 51, (1997) 85–146.

encroachment of shops, and that the porticos and colonnaded streets became filled with private dwellings¹⁷⁵. In Antioch, as we discussed in the previous section, the colonnaded central street may have been filled in with private buildings not long after its reconstruction in the sixth century¹⁷⁶.

The portico shops, and the small crudely constructed buildings of wood that appear in Libanius sound not unlike the descriptions in the *Codex Theodosianus* of structures leaning against public buildings, or the houses and shops that were built into porticos¹⁷⁷; they illustrate the same principle as the tavern-keepers in Julian of Ascalon who caused inconvenience to pedestrians by extending their businesses into the street¹⁷⁸. As much as the state may have wished to legislate urban public spaces, unregulated private building had become an unavoidable reality of the late antique city. Urban growth was no longer occurring according to a predetermined plan; instead the city was expanding to fill the available space.

Although the patterns of urban form may have been eroded by smaller private constructions, it was a large private construction that may have had the most profound effect on the physical appearance of the late antique city. In the *Codex Theodosianus* we find laws relating to the forum, to public baths, theatres, storehouses and many of the public institutions that had come to define the urban environment of antiquity. However, in the descriptions of Procopius, we can see how the church – an urban institution that had not been present in the age of Augustus – had come to hold a place of paramount importance within the city.

Temples had been an integral part of the classical urban structure; for Vitruvius – who devotes two of his ten books to the construction and decoration of temples¹⁷⁹ – they were second only to the defensive wall in order of construction, and their place within the urban plan would have been as predetermined as the street layout¹⁸⁰. Furthermore, temples had been a construction of the state and their maintenance would have been considered a legitimate public expense. However, after the acceptance

¹⁷⁵ Foss, *Ephesus after Antiquity*, 97; J.S. Crawford *The Byzantine Shops at Sardis* (Cambridge, MA., 1990), 107–25; H. Vanhaverbeke et al. 'Another View on Late Antiquity', 627–28.

¹⁷⁶ See above, 150–53.

¹⁷⁷ *CTh* 15.1.38, 39 and 52.

¹⁷⁸ Jul. Asc. 17.3 and 20.4.

¹⁷⁹ Vitruvius III and IV.

¹⁸⁰ Vitruvius I.7.1–2.

of Christianity as the state religion in the fourth century, the age of temples came to a sudden and decisive end; over the course of the next hundred years, the structures would be destroyed as a means of bringing an end to paganism, and the raw materials would be used for road and bridge repairs¹⁸¹.

During fourth and fifth centuries, churches became an increasingly important centre of urban cultural life and a correspondingly ubiquitous presence within the built environment of the city¹⁸². While Christian communities had existed in Roman cities since the first century AD, the earliest meeting houses had been modest structures designed to accommodate reasonably small congregations¹⁸³. During the reign of Constantine, however, the scale of ecclesiastical construction changed dramatically, as did the role of the church within the physical space of the city; by the middle of the fourth century, a considerable amount of financial resources and architectural craftsmanship were being directed toward venues for Christian prayer.

Some of the resources for church building were coming directly from the personal wealth of emperors: Constantine himself devoted much time and expense during the latter part of his life to the construction of great churches throughout the empire¹⁸⁴. Most subsequent emperors – with the exception of Julian, who encouraged the construction of temples¹⁸⁵ – would have wanted their name associated with church-building¹⁸⁶; by the time of Justinian, the foundation of large and extravagant churches had become the standard means by which an emperor could simultaneously display his devotion to Christianity and leave a physical record of his achievements within the built environment¹⁸⁷. However, despite the involvement of emperors in high-profile

181 *CTh* 15.1.36; *CTh* 16.10.16 and 25.

182 See J.-M. Spieser 'La christianisation de la ville dans l'Antiquité tardive', *Ktema*, Vol. 11 (1986), 49–55.

183 On Christian architecture before Constantine, see R. Krautheimer *Early Christian and Byzantine Architecture* (Harmondsworth, 1965), 1–15; L.M. White *Building God's House in the Roman World* (Baltimore, 1990), 102–39.

184 On Constantine's use of private funds, see Eusebius *Vita Constantini* I.42; Eusebius describes other Constantinian foundations throughout Book III; see also J.W. Crowfoot *Early Churches in Palestine* (London, 1941), 9–36; Krautheimer, *Architecture*, 17–44; id. 'The Constantinian Basilica', *DOP*, Vol. 21 (1967), 115–40; J. Wilkinson 'Constantinian Churches in Palestine' in Y. Tsafrir (ed.) *Ancient Churches Revealed* (Jerusalem, 1993), 23–27.

185 *CTh* 15.1.3.

186 For foundations between the fourth and sixth century, see especially Krautheimer, *Architecture*, 67–147; see also, Crowfoot, *Early Churches*, 37–101; T.F. Mathews *The Early Churches of Constantinople: Architecture and Liturgy* (University Park, PA, 1971), 11–41.

187 Accounts of Justinianic church building may be found in Malalas XVIII and throughout Book I of Procopius' *Buildings*. See also Krautheimer, *Architecture*, 149–98, and Mathews, *Early Churches*, 42–102.

foundations, the construction of a church remained an essentially private act and could therefore be undertaken by any individual – or, indeed, any group of individuals – in possession of suitable wealth and piety¹⁸⁸.

In the time of Constantine, the church adopted the formal structure of the basilica, a venerable institution of the classical Roman city¹⁸⁹. However, while the classical city might have contained only one basilica, it was not uncommon for the population centres of late antiquity to possess dozens of churches; even the smallest urban settlements would have possessed at least two or three. Churches of every size and shape began to dominate the urban environment; the number of churches within a given city was limited only by the amount of available space and the number of individuals who were willing to build.

The construction of a church would not only have been a display of personal piety, but also an act that would appeal directly to the Christian population. Thus, when we read in the *Codex Theodosianus* that governors had been using public funds to build private structures, we may perhaps infer that the structures in question were churches. It is possible that the especially pious governors would have attempted to make a name for themselves by using public funds for church construction, rather than for maintaining the city's more outmoded institutions; it is equally possible that the urban population would not have objected to the appearance of new churches at the expense of other public structures.

Because churches were private constructions, the laws governing public urban spaces have little to say about them; the constitutions in the *Codex Theodosianus*, as we have seen, were interested in the traditional institutions relating to the function of the city within the framework of imperial administration, and not ultimately with the spiritual or cultural aspects of the urban built environment. The church, however, would have been a grey area in the divide between public and private institutions; while there may have been no serious decrease in the resources available to the city in late antiquity, it may be that those resources were increasingly directed toward the construction of those private structures that had become the focus of public life.

¹⁸⁸ On patterns of church building in Italy, see Ward-Perkins, *From Classical Antiquity to the Middle Ages*, 51–84.

¹⁸⁹ On the adaptation of the basilica, see Krautheimer, *Architecture*, 20–23; White, *Building God's House*, 11–25.



The lack of interest in public space, the rise of the individual as a predominant force in determining urban form and the role of the church as a civic nucleus are illustrated most clearly in the new urban settlements that emerged in late antiquity. From the fourth century onward, we may note an increase in unplanned enclaves of private structures in the Negev desert in southern Palestine, and in the areas to the east of Antioch in northern Syria¹⁹⁰. These settlements emerged, for the most part, as a reaction to the economic conditions in a particular region, and therefore existed outside of the imperial administrative infrastructure. However, in these unplanned towns we find a model for urbanism that, in many ways, represents a decisive break from the planned cities of antiquity.

The arid Negev desert is not necessarily a place where one would expect to find a permanent human population, let alone settlements based on agriculture. However, from around the fourth or fifth century onward, we begin to find evidence for an increase in agricultural activity¹⁹¹. With the appearance of cultivation came the emergence of urban centres; although the town of Elusa may have been classified as a polis – and may indeed have been the capital of *Palestina Tertia*¹⁹² – the other towns had no specifically imperial function and, in some cases, were not close to trade routes. They seem to have coalesced as a direct consequence of an increase in agricultural exploitation¹⁹³.

It has been proposed that the sudden appearance of agricultural activity in such an unpromising area may have been the result of imperial intervention, perhaps an attempt to create a permanent population along a frontier area¹⁹⁴. The towns themselves, however, appear to have been the result of organic development¹⁹⁵. While the sections of

190 For an introduction to late antique village urbanism in various regions, see P.-L. Gatier 'Villages du Proche-Orient protobyzantin (4ème–7ème s.). Étude régionale' in King and Cameron, *Byzantine and Early Islamic Near East II*, 17–48.

191 On the evidence for agriculture, see P. Mayerson 'Ancient Agricultural Remains in the Central Negev: The Teleilat el-'Anab', *BASOR*, No. 153 (1959), 19–32.

192 Y. Dan 'Palaestina Salutaris (Tertia) and its Capital', *IEJ*, Vol. 32 (1982), 134–37.

193 For an introduction to the urbanisation of the Negev, see J. Shereshevski *Byzantine Urban Settlements in the Negev Desert*. Beer-Sheva V (Beer-Sheva, 1991); see also R. Rubin 'Settlement and Agriculture on an Ancient Desert Frontier', *Geographical Review*, Vol. 81, No. 2 (1991), 197–205; M. Haiman 'Agriculture and Nomad-State Relations in the Negev Desert in the Byzantine and Early Islamic Periods' *BASOR*, No. 297 (1995), 29–53. For an account of the region in literary sources, see P. Mayerson 'The Desert of Southern Palestine According to Byzantine Sources', *Proceedings of the American Philosophical Society*, Vol. 107, No. 2 (1963), 160–172. On the archaeology of the region, see Y. Hirschfeld 'Farms and Villages in Byzantine Palestine', *DOP*, Vol. 51 (1997), 33–71.

194 Haiman 'Agriculture', 45–47.

195 Hirschfeld 'Farms and Villages', 60.

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FIG. 3.4 Plan of Shivta
(from Segal, 'Shivta', 320)

arable land were necessarily spread over a wider area, the towns are reasonably compact, with a high population density; in fact, the populations of some of the towns may have rivalled the populations of more formally established urban centres¹⁹⁶.

Of all the settlements in the region, Elusa may have been the largest and most important¹⁹⁷. While there is evidence to suggest that the site was occupied from as early as the second century BC, the town appears to have been largely insignificant until the fourth century, when it underwent a considerable phase of development. Our best evidence for the prominence of the town, however, is literary rather than material¹⁹⁸; the remains of the town have not been well preserved. Excavations have revealed a wall, a small first century theatre and several fifth century churches, but little

¹⁹⁶ On the possible population of the various villages, see M. Broshi 'The Population of Western Palestine in the Roman-Byzantine Period' *BASOR*, No. 236 (1979), 1–10. The figures proposed by Broshi, 3, are compared with (and are considerably lower than) those provided by M. Avi-Yonah in an article from 1964, which it has not been possible to consult.

¹⁹⁷ For an overview of the site, see Shereshevski *Byzantine Urban Settlements*, 82–90.

¹⁹⁸ P. Mayerson 'The City of Elusa in the Literary Sources of the Fourth–Sixth Centuries', *IEJ*, Vol. 33 (1983), 247–53.

else that would allow us to draw conclusions about the urban character of the place¹⁹⁹. If Elusa did, indeed, become a provincial capital in the fourth century, its urban plan may well have received some state intervention.

A more revealing – and certainly better preserved – example of a late antique Negev town may be found in the remains of Shivta²⁰⁰. While there may have been an earlier settlement on the site – perhaps from the first or second century AD – the majority of the town seems to have come into being during the fourth and fifth centuries. Maps and aerial photographs reveal nothing that could be considered evidence of a planning mentality²⁰¹. Although there are three churches and an open central area with two pools there is no formal public centre. The streets are uneven in width and rarely straight; we may also note the lack of pavement, one of the most characteristic features of the imperial urban street²⁰². Shivta is very much an example of building determining the course of the thoroughfare rather than the other way around.

Apart from the three churches, most of the buildings in Shivta have been identified as private; we do not find forums, theatres, baths or any of the traditional venues for Roman public life; we do not, for that matter, find the defining presence of a circuit wall, although the walls of residential buildings would have formed a continuous perimeter denoting the edges of the village. Only the churches possess any claim to architectural distinction; the rest of the buildings are practical constructions, lacking in both monumentality and formal consideration for their surroundings²⁰³. Given the lack of other public structures, it must be supposed that the churches provided the initial focal point around which an otherwise rural population might have gathered.

We may notice a very similar pattern of urbanisation in the town of Rehovot (Ruheibeh)²⁰⁴. While there may have been a presence on the site during the first century, the period of prosperity and expansion occurred from the fourth century onward.

199 See A. Negev 'Survey and Trial Excavations at Haluza (Elusa), 1973', *IEJ*, Vol. 26, (1976), 89–95; id. 'The Cathedral at Haluza (Elusa)' in Tsafirir (ed.) *Ancient Churches*, 286–93.

200 For an introduction to the site, see A. Segal 'Shivta – A Byzantine Town in the Negev Desert', *JSAH*, Vol. XLIV, No. 4 (December, 1985) 317–28 and Shereshevski *Byzantine Urban Settlements*, 61–82; a full report of the excavations may be found in A. Segal *The Byzantine city of Shivta (Esbeita)* (Oxford, 1983). On the agriculture of the region Y. Kedar 'Ancient Agriculture at Shivta in the Negev', *IEJ*, Vol. 7 (1957), 178–89.

201 B. Brimer 'Shivta — An Aerial Photographic Interpretation', *IEJ*, Vol. 31 (1981), 227–29.

202 Segal, 'Shivta', 325–26.

203 Segal, 'Shivta', 326.

204 Shereshevski *Byzantine Urban Settlements*, 94–102. See also, Y. Tsafirir and K.G. Holum 'Rehovot-in-the-Negev: Preliminary Report, 1986', *IEJ*, Vol. 38 (1988), 117–127.



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FIG. 3.5 Brād (Kaprobarada) (from Tchalenko, *Villages antiques*, pl. CXXXIII)

It may, again, have been a central church – in this case, from the mid-fourth century – that acted as the catalyst for urban development; new construction, however, did not proceed according to an urban plan and the resulting streets were irregular and unpaved. As with Shivta, there were few public buildings apart from churches, and there were no circuit walls.

Agricultural and economic conditions in northern Syria during the fourth and fifth centuries also resulted in the appearance of large unplanned towns. Although the largest of the towns may have been based around earlier settlements from the first and second centuries AD, the period of greatest growth in the region appears to have started in the late fourth century. The prosperity of these towns – some of which may have rivalled imperial centres in population – is reflected in the high quality of ceremonial architecture found throughout the region²⁰⁵.

²⁰⁵ The standard work is still G. Tchalenko *Villages antiques de la Syrie du Nord* in 3 vols (Paris, 1953–1958); however some of Tchalenko's conclusions have been challenged in G. Tate *Les Campagnes de la Syrie du Nord du IIe au VIIe Siècle* (Paris, 1992).

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FIG. 3.6 El Bāra (Kapropera)
(from from Tchalenko, *Villages
antiques*, pl. CXXXIX)

As with the towns of the Negev, none of the Syrian towns demonstrate evidence of an urban plan. The town of Brād (Kaprobarada) – which went through an initial phase of development in the second or third centuries – may have found its greatest urban focus in the large church built around 400 on the site of a former temple²⁰⁶. The presence of a central node, however, did not translate into a larger urban plan. The streets that have been identified have no common orientation, no fixed width and are rarely straight; once again, we may note the lack of a circuit wall.

The idea of the defined centre and a defined urban boundary is even less apparent in other towns: in El Bāra (Kapropera) and Dēhes – both of which appear to have flourished during the fourth century – there is no obvious urban focus; both towns are merely an agglomeration of buildings that were constructed wherever there was available space²⁰⁷. In Deir Simʿān – which may have flourished not merely as a result of agriculture but also because of its proximity to the monastery of St Simeon the Stylite – the urban focus was, in fact, up a hill half a mile out of town.

With the exception of the churches, most of the buildings in the towns would have been constructed for domestic or industrial use. Unlike in the towns of the

²⁰⁶ Tchalenko, *Villages*, 388–91.

²⁰⁷ On El Bāra, see Tchalenko, *Villages*, 387–88. On Dēhes, see J.-P. Sodini et al. 'Déhès (Syrie du nord) Campagnes I-III (1976-1978): recherches sur l'habitat rural', *Syria*, Vol. 57, No. 1 (1980), 1–304.

Negev, however, the functional nature of the buildings did not necessarily result in an undistinguished and utilitarian architectural style. Although greatest evidence of architectural invention may be found in the churches, many of the residential buildings also featured decorative elements such as arches, carved lintels and other ornamental stonework; indeed some of the individual buildings are of a suitably high quality that they would not have seemed out of place in an urban setting. However, the formal urban plan of straight streets arranged around public spaces is completely absent.

As with the towns in the Negev, the towns of northern Syria were not part of any larger imperial system and their fate was, therefore, largely untethered to that of the empire. While the Persian invasions and the subsequent Islamic conquests may have had a substantial effect on the major cities, many of the towns in both Syria and the Negev appear to have survived for as long as they were able to produce and sell commodities. Although many of the towns were eventually abandoned, their decline may be attributed more to agricultural conditions and local economic failures than to larger political transformations.

Although there was undoubtedly a degree of continuity between the physical spaces of classical and late antique cities, it seems clear that, by as early as the mid-fourth century, the idea of the city had changed considerably; while the notion of the city as a communal space that encouraged civic virtues may never have been anything more than an ideal, it was an ideal that had been carefully governed by the imperial administration. The form of the classical city, however, could not ultimately dictate the desires of the population. In the absence of strong central regulations presiding over urban space, the city may have reverted to a more natural mode of development; urbanism in late antiquity became increasingly organic and unchecked, formed largely by the opposing forces of individuals who did not regard the city as an inherently public institution.

The fact that the urban centres of late antiquity no longer reflected the needs of the population is perhaps illustrated most elegantly by the rise of the unplanned towns. The towns of Syria and the Negev represented a return to the most basic form of urbanism; they possessed no discernible street plan, there were no administrative buildings or official residences and there was very little that one might classify as public space. Unlike the cities of the empire, which had been brought into being to serve a particular administrative function, the towns were collections of structures that had

developed out of circumstance and necessity, rather than diverse buildings arranged for a common purpose; they were, like the earliest urban settlements, the result of a population coalescing around an economic or spiritual centre.

The towns, however, were not complex urban entities. They did not develop the plurality of function that we would associate with a city, nor did they develop the public monumentality that had characterised imperial urbanism; where monumentality appears at all, it is largely limited to individual structures. Because the existence of the towns was the result of economic circumstance, it is not surprising to find that many of them ceased to exist as soon as the economic conditions changed. However, as a model for urban development, the unplanned towns would come far closer to predicting the urban reality of the centuries to come.



The creation of a consistent built environment during the imperial period had not been the result of a single force. Even the most determined builder-emperor – someone like Augustus or Hadrian – could not have dictated the form of an entire empire on their own; instead, it would have been necessary to develop a governing ideal for urban construction that could be adopted in any part of the empire, by any emperor, governor or wealthy private citizen. The ideals of urban form that emerged during the imperial period may have been successful precisely because they had developed as a response to the necessities of urban function; in order to establish a consistent framework of administrative centres over a large geographical area, it would have first been necessary to reduce the city to its most basic and most exportable essence.

In the absence of state-directed programmes of urbanisation, the imperial urban ideals may have started to vanish. Many of the changes described in the textual sources and illustrated in the material record suggest that the imperial urban model – which understood the city as a series of public spaces surrounded by an urban population – was being ignored; instead of being governed by the state, the shape of the urban built environment may increasingly have been determined by a series of individual who had little regard for the institutions of the classical city. The rise of villas in the west and the appearance of unplanned towns in the east may both be understood as evidence of an individualist approach; neither a villa nor an unplanned town would have been

subject to the restrictions of an established urban plan, and in neither setting would it have been necessary to consider the relationship between one's own construction and the various structures around it.

Although the unplanned and unregulated approach to construction is most apparent in the new towns and rural spaces of the empire, by late antiquity it had also found its way into long-established urban settlements; private structures began to assert their dominance over the public spaces that had once defined the classical city. The fine balance between civic pride and individual freedom may have shifted; where the classical city had offered a unified commercial and cultural centre, the city of late antiquity may have been perceived as nothing greater than the sum of its private structures. The increased presence of individual building activity may not, on its own, have been sufficient to change the dominant forms of the city. However, the rise of private construction may have coincided with a decline in the ability of the state to regulate urban space. With no great authority governing the division between public and private space, the form of the city would have been dictated only by the competing interests of different individual builders.

Justinian's failure to build new cities in the imperial mould represents a terminal point in the story of classical urbanism. The idea that it was possible to create a city by finding a suitable site, building a wall and populating the space inside the wall – what we characterised earlier as the 'outside-in' model of urbanism – had been a cornerstone of large-scale rule in the Mediterranean since at least the time of Alexander, and had been employed effectively in the earliest days of the Roman empire. The cities of the imperial period had provided a functional core where monumental form and administrative function were inseparable; while Justinian may have still been able to impose the visual characteristics of an imperial city onto his new foundations, his builders may no longer have been able to create the institutions that would attract an urban population.

In short, the cities of late antiquity were reverting to a more organic state. Settlements that had started as extensions of an imperial administrative system were becoming simple nodes of population gathered around spiritual or economic centres. While many cities had inherited the forms of the imperial past, urban function was being dictated less by the state and more by the various social, political and economic realities faced by the urban population. Without imperial intervention, form began to follow function; the processes of urbanism no longer lay in the hands of the state, but rather in the hands of the people.

CHAPTER FOUR

the imagined landscape

*T*HE RURAL BUILT ENVIRONMENT OF THE IMPERIAL PERIOD DERIVED ITS VISUAL character from the forms of the city: the straight street, the orthogonal grid, the paving stone and the textual monument were all used as a means of defining the spaces that existed between urban centres. In late antiquity, however, the appearance of the city had started to change; the monumentality that had once brought unity to the diverse centres of the empire was being challenged by a series of individual approaches to urban construction. An increasing lack of formal coherence in the cities may well have been matched by a decline in the physical structures that had once brought order to the rural landscape.

The individual elements that, together, made up the rural built environment had developed as a result of imperial programmes designed to assess and apprehend the larger spaces of the empire. The imposition of the centuriation grid, as we have seen, allowed for particular regions to be measured and recorded; while the ultimate goal of centuriation may have been the creation of tax records, the *limites* and their associated boundary markers imposed onto the land a series of physical artefacts that united the various individual landholdings within a geographically ordered system. Similarly, the extensive network of roads may have started life as a practical means of ensuring communication and transport between Rome and the various outlying cities; however, the physical form of the roads themselves would have helped to create an index for large-scale spatial perception, and would have also established the visual presence of Roman civilisation within the natural world.

During late antiquity, however, the physical form of the rural built environment began to change. As with the urban transformations that we discussed in the previous chapter, changes in the rural world were set in motion by a fundamental transformation in the attitudes that governed the assessment and arrangement of physical space. While the *limites* and boundary markers established during the Augustan survey may have continued to exist within the rural landscape, they may no longer have reflected the land assessment practices of the state; instead, new approaches to surveying would eventually have led to a new awareness of rural space.

While the road network was the one element of the built environment that continued to be well-maintained by the state into the sixth century, it was not immune to the changes of attitude that had more generally affected the later Roman world. So long as there was an imperial presence, the roads themselves were not allowed to fall into disrepair; however, with the emergence of Christianity – and the gradual establishment of a definitive christian topography during the centuries of late antiquity – the paths of the road may no longer have been able to guide travellers to the places that they desired to go.

Although the built environment had, to a large extent, allowed for the apprehension of the empire's larger spaces, the transformations that occurred within the constructed landscape would not necessarily have led to a decline in spatial awareness. The geographical knowledge of antiquity would have remained available in the fourth, fifth and sixth centuries, and there is even evidence for new geographical texts produced during this period; these texts, however, may have become increasingly removed from the physical world that they were attempting to describe. Geographies that were mere catalogues – and which possessed little information about the relationship between places – could nonetheless act as the basis for cartographic representations; indeed, the chorographical tradition that had developed during the imperial Roman period may have provided the world of late antiquity with an ideal means of displaying a topography that had become both detached from physical reality and defined increasingly by belief.



the shape of rural life

The imperial Roman land survey was governed by a series of ideals similar to those that informed the creation of urban spaces. While the manuals of Hyginus Gromaticus and Julius Frontinus suggest that the ideals were not always realised, the evidence for centuriated landscapes throughout the empire may, at very least, allow us to infer that there was a common goal to which the surveyors aspired. Yet, while the manuals themselves survived into late antiquity and beyond, the fundamental practice of centuriation appears to have fallen out of general use.

During the imperial period, the surveyor performed a dual role: on the one hand, he was responsible for defining the physical disposition of the landscape through the measurement of land, the placement of boundary stones and the creation of official records; on the other, he was responsible for examining the surveyed land against official records in the event of a boundary dispute. In order to illustrate this division of the surveyor's function, we need only compare the treatises of Hyginus Gromaticus and Siculus Flaccus: where the former is focused primarily on the imposition of new *limites*, the latter deals almost exclusively with disputes that may arise in lands that have already been surveyed.

On the strength of the surviving evidence, it is difficult to determine precisely when the orthogonal grid and the establishment of *limites* ceased to be the focus of the surveyor's profession. Centuriation was employed under Augustus as a means of standardising the various field systems that had come into existence since the time of the Gracchi, and evidence from the *Liber coloniarum* suggests that similar systems were used by subsequent emperors who sought to establish colonies; however, while there are *limites* and boundary stones associated with the Gracchi, Sulla, Julius Caesar and most of the emperors of the first century AD, there is little evidence for centuriation after the time of Hadrian¹.

¹ For *limites* and boundary stones between the Gracchi and Vespasian, see *Liber coloniarum* (CAR L 209–202 = C 164–202 *passim*). A fragment attributed to Balbus and perhaps associated with the *Liber coloniarum* (*Ex libro Balbi nomina lapidum finalium* CAR L 249–251 = C 244–246) includes a reference to land surveyed under Hadrian.

In the time of Hadrian, much of the Roman empire would have either been divided by *limites* or otherwise held according to a system of ancient boundary markers. Even though the surveyors had refined the art of centuriation to the point where they could write about it, there may have been a diminishing need for large scale land division from the second century onward. We should not forget that centuriation, as employed by Augustus, was essentially a solution to the problem of how to settle hundreds of thousands of soldiers efficiently and economically. In a time of relative peace and stability, and without the driving force of large-scale imperial resettlement programmes, the establishment of new orthogonal field systems would have been largely unnecessary.

Even in a stable environment, the patterns of landholding would not have been static. Landholdings would have been divided between brothers on the death of a father, or changed hands as part of a marriage agreement². There is, however, no reason to suggest that these changes would have altered the basic structure of the land. The internal boundaries of a particular *centuria* may have changed, but the arrangement of *limites* that divided private land from public rights of way within a particular region may have remained reasonably consistent during the imperial centuries.

From the time of Diocletian onward, however, there appear to have been great transformations in the arrangement of rural space: not only had the practice of centuriation vanished from the Roman world, but the physical traces of orthogonal field systems themselves may have started to disappear. Instead, new imperial attitudes toward landholding and land exploitation may have resulted in patterns of rural settlement that were indifferent to the order of the past. By examining the economic and administrative forces that contributed to changes within the physical landscape, and by making an assessment of evidence for later Roman and early Medieval surveying practices, it may be possible to arrive at some idea of how the rural spaces of late antiquity abandoned the organising principle of the grid and returned to a more organic state of being.

The beginnings of late antiquity are sometimes characterised as a reaction to the fifty year period of foreign threats and internal political instability that occurred immediately following the end of the Severan dynasty in AD 235³: the upheaval of the third

2 On land ownership and transfer during the imperial centuries, see J.A. Crook *Law and life of Rome* (London, 1967), 139–78.

3 For overviews of the ‘third-century crisis’, see R. Rémondon *La Crise de L’Empire Romain de Marc-Aurèle a Anastase* (Paris, 1964), 97–115; J.-M. Carrié and A. Rousselle *L’Empire Romain en*

century was effectively brought to an end by Diocletian, who was able to repair some of the damage from the previous decades by instituting a series of wide-ranging administrative and economic reforms⁴. Like Augustus before him, Diocletian was able to perceive the vast mechanics of the Roman empire as a system that could be made more effective through careful management; however, while some of Diocletian's reforms may have been no less ambitious than those of Augustus, they were born of very different circumstances. If Augustus had set out to construct a new empire, Diocletian merely set out to fix what was already there.

Because we possess a reasonable amount of documentary evidence for both the reforms of Diocletian and for the state of the imperial administration in the centuries to follow, the end of the third century has, in modern scholarship, come to be understood as a pivotal period in Roman economic history⁵; indeed, the effects of Diocletian's tax reforms, in particular, can be traced through the legal codes all the way into the sixth century. While there are disagreements on the exact nature of the reforms – on their originality, their implementation and their eventual consequences – there can be little doubt that they represented a very different approach to the administration of land⁶.

While Diocletian's economic reforms may initially have reversed the damage of the third century, it has been argued that they set a precedent of higher tax burdens that, in subsequent centuries, led to an eventual collapse of the agrarian economy⁷. However, despite such assured claims as 'it is generally agreed that there was a decline in agriculture in the later Roman empire⁸', recent studies have revealed a more complex picture of late antique rural life. There may, indeed, have been ruralisation, depopulation and

mutation: des Sévères à Constantin 192–337, (Paris, 1999), 89–144.

4 Barnes, *New Empire*, 195–237; Corcoran, *Empire of the Tetrarchs*, 170–203; id. 'Before Constantine' in Lenski (ed.) *Age of Constantine*, 35–58.

5 See, for instance, R. Duncan-Jones 'Economic Change and the Transition to Late Antiquity' in S. Swain and M. Edwards (eds) *Approaching Late Antiquity: The Transformation from Early to Late Empire* (Oxford, 2004), 20–52.

6 Numerous studies have attempted to place the reforms of Diocletian in the larger context of Roman economic history; see A.H.M. Jones 'Over-Taxation and the Decline of the Roman Empire', *Antiquity*, Vol. 33 (1959), 39–43; M. Hendy 'Mint and Fiscal Administration under Diocletian, His Colleagues, and His Successors A.D. 305–24', *JRS*, Vol. 62 (1972), 75–82; W. Goffart *Caput and Colonate: Towards a History of Late Roman Taxation* (Toronto, 1974); K. Hopkins 'Taxes and Trade in the Roman Empire (200 B.C.-A.D. 400)', *JRS*, Vol. 70 (1980), 101–25; R. Duncan-Jones *Structure and Scale in the Roman Economy* (Cambridge, 1990), 199–210; J.-M. Carrié 'Diocletien et la Fiscalité', *Antiquité Tardive*, Vol. 2 (1994), 33–64.

7 See Jones 'Over-Taxation', 39–43; for an assessment of this theory in light of modern scholarship, see B. Ward-Perkins 'Jones and the Late Roman Economy' in D.M. Gwynn (ed.) *A.H.M. Jones and the Later Roman Empire* (Leiden, 2008), 193–211.

8 Jones, *LRE*, 812.

decline in some areas, but in others – notably Asia Minor, Syria and Palestine – we find evidence for economic growth throughout the fourth, fifth and sixth centuries⁹.

Questions of taxation and imperial land management are of especial interest to our present study because they may help us to understand the physical disposition of the rural landscape and how it may have started to change in late antiquity. However, the extensive and sometimes contradictory evidence for rural administration from the time of Diocletian onward can make it difficult to assemble a consistent picture of agrarian life¹⁰. In order to determine how patterns of landholding may have changed in late antiquity, we must first examine how land was held, how it was assessed, and how it may have fit into a larger imperial system.

The *Codex Theodosianus* suggests that, in theory, the rural space of the empire was presided over by the fisc. In republican times, *fiscus* simply referred to the private wealth of an individual; however, during the imperial period it came to denote either the private holdings of the emperor or an administrative body that oversaw the public holdings of the state¹¹. By late antiquity, the fisc appears to have represented the total public assets of the empire and the body to which non-private land automatically belonged¹². If land was abandoned – or if an individual was deprived of his property as part of some punishment¹³ – it would revert to the fisc for redistribution. Because the Roman economy was so heavily dependent on income from land taxes, it was in the best interests of the fisc to make sure that as much of the land as possible remained occupied and cultivated.

In the period of late antiquity, there appear to have been a number of ways by which land could be held. It was possible to hold an emphyteutic or perpetual tenancy, whereby an individual was granted the right to work the land without owning

9 For an overview of recent scholarship, see Chavarría and Lewit, 'Archaeological Research on the Late Antique Countryside' in Bowden et al. (eds) *Late Antique Countryside*, 3–54.

10 On agrarian issues from the fourth century onward see: Jones, *LRE*, 767–823; J.L. Teall 'The Age of Constantine Change and Continuity in Administration and Economy', *DOP*, Vol. 21 (1967), 11–36; P. Lemerle *The agrarian history of Byzantium from the origins to the twelfth century: the sources and problems* (Galway, 1979), 1–26; C. Morrison and J.-P. Sodini 'The Sixth-Century Economy', in A.E. Laiou (ed) *The Economic History of Byzantium: From the seventh through the fifteenth century* (Washington, D.C., 2002), 171–220 (esp. 181–84).

11 There is some debate about the imperial-era meaning: see H. Last 'The Fiscvs: A Note', *JRS*, Vol. 34 (1944), 51–59; C.H.V. Sutherland 'Aerarium and Fiscus during the Early Empire', *AJP*, Vol. 66, No. 2 (1945), 151–170; A.H.M. Jones 'The Aerarium and the Fiscus', *JRS*, Vol. 40 (1950), 22–29; F. Millar 'The Fiscus in the First Two Centuries', *JRS*, Vol. 53 (1963), 29–42; P.A. Brunt 'The 'Fiscus' and Its Development', *JRS*, Vol. 56 (1966), 75–91.

12 On the different types of public and private land, see Duncan-Jones *Structure and Scale*, 121–42.

13 *CTh* 9.42 deals extensively with *confiscatio*.

it; emphyteutic tenants enjoyed similar rights to landowners, despite not holding title to the land in question¹⁴. It was also possible to purchase land directly from the fisc, at which point the purchaser acquired possession of the land and could legally transmit it to his heirs¹⁵. As in imperial times, land could also be granted, most notably to veterans who had served in the Roman army¹⁶.

While a certain portion of the available lands were held by a mixture of emphyteutic tenants and small working landholders – including peasant freeholders and veterans – it has been suggested that, in late antiquity, much of the land would have increasingly come into the possession of large-scale land holders¹⁷. Indeed, it was once thought that these large estates – which were commonly exploited by a work-force of *coloni*, or labourers who were tied to the land¹⁸ – represented the dominant form of land ownership in the fourth and fifth centuries; more recent studies, however, have suggested that large estates and small landholdings continued to coexist¹⁹.

Even if there had been an increase in large estates after the fourth century, the existence of these estates would not necessarily have affected the physical disposition of rural space. While estates in the western provinces may occasionally have taken the form of large aggregations of land, much of the evidence from the east suggests that, while the lands of a particular estate were all held by the same owner, the estates themselves did not consist of geographically contiguous areas; instead, they appear to have been fragmented collections of smaller fields that had, perhaps, been acquired over time²⁰. There is no immediate evidence that the consolidation of wealth in late antiquity resulted in a consolidation of physical space.

14 *CTh* 5.12.3. On this particular term, see W.R. Johnston ‘Emphyteusis: A Roman “Perpetual” Tenure’, *The University of Toronto Law Journal*, Vol. 3, No. 2 (1940), 323–347.

15 *Universi cognoscant has possessiones, quas de fisco nostro comparasse noscuntur, nullo a nobis iure retrahi: sed propria firmitate possessas etiam ad posteros suos dominii perpetis durabilitate demitti. CTh* 5.13.1.

16 Allocations to veterans are discussed in *CTh* 7.20.

17 Two recent studies of large estates are J. Banaji *Agrarian Change in Late Antiquity: Gold, Labour, and Aristocratic Dominance* (Oxford, 2001) and P. Sarris *Economy and Society in the Age of Justinian* (Cambridge, 2006); the latter provides a useful survey of twentieth century scholarship on large estates in late antiquity (131–148).

18 The *coloni*, themselves, have received considerable attention: see A.H.M. Jones ‘The Roman Colonate’, *Past & Present*, No. 13 (1958), 1–13; id., *LRE*, 795–803; Goffart, *Caput and Colonate*, 66–90; J.-M. Carrié ‘Le “Colonat du Bas-Empire”: un mythe historiographique?’, *Opus*, Vol. 1 (1982), 351–370; D.P. Kehoe *Law and the Rural Economy in the Roman Empire* (Ann Arbor, 2007), 163–191.

19 Lemerle, *Agrarian History*, 15; J.-M. Carrié ‘Un Roman des Origines: Les Geneologies du “Colonat du Bas-Empire”’, *Opus*, Vol. 2 (1983), 205–51.

20 Jones, *LRE*, 781–88; Lemerle, *Agrarian History*, 25.

In order to locate potential sources of physical change in the late antique rural landscape, we may turn, in the first instance, toward evidence for imperial land allocation strategies. One of the problems suggested by the *Codex Theodosianus* – a problem that has received a considerable, and perhaps unwarranted, amount of scholarly attention – is the fact that certain areas of the empire had been abandoned or were otherwise vacant²¹. Although the phenomenon of *agri deserti* was once interpreted as a sure indicator of economic decline, it is impossible to assess the scale of the problem from the legal evidence alone; in fact, evidence for economic growth in late antiquity has suggested that the problem of *agri deserti* was not, perhaps, as widespread as was previously assumed²².

The problem was, however, notable enough to enjoy some legislative attention from the middle of the fourth century to the middle of the fifth. Many of the laws are essentially incentives and tax breaks designed to encourage resettlement and cultivation: a constitution of 365, for instance, allows a tax exemption of three years for anyone willing to claim lands that had been left vacant²³; another constitution, this one from 386, specifies that individuals who claimed vacant lands would not be responsible for previous taxes owing, and would enjoy the rights of ownership in perpetuity²⁴.

The laws relating to *agri deserti* do not suggest widespread abandonment of land so much as an effort on the part of the state to make sure that the arable lands of the empire remained productive. We find similar laws, for instance, relating to waste land (*fundus defectus*): anyone willing to cultivate waste land was entitled to claim the land as their own, although unlike in cases involving *agri deserti*, they became responsible for the full tax liability²⁵. Indeed, it has been suggested that many of the land laws from the fourth century were devised as a safeguard against a tax shortfall²⁶: when incentives failed to work, the state introduced laws that reassigned the tax burden for

21 Jones, *LRE*, 812–23; but see also C.R. Whittaker ‘*Agri deserti*’ in M.I. Finlay (ed.) *Studies in Roman Property* (Cambridge, 1976), 137–65 and P. Jaillette ‘Les dispositions du Code Théodosien sur les terres abandonnées’ in J.-L. Fiches (ed.) *Le IIIe Siècle en Gaule Narbonnaise: Données régionales sur la crise de l’Empire* (Sophia Antipolis, 1996), 333–404.

22 For an economic reassessment of *agri deserti*, see Duncan-Jones, ‘Economic Change’ in Swain and Edwards (eds) *Approaching Late Antiquity*, 23–26.

23 *Quicumque possidere loca ex desertis uoluerint, triennii immunitate potiantur. CTh* 5.11.9.

24 *quicumque se sponte optulerit, non obligandus de onere praeterito pro portione hoc modo possessionis in futurum annonarii canonis uectigal expendat, de iure dominii et perpetuitate securus. CTh* 5.11.11.

25 *CTh* 5.14.30.

26 See, for instance, the claim that ‘the imperial government was evidently more concerned that the taxes should be paid than that the land should be cultivated’, in Jones, *LRE*, 813.

vacant lands to nearby landholders²⁷. Although these laws cannot have been popular, the idea of land tax as a communal responsibility would – in the Byzantine east, at any rate – remain in force for centuries.

Laws relating to veteran allocations, however, suggest that the administration had a genuine interest in making sure that arable land remained occupied, even if it was not contributing directly to the sum of annual taxes. Veterans, of course, had been entitled to land in exchange for military service since at least the first century BC; the practice had survived into the time of Constantine, who specified that the land of veterans should be exempt from any tax obligation²⁸. However, we may note that in 370, there is a constitution that specifically encourages veterans to claim and cultivate lands that had been abandoned by their previous owners²⁹; the existence of such a law might suggest that imperial policy toward vacant lands was governed by something more complex than a simple desire for tax revenue.

The imperial attitude toward veteran allocations, itself, deserves further examination. We know that Augustus used mass resettlements as a strategy for maintaining order throughout the empire, and the idea of strategic resettlement was later practiced to some extent by Diocletian, who is credited with giving military stability to the empire through the establishment of extensive border fortifications; in addition to the active garrisons stationed along the borders, there is some evidence to suggest that members of frontier tribes enjoyed certain settlement rights throughout the fourth and into the fifth century³⁰.

By the second half of the fourth century, there is little evidence to support the idea that veterans were settled strategically. Not only were they exempt from taxes, but a constitution from 364 specifies that they were offered the right to choose their place of legal residence (*patriam*); furthermore, rather than being allocated a particular area of land, the veterans were able to claim any vacant lands or lands which had reverted to the fisc³¹. Some six years later, as we have already mentioned, veterans were being encouraged to cultivate lands that had fallen into disuse. Furthermore, in the

27 *CTh* 5.11.9.

28 *Veterani iuxta nostrum praeceptum uacantes terras accipiant easque perpetuo habeant immunes.* *CTh* 7.20.3. See also *CTh* 7.20.2.

29 *CTh* 7.20.11.

30 On Diocletian's frontier reforms, see Isaac, *Limits of Empire*, 161–218. Regulations pertaining to the 'ancient' rights of *gentiles* occupying liminal territory are discussed in *CTh* 7.15 and 7.16.

31 *Omnibus benemeritis veteranis quam volunt patriam damus et immunitatem perpetuam pollicemur. Habeant ex uacantibus sive ex diversis...* *CTh* 7.20.8.

Codex Theodosianus, there is no prescribed area to which a single veteran was entitled. Hyginus Gromaticus informs us that, in his own day, it was common to allocate 66⅔ *iugera* – that is, one third of a standard *centuria* – to a veteran soldier³²; in the mid fourth century, however, we are merely informed that veterans were entitled to a pair of oxen and fifty measures of each type of grain³³. The fact that the allocations came to be made in terms of agricultural resources rather than in terms of physical space may, in fact, signal a change in the way that land was understood.

While we do not need to claim that the middle of the fourth century experienced crippling depopulation or mass abandonments, the evidence should at least suggest that the rural landscape was in a state of flux: lands were being abandoned and reverting to the fisc, but they were also being reclaimed, either by veterans or by anyone who was willing to keep the fields productive. Given a choice of land, however, these prospective landholders may not necessarily have chosen areas corresponding to the surveyed lands of previous centuries. While some landholdings may have followed the baselines of the past, it is equally possible that natural topography would have reasserted itself as a means of delineating newly claimed properties, and that landholders would have established their own crude boundary markers of marked trees and stone piles to define their claims. Lands that had once been defined by centuriation may, in late antiquity, have increasingly come to resemble *ager arcifinius*, the land which had been enclosed by obscure boundaries since ancient times.

The absence of organised field systems does not necessarily imply the lack of imperial record keeping. Indeed, the *Codex Theodosianus* informs us that, in the early part of the fourth century, veterans were allowed to write their landholdings either in ink onto a surface of white lead or onto *tabulae*³⁴; a different constitution in the Codex even mentions an *encautarium*, a public records office not unlike the *tabularium* of the agrimensores³⁵. However, the nature of those records – and the process by which they were compiled – may have been considerably different from the system of *formae* and *tabulae aeris* proposed in chapter one³⁶.

32 Hyginus Gromaticus *Constitutio* L 200 = T 163 = C 158.

33 *singula paria boum et quinquaginta modios utriusque frugis accipiant. CTh* 7.20.8. Former members of the imperial bodyguard were entitled to twice this amount.

34 *quae scribendi tabulis vel encauto et cerussa conscribere detur eis licentia. CTh* 7.20.1.

35 *CTh* 13.10.8 is, in fact, the only attested usage of *encautarium*.

36 See chapter one, 29–33.

There is some evidence to suggest that a large-scale land assessment project – perhaps comparable in scope to the survey of Augustus – was instigated by Diocletian at the end of the third century. However, where the Augustan survey had been nothing less than a complete restructuring of the physical landscape – a normalising survey in which the land received new *limites* and new boundary stones – Diocletian’s project was carried out within the context of larger reforms to the taxation policy, and took the form of a census that sought to create a complete record of the empire’s taxable assets³⁷.

Diocletian was less interested in assessing the physical space of the empire, than with expressing the worth of the Roman world as a series of taxable units based on the combined value of arable land and manpower³⁸. Thus, the *censitores* who were sent out to assess the land cannot be compared directly with the agrimensores of the imperial era. A contemporary account by Lactantius informs us that ‘the land was measured piece by piece, trees and vines were enumerated, animals of all types were written down and a record of every man was made³⁹. While there are some boundary markers in Syria associated with the census, we should not imagine that the *censitores* were trained surveyors, nor that they themselves engaged in large-scale measurement⁴⁰. It is not unreasonable to suggest that, wherever possible, they would have based their land assessments on extant records; only in cases where the records were questionable would they have resorted to the expertise of a surveyor.

In some parts of the empire, the regional findings of the census were recorded in large inscriptions⁴¹. We are fortunate to possess several examples of these census registers, the majority of which pertain to areas in western Asia Minor and may be dated to the early fourth century⁴². The registers reveal a landscape in which everything has

37 On the census of Diocletian, see. However, Goffart, *Caput and Colonate*, 44–5, suggests that there is no evidence to link the census activities with Diocletian.

38 On the goals of Diocletian’s assessment, see A.H.M. Jones ‘Capitatio and Iugatio’, *JRS*, Vol. 47, No. 1/2 (1957), 88–94; Goffart, *Caput and Colonate*, 31–40; Duncan-Jones *Structure and Scale*, 199–210; Carrié ‘Diocletien et la Fiscalité’, *Antiquité Tardive*, Vol. 2 (1994), 37–43.

39 *Agri glebatim metiebantur, vites et arbores numerabantur, animalia omnis generis scribebantur, hominum capita notabantur*. Lactantius *De mort. pers.* XXIII.

40 For examples, see M. Sartre ‘Nouvelles bornes cadastrales du Hauran sous la Tétrarchie’, *Ktema*, Vol. 17 (1992), 111–31.

41 A.H.M. Jones ‘Census Records of the Later Roman Empire’, *JRS*, Vol. 43 (1953), 49–64; P. Thonemann ‘Estates and the Land in Late Roman Asia Minor’, *Chiron*, Vol. 37 (2007), 435–78; K. Harper ‘The Greek Census Inscriptions of Late Antiquity’, *JRS*, Vol. 98 (2008), 83–119.

42 Jones, ‘Census Records’, 49 claims that they were ‘probably engraved in the late third or early fourth century AD’ and Thonemann, ‘Estates and the Land’, 438–9 suggests around AD 310. Harper, ‘Greek Census Inscriptions’, 85–90, on the other hand, argues for a date of AD 371.

been reduced to numbers: the inscription from the Aegean island of Thera expresses each property ($\chi\omega\pi\lambda\omicron\nu$) in terms of the total area of arable land and vineyard (in *iugera*), the total number of olive trees, and an enumeration of the different animals⁴³. In the register of Tralles (modern Aydın, in the Maeander valley), there is still further reduction, as the area and resources of the property are expressed in *iuga* – the combined value of the land – and *capita*, the combined forces of men and animals associated with the property⁴⁴.

Insofar as the census registers were an attempt to express the space of the empire as text, they may not have been wholly dissimilar from the property records created during the imperial era. The registers of the fourth century, however, are notable for their complete absence of geographical content. Even the wholly textual bronze *tabulae* were able to connect landholdings to a particular physical location by defining the relationship of the land to the *kardo* and *decumanus*. The landholdings of the census registers, on the other hand, were recorded either alphabetically by the name of the property or arranged so that the properties of a particular owner would remain together⁴⁵; they do not appear to have made any attempt to convey the geographical structure of the rural space.

After the tax reforms of Diocletian, there may have been a fundamental shift in the way that land was perceived by the state. Instead of imagining properties as existing within a larger system of long-established *limites*, each individual property would have been treated in isolation, as a series of boundaries that served not to delimit an entire landscape, but rather a single area of taxable space. From the evidence of the census registers, there was no attempt to record how the various properties fit together; the only thing that mattered to the *censitores* was the ability to express numerically the taxable worth of a region.

The removal of a geographic element from the land assessment process may have made it easier for abandoned land to be reallocated: a new landholder would not have been responsible for establishing the location of his property, only for stating its taxable value and for making sure that the annual tax corresponded to the recorded liability. In the absence of a clearly defined system of land delineation, the nature of the surveyor's job would have necessarily changed. Instead of creating and recording a rural built

43 *IG XII.3* 343. Discussed in Jones, 'Census Records', 49–50.

44 The inscription has been most recently published, with commentary, in Thonemann, 'Estates and the Land', 443–51.

45 Thonemann, 'Estates and the Land', 441–42.

environment, they would instead, have been employed to interpret the evidence of a built landscape that was no longer within their control.

A law from 405, that mentions the ‘chief of the surveyors’ (*primicerius mensorum*), might allow us to infer that the profession of surveying was still represented within the imperial administration⁴⁶. However, the days of taking auspices, placing the *groma* and establishing the principal *limites* would have been long over; from the fourth century onward, the surveyors would have been concerned primarily with area calculations and dispute resolution. Activities relating to the latter would have required not only an ability to interpret the records from surveys that had been undertaken in the past, but the ability to identify a variety of boundary markers that had not necessarily been established according to any centrally recognised system. Due to the highly specialised nature of this knowledge, the surveyor of late antiquity may have been granted a small amount of legal authority.

We may turn, once again, to the *Codex Theodosianus*, which offers a glimpse of the surveyor at work. A series of constitutions from the fourth century differentiate between disputes relating to the possession of land and those concerning the boundary. According to a constitution of AD 330, the question of possession must first be settled – presumably with reference to land titles and official records – before a surveyor is despatched to investigate the land⁴⁷; if, however, the possession of a piece of land cannot be established, a surveyor will be sent out to gather facts about the property⁴⁸.

The job of the surveyor, in this instance, was not to establish boundaries, but rather to compare what existed in the records with what existed within the land itself; his knowledge of surveying practice would have allowed him to collect and assess information on behalf of the governor. The surveyor is also shown to have some legal powers of his own: any disputes relating specifically to the *quinque pedum* – the five-foot strip of boundary land that separated two adjoining fields⁴⁹ – could be settled by an *arbiter*, that is, a surveyor who had been appointed by the state. However, cases

46 *CTh* 6.34.1.

47 *pr̄ius super possessione quaestio finiatur et tunc agrimensor ire praecipitur ad loca.* *CTh* 2.26.1

48 *electus agrimensor dirigatur ad loca, ut, si fidelis inspectio tenentis locum esse probaverit.* *CTh* 2.26.1.

49 *Quinque pedum* – meaning, simply, five feet – is a legal boundary designation which may date back as far as the Twelve Tables; see *CTh* 2.26.5.

involving pieces of land greater than five feet in width were judged to be disputes of possession and needed to be settled by a higher provincial authority⁵⁰.

We find further evidence for this division between types of land dispute in Agennius Urbicus, who may have been writing in the late fourth or early fifth century and whose practical prescriptions may therefore reflect the laws of the *Codex Theodosianus*⁵¹. According to his treatise, all disputes relate to either area (*locus*) or boundaries (*finis*); of the two, the surveyor was concerned primarily with the latter. As Agennius Urbicus describes it, landholders who were unaware that there is a system governing the establishment of boundaries would move stones freely in an attempt to take more land for themselves; the surveyor with his knowledge of the boundary systems, could easily identify those places where the stones did not correspond to the records⁵².

It would not, however, be possible for a surveyor to settle a dispute that involved an area of land. Agennius Urbicus, describing an area for which there is no *forma*, tells us that any legal disagreements that may arise must be treated as land, rather than boundary, disputes; if a surveyor is brought in to act as an *arbiter* for a land dispute, his decision may be ruled invalid by a higher judge⁵³. This passage, in particular, bears similarities to the sections in the *Codex Theodosianus*, and would seem to confirm that the knowledge of the surveyor gave him some legal authority; his field of expertise, however, had become largely restricted to the identification of boundaries.

Boundary disputes, themselves, appear to have been divided into two further categories: there were discrepancies relating to land that had been divided according to a system of *limites*, and then there were cases involving *ager arcifinius*, or land that had not otherwise received a normalising survey⁵⁴. Disputes involving centuriated land were, obviously, the more straightforward of the two, insofar as the surveyor had recourse to official records: as Agennius Urbicus tells us, allocated land was examined according to what was preserved in the *forma*⁵⁵.

50 *CTh* 2.26.3.

51 The text, however, is essentially undatable. See Campbell, *CAR*, xxxi–xxxii for discussion.

52 Agennius Urbicus *De controu. agr.* L 71.25 = T 30.22 = C 28.3.

53 Agennius Urbicus *De controu. agr.* L 74.16 = T 33.14 = C 30.14.

54 The differentiation is present in Sículus Flaccus and Agennius Urbicus; see, especially, *De controu. agr.* L 74.16 = T 33.14 = C 28.16.

55 *in adsignato agro secundum formam modus spectetur.* Agennius Urbicus *De controu. agr.* L 76.2 = T 35.11 = C 32.13.

In cases involving land divided by *limites*, the job of the surveyor was to make sure that the realities of the land corresponded to the information in the *forma*: according to Agennius Urbicus, it was a easy enough to identify discrepancies in either the area (*modus*) or shape (*species*) of the land. The surveyor would simply follow the boundary markers and make an assessment of the perimeter; this assessment may have taken the form of a rudimentary cartographic drawing⁵⁶. From this, he would then be able to calculate the area and compare it with the information preserved in the records⁵⁷. Disputes involving *ager arcifinius*, or any land that had been held since ancient times were, understandably, more difficult. In the absence of official public records, it would have been necessary for the surveyor to assemble various pieces of testimonial evidence, and to identify a variety of non-standard boundary markers⁵⁸.

Of course, the ability to interpret markers within the rural landscape had always been an important skill for the surveyor, even in Augustan times. Julius Frontinus, Siculus Flaccus and Hyginus all make some mention, in their treatises, about the types of natural marker that were used in the days before Augustan stones⁵⁹. However, in the *Corpus Agrimensorum*, there are numerous fragments that deal only with the various elements that might potentially act as a boundary marker. The fragments, which are first collected in one of the ninth-century manuscripts – Wolfenbüttel Gud. lat. 105 (G), itself a copy of a copy of the Vatican manuscript (P) – appear to have been compiled from a variety of sources dating between the first century BC and the fifth century AD.

The name of Arcadius Augustus appears twice in the section titles, once on his own and once with an author named Vitalis⁶⁰. There is another fragment credited to Gaius and Theodosius⁶¹, and it is certainly not impossible that these titles refer to the chief surveyor and the emperor under whom they were employed⁶². If this is the case,

56 On the use of drawings in later surveying, see below, 199–200.

57 Agennius Urbicus *De controu. agr.* L 76.27 = T 36.9 = C 32.30; see also the discussion of Byzantine surveying, below, 199–200.

58 Agennius Urbicus *De controu. agr.* L 86.8 = T 47 = C 44.

59 cf. Frontinus *De Agr. Qual.* L 5.6 = T 2.8 = C 2.18; Hyginus *De. Cond. Agr.* L 281.4ff = T 75ff = C 78.35ff; Siculus Flaccus L 127–29 = T 90–92 = C 92–94.

60 *CAR* L 343.20 = C 248.29 (Arcadius and Vitalis); L 351.13 = C 258.11 (Arcadius alone, with the following fragment, perhaps from the same work, credited to Vitalis alone). The fragment credited to Arcadius Augustus Auctor is entitled ‘On boundaries and boundary markers in the East’ (*De terminibus et de lineis partium orientalium*) and contains a reference to Constantinople; both would suggest a positive identification with the emperor Arcadius.

61 *CAR* L 345.23 = C 252. See also L 358.9, a fragment credited to Theodosius and Neuterius.

62 See Campbell, *CAR*, 445 n. 4.

several of the boundary fragments may be dated between 379 and 450. However some of the texts, like the Prophecy of Vegoia, may be substantially earlier, while others – Latinus and Mysrontius, for instance, along with most of the anonymous fragments – simply cannot be dated with any certainty⁶³.

Despite the uncertainties in dating, the boundary fragments are fascinating because of their intensely practical nature. Where the treatises of Frontinus and Hyginus Gromaticus may be described as practical works built upon a theoretical foundation, the boundary fragments appear to deal solely with the reality of the land; in the few instances where theoretical concepts are introduced – usually from earlier surveying manuals – they are presented in such a way as to suggest that the author is not entirely certain about the meaning of his source material. More importantly, the fragments offer a picture of surveying in which the establishment of *limites* no longer plays a major role.

Some of the passages are little more than lists. The *Expositio terminorum*, for instance, presents a line-by-line enumeration of elements within the landscape that may act as a boundary⁶⁴. Other fragments – like the *Expositio limitum uel terminorum*, or the fragment attributed to Vitalis and Arcadius⁶⁵ – discuss the different shapes of boundary stone and the various symbols that may be found inscribed upon them. The fragments suggest that it was the surveyor's job to reveal the obscure meaning of the objects, letters and signs which, taken together, constituted a non-urban version of the built environment. Just as Pausanias could read the history of the cities of Greece through their statues, temples and ruins, so was the surveyor able to read the rural landscape through the elements that had been established to designate boundaries.

One of the more intriguing fragments – dating, perhaps, from the late fourth or early fifth century – presents an alphabetical list of letters that may be found on boundary stones, prefaced with some general remarks on the nature of boundaries⁶⁶. The anonymous author has obviously read some of the earlier Roman surveying texts, because he states that 'the earth is located beneath the axis of heaven', a mangled interpretation of the

63 On the Prophecy of Vegoia, see Heurgon, 'Vegoia's Prophecy', 41–45.

64 *CAR* L 361.1 = C 262.14.

65 *CAR* L 359.14 = C 260.12

66 *CAR* L 362.11 = C 264.9. On the difficulties with this passage, see the commentary in Campbell's edition, 447–8 n. 36.

etymology of *kardo* given by Frontinus and Hyginus Gromaticus⁶⁷; however the author then goes on to suggest that Christ, the son of God, was responsible for the sanctity of the boundary stone and the division of land by means of *limites*⁶⁸. While the author may have a poor understanding of the older practices, the passage at least suggests that the idea of the boundary stone as a sacred object – a physical manifestation of the god Terminus⁶⁹ – was being adapted to the new belief systems of late antiquity.

When the author lists the various letters associated with boundary stones, he remarks that stones with a K inscribed on the side – that is, stones associated with a *kardo* – are elegant and well-crafted⁷⁰. The author, in this case, may be referring to the Augustan stones described by Hyginus Gromaticus⁷¹; the text, however, does not suggest that these particular stones belong to a different class of field system. Indeed, by late antiquity, there may have been no real difference between boundaries associated with *ager arcifinius* and those associated with centuriation; both had become ancient and obscure, and in order to be understood, both required the interpretive skills of a trained surveyor.

The idea that boundary identification had become central to the surveyor's practice is made clear in a letter of Cassiodorus, dating from the first decade of the sixth century⁷². The letter concerns a boundary dispute that had escalated into violence; the situation, in turn, provides a convenient pretext for Cassiodorus to display his knowledge of land surveying in the Mediterranean world. Following Heron of Alexandria – Heron is cited by name a few lines later – Cassiodorus briefly recounts the story of how the survey had its origins in the regions surrounding the Nile⁷³. He also informs us that, in the time of Augustus, the Roman world was divided and recorded so that there would be no confusion about landholdings⁷⁴.

67 *quia sub axae caeli determinata est terra*. *CAR* L 362.11 = C 264.9. cf. Frontinus *De Limitibus* L 28.11 = T 11.15 = C 8.34 and Hyginus Gromaticus *Constitutio* L 167.3 = T 132.6 = C 134.15.

68 *Christus filius dei, per quem et pax terminationis in terra processit, et praecepit limitibus continere*. *CAR* L 362.11 = C 264.9. The author cites the gospels of Matthew, Peter, Paul, John and Laurence as authorities.

69 On the figure of Terminus and the ritual of the boundary stone, see Ovid *Fasti* II.640 ff and Plutarch *Numa XVI*; Siculus Flaccus *De Cond. Agr.* L 140.11 = T 104.14 = C 106.22.

70 *K si in termino inueneris, kardinem ostendit, quod terminum subtilissimum et speciosum inuenies, hoc est formosum*. *CAR* L 363.19 = C 264.37.

71 Hyginus Gromaticus *Constitutio* L 171.14 = T 136.11 = C 138.

72 Cassiodorus *Variae* III.52; discussed in Campbell, *CAR*, lii, and summarised (with little analysis) in Dilke, *Roman Land Surveyors*, 45–6. I am grateful to M.H. Edney for sharing his thoughts on this passage during an informal discussion at the *Language of Maps* colloquium, Oxford, June 2011.

73 *Var.* III.52.2, 4; see below, 198.

74 *Augusti siquidem temporibus orbis Romanus agris divisus censuque descriptus est, ut possessio sua nulli haberetur incerta*. *Var.* III.52.6.

The surveyor is presented by Cassiodorus as a man possessing arcane knowledge; he meanders through fields according to some secret logic, identifying markers that would not have seemed significant to the average observer:

You might believe him to be crazy as you watch him walk his twisted path, searching for evidence among the rough forests and groves. He does not walk in an ordinary fashion; the road is his narrative: he makes clear what he says and demonstrates the truth of what he has learned. His footsteps uncover the truth of land disputes and, in the manner of a large river, he removes land from some and distributes it to others⁷⁵.

Cassiodorus illustrates how the science of the surveyor was intensely practical, by setting it against the traditional *quadrivium* of mathematics, Euclidean geometry, astronomy and music; lectures on arithmetic, he claims, are delivered to empty rooms, while astronomy and music are learned only for the sake of learning⁷⁶. Furthermore, the letter suggests that the surveyor may still have possessed some powers of legal arbitration. The surveyor, he tells us, was employed to put an end to disputes that might arise as the result of a boundary-related lawsuit⁷⁷; however, while Cassiodorus implies legal authority through his choice of words – the surveyor is referred to as a judge of his own method, and the empty fields are his *forum*⁷⁸ – it can be difficult to determine where the facts end and the rhetoric begins.

Perhaps the most intriguing part of the letter is the mere fact that Cassiodorus needed to suggest the employment of a surveyor to settle a land dispute. In earlier centuries, trained surveyors would have operated as part of the imperial administration, and it would have simply been a matter of procedure for a governor to send out a *mentor* to investigate the situation. In the absence of an imperial presence, however, the office of the surveyor may have started to vanish in the Latin west. Surveyors themselves did not disappear – certainly, there must have been a few in the time of Cassiodorus – but without a clear association to an administrative authority, the nature of their profession would have started to change.

⁷⁵ *fanaticum credis, quem tortuosis semitibus ambulare conspexeris. indicia siquidem rerum inter silvas asperas et dumeta perquirat, non ambulat iure communi, via illi est lectio sua, ostendit quod dicit, probat quod didicit, gressibus suis concertantium iura discernit et more vastissimi fluminis aliis spatia tollit, aliis rura concedit Var. III.52.8.*

⁷⁶ *arithmeticam indicas, auditoriis vacat. [...] astronomia et musica discuntur ad scientiam solam. Var. III.52.7*

⁷⁷ *Agrimensori vero finium lis orta committitur, ut contentionum protervitas abscedatur. Var. III.52.8*

⁷⁸ *iudex est utique artis suae, forum ipsius agri deserti sunt. Var. III.52.8.*

Even before changes in the administrative structure, it is clear that the role of the surveyor in late antiquity was fundamentally different from what it would have been in the imperial period. The letter of Cassiodorus only confirms what we have already observed in the *Codex Theodosianus* and in the writings of Agennius Urbicus: the surveyor of late antiquity was concerned more with interpreting the landscape than with creating it. He was no longer responsible for defining large rural spaces through the imposition of a built infrastructure; instead, his job was to identify only the limits of a particular piece of land, and in doing so, to make sense of a rural built environment left behind by a previous age.

In order to arbitrate in disputes, the surveyor of late antiquity would have required a working knowledge of boundary conventions, both ancient and contemporary; in order to measure the land contained within those boundaries and render it as a taxable figure, the surveyor would have also needed to know the basic principles of geometry. Of course, surveying and geometry had always been conceptually and etymologically related: the Greek *γεωμετρία* simply means the measurement of the world. However, while geometrical knowledge may have been less essential when a system of *limites* created areas of equal size, the treatment of property as a series of individual spaces in late antiquity may have caused the surveyor's profession to become increasingly dominated by area calculations of complex shapes.

In the classical world it was widely understood that geometry originated in ancient Egypt as a practical system for measuring land when the flood waters of the Nile washed the boundary markers away; at some point, however, geometry became a purely theoretical pursuit. In the *Elements* of Euclid – probably written near the beginning of the third century BC – geometrical proofs and demonstrations exist entirely as intellectual exercises, and make no reference to their possible application in the real world. In the first century AD, Quintilian viewed geometry as being essential to the education of an orator, simply because the logical development learned in geometry was similar to that practiced in rhetoric⁷⁹. Although he acknowledged the practical side of the subject – linear reckoning, he tells us, was often required in legal cases relating to boundaries and measurements⁸⁰ – he was primarily interested in the theoretical ramifications.

79 Quintilian *Inst. Or.* I.10.34–37.

80 *Illa vero linearis ratio et ipsa quidem cadit frequenter in causas (nam de terminis mensurisque sunt lites)*. Quintilian *Inst. Or.* I.10.36.

During the medieval period, the word geometry appears to have become synonymous with surveying in both the Latin and Greek traditions⁸¹. In the Latin west there was a tradition of geometrical texts that were, in fact, written as manuals for surveyors; furthermore, in some manuscripts, extracts from the treatises of the agrimensores were referred to as ‘geometries’, despite the fact that the texts contained nothing in the way of Euclidean proofs⁸². Similarly, in the Byzantine east, there are numerous surviving treatises on the practicalities of surveying that fall under the heading of geometry.

Although Cassiodorus informs us in the *Institutiones* that geometry is, in fact, ‘the measurement of the earth’, he appears to acknowledge a distinction between theoretical geometry and the process of land surveying⁸³; in his letter on surveying, he suggests that the geometry studied as part of a student’s scientific education was different from that which might be practiced in the field. In his more lengthy treatment of the *quadrivium* in the *Institutiones*, he directs his readers toward Greek writers such as Euclid, Apollonius and Archimedes and, especially, toward the Latin translation of Euclid’s *Elements* prepared by Boethius⁸⁴. On the subject of land surveying, however, the only author that Cassiodorus mentions by name is Heron *metricus* – presumably Heron of Alexandria – who, he tells us, wrote down the essential elements of surveying so that they could be studied⁸⁵. It is possible that Cassiodorus did not have access to the writings of the agrimensores; however, even if he had read the centuriation-based treatises of Julius Frontinus or Hyginus Gromaticus, it is possible that he did not see them as being especially relevant to contemporary practices.

It is difficult to assess the extent to which imperial Roman surveying would have relied on geometrical knowledge; indeed, the role of geometry in Roman land surveying has been downplayed in modern scholarship. The treatises that deal primarily

81 On the relationship between surveying and geometry in the Medieval west, see E.A. Zaitsev ‘The Meaning of Early Medieval Geometry: From Euclid and Surveyors’ Manuals to Christian Philosophy’ in *Isis*, Vol. 90, No. 3 (1999), 522-553 and G.R. Evans ‘The “Sub-Euclidean” Geometry of the Earlier Middle Ages up to the Mid-Twelfth Century’ in *Archive for History of Exact Sciences* Vol. 15, No. 2 (1976), 105-18.

82 Frontinus, for instance, appears under the title *Julius Frontinus de geometria* in one tenth century manuscript; see Zaitsev, ‘Meaning of Early Medieval Geometry’, 527-28.

83 *Geometria latine dicitur terrae dimensio*. Cassiodorus *Inst.* 2.6.1. A lost work of Varro is cited as an authority for this definition.

84 *Cuius disciplinae apud Graecos Euclides, Apollonius, Archimedes necnon et alii scriptores probabiles extiterunt, ex quibus Euclidem translatum Romanae linguae idem uir magnificus Boethius edidit*. *Inst.* 2.6.3

85 *Hoc auctor Heron metricus redegit ad dogma conscriptum, quatenus studiosus legendo possit agnoscere*. Var. III.52.7.

with the unique system of centuriation have, perhaps unsurprisingly, received more attention than the simplified Latin versions of Euclidean geometry⁸⁶. While the land may have been divided by *limites* since the time of the Gracchan land reforms – or even earlier if we believe the assertions of Frontinus and Varro that *limites* were Etruscan in origin – the study of geometry may have also been an important element in mensorial training⁸⁷; although the surveyor may not have needed to calculate the volume of a complex three dimensional shape, a basic understanding of measurements and area calculation would have been essential for the creation of accurate tax records.

Of course, one of the advantages of centuriation was the fact that it did not rely on any calculations; if the surveyor simply measured and marked out their grid, spaces of fixed area would eventually emerge. In cases involving *ager arcifinius*, however, some geometrical knowledge would have been necessary. In the earliest versions of the *Corpus agrimensorum*, a number of imperial-era geometrical treatises were collected alongside those writings that focused primarily on centuriation: the *Expositio formarum* of Balbus – probably written in the late first or early second century⁸⁸ – takes a geometrical approach to land surveying and may have been based, in part, on Heron of Alexandria⁸⁹. The fragmentary *Podismus* attributed to Marcus Junius Nipsus – which is found at the beginning of the manuscript in the Codex Arcerianus A, before Frontinus – cannot be dated with certainty⁹⁰.

In addition to these treatises, there appear to have been a number of Latin geometrical texts written during the late antique period, which were excerpted and collected in later manuscripts along with excerpts from the centuriation-based surveying treatises: in various manuscripts related to the *Corpus agrimensorum* we find the anonymous *Pauca de Mensuris*⁹¹; a Latin translation of Euclid attributed to Boethius⁹²;

86 While the geometrical fragments were published in Lachmann's 1848 edition, they have been largely excluded from subsequent editions.

87 See Dilke, *Roman Land Surveyors*, 51–56.

88 A reference in the text to victories in Dacia has been used to suggest that Balbus was writing in the time of Domitian or Trajan. See *Corpus Agrimensorum Romanorum* II: *Balbus* ed. and trans. J.-Y. Guillaumin (Napoli, 1993), 3–5 and Campbell, *CAR*, xxxix–xl.

89 On the possible connection to Heron, see J.-Y. Guillaumin 'La signification des termes contemplatio et observatio chez Balbus et l'influence héronienne sur la traité' in J.-Y. Guillaumin (ed.) *Mathématiques dans l'antiquité* (St.-Etienne, 1992), 205–14 and Guillaumin, *Balbus*, 9–10.

90 *Corpus Agrimensorum Romanorum* III: *Podismus et textes connexes* ed. and trans. J.-Y. Guillaumin (Napoli, 1993), 93–94, questions the attribution to Nipsus.

91 *CAR* L 371–76. The treatise, which is collected in the ninth-century Wolfenbüttel Gud. lat. 105, and which mentions Isidore, was probably composed in the seventh or eighth centuries.

92 *CAR* L 377–92.

the *Ex demonstratione artis geometricae excerpta* commonly attributed to Pseudo-Boethius⁹³; and two extracts listed as being from the Geometry of Boethius⁹⁴.

While Boethius did write on the subject of geometry, the surviving texts probably represent the work of later editors⁹⁵. Boethius' translation of Euclid, for instance, has survived only as a series of fragments, and there is, indeed, some doubt as to whether the original text of Boethius was a direct translation of Euclid or, itself, a simplified version⁹⁶. Nonetheless, the geometrical texts associated with the *Corpus agrimensorum* demonstrate how surveying and geometry had become inseparable during the Medieval period. The text entitled *Euclidis Liber Primus* is no mere translation of the *Elements*, but rather a retelling of basic Euclidean concepts with additional references to boundaries and measurements; these additions serve to situate a very theoretical subject within a practical frame.

Perhaps the most intriguing of these later works is the *Ex demonstratione artis geometricae excerpta*, which is part of the larger medieval tradition of texts attributed to Pseudo-Boethius⁹⁷. The text, which appears in several manuscripts from the eleventh to the thirteenth centuries, is a compilation of fragments from classical and late antique sources on surveying, boundaries, measurement and geometry. It begins with the definition of geometry given by Cassiodorus in his *Institutiones*, although it incorporates a more elaborate version of the Egyptian origin story⁹⁸; this, in turn is followed by an explanation, almost Vitruvian in tone, of why geometry is such an important science⁹⁹.

The *Ex demonstratione* also borrows from Hyginus Gromaticus – notably the passages which trace the origins of Roman surveying back to the days of Julius Caesar and Augustus¹⁰⁰ – as well as from Julius Frontinus, Siculus Flaccus and Agennius Urbicus; the text features a section on land disputes and a list of various types of boundary

93 CARL 393–412.

94 CARL 413–16.

95 W.W. Rouse-Ball *A Short Account of the History of Mathematics* Third Ed. (London, 1901), 137–40. On the presence of Boethius in Medieval education, see A. White 'Boethius in the Medieval Quadrivium' in M. Gibson (ed.) *Boethius: His Life, Thought and Influence* (Oxford, 1981), 162–205.

96 On the relationship between Euclid and Boethius, see D. Pingree 'Boethius' Geometry and Astronomy' in M. Gibson (ed.) *Boethius: His Life, Thought and Influence* (Oxford, 1981), 155–161 and Zaitsev, 'Meaning of Early Medieval Geometry', 523–26.

97 Evans 'Sub-Euclidean Geometry', 105–18; M. Folkerts 'The Importance of the Pseudo-Boethian Geometria During the Middle Age' in M. Masi (ed) *Boethius and the liberal arts: a collection of essays* (Berne and Las Vegas, 1981), 187–209; Zaitsev, 'Meaning of Early Medieval Geometry', 524.

98 CARL 393.1. cf. Cassiodorus *Inst.* 2.6.1–4.

99 CARL 393.18.

100 CARL 395.15 and 395.20. cf. Hyginus Gromaticus *Constitutio* L 176 = T 140.16 = C 140.20.

stone, as well as a curious list of famous surveyors and the emperors for whom they worked¹⁰¹. When the text finally reaches the subject of measurement and calculation, much of the instruction appears to be based on the treatise of Balbus¹⁰².

Although the text is not about geometry in the Euclidean sense – it does not begin with the definitions of points and lines – it does provide a simple and practical guide to some of the issues that the Medieval surveyor may have faced. What is interesting about the *Ex demonstracione* is that, despite its reliance on the writings of the agrimensores, the practice of centuriation – fundamental to the activities of the imperial Roman surveyor – has been almost entirely removed. As with Faventinus, who employed his classical source material for a very different purpose, the editor of the *Ex demonstracione* seems to have mined the agrimensores for information relevant to his own time, and discarded everything else.

The Pseudo-Boethian tradition appears to have dominated geometrical knowledge throughout the Medieval west. However, in the Byzantine east – where the practice of land-surveying seems to have had a similar reliance on theoretical geometry – it is Heron of Alexandria whose writings were a primary influence on the measurement and assessment of land. There are, indeed, several texts of uncertain date – collected in a variety of manuscripts from the eleventh to the fifteenth centuries¹⁰³ – that display the direct influence of Heronian learning¹⁰⁴.

Very little is known about Heron himself¹⁰⁵; on the basis of limited evidence it was initially argued that he lived and wrote during the middle of the third century AD, although more recent scholarship has tended to place him in the latter half of the first century¹⁰⁶. Heron's writings – a surprising number of which have survived – include numerous treatises on mechanical inventions, steam powered devices, automated puppet shows, military equipment and other devices that exploit the laws of physics.

101 *CAR L* 404–6 (boundary stones) and 403–4 (names of surveyors).

102 *CAR L* 407–12.

103 The texts have been collected in E. Schilbach *Byzantinische metrologische Quellen* (Düsseldorf, 1970) and J. Lefort et al. *Géométries du fisc Byzantin* (Paris, 1991). For a list of Byzantine manuscripts containing geometrical writings, Lefort et al. *Géométries*, 31–33.

104 On the transmission of Heron in the Byzantine world, see Lefort et al. *Géométries*, 27–31.

105 The best treatment of Heron's life and work is still Heath, *Greek Mathematics II*, 298–354. See also A.G. Drachmann in C.C. Gillispie (ed.) *Dictionary of Scientific Biography* in 16 vols. (New York, 1970–80), s.v. Hero of Alexandria.

106 For an overview of the evidence, see Heath, *Greek Mathematics II*, 298–307, who places him in the third century. Heron, however, makes reference to a lunar eclipse at Alexandria, which has been identified as having taken place in AD 62.

The focus on mechanical curiosities has led some modern scholars to portray Heron not as an heir to the Greek scientific tradition, but as a practicing technician at best and an enthusiastic amateur at worst¹⁰⁷.

Heron also wrote on the subject of geometry. However, unlike Euclid – whose *Elements* make little concession to the practical applications of the subject – Heron's *Metrica* may have been written, at least in part, as a practical manual for land measurement¹⁰⁸; he certainly makes explicit the connection between geometry and the physical world by opening his treatise with the familiar story of how the need for surveying first arose when the floodwaters of the Nile washed away the markers that divided properties. Heron's *Definitions*, a collection of terms from Euclidean geometry and their meanings, was more purely theoretical¹⁰⁹.

As with Boethius in the west, Heron's work achieved great popularity during the Medieval centuries, but not in its original form; the *Metrica* and *Definitions* were transmitted primarily as extracts or simplified reworkings. Perhaps the most widespread of these pseudo-Heronian texts was the *Geometrica*, a work which is ascribed to Heron, but generally acknowledged to represent the efforts of a later editor¹¹⁰. Extracts from the *Geometrica*, supplemented with material from the *Definitions* and examples from contemporary surveying practice, would form the basis for many of the Byzantine surveying manuals from the eleventh and twelfth centuries¹¹¹.

We may, perhaps, get some idea of how Heronian geometrical knowledge was put to practical use from the surveying instructions given in a poem attributed to Michael Psellos¹¹². Although the poem cannot be dated to any earlier than the second half of the eleventh century¹¹³ – the description contains both evidence of the Heronian method

107 For a brief overview on scholarly opinions, see Drachmann, 310.

108 Published in *Heronis Alexandrini opera quae supersunt omnia* Vol. III ed. H. Schöne (Leipzig, 1903). The *Metrica*, which is attested in other works, was presumed lost; it was only discovered in 1896, in a manuscript from Constantinople; see Heath, *Greek Mathematics* II, 316–18.

109 Published in *Heronis Alexandrini opera quae supersunt omnia* Vol. IV ed. J.L. Heiberg (Leipzig, 1912); for a discussion of the text, see Heath, *Greek Mathematics* II, 314–16.

110 The text appears in *Heronis Alexandrini* IV; see also Heath, *Greek Mathematics* II, 318–19.

111 Notably the anonymous Μέθοδος τῆς γεωμετρίας (Lefort, *Géométries*, 38–47) and Ἀρχὴ συν Θεῷ τῆς γεωμετρίας (Lefort, *Géométries*, 48–59), as well as the *Geodesia* of George the Geometer (Lefort, *Géométries*, 136–53).

112 *A geometry in verse by the most learned Psellos* (Τοῦ σοφωτάτου Ἰελλοῦ γεωμετρία διὰ στίχων) in *Michaelis Pselli poemata* ed. L.G. Westerink, poem 58 = Schilbach, *Quellen* II, 116–125 = Lefort, *Géométries*, 184–201. Although he includes it in his edition, Westerink suggests that the ascription to Psellos is doubtful.

113 The poem's definition of the *orgyia* (ll. 10–11), a unit of length, refers to a tax reform associated with an 'emperor Michael'; Schilbach, *Quellen*, 25, has tentatively identified this with Michael

and echoes of the surveyor described by Cassiodorus. The poem may not be a witness to surveying practices of late antiquity, but it may at least represent the continuation of a tradition that emerged in the centuries after the imperial period¹¹⁴.

Psellos begins his poem with instructions on how to create a measuring rope (the *schoinion*) of the correct length¹¹⁵. The surveyor is then advised to walk through the land writing down the boundary markers and any changes of directions¹¹⁶; a different section of the poem lists some of the different types of boundary marker that the surveyor may discover in his journey around the perimeter, including trees, items marked with a cross – for a cross, he tells us, has signified a boundary marker since ancient times – and large stones set firmly in the ground¹¹⁷.

Psellos is essentially describing the creation of a rudimentary cartographic artefact. The surveyor must first create a drawing of the shape of the land, so that he may use the correct geometrical formula to discover the area. While Euclidean geometry – and even Heronian geometry in its original form – was concerned with suggesting elaborate methods for calculating the area of various complex shapes, the pseudo-Heronian tradition of the Byzantine period was essentially concerned with simplification. The calculations demonstrated by Psellos are little more than techniques for reducing the shape of the land to a series of rectangles whose area may be determined by simple multiplication¹¹⁸.

The activities of the Byzantine surveyor may thus be summarised as follows: in order to assess a property, the surveyor would first have made a tour of the perimeter, identifying and recording any boundary markers; this initial assessment would ideally result in a drawing of the property's basic shape. The surveyor and his team would then make another tour of the perimeter, this time with the measuring rope, annotating the drawing with the distances between each marker. From the annotated drawing, the surveyor would then be able to compare the shape with geometrical

IV, which would place the composition sometime after 1041. If the poem was not in fact written by Psellos, it may have been written sometime shortly after his lifetime.

114 A study of this poem, the Heronian tradition and the activities of the Byzantine surveyor was presented by the present author at the *Language of Maps* colloquium at the Bodleian Library, Oxford, on 25 June 2011. A version of the paper is expected to appear in an edited volume based on the proceedings of the colloquium.

115 Psellos *Geometry* 2 (ll. 8–13); the passage may incorporate material from Heron's *Geometrica*.

116 Psellos *Geometry* 4 (ll. 22–31).

117 Psellos *Geometry* 16 (ll. 106–146).

118 Psellos *Geometry* 5–12 (ll. 33–85).

examples learned from Heronian treatises, and determine the best way to calculate the area of the land.

The goal of the surveyor was to arrive at a value of the land in *modioi*. The *modios*, like the *iugerum* before it, was technically a fixed area of rectangular shape corresponding to the space contained within two square *schoinia*; in various Byzantine manuals, however, we learn that the length of the *schoinion* could vary depending on the quality of the land. Thus, the *modios* was primarily a unit of tax assessment, a figure that was fixed in its relationship to monetary value rather than to physical space.

We cannot, in the end, propose a direct connection between the surveying practices of late antiquity and those of the eleventh century. In many ways, however, the processes described by Psellos can be seen as a logical continuation of changes that we noted even as early as the time of Diocletian. The surveyor was employed not to create a space but to assess it. His knowledge consisted of an ability to identify ancient boundary markers, to take accurate measurements, and to turn those measurements into a single figure that could then be entered into a tax record. While the last visible traces of centuriation may have disappeared by the time Psellos was writing – or may, at least, have been subsumed into other types of field system – the attitudes that informed Roman surveying may have started to vanish not long after the agrimensores first set down in writing the practical aspects of their craft.

The process of dividing land by implementing a series of evenly spaced baselines may well have been ancient by the second century BC when evidence for it begins to appear in the epigraphic record; it was certainly a common practice by the time Augustus refined the basic standards and sent out his surveyors to implement orthogonal field systems throughout the empire. Centuriation succeeded because it provided a single solution for two key problems: not only did it allow for a system of orderly records to be kept, but it also provided a convenient rural framework for the mass resettlement of veteran soldiers.

The scale of the Augustan survey could not have failed to make a mark on the physical landscape of the Roman world. However, once the land had been divided and settled according to a consistent system of boundaries, the need for further surveying would have diminished considerably. New orthogonal field systems may have been introduced as late as the second century AD, but once the initial activity had been

undertaken, the patterns of landholding would have evolved according to the activities of the people within the land. As land was divided, or otherwise changed hands, these changes would have been recorded in the records of the local *tabularium*.

When Diocletian introduced his tax reforms at the end of the third century, the records of landholding would have contained a figure of the total land area, from which a taxable value could be calculated. Diocletian's major contribution to the system of taxation may have been the incorporation of people and livestock into a tax structure that had previously been based on land alone. The old land records may thus have been sufficient for the *censitores*, whose primary job was the enumeration of resources. Certain properties may have needed re-measuring, but there is little to suggest that Diocletian's land assessment programme would have caused any major reconfigurations of the physical landscape. However, in focussing on the property as a single unit – in this case, the sum of land area and animate resources – Diocletian's tax reforms may have caused a subtle shift in the way that rural space was apprehended; rather than being part of a larger system of land division, properties may increasingly have come to be seen as units of land existing in isolation.

We cannot be entirely sure if there was an agrarian crisis in the middle of the fourth century; the series of laws from the 360s to the 380s encouraging resettlement of abandoned land represent the imperial response to a problem whose scale is impossible to assess. We may, however, perceive a change in the imperial attitude toward land distribution: in its attempts to encourage the occupation and cultivation of rural space, the state may have allowed the responsibility for defining the terms of a property to fall into the hands of the individual.

In the previous chapter we examined how the physical nature of urban spaces began to change when state control gave way to private interests. In the case of the cities, a failure to maintain public spaces combined with a rise in poorly-regulated private construction may have led to a breakdown of the urban plans on which the city had developed. Where there had been no previous occupation – specifically, the towns of Syria and the Negev – the absence of an imperial presence resulted in towns whose arrangement was the result of unregulated, independent construction. Just as those towns offered no suggestion of a formal order, it is possible that the land claimed from the end of the fourth century onward would not necessarily have corresponded to the systems of *limites* established centuries before.

In this new rural landscape, the services of the trained surveyor would still have been essential. Even in the imperial centuries, the surveyor was called upon to recognise the ancient boundary markers associated with *ager arcifinius* and to interpret the evidence of the land in those situations where no formal records existed; the surveyor would have also been expected to know some geometry, even if the system of centuriation would have rendered area calculations largely redundant. With the disappearance of the centuriated landscape, however, the surveyor's profession would have relied increasingly on boundary identification, measurement and calculation.

In late antiquity, surveying was no longer employed as a means of constructing space. The professionals described by Cassiodorus and the *Codex Theodosianus*, by Agennius Urbicus and Michael Psellos, were concerned more with locating ancient markers in the landscape than with the establishment of new ones; instead of understanding landholdings as part of a larger system, the surveyors treated each one as a linear boundary, describing a simple shape that existed in geographical isolation. Indeed, the perception of individual properties may increasingly have been informed by the diagrams found in the pages of geometrical treatises.

Where large areas of land had once been divided, smaller areas of land were now merely contained: topographical features and arcane markers had started to reassert themselves as the means by which the limits of a property were established. Centuriation had once provided a system for centralised land management by getting rid of the local conventions and regional variations associated with *ager arcifinius*; in late antiquity, however, the disappearance of that larger system may have returned a measure of uncertainty and disorder to the rural landscape.

passages through the late antique landscape

There would have come a time in the life of the empire when the construction of new roads became less important than the maintenance of those which already existed. Once the disparate corners of the Roman world had been connected by a series of paved roads, emperors were faced with a choice of either making small additions to the network – for instance, the Via Domitiana or the Via Traiana, both of which offered

alternative routes to places already served by paved roads – or of making sure that the existing roads remained passable. The epigraphic record suggests that many emperors opted for the latter.

The epigraphic record also suggests that road maintenance remained reasonably consistent from time of Augustus to the time of Constantine. We might reasonably expect to find evidence for road maintenance under those emperors such as Trajan, Hadrian or Septimus Severus, who were known to have taken an extensive interest in the built environment; however, even in the turmoil of the third century we find no lack of milestones associated with emperors such as Gordian III, Philip or Aurelian¹¹⁹. The military importance of the road network may have ensured that, even in a time of great instability, it did not suffer from imperial neglect.

Thus, while Diocletian is often characterised as having inherited an empire on the verge of collapse, the road network may have survived the third century in a reasonable state of repair. Although road maintenance was undoubtedly carried out under the tetrarchy – there are milestones associated with tetrarchic repairs from Spain and Africa in the west to Asia Minor and Arabia in the east¹²⁰ – the level of activity does not appear to be dramatically higher than it was in the time of Aurelian. We know that Diocletian was especially concerned with the frontier roads of the east, and we know that his tetrarchic colleagues were responsible for necessary repairs on the major imperial thoroughways, but there is little evidence to suggest that an empire-wide restoration programme would have been necessary.

Indeed, there is even some evidence for the construction of new roads in the time of the tetrarchy. The *via Herculia* in Italy – for which the only surviving evidence is a series of inscriptions – was probably established under Diocletian and Maximian at the end of the third century¹²¹. However, while the *via Herculia* was equipped with bridges and milestones, it appears to have remained unpaved; even though the establishment of the path would have involved a certain amount of manpower and engineering, the road shows signs of having been constructed as economically as possible. Although it was designed for state rather than local transportation, it was nonetheless a more functional artefact than the imperial roads of the past.

119 An index of *miliaria*, grouped by emperor, may be found *CIL* XVII.2, 265–274.

120 van Sickle, 'Roads in Spain', 82–3; id. 'The Public Works of Africa in the Reign of Diocletian', *CP*, Vol. 25, No. 2 (1930), 173–79.

121 R.J. Buck 'The *Via Herculia*', *PBSR*, Vol. 39 (1971), 66–87.

The lack of paving on one road should not suggest that the state had given up on the maintenance of the network. The work carried out by Diocletian and his colleagues appears to have been matched in the time of Constantine. After Constantine, however, there is a sudden and dramatic decrease in the number of imperial milestones: in the Latin west, they disappear almost entirely by the end of the fourth century¹²². We should not, of course, interpret the lack of milestones as clear evidence for a decline in the road network itself: in fact, the disappearance of milestones corresponds roughly with a general decrease in the number of inscriptions produced in the Roman world¹²³.

If we look beyond the epigraphic evidence, we find that road maintenance remained an important issue for the state well into the sixth century. From at least the time of Constantine, the repair and construction of roads had been considered a compulsory public service, which meant that anyone liable for tax payments was also liable for contributions to the road network¹²⁴. Public services were divided into two main classes: the services classified as menial (*munera sordida*) included bread making, the burning of lime, supplying post-horses, repairing public buildings and, in the early fourth century, the maintenance of roads¹²⁵; it should be noted that these services did not involve physical labour on the part of the individual, but rather a contribution to the state, calculated on the basis of an individual's taxable value. Men of the highest rank, however, could claim exemption from menial services, on the grounds that they were liable for extraordinary services (*munera extraordinaria*) which were, themselves, another form of monetary contribution.

Within this division of responsibility, road maintenance represented something of a grey area. It was classified as menial throughout most of the fourth century and was included in the list of menial services specified in a law from 382¹²⁶. While a constitution from 387 states that no one should be exempt from road repairs, road maintenance is included, three years later, in a reiteration of the menial services from

¹²² There are fewer than twenty Latin milestone inscriptions from the century between Constans and Theodosius II. On the use of milestones as evidence, see R. Laurence 'Milestones, Communications, and Political Stability' in L. Ellis and F.L. Kidner (eds) *Travel, Communication and Geography in Late Antiquity* (Aldershot, 2004), 41–58.

¹²³ On the decrease in inscriptions after the third century, see chapter one, 35 n. 72.

¹²⁴ *CTh* 15.3.1. On Roman public service, see F. Millar 'Empire and City, Augustus to Julian: Obligations, Excuses and Status', *JRS*, Vol. 73 (1983), 76–96.

¹²⁵ *CTh* 11.15.15 and 18.

¹²⁶ *CTh* 11.16.15.

which certain high-ranking individuals may claim immunity¹²⁷. In 399, however, a new constitution informs us that, while people had been able to claim exemption in the past, it was now necessary for everyone to contribute to the cost of repair, on account of the ‘immeasurable devastation’ of the road network¹²⁸. While it is difficult to assess the gravity of the situation from the legal evidence alone, the presence of such legislation might allow us to infer that contributions of menial services were not providing the funds necessary to maintain the road network.

Paved roads, as we discussed in chapter two, required constant attention: the roads constructed in Italy at the end of the second century BC, had already fallen into disrepair a century later when Augustus sought to restore them¹²⁹. Furthermore, the restoration of paved roads had never been a popular expenditure among the higher classes: we may recall how the senators in the time of Augustus had been unwilling to pay for road maintenance in Italy. Thus, if men of high rank had found a way out of paying for repairs, and if contributions to menial service had failed to cover the cost of maintenance for even half a century, it is entirely possible that the road network would have started to deteriorate.

Certainly the problem was great enough for the state to intervene: in 423, the construction of roads and bridges was reclassified as a non-menial service and no man, regardless of rank, could claim exemption from contributions¹³⁰. The designation remained in force into the sixth century: the law preventing exemptions from road building appears twice in the *Codex Justinianus*¹³¹, and road and bridge repairs are omitted from that code’s list of menial public services, which has otherwise been copied directly from the *Codex Theodosianus*¹³².

Despite the suggestions of the *Codex Theodosianus* and the sudden lack of epigraphic evidence, we do not need to suggest that the road network fell to ruin during the late fourth century. While some of the roads may have fallen into disrepair, the state appears to have made the necessary adjustments to ensure that funds were available for proper maintenance. During the fifth century, many of the roads in the west

127 *A viarum munitione nullus habeatur immunis. CTh* 15.3.3. cf. *CTh* 11.16.18.

128 *Verum propter immensas vastitates viarum certatim studia cunctorum ad reparationem publici aggeris conducibili devotione volumus festinare. CTh* 15.3.4.

129 Dio LIII.22.1.

130 *Igitur ad instructiones reparationesque itinerum pontiumque nullum genus hominum nulliusque dignitatis ac venerationis meritis cessare oportet. CTh* 15.3.6.

131 At *CJ* 1.2.7 and 11.75.4.

132 cf. *CTh* 11.16.18 and *CJ* 10.48.12.

would have been cut off from imperial control and would have deteriorated naturally; in a few cases, roads may have been actively destroyed by invading forces, although such instances were rare. In the eastern empire, however, roads were still very much a part of life in the sixth century when Procopius was compiling his *Buildings*.

In fact, roads play a remarkably small role in the building projects of Justinian. With the exception of one major project – the repaving of the via Egnatia – instances of road repair are limited to a handful of minor projects in Asia Minor. Procopius describes how a section of road going from Bithynia toward Phrygia – a section that was susceptible to flooding – was paved with large stones by Justinian and Theodora¹³³. The road is described as being paved for a half-day's journey, which may have been a distance of around ten or twelve Roman miles; certainly the passage does not suggest that the project was, in any way, unusual.

Elsewhere Procopius discusses the establishment of wagon-roads (*ὁδὸς ἀμαξήλατος*) through areas that had previously been difficult to traverse¹³⁴. Although the nature of the wagon-road is not entirely clear, they may have differed from major imperial thoroughfares both in the width of the carriageway and in the quality of the construction. The designation of 'wagon-road' might suggest that it had been constructed to accommodate a single wagon, as opposed to the major imperial roads which are described by Procopius as being wide enough for two carriages to pass one another¹³⁵. Furthermore, both of the descriptions focus on the clearing and levelling of mountainous land and contain no mention of paving stones; like the via Herculia described above, the wagon-roads may have been economically constructed paths, whose surfaces were a combination of compressed gravel and carved mountain rock. We may thus suggest that the wagon-roads were single track passages built for the residents of a particular area, rather than fully adorned imperial thoroughfares designed for long-distance travel.

The only major road project mentioned in the *Buildings* is the repaving of the via Egnatia from Constantinople to Rhegium. Procopius – who, curiously, does not call the road by its classical name, but refers to it simply as the 'road to Rhegium' – informs us that the road had been in a very poor state of repair before the time of Justinian: the surface was uneven and the road become a marsh whenever it rained¹³⁶. Justinian, however,

¹³³ Procopius *De aed.* V.3.12–15.

¹³⁴ Procopius *De aed.* V.2.3 and V.5.3.

¹³⁵ This may, as discussed below, be a rhetorical description rather than a real indication of width.

¹³⁶ Procopius *De aed.* IV.8.5.

had the road paved with stone for its entire length. Although the via Egnatia is thought to have been paved perhaps even as early as the late second century BC, the description of Procopius suggests that its former greatness had all but vanished by late antiquity.

However, while the passage might initially appear to be little more than a straightforward description of road improvements, the rhetorical devices employed by Procopius might give us cause to doubt the truth of his claims. We may, for instance, note that his description of the paving slabs as being 'large enough to load a wagon' (λίθος ἀμαξιαῖος) echoes his assessment of the stones used to repave Antioch¹³⁷. He employs the image once again in his description of the building of the Nea church in Jerusalem, where larger wagons are said to have been constructed to accommodate a single paving slab¹³⁸. In fact, the recurrence of the wagon-sized paving slabs may be little more than a rhetorical embellishment borrowed from Xenophon, who uses the same formulation to describe the stone blocks that were placed on the approach to Piraeus in order to prevent the passage of siege engines¹³⁹.

Procopius goes on to describe the finished via Egnatia as being wide enough for two wagons to pass, and marvels at how the paving stones were joined together so perfectly that they appeared to be organic rather than the work of men¹⁴⁰. Both of these descriptions are, in fact, recycled from a passage in the Gothic Wars: as Belisarius made his way toward Rome on the via Latina, Procopius interrupts the narrative to give an account of the nearby via Appia, which is also described as being wide enough for two wagons and has stones that appear to have grown together¹⁴¹. Procopius believes the road, in its present state, to be nine hundred years old and is therefore impressed to find it in such good condition; it is, therefore, entirely possible that Procopius was attempting to draw an explicit connection between Justinian's repairs and the most venerable of all Roman roads. However it is also possible that his description of the via Egnatia was little more than an unwitting paraphrase of his own rhetorical flourish.

Procopius often valued the classical turn of phrase over the mundane realities of the buildings he was describing. In the previous chapter, we saw how he was able to

137 cf. Procopius *De aed.* II.10.21 and IV.8.5.

138 Procopius *De aed.* V.6.12.

139 Xenophon *Hell.* II.4.27.

140 Procopius *De aed.* IV.8.7 and 9.

141 Procopius *Wars* V.14.7.

present Justiniana Prima as a model of the imperial urban ideal, despite the obvious shortcomings of the city itself. In his description of the road to Rhegium, with its classical references to paving stones and its oblique connection to his own impressions of the via Appia, Procopius may have been drawing upon a similar ancient ideal. In fact, if we strip away the rhetoric, there is little to suggest that Justinian's work on the via Egnatia was anything more than a standard imperial repaving project.

The road was an important presence in the landscape of the imperial Roman world, even if it was infrequently mentioned. In chapter four we saw how roads provided a structure for Pausanias' descriptions of Greece, even as the physical roads themselves remained in the background of the text. Indeed the historical topography reported by Pausanias was inseparable from the road network: the two had developed together over a long period of time. Significant places were connected by roads and the road, in turn, came to define a narrative of movement through the built landscape.

The network of Roman roads that existed at the beginning of the fourth century would have connected together a vast and diverse group of topographical features that were significant to Roman culture. Within that same physical space, however, there would have been a dormant layer of half-forgotten locations, the existence of which were attested solely in the books of the old testament. The traveller from Bordeaux, whom we discussed in chapter four, used a Roman itinerary, a familiarity with the scriptures and, we may assume, a certain amount of local knowledge in order to discover the layer of Christian topography that lay beneath the surface of the Roman built environment.

The road network of the Levant and its accompanying itineraries would have offered an imperfect match with the topography of the scriptures. Many of the scenes from the old testament would have occurred more than a thousand years earlier; some may never have occurred at all. Nonetheless, the road network would have offered an initial foundation for identifying ancient names and locations; however as the topography of the scriptures became more important and more defined, the built environment that had developed around the needs of the Roman traveller may have been replaced by a new network of Christian paths.

An interest in rediscovering the scriptural world of the Levant emerged almost immediately after Christianity became the new religion of the Roman state. The traveller from Bordeaux, as we noted, made his journey in 333. Three years earlier, the church

historian Eusebius of Caesarea set about compiling a list of scriptural place names and their modern equivalents¹⁴². The *Onomasticon* of Eusebius, composed around AD 330 was a systematic attempt to situate scriptural locations within the physical space of contemporary Palestine. The text as a whole is arranged alphabetically, although within each heading, there are subheadings corresponding to the individual books from which the names had been collected; Eusebius draws primarily on Genesis through Kings, plus the Gospels. Within these subheadings, the individual names are presented roughly in order of their appearance within the scriptural text.

The attempts of Eusebius to map scriptural places onto contemporary locations are often indebted to the road network. The town of Keeila, mentioned in the book of Joshua, is described as corresponding to the village of Kela, which is located east of Eleutheropolis at the eighth milestone going toward Hebron¹⁴³. In some cases, however, the relationship to the existing road is less exact: the town of Bethel, for instance, is listed as being to the right of the road at the twelfth milestone going from Aelia to Neapolis¹⁴⁴; the town of Aser is said to be near the fifteenth milestone on the road from Scythopolis to Neapolis¹⁴⁵. While Eusebius is clearly attempting to base his work primarily on scriptural and local knowledge, the references to milestones – and, indeed, the use of Aelia by an author who would otherwise use Jerusalem – might suggest that Roman itineraries were used as a source for the *Onomasticon*.

When Eusebius was writing, the scriptural topography of the Levant was in its early stages of development. In 390, some sixty years after the *Onomasticon* was initially compiled, Jerome produced a Latin version that was both a translation and an update¹⁴⁶. As he informs us in his introduction, his Latin version was not the first; the earlier translator, however, appears to have possessed both a poor understanding of Levantine topography and, if Jerome is to be believed, a limited grasp of the Latin language.

By the time of Jerome's translation, however, an understanding of the scriptural landscape would have been reasonably widespread among Christians. While the

142 *Eusebius Werke III.1: Das Onomasticon der Biblischen Ortsnamen* ed. E. Klostermann (Leipzig, 1904). On the dating and composition, see C.U. Wolf 'Eusebius of Caesarea and the Onomasticon', *The Biblical Archaeologist*, Vol. 27, No. 3 (1964), 65–96.

143 καὶ εἰς ἔτι νῦν χάμη Κηλὰ πρὸς ἀνατολὰς Ἐλευθεροπόλεως ἀπιόντων εἰς Χεβρών, ὡς ἀπὸ σημείων η'. *Onom.* 114.

144 καὶ νῦν ἐστι χάμη Αἰλίας ἀποθεν σημείοις ιβ' ἀπιόντων εἰς Νεάπολιν δεξιά. *Onom.* 40

145 ἐν πεντεκαίδεκάτῳ σημείῳ πρὸς αὐτῇ τῇ λεωφόρῳ. *Onom.* 26

146 See Wolf, 'Onomasticon', 80.

author of the Bordeaux itinerary may have been little more than a Roman tourist with Christian interests, the idea of making a pilgrimage to the various *loca sancta* of the East appears to have taken hold in the decades immediately following the acceptance of Christianity¹⁴⁷. Contemporary perceptions of the developing scriptural landscape are well illustrated in an account written near the end of the fourth century by a pilgrim known as Egeria¹⁴⁸. Although we cannot be certain about the details of Egeria's life – even her name has been called into question¹⁴⁹ – she was probably of Gallic origin, and is thought to have undertaken her extensive travels throughout Egypt and Palestine between 381 and 384¹⁵⁰.

Like Pausanias before her, Egeria was not especially interested in the present. We first encounter her on the approach to Mount Sinai, where she is busy attempting to match the surrounding topography to the book of Exodus. In one place, she points out a place where Moses dwelled¹⁵¹; in another, she is able to identify the valley where the children of Israel worshipped the golden calf, informing us that a stone that now stands on the spot¹⁵². Although Egeria's associations were based largely on physical remains, her appreciation of scriptural topography did not necessarily require a counterpart in the real world: later in her travels she points out the place where a pillar of salt once stood, despite the fact that the pillar itself is no longer there¹⁵³.

What is perhaps most intriguing about Egeria's text – at least, in terms of our present investigation – is the way in which the contemporary Roman landscape is almost completely ignored. Egeria's travels take her from Sinai to Jerusalem, and from Jerusalem overland to Constantinople, via Tarsus; however, as these long and

147 On the earliest pilgrimages, see Hunt, *Holy Land Pilgrimage*, 83–106.

148 The text appears in *Silviae uel potius Aetheriae peregrinatio ad loca sancta* ed. W. Heraeus (Heidelberg, 1908) and *Itinerarium Egeriae* ed. A. Franceschini and R. Weber, in CCSL 175, 27–90. An English translation with valuable commentary appears in J. Wilkinson *Egeria's Travels to the Holy Land*. Revised edition (Jerusalem, 1981).

149 Earlier editions of the text were credited to S. Silvia or Aetheria; see J.F. Mountford 'Silvia, Aetheria, or Egeria?', *CQ*, Vol. 17, No. 1 (1923), 40–41 and Wilkinson, *Egeria's Travels*, 235–36.

150 On the dating, see P. Davos 'La Date du Voyage d'Égérie', *Analecta Bollandiana*, Vol. 85, No. 1 (1967), 165–94 and Wilkinson, *Egeria's Travels*, 237–39. The question of her origin is less certain: in the text she compares the Euphrates to the Rhône (18.1), which might suggest a home in southern Gaul. For some possibilities, see H. Sivan 'Who Was Egeria? Piety and Pilgrimage in the Age of Gratian', *The Harvard Theological Review*, Vol. 81, No. 1 (1988), 59–72 and C. Weber 'Egeria's Norman Homeland', *HSCP*, Vol. 92 (1989), 437–56.

151 *ubi fuit sanctus Moyses*. Egeria 3.5.

152 *haec est autem uallis, in qua factus est uitulus [...] nam lapis grandis ibi fixus stat in ipso loco*. Egeria 2.2.

153 *sed mihi credite, domine uenerabiles, quia columna ipsa iam non paret, locus autem ipse tantum ostenditur*. Egeria 12.7.

presumably arduous journeys contain little of scriptural interest, they are passed over in the space of a few lines. Her interest in the landscape of the scriptures consumes her descriptions, and the contemporary world often only appears as a means by which the past may be identified.

Egeria's travels, however, were still very much tied to the infrastructure of the Roman road network. In her journey from Clysma to the city called Arabia, she describes the distance as being four *mansiones*¹⁵⁴; the *mansiones* are also described as forts (*castra*) where soldiers are stationed. As she passes through the desert, members of her party point out various scriptural sites 'some to the left of the road and some to the right, some close to the road and others far away'¹⁵⁵. While Egeria was certainly following the Roman road, and may perhaps have been guided by an itinerary, we can see how the path of the road did not necessarily correspond to the landscape of places made newly significant by their association with the scriptures.

Indeed, much of the scriptural topography experienced by Egeria appears to no longer exist in the physical world and must therefore be constructed around more contemporary indicators. Egeria's description of the city of Rameses demonstrates her willingness to imagine what is no longer physically extant: the city is described as being a level plain without even a single house¹⁵⁶. Although it once contained many buildings, the only thing left, she informs us, is a giant Theban stone¹⁵⁷; the monument, however, is enough to conjure up the image of an entire city. Later, when Egeria is pointing out the site of the aforementioned pillar of salt, it is an artefact from the Roman built environment that is able to act as the topographical marker; the pillar, she reports, used to stand by the sixth milestone from Segor¹⁵⁸.

When there were no points of scriptural interest to identify, Egeria's travels may not have been different from those of any Roman traveller. Unlike the traveller from Bordeaux, however, she has preserved only those parts of the journey that relate specifically to the identification of scriptural places; when she returns to Jerusalem after her time in Egypt, she summarises the trip by saying 'taking the road we had already taken

154 *sunt ergo a Clesma [...] usque ad Arabiam ciuitatem mansiones quattuor*. Egeria 7.2.

155 *nam alia in sinistro, alia in dextro de itinere nobis erant, alia etiam longius de uia, alia in proximo*. Egeria 7.2.

156 *Ramessen ciuitas nunc campus est, ita ut nec unam habitationem habeat*. Egeria 8.1.

157 *nunc autem ibi nihil aliud est nisi tantum unus lapis ingens Thebeus*. Egeria 8.2.

158 *nam de Segor forsitan sexto miliario ipse locus est, ubi stetit columna illa*. Egeria 12.7.

through each of the Egyptian *mansiones*, I came to the border of Palestine. And from there, I returned to Aelia, that is Jerusalem, stopping again at several *mansiones*¹⁵⁹.

Egeria's travels from Jerusalem to Constantinople demonstrate that her desire to inhabit a completely Christian landscape extended far beyond the boundaries of Egypt and Palestine. In Cilicia she visits Tarsus and, from there, devotes several paragraphs to describing a side journey to the martyrdom of Thecla; her journey from Tarsus to Chalcedon, by contrast, is reduced to a single sentence. Egeria's adherence to the road and her reckoning of distance in *mansiones* suggests that her mode of travel may not have been dissimilar to that experienced by the author of the Bordeaux itinerary. However, while that earlier traveller was at least somewhat attuned to the Greek and Roman past, for Egeria, the road existed only to carry her between places of religious significance.

There is evidence to suggest that the road network was still acting as a foundation for the identification of scriptural topography in the sixth century. Indeed, the presence of the road may be detected throughout the *De Situ Terrae Sanctae*, a guide to the sacred sites of the Levant compiled by the archdeacon Theodosius between 518 and 530¹⁶⁰. The work has clearly been assembled from a variety of different sources: it opens with a series of journeys that start in Jerusalem and pass through various sites of scriptural significance; these are followed by a description of sites in Jerusalem itself which is, in turn, followed by a miscellany of information pertaining to notable sites both in Palestine and in other provinces¹⁶¹.

The journeys themselves are not dissimilar from Roman itineraries: they often begin from a particular gate of Jerusalem and list a series of places followed by the distance in miles¹⁶². The second journey guides the reader from location to location, making sure to add a line about why the particular place is worth seeing; in one line, for example, we learn that from Samaria to Sebaste it is six miles, and it is here that John was

159 *et inde proficiscens denuo, faciens iter per singulas mansiones Egypti, per quas habueramus, perueni ad fines Palaestinae. et inde [...] faciens denuo mansiones aliquod per Palaestina regressa sum in Helia, id est in Ierusalimam.* Egeria 9.7.

160 The text appears in *Itinera Hierosolymitana Saec. IIII–VIII* ed. P. Geyer CSEL 38 (Vienna, 1898), 135–50; Geyer's text is reprinted in CCSL 175, 113–25; trans. J.H. Bernard *Theodosius* (London, 1893). On the dating, see J. Wilkinson *Jerusalem Pilgrims Before the Crusades* (Warminster, 1977), 185.

161 For an analysis of the text and its sources, see Wilkinson *Jerusalem Pilgrims*, 184–85.

162 *De situ* 1–6. For a summary of the various journeys, see Y. Tsafir 'The Maps Used by Theodosius: On the Pilgrim Maps of the Holy Land and Jerusalem in the Sixth Century C.E.', *DOP*, Vol. 40 (1986), 129–145.

beheaded¹⁶³. The third journey, however, makes fewer additions to the original source itinerary: after the first two stages – Mount Buzana, where David and Goliath fought, and Eleutheropolis, resting place of Zacharias – the journey goes to Ascalon, Gaza and a handful of smaller towns; instead of brief descriptions, we are given only distances¹⁶⁴.

Apart from these initial journeys, the text offers little geographical coherence. A later section, which appears also to have been copied from an itinerary, gives the distances between Jerusalem and Mount Sinai not in miles, but in *mansiones*.¹⁶⁵ Other sections dispense with the guiding principle of the road entirely and present merely a list of places: one section in particular lists the cities in Arabia destroyed by Joshua; the following section, which may have been extracted from a geographical text, gives an incomplete list of the provinces surrounding Palestine¹⁶⁶.

There is a sense that Theodosius was interested primarily in names that could be related to the scriptures, and less about their context. The lack of structure in the *De Situ* suggests that Theodosius may have simply extracted from his sources anything that seemed relevant to the landscape of Christian topography. Although itineraries and perhaps other geographical descriptions may have acted as his source material, the text he has assembled is not comprehensive enough to act as an itinerary on its own; it is not a work designed to help an individual move through the landscape, so much as a poorly assembled compendium of significant names.

The travels of Egeria were still very much dictated by the paths of the road network and by the daily rhythm of the *mansiones*; her interests may have been Christian, but her mode of travel was recognisably Roman. In Theodosius, we find only echoes of Roman travel connecting the various points of scriptural interest. Where Eusebius and Egeria had been able to employ the roads of the present as an index to situate the important locations of a distant past, the *De Situ* leaves the reader with the sense that the topography of Christian faith was in the process of becoming separated from the infrastructure of the Roman world.



163 *de Samaria usque in Sebastea milia VI, ubi dominus Iohannes decollatus est. De Situ 2.*

164 *De situ 3.*

165 *De situ 27.*

166 *De situ 24–25.*

a new geography for a new audience

Ancient geography had been primarily a textual undertaking: the classical image of the *oikoumene* came first from the descriptions of Homer and was subsequently refined in the writings of Eratosthenes and his successors. Where the Roman and Greek traditions diverged was in the type of text that was used as a source for the creation of a cartographic image. For Ptolemy, the goal of geography was the creation of a pictorial representation that conveyed the true shape of the inhabited world. The contents of the land were less important than their accurate position within a grid of meridians, and Ptolemy's treatise, therefore, presented only the information and instructions necessary to create an accurate cartographic rendering.

In the Roman tradition, however, the contents were far more important than the shape. The perceived accuracy of a cartographic image was determined, to a great extent, by its ability to situate a large number of well-known names and places within a roughly defined framework of the *oikoumene*. The cities, peoples, mountains and rivers that defined imperial cartography – what we referred to in chapter one as chorographical representation – had been gathered from a variety of sources, including literary histories, accounts of travel and official records; the information was subsequently presented in texts that arranged the information according to a geographic organising principle.

From what we can tell, it was the latter tradition that came to dominate cartographic expression during the imperial period. While Ptolemy's treatise continued to circulate in the centuries following its composition – and appears to have remained highly regarded as a geographical source – for the late antique audience it may have been valued more for its extensive catalogue of place names than for its insistence on representational accuracy. As cartography became more concerned with the arrangement of items within a schematised *oikoumene* and less interested in the physical shape of the world, geographical texts may have required less in the way of spatial context; indeed, it may have been possible to create a reasonable representation of the world using merely a catalogue of place names.

Thus, our assessment of cartography in late antiquity must necessarily focus on the relationship between text and image. As with the chorographical displays that may have characterised the imperial period, late antique cartography was still, essentially, the translation of a textual description into a pictorial representation that situated various names and places within a broadly geographical context. What changed in late antiquity was not necessarily the technical knowledge required to translate a text into an image, but rather the types of text that were viewed as geographical authorities.

Although we possess almost nothing in the way of material evidence for late antique cartography – save for the surviving fragments of a floor mosaic in Madaba, Jordan – there are a number of geographical texts written between the fourth and the sixth century, some of which contain references to cartographic artefacts. In addition to these, from the ninth century onward, we begin to find cartographic manuscript illustrations that may be part of a tradition extending back to the very end of antiquity. While we cannot demonstrate a direct connection, we may at least identify traces of late antique geographical thought in the cartographic traditions that became prominent in the medieval period¹⁶⁷.

Indeed, the emergence of medieval cartography may be best understood as a logical development of the Roman chorographic tradition. In the previous section, we discussed how the rise of Christianity led to the creation of a completely new regional topography in the Levant; as we shall see, attempts to create an image of the world based on the authority of the scriptures may also have resulted in a completely new understanding of the *oikoumene*, of the earth and even of the cosmos. The cartographic tradition that emerged from imperial Rome had succeeded because it was able to present an image of the world that corresponded to widely-held beliefs; as those beliefs began to change, the Roman cartographic tradition – with its ability to transform descriptive text into plausible images – would have been easily able to adapt itself to the demands of a new geographical vision.

Geographical works of a descriptive nature were no less popular in late antiquity than they had been in the previous centuries. Although there may, increasingly, have been a

¹⁶⁷ There have been reasonably few attempts to trace the origins of Medieval geography back into the classical world. See, J.F. Moffitt 'Medieval Mappaemundi and Ptolemy's Chorographia', *Gesta*, Vol. 32, No. 1 (1993), 59–68.

linguistic divide between the Latin west and the Greek east, we may notice similarities in the types of geographical text being produced in each language. We find, in both languages, works that seek to describe the shape of the world, as well as texts that have reduced the contents of the world to a simple list. While some of the surviving texts contain measurements and distances, almost none of them follow the Ptolemaic example of providing only the necessary data for pure geography. Indeed, the majority of the geographical texts that emerged in late antiquity are what we described in chapter one as chorographical, that is to say, texts that sought to catalogue – either through description or enumeration – the contents of the inhabited world.

For Greek authors, *χωρογραφία* could refer to either a textual description of the land and its topographic features, or a pictorial representation of those features. In Latin, however, *chorographia* was used infrequently before the end of the fourth century, and seems to have been reserved primarily for pictorial artefacts. Vitruvius, as we recall, used the word to describe a cartographic wall-painting¹⁶⁸; in addition, chorographers are attested in the epigraphic record of the first and second centuries AD, where they appear to have been associated with surveying and the creation of pictorial records¹⁶⁹.

Other early instances of *chorographia* cannot be dated with any certainty: the poem of Varro Atacinus and the abandoned geographical work of Cicero – both from the first century BC – as well as the prose description of Pomponius Mela from the first century AD, were all, at some point, known under the title *De Chorographia*. This title, however, may reflect the preferred terminology of later editors or scribes; the titles of Varro's and Cicero's works cannot be traced any earlier than the sixth century, and the title of Pomponius Mela's first appears in the ninth¹⁷⁰. We may also note that in Pomponius Mela – the only text of the three to survive – the word *chorographia* is nowhere to be found.

In the fifth century, *chorographia* could still be used to describe a pictorial artefact: the opening line of the *Divisio orbis terrarum* reminds us that it was Augustus who first displayed the extent of the world 'by means of chorography'. However, from the end of the fourth century onward, the Latin word may have moved closer to the Greek usage in its ability to refer to a descriptive text concerning the arrangement of

168 Vitruvius VIII.2.6; see also chapter one, 42–43.

169 On chorography in the epigraphic record, see chapter one, 45.

170 Priscian III.25 (Varro) and VI.82 (Cicero). On Pomponius Mela, see chapter two, 94–97.

the world. One of our earliest examples of this usage is found in Jerome's translation of the *Onomasticon* of Eusebius, prepared around AD 390¹⁷¹. In the preface, Jerome remarks that Eusebius was the author of a number of works including a 'chorography of the land of Judaea and the lots of the different tribes'¹⁷².

Descriptive texts known as chorographies were also employed by two late antique Latin grammarians in order to explain geographical references in more ancient works of literature. Lactantius Placidus – who may have been writing in the late fourth or early fifth century – refers once to a chorography in his commentary on the *Thebaid* of Statius¹⁷³. In the commentary on Vergil written by Servius in the first decade of the fifth century, we find several references of a more varied nature¹⁷⁴. In two instances, Servius turns to chorographies to clarify questions of a geographical nature: he explains one reference to a place in Italy by informing his reader 'chorographers say that this place is the centre of Italy'¹⁷⁵; a line about the particular sea in which Crete was located is accompanied by the validation 'as we read in the chorographers'¹⁷⁶.

Servius also employs a chorographical work to clarify an historical point: in response to a line referring to the Barceans, he says 'according to the chorography of Titianus, they once overcame the Phoenicians in a naval battle'¹⁷⁷. The chorography of Titianus is otherwise unknown, although there is one reference in Ptolemy to a traveller named Maes, known also as Titianus (*Μάης ὁ καὶ Τιτιανός*), a merchant of Macedonian origin who travelled to the land of the Seres¹⁷⁸. Maes – who lived either in the time of Augustus or the time of Hadrian¹⁷⁹ – is said to have recorded his travels; however, Marinus of Tyre – on whom Ptolemy's account is based – was sceptical of Maes' account, and Ptolemy himself does not appear to have consulted the text directly. It is certainly possible that Servius would have had access to the text of Maes,

171 See above, n. 143.

172 *chorografiam terrae Iudaeae et distinctas tribuum sortes*. *Onom.* pf.

173 Lactantius Placidus *In Statii Thebaida* II.34.

174 On the dating of Servius, see C.E. Murgia 'The Dating of Servius Revisited', *CP*, Vol. 98, No. 1 (January 2003), 45–69. On the life and work of Servius, see R.A. Kaster *Guardians of Language: the grammarian and society in late antiquity* (Berkeley and Los Angeles, 1988), 169–98.

175 *hunc locum umbilicum Italiae chorographi dicunt*. Servius *Ad Aen.* VII.563.

176 *nam apud chorographos legimus, quae insula in quo sit mari*. Servius *Ad Aen.* III.104.

177 *hi secundum Titianum in chorographia Phoenicen navali quondam superavere certamine*. Servius *Ad Aen.* IV.42.

178 Ptolemy *Geog.* I.11.

179 Maes has traditionally been seen as a contemporary of Marinus of Tyre (early second century AD); however, M. Cary 'Maës, Qui et Titianus', *CQ*, New Series, Vol. 6, No. 3/4 (1956), 130–134, argues that Maes may have undertaken his travels in the time of Augustus.

but it is equally possible that the chorography of Titianus was a completely different work by a completely different author.

Elsewhere, Servius makes a reference to the ‘chorographers and geometers who say that the world is σφαιροειδῆ (spherical)¹⁸⁰’; the passage is curious for its inclusion of the Greek word instead of the Latin. We may, perhaps, suggest that Servius uses σφαιροειδῆ precisely because, for an educated Latin audience of the early fifth century, the idea of the chorographer may still have been associated with a particular genre of Greek literature. Servius, for the most part, has a tendency to name his Latin sources: Sallust, Seneca and even Pomponius Mela are employed as geographical authorities in the course of his commentary¹⁸¹. However, with the exception of Titianus, Servius’ references to ‘chorographers’ and ‘chorographies’ are vague. Servius may be withholding the names of his chorographic sources simply because they refer to a body of Greek texts that his audience may have known about, but would not necessarily have read.

The use of *chorographia* to designate a particular type of descriptive geographical work may thus have been primarily a Greek phenomenon, and one which only started to gain currency in the Latin-speaking world in the late-fourth century. The Latin world, however, was certainly not without works of descriptive geography. From Servius, we learn that Pomponius Mela’s work had survived into late antiquity; Mela, along with Pliny, also served as a primary source for the *Collectanea rerum memorabilium*, a geographical, ethnographical and historical compilation assembled by Julius Solinus, perhaps in the third century¹⁸².

The description of Dionysius Periegetes also enjoyed a certain popularity in the Latin world of late antiquity: we have already mentioned that his poem was translated into Latin on two separate occasions, once in the fourth century by Rufus Festus Avianus and again in the sixth century by the grammarian Priscian¹⁸³; a recommenda-

180 *chorographos et geometras, qui dicunt terram σφαιροειδῆ esse*. Servius *Ad Aen.* VI.532.

181 Seneca and Mela are used to clarify the position of the Ganges; Servius *Ad Aen.* IX.30. Sallust appears in the passage discussed above, *Ad Aen.* III.104.

182 Julius Solinus *Collectanea rerum memorabilium* ed. T. Mommsen (Berlin, 1864). Solinus was largely dismissed in the late nineteenth century and has been largely ignored in the twentieth: see Bunbury, *Ancient Geography* II, 675–79; C.R. Beazley *The Dawn of Modern Geography: A history of exploration and geographical science* in 3 vols. Vol. 1: From the conversion of the Roman empire to AD 900 (London, 1897), 243–73.

183 See chapter two, 98.

tion for the work also appears in the *Institutiones* of Cassiodorus¹⁸⁴. Dionysius, Solinus and Mela – both in their original and abridged forms – would all go on to have a profound influence on geographical understanding in the Medieval west.

In addition to these descriptive treatises that sought to present a brief sketch of the *oikoumene*, the Latin world appears also to have produced geographical works of a more technical nature. In the same section of the *Institutiones* that we have just mentioned, Cassiodorus advises his audience to make a careful study of the small volume by Julius Orator ‘which, in its four parts, includes the seas, islands, notable mountains, provinces, cities, rivers and peoples¹⁸⁵. Julius Orator has been identified with Julius Honorius, the fifth century author whose text was acknowledged as the source for the *Cosmographia Iulii Caesaris* and the accompanying *Excerpta eius sphaerae*¹⁸⁶.

The brief description in Cassiodorus would seem to agree with what survives of Honorius; the *Excerpta eius sphaerae* – the longer and more detailed of the two texts – makes no attempt at rhetoric, but is rather an organised list of the various topographic features that could be found within the inhabited world. There is some attempt to situate the various provinces and features within a geographical framework; the work is divided, very broadly, into four sections corresponding to quadrants defined by the cardinal points. The text, however, is lacking in distances, save for the lengths of the various rivers, which are listed in Roman miles. Nonetheless Honorius may have qualified as a work of great scholarship simply for the comprehensive quality of the lists and the lack of obfuscating description.

The final geographical author recommended by Cassiodorus is Ptolemy; it is a curious recommendation primarily because the text described in the *Institutiones* sounds nothing like the *Geographia*. According to Cassiodorus, Ptolemy ‘portrays each region so vividly that you might imagine him to have lived nearly everywhere¹⁸⁷’; however, as we have already seen, Ptolemy’s text is notable for its mathematical precision and its absence of descriptive prose. Although there are no known Latin translations of Ptolemy until around the fifteenth century¹⁸⁸, it is entirely possible that Cassiodorus

184 Cassiodorus *Inst.* I.25.2.

185 *qui maria, insulas, montes famosos, prouincias, ciuitates, flumina, gentes ita quadrifaria distinctione complexus est.* Cassiodorus *Inst.* I.25.1

186 See chapter one, 50–51.

187 *qui sic omnia loca euidenter expressit, ut eum cunctarum regionum paene incolam fuisse iudicetis.* Cassiodorus *Inst.* I.25.2.

188 Courcelle, *Late Latin Writers*, 354 n. 95. Latin

was basing his assessment on a later version in which Ptolemaic figures were preserved alongside material of a more descriptive nature¹⁸⁹.

In the Greek *Chorography of the World* (χωρογραφία οἰκουμένης), written in the late-third or early-fourth century by the mathematician Pappos of Alexandria, we have a possible model of what such a text may have looked like. The title of Pappos' treatise may not be original – it is attested only in the tenth century *Lexicon* of Suidas¹⁹⁰ – and the text itself has survived only as a series of fragments that were incorporated into a later Armenian geographical work; that text, the *Ašxarhac'oyc'* – probably compiled in the seventh century and now attributed to Ananias of Širak¹⁹¹ – also contains extracts from Ptolemy and the otherwise unknown Constantine of Antioch¹⁹².

It would be impossible to reconstruct a full version of Pappos' text based on the *Ašxarhac'oyc'*. Although Pappos is cited within the text as a primary source, the Armenian author may have only had access to an abridged version, and would have almost certainly made cuts himself. Furthermore, we can not be sure whether some of the more theoretical passages in the introduction were taken directly from Ptolemy by the Armenian compiler or if they were already a part of Pappos' treatise¹⁹³. Nonetheless, an attempt has been made to reconstruct an outline of Pappos by isolating those fragments which are neither Ptolemaic nor Armenian in origin¹⁹⁴.

The fragments of Pappos present a sequential description of the world: the text is broken up into three main parts – one for each continent – and, within those sections, it moves in order from province to province. The author enumerates the rivers and mountains in each province, although they are often left unnamed; we learn, for instance, that Macedonia contains six mountains and six rivers, however only two of the mountains – Citarius and Olympus – are explicitly mentioned. Although the

189 On the possibility of Latin versions of Ptolemy in the Medieval west, see Gautier Dalché, *La Géographie de Ptolémée*, 87–142 (the versions available to Cassiodorus are discussed at 88–92).

190 *Suidae Lexicon* IV, 26.

191 An English translation of the work, with commentary, has been published in *The Geography of Ananias of Širak* trans. R.H. Hewsen (Wiesbaden, 1992); the Armenian text, which was initially attributed to Moses of Khoren, was published as *Géographie de Moïse de Corène d'après Ptolémée* ed. and trans. A. Soukry (Venice, 1881). A reprint of that text (with a new English introduction) appears in Ananias Shirakats'i *Ashkharhatsoyts (Ašxarhac'oyc')* (Delmar, N.Y., 1994).

192 Constantine of Antioch has been identified as Cosmas Indicopleustes, who will be discussed later in this section.

193 Hewsen, *Ananias of Širak*, 28–32, suggests that the Armenian compiler would not have had separate access to Ptolemy and that all of the Ptolemaic material comes from Pappos.

194 R.H. Hewsen 'The Geography of Pappus of Alexandria: A Translation of the Armenian Fragments,' *Isis*, Vol. 62, No. 2 (1971), 186–207.

descriptions for each country are similarly structured, there is some room for ethnographic asides and notices of curious natural phenomena.

For all that the fragments of Pappos are primarily descriptive, the text also contains distances and some Ptolemaic coordinates. The figures are not nearly as comprehensive as those in Ptolemy, but their appearance within the text is striking. While Ptolemy's arrangement of the world is reflected in later geographical texts, the fixed grid references are most often ignored: for instance, in the *Periplus of the External Sea* – written by Marianus of Heraclea perhaps at the beginning of the fifth century¹⁹⁵ – a Ptolemaic structure is accompanied by distances that have been converted into stades¹⁹⁶. Although the treatise of Pappos is ultimately too fragmentary to allow for any firm conclusions, the presence of coordinates within an otherwise chorographical work may, at very least, provide us a model for the way in which description and geographical data could have coexisted within a single work.

The treatise of Pappos, however, may have been unique among late antique texts. In the Latin works discussed above, we noted a division between two major strands of geographical approach: on the one hand, there were purely descriptive works – such as those of Mela and Solinus, or the translations of Dionysius – which sought to create a general picture of the world's arrangement; on the other, were the purely enumerative works, such as Julius Honorius or the *Divisio orbis terrarum*, which compiled the contents of the known world, with or without distances. There are, however, no surviving texts that preserve the absolute coordinates of Ptolemaic geography.

Similarly, among the Greek geographical texts from late antiquity, we possess examples of descriptive and enumerative works, but little to suggest a continuation of the Ptolemaic tradition. Although Greek authors continued to draw upon the famous works of their classical predecessors, they may increasingly have mined their source material for names and numbers, while dispensing with the descriptive material that held the texts together. Agathemerus, whose work cannot be conclusively dated, wrote a brief description of the world that preserves information about the size of the *oikoumene* from a variety of classical sources – including Eratosthenes and Artemidorus – but which offers little in the way of description¹⁹⁷.

¹⁹⁵ *GGM*, 515–62.

¹⁹⁶ On this text, see Bunbury, *Ancient Geography* II, 660–63.

¹⁹⁷ A. Diller 'Agathemerus, Sketch of Geography', *GRBS*, Vol. 16, No. 1 (1975), 59–76 offers an edition, translation and commentary on this text; although the text has traditionally been placed in

From the sixth century, we possess a number of works in which the tendency toward pure enumeration becomes even more pronounced. A work known as the *Synecdemus* – assembled near the beginning of Justinian’s reign by the otherwise unknown Hierocles the Grammarian¹⁹⁸ – professes, in its single sentence of introduction, to be a collection of ‘all the provinces and cities of the Roman empire of Constantinople’, some 64 provinces and 935 cities in total¹⁹⁹. The author proceeds to give the name of each province, followed by a list of the cities found therein. There are no descriptions, nor much in the way of connective prose; although the provinces are arranged in a roughly geographical sequence, the ordering principles of the text are uncertain²⁰⁰.

It has been suggested that the *Synecdemus* represents the continuation of an official document from the time of Theodosius II²⁰¹. However, the title of the work – *συνέκδημος* means travelling companion, and carries the sense of a portable artefact – has led some to suggest that the surviving text is merely a list of names extracted from a longer and more descriptive text²⁰². While the work, in its extant form would have had limited value as a navigational aid and suggests an official document far more than an itinerary, the *Synecdemus* is intriguing for its willingness to dispense with description in its presentation of geographical data.

In the *Ethnica* of Stephanus Byzantinus – compiled in the first part of the sixth century by a grammarian at the imperial school in Constantinople²⁰³ – we find geographical knowledge forming the basis of a decidedly ungeographic work. The *Ethnica* was a monumental undertaking; although the text has not come down to us in its original form²⁰⁴, the surviving epitome runs for more than seven hundred printed pages, and

the third or fourth century, Diller, 59, suggests first or second century AD.

198 On the dating, see W.M. Ramsay ‘Phrygian Orthodox and Heretics, 400–800 AD’, *Byzantion*, Vol. 6 (1931), 1–35 (at 31); *Le synekdèmos d’Hiéroklos et L’opuscule géographique de Georges de Chypre: texte, introduction, commentaire et cartes* ed. E. Honigmann (Brussels, 1939), 3–6 and A.H.M. Jones *The Cities of the Eastern Roman Provinces*. Second edition (Oxford, 1971), 514–21.

199 Εἰσὶν αἱ πᾶσαι ἐπαρχίαι καὶ πόλεις αἱ ὑπὸ τὸν βασιλέα τῶν Ῥωμαίων τὸν ἐν Κωνσταντινουπόλει ἐπαρχίαι ἕδ’, πόλεις ἄλλες’, ὡς ὑποτέτακται. *Synec.* 631.3. The surviving text lists only 923 cities; see Ramsay, *Historical Geography*, 92–96 and Honigmann, *Synecdèmos*, 7–8.

200 Ramsay, ‘Phrygian Orthodox and Heretics’, 32 n. 1, has noted that the cities in some provinces appear to be arranged along river valleys.

201 Jones, *Cities*, 515.

202 Ramsay, *Historical Geography*, 92; see, however Ramsay, ‘Phrygian Orthodox and Heretics’, 27–32.

203 The standard edition is still that of A. Meineke (Berlin, 1849), however the first volume (covering A–Γ) of a new edition under the editorship of M. Billerbeck appeared in 2006.

204 On the history of the text, see A. Diller ‘The Tradition of Stephanus Byzantius’ *TPAPA*, Vol. 69 (1938), 333–48

represents nothing less than an attempt to catalogue every city and village, every island and every race in the known world, often with reference to classical sources.

The *Ethnica*, however, makes no attempt to convey spatial relationships through the arrangement of text; the individual entries have been stripped of their geographic context and arranged alphabetically. We may also note the relative lack of natural features: rivers are rarely given an entry to themselves and mountains appear infrequently. It is, nonetheless, an important work insofar as it is able to illuminate the variety of geographical material still available in the sixth century. Not only does Stephanus cite a number of texts that have not survived – he is, for instance, our only source for the *Isaurica* of Capito of Lycia²⁰⁵ – but he also appears to have been one of the earlier scholars to employ the works of Strabo and Pausanias, which were little-used in classical antiquity²⁰⁶.

Both the *Ethnica* and the *Synecdemus* are fascinating because they illustrate how the geographical material of previous centuries was being distilled to its essence. One could, of course, argue that Ptolemy's *Geography* was also a work of distillation: without the introductory material, it is little more than a list of places and coordinates. However, in Hierocles and Stephanus – and, from the Latin world, Julius Honorius – we find that works of enumeration were increasingly alienated from any kind of geographical context. Honorius and Hierocles presented a picture of the world where the spatial relationship between places was implied rather than stated; in a very different way, Stephanus reduced the sum of geographical knowledge to a series of unconnected names.

While these texts would have had some practical value on their own, they would all have presupposed a certain amount of geographical awareness on the part of their audience. In chapter two we discussed how a basic understanding of the world may have come from brief descriptive texts such as those of Pomponius Mela or Dionysius Periegetes; the fact that these texts survived into late antiquity – and, moreover, appear to have been augmented by other primarily descriptive works – might suggest that geographical perceptions in the fourth, fifth and sixth centuries would not have been unrecognisable to a citizen of the earlier imperial age. Where the geographical understanding of late antiquity may ultimately have started to diverge from its classical precedent is in the relationship between the available textual sources and the

205 There are some twenty references to the *Isaurica* in the *Ethnica*.

206 On the appearance of Strabo and Pausanias in the *Ethnica*, see Diller, 'Pausanias', 274–76.

subsequent cartographic representations: the increased abstraction in geographical texts may have resulted in a cartographic approach that owed more to the imagination of the cartographer than to the physical arrangement of the world.

Among serious practitioners of the geographical science, there was a longstanding bias against textual material. We have already mentioned how Eratosthenes was critical of leaving geography in the hands of poets, who were notoriously prone to exaggeration and invention. Centuries later, Ptolemy would attempt to define more precisely the types of material that should be employed by a geographer; however, his claim that astronomical observation was the only acceptable source for a cartographic representation was almost certainly a reaction to practices that had become widespread in his time. The cartography that emerged from the imperial period was not an attempt to convey the accurate shape of the world, but rather to arrange the contents of the world within a vaguely geographical frame, using the written word as its source.

As we discussed in chapter one, once the process of creating a cartographic representation had been removed from its mathematical foundation it became possible for any text to act as a source for an image of the world. As Ptolemy informs us in his introduction, it takes a skilled mathematician to translate a collection of sightings and coordinates into cartographical form, but it requires only the imagination of a painter to create a pictorial rendering from a descriptive or chorographical text. Our evidence, however, suggests that by late antiquity, the majority of potential source texts would have been works of either description or enumeration, precisely the types of text that would have led to inaccurate cartography.

There is no reason to doubt that Ptolemy's text survived into late antiquity; we have already seen how it was used as a source by Pappos of Alexandria and Marcianus of Heraclea, and how it was viewed by Cassiodorus as the ultimate specialist work on the subject of geography. The text, however, may have been valued more for its breadth of knowledge than for its cartographic methodology. There is little evidence to suggest that Ptolemy was used as a cartographic source: Cassiodorus, as we may recall, praised only the accuracy of Ptolemy's descriptions; if Cassiodorus' copy of Ptolemy was accompanied by cartographic illustrations, he has certainly not bothered to mention them.

In fact it is Dionysius Periegetes and not Ptolemy who holds the visual association for Cassiodorus: after discussing the work of Julius Honorius, he informs us that

‘next, you should consult the concise *Penacem* of Dionysius, so that you may nearly see with your eyes, everything you heard with your ears from the abovementioned book²⁰⁷. The title *Penacem* – perhaps a latinisation of the Greek $\pi\iota\nu\alpha\lambda\acute{\xi}$ – combined with the reference to ‘seeing with your eyes’ has led some to believe that the article in question was either, itself, a large map based on the *Periegesis* of Dionysius or an illustrated copy of one of the Latin translations²⁰⁸. We should note, however, that Cassiodorus talks not of seeing, but of *nearly* seeing, and we must not, therefore, discount the possibility that Cassiodorus was merely praising the descriptive powers of the ancient poet.

However, it is not unreasonable to suggest that geographical works would have been accompanied by some form of illustration; indeed, a work like that of Julius Honorius may have been of limited value without its pictorial counterpart. The student of Honorius – who reveals himself in the final lines of the *Excerpta eius sphaerae* – advises us that ‘this book should not be separated from its accompanying globe (*sphaera*)²⁰⁹. Although we cannot be sure what this *sphaera* would have looked like, we may suggest that it illustrated the physical arrangement of the information contained within the text. In fact, the presence of the *sphaera* raises the possibility that the surviving text of the *Excerpta* was copied not from the text of Honorius itself, but rather from an intermediate cartographic artefact, in this case, a globe that had been created from the information provided by Honorius.

From the ninth or tenth century onward, we begin to find cartographic drawings accompanying texts in manuscripts. In the west, we find images of the world in manuscripts of the *Etymologies* of Isidore and the *Commentary on the Apocalypse* by Beatus of Liébana²¹⁰; in the east, as we shall discuss later in this chapter, it was the *Christian Topography* of Cosmas Indicopleustes that would preserve cartographic illustrations of the inhabited world. The images of the *oikoumene* from the Cosmas manuscripts are remarkably consistent and it has been suggested that the image was based upon

207 *Deinde Penacem Dionisii discite breuiter comprehensum, ut quod auribus in supradicto libro percipitis, paene oculis intuentibus uidere possitis.* Cassiodorus *Inst.* I.25.2.

208 See, for instance, Courcelle, *Late Latin Writers*, 354 who claims that ‘Cassiodorus possessed a large map by Dionysius Periegetes’; J.W. Halporn’s English translation of the *Institutiones*, 157, renders the work as ‘Dionysius’ briefly sketched *Map*’. Lozovsky, *The Earth is Our Book*, 18, is more cautious in her translation, but suggests that a map ‘probably accompanied the description’.

209 *hic liber exceptorum ab sphaera ne separetur.* Riese, *GLM*, 55.

210 J. Williams ‘Isidore, Orosius and the Beatus Map’, *IM*, Vol. 49 (1997), 7–32.

an archetype perhaps dating back to Cosmas himself²¹¹. There are, however, enough differences between illustrations in the Beatus manuscripts to suggest that the text received different cartographic interpretations from different scribes.

The reasonably consistent vision of the world presented in the manuscripts – and in the later *mappaemundi* that emerged in the Latin west²¹² – suggests that cartographic documents had essentially become texts of their own: although the accepted image of the world had initially been based on textual material, the cartographic documents had been refined to the point where they could be copied, updated and transmitted without the aid of an intermediate textual version. Although we do not possess enough material evidence to make a similar claim about the earlier centuries, it is possible that the cartographic understanding of late antiquity was shaped not merely by descriptions from texts, but was also informed by a parallel tradition of pictorial representations.

Text, as we discussed in chapter one, would have played a significant part in the creation of the imperial cartographical image. From what we can tell, the cartographic monument in the porticus Vipsania was based not on sightings and meridians, but rather on information that had been gathered by Agrippa in the course of his travels; the later description of Eumenius – combined with the *Divisio orbis terrarum* and the *Dimensuratio prouinciarum*, both of which may have been based on Agrippa's *commentarii* – suggest that the goal of Roman imperial cartography was the pictorial display of rivers, mountains, cities, peoples and any other feature that may have been relevant to an understanding of world history²¹³.

While Agrippa's monument in the porticus Vipsania was almost certainly not the only artefact of its type in the Roman world – there was, at very least, one other in Autun²¹⁴ – we do not possess extensive evidence for similar projects. Indeed, if we discount the *Tabula Peutingeriana* – which may have been based upon an imperial portico painting, but whose origins and purpose cannot ultimately be determined – we know of only one other cartographic undertaking that can be explicitly linked to

211 See below, 237–38.

212 On which, see D. Woodward 'Medieval Mappaemundi' in *HoC 1*, 286–370; E. Edson *Mapping Time and Space: How Medieval mapmakers viewed their world* (London, 1997), 97–131.

213 On Agrippa's monument and the tradition of portico cartography, see chapter one, 49–62.

214 According to Eumenius; see chapter one, 60.

the state: at the end of the *Divisio orbis terrarum* we find twelve lines of verse describing a monument commissioned by the emperor Theodosius²¹⁵. The verses read:

This exceptional work, in which the whole of the world is represented, in which the surface of the seas, mountains, rivers, harbours, straits and cities are marked, displayed so that everyone may know the location of everything, was commissioned by the venerable emperor Theodosius, of noble birth and lineage, of constant piety, whom the world itself can barely contain, and completed by his decree, at the beginning of his fifteenth consulship.

These humble servants, one writing, the other painting, have, in only a few months, followed the old monument and prepared a better work, a work which has removed the errors of our predecessors and, in short, embraced the whole of the world. However it was your wisdom, Emperor, that taught us to do this²¹⁶.

The passage has traditionally been associated with Theodosius II, which would place the commission in the year 435²¹⁷. There is, however no conclusive evidence to support this association – beyond the fact that the creation of a cartographic monument seems closer to the character and interests of Theodosius II – and it is equally possible, although less often stated, that the verses refer to Theodosius I²¹⁸; this would place the commission in the final decades of the fourth century. Even if it is not ultimately possible to choose between the two dates, the description allows us to place the project within the context of imperial cartographic practices.

Firstly, the project almost certainly took the form of a monumental wall-painting, which would suggest a connection to the tradition of wall cartography mentioned by Vitruvius and, later, Eumenius. There are, admittedly, a number of different ways of translating the description of the two artesans: it is possible that one was writing text – that is, annotating (*scribit*) – while the other painted (*pingit*); it is also possible that

215 On which W. Wolska-Conus ‘Deux contributions à l’histoire de la géographie II: La «carte de Théodose II»: sa destination?’, *Travaux et Mémoires*, Vol. 5 (1973), 274–79; Dilke in *HoCI*, 258–59; P. Gautier Dalché ‘Notes sur la «carte de Théodose II» et sur la «mappemonde de Théodulf d’Orléans»’, *Geographia Antiqua*, Vol. 3 (1994), 91–106; Lozovsky, ‘Maps and Panegyrics’, 172–74.

216 *Hoc opus egregium, quo mundi summa tenetur | aequora quo, montes, fluuii, portus, freta et urbes | signantur, cunctis ut sit cognoscere promptum | quicquid ubique latet, clemens, genus inclita proles | ac per saecula pius, totus quem uix capit orbis | theodosius princeps uenerando iussit ab ore | confici, ter quinis aperit cum fascibus annum. | supplices hoc famuli, dum scribit pingit et alter | mensibus exiguis, veterum monumenta secuti | in melius reparamus opus culpamque priorem | tollimus ac totem breuiter comprehendimus orbem. | sed tamen hoc tua nos docuit sapientia, princeps.* Riese, *GLM*, 19–20.

217 Wolska-Conus, ‘Deux contributions II’, 276.

218 For a brief bibliography of people who have suggested Theodosius I, see Lozovsky, ‘Maps and Panegyrics’, 173, n. 13.

one drew an outline (*scribit*) while the other filled it with colours (*pingit*). Given what we have been able to determine about Roman cartographic practices, we may suggest that the painting would have contained a combination of written text and iconic representations of cities, mountain ranges and rivers. While we cannot say whether the final product would have represented the oblong *oikoumene* of the Greek mathematicians or the long, sequential world of the *Tabula Peutingeriana*, there can be little doubt that the work was pictorial in nature.

The list of topographical features displayed within the painting – mountains, rivers, seas and cities – is wholly consistent with our understanding of Roman cartographic aims and may, indeed, remind us both of Strabo's 'chorographical panel' and also the portico painting of Eumenius. As with the monument of Agrippa, the value of the work may have been its systematic presentation of the world's contents rather than its accurate reproduction of the world's shape. Even though the accompanying text of the *Divisio orbis terrarum* contains figures of distance, it does not contain the information necessary to create a Ptolemaic projection of the *oikoumene*.

Finally, the verses make clear that the project was based, at least in part, on another similar cartographic work. However, while the verses mention an 'old monument' whose inaccurate figures had been improved by the two artesans, there is nothing to suggest that the monument in the porticus Vipsania was used as a direct source. Indeed, we might reasonably expect the Theodosian project to have been displayed in Constantinople, the principal residence of its commissioning emperor²¹⁹; if Agrippa's monument did still exist, it would have been more than four hundred years old and, moreover, it would have been located in a portico more than a thousand miles from the imperial capital; if the two artesans were able to complete their project 'within only a few months', we may wish to suggest that the 'old monument' mentioned in the verses was a more recent and more easily accessible cartographical work located in Constantinople.

The project of Theodosius was not a completely new work, but rather a continuation of an imperial cartographic tradition which could, perhaps, be dated back to the time of Augustus and Agrippa, but which would have evolved over the course of several centuries and numerous versions. As we have no surviving evidence for either project, we cannot say how much the shape or contents of the world had changed between the

²¹⁹ Wolska-Conus, 'Deux contributions', 276, has connected the project with the foundation of the university in Constantinople in 425.

first century BC and the fifth century AD. We may, however, detect a similar approach behind the two artefacts: both were attempting to create an accurate record of the contemporary Roman world.

One of the only pieces of cartographic material evidence that can be securely dated to late antiquity is the floor mosaic discovered in a church at Madaba (Jordan) at the end of the nineteenth century²²⁰. The complete mosaic – which would have occupied an area of roughly 78 feet by 20 feet²²¹ – has not survived intact, but there are enough sections to give us a sense of what this artefact may have contained; in its original state, the mosaic would have presented a heavily annotated cartographic representation of the Levant, complete with cities, rivers, seas and mountains. Along with the *Tabula Peutingeriana*, it represents our best pictorial evidence for the chorographical approach in late antique cartography.

Before we discuss the artefact from Madaba, it is perhaps worth noting that the idea of a cartographic mosaic is not without precedent in the Roman world: another mosaic with cartographic characteristics – of which about half is fully intact – was discovered on the floor of a villa in Ammaedara (Tunisia)²²². The mosaic – which has been tentatively dated to the end of the third or beginning of the fourth century²²³ – offers a representation of islands in the Aegean and eastern Mediterranean, each of which is identified with a textual label; on each island there is an iconographic representation of a town, harbour or fortification²²⁴. While the mosaic is certainly not a geographically accurate rendering of the islands themselves, or of their relationship to one another, it

220 The mosaic was published (with photographic plates) not long after its discovery in E. Germer-Durand *La carte mosaïque de Madaba: découverte importante*, 1897 (Paris, 1897); a new version, with colour plates, appeared in M. Avi-Yonah *The Madaba Mosaic Map* (Jerusalem, 1954); a reduced-size fold-out colour map may be found in H. Donner *The Mosaic Map of Madaba: An Introductory Guide* (Kampen, 1992). For accounts of the discovery, see also C.R. Gregory 'The Mādaba Map', *The Biblical World*, Vol. 12, No. 4 (1898), 244–250; C.R. Beazley 'Madaba Map', *GJ*, Vol. 17, No. 5 (1901), 516–520; V.R. Gold 'The Mosaic Map of Madaba', *The Biblical Archaeologist*, Vol. 21, No. 3 (1958), 49–71 and, most recently, Y. Meimaris 'The Discovery of the Madaba Mosaic Map: Mythology and Reality' in M. Piccirillo and E. Alliata (eds) *The Madaba Map Centenary 1897–1997: Travelling through the Byzantine Umayyad Period* (Jerusalem, 1998), 25–36.

221 This is the figure proposed in Avi-Yonah, *Madaba*, 15.

222 F. Bejaoui 'Îles et villes de la Méditerranée sur une mosaïque d'Ammaedara (Haïdra en Tunisie)', *CRAI*, Vol 141, No. 3 (1997) 825–58.

223 Bejaoui, 'Îles et villes', 855–58.

224 We should, perhaps, note the iconographic similarities between the harbours on the Island Mosaic and the harbour of Ostia on the *Tabula Peutingeriana*, both of which are rendered as a semicircle of buildings. We may also recall the description in Josephus of Caesarea's harbour: 'In a circle round the harbour there was a continuous line of dwellings constructed of the most polished stone' *Ant.* xv.339.

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FIG. 4.1 The island mosaic in Ammaedara (from Bejaoui 'Îles et villes', 830).

may be considered a chorographical artefact insofar as it attempts to present an annotated pictorial catalogue of the major islands and their topographic features.

Although the remains of the Roman world have, as yet, yielded no further examples of cartographic mosaics, both the Ammaedara mosaic and the Madaba mosaic should be understood as being a part of the same broad tradition of Roman chorographic representation. Where the Madaba mosaic diverges most significantly from the traditions of the Roman past is in its source material and in the landscape it seeks to illustrate; in the Madaba mosaic we see neither the Greek *oikoumene* nor the Roman empire, but rather an image of a world defined by the topography of the Christian faith.

The Madaba mosaic was probably constructed in the mid-sixth century, perhaps between 560 and 565, and in its complete state it would have covered the entire transept of a church floor²²⁵. The original mosaic contained a cartographic representation of the Levant, stretching from Syria at one end, to the Nile delta at the other, although only the parts around Jerusalem, the Dead Sea and southwestern Palestine have survived. The mosaic is oriented with East at the top which, as we have mentioned, would not have been an uncommon orientation in Roman cartography. The centre and focal point of the mosaic would have been a detailed, if schematic, representation of the city of Jerusalem.

225 On the size, Avi-Yonah, *Madaba*, 10–16; on the dating, *ibid.* 16–18.

FIG. 4.2 The Madaba mosaic
(from Avi-Yonah, *Madaba*, pl. A)

IMAGE REMOVED FROM DIGITAL VERSION
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Fortunately, enough of the mosaic has survived that we are able to get a reasonable sense of its cartographic contents²²⁶. The natural features that appear so frequently in chorographic descriptions – mountains, rivers and seas – are all represented. While the patterns of blue and white tesserae do an adequate job of conveying the sense of running water, the rivers are nonetheless ornamented with fish, and the seas with boats. The desert landscape of Palestine is punctuated with illustrations of vegetation, although it is difficult to determine if these are fanciful additions, like the fish, or if they were intended to denote a particular type of commodity²²⁷.

The mosaic also contains a variety of icons representing urban spaces. These range from small, unlabelled buildings – not dissimilar from the standard double-tower city icon in the *Tabula Peutingeriana* – to fairly complex renderings of larger urban centres. Apart from Jerusalem, the cities of Gaza and Ascalon both possess representations of colonnaded streets and individual buildings that may have been easily identifiable to the audience of the time: in Gaza there is a semi-circular building, perhaps a theatre, and in Ascalon there is a pool amidst the colonnades²²⁸.

226 Commentary on the individual icons may be found in Avi-Yonah, *Madaba*, 35–77, Donner, *Mosaic Map*, 36–94 and, most recently E. Alliaia ‘The Legends of the Madaba Map’ in Piccirillo and Alliaia (eds) *The Madaba Map Centenary*, 47–101.

227 For a discussion of the vegetation, see F.N. Hepper and J.E. Taylor ‘Date Palms and Opobalsam in Madaba Mosaic Map’, *Palestine Exploration Quarterly*, Vol. 136, No. 1 (2004), 35–44.

228 Ascalon: Avi-Yonah §94, Donner §91, Alliaia §103. Gaza: Avi-Yonah §116, Donner §118, Alliaia §123.

Finally, the mosaic contains text. Most of the iconographic cities are labelled either with a simple place name or with the current and former names: Nicopolis, for instance, is simply accompanied by the word ‘Nicopolis’, while Lydda receives the legend ‘Lod also Lydea also Diaspolis²²⁹’. In addition to the names, the mosaic features an assortment of topographical notices and clarifications: while some of these are certainly scriptural – the town of Rama is accompanied with the line ‘a voice was heard in Rama²³⁰’ – others, like the notice of the border between Palestine and Egypt, suggest the contemporary landscape of eastern Roman rule²³¹. In the area around Jerusalem, the textual notices grow more frequent.

It has often been claimed that the Madaba mosaic was based on some kind of ‘road map’²³²; however, while the claim has been stated with such certainty that it has taken on an air of fact, there is, as we discussed in chapter three, little evidence to suggest that roads played any part in Roman cartographic practices. Although the *Tabula Peutingeriana* is often cited as evidence for a tradition of road-maps in late antiquity, if we accept that the roads in the *Tabula* represent a later – perhaps Carolingian – addition, the body of evidence for a road-based precursor to the Madaba mosaic is essentially reduced to zero²³³.

The road network, as we have discussed previously, would have acted as an organising principle for itineraries and topographical descriptions, both in Palestine and elsewhere. We should not, therefore, be surprised to find that the places within the mosaic are arranged according to their position along the road network; indeed, in the vicinity of Jerusalem we also find indications of the IV and IX milestones, which might further suggest a relationship between the mosaic and an itinerary. The mosaic, however, contains no iconographic representations of roads: the urban icons of Gaza, Ascalon and Jerusalem all possess colonnaded streets, but outside of the cities, there is

229 Nicopolis: Avi-Yonah §74, Donner §73, Alliata §69. Lydda: Avi-Yonah §62, Donner §60, Alliata §86.

230 φωνή ἐν Ραμα ἠκούσθη. Avi-Yonah §77, Donner §76, Alliata §73. The reference is to Matthew 2.18.

231 Ὅροι Αἰγύπτου κ(αὶ) Παλαιστίνης. Avi-Yonah §121, Donner §124, Alliata §129.

232 Avi-Yonah, *Madaba*, 28, claims that the initial layer of the mosaic ‘was made on the basis of a road-map’; Donner, *Mosaic Map*, 25, tells us that ‘certainly, the mosaic artist used Byzantine road-maps’; see also I. Roll ‘The Roads in Roman-Byzantine Palestina and Arabia’ in Piccirillo and Alliata (eds) *The Madaba Map Centenary*, 109–13. Y. Tsafir ‘The Maps Used by Theodosius: On the Pilgrim Maps of the Holy Land and Jerusalem in the Sixth Century C.E.’, *DOP*, Vol. 40 (1986), 129–45 suggests that the mosaic and the *De situ* of Theodosius may have shared a common cartographic source.

233 On the lack of roads in the archetype of the *Tabula Peutingeriana*, see chapter one, 73–74.

nothing that might indicate a permanent path²³⁴. All of the cities and topographical features are essentially suspended in the desert and any linear geographic relationship between them can only be assumed.

Furthermore, there are areas in the Mosaic where the arrangement of places does not correspond either to geographical reality or to the path of a road. If we imagine that the mosaic was based upon a road map, then we would have to regard these instances of transposition or odd spacing as cartographical mistakes²³⁵. However, it seems more plausible that the designer of the mosaic was working primarily from textual sources – these may have included road itineraries, brief descriptive texts like the *De situ* of Theodosius, or even undifferentiated lists like the *Synecdemus* of Hierocles. The mosaicist would have been less concerned with geographical accuracy than with making sure that he included everything that was known about the region, so that the mosaic would not be perceived as inaccurate by its viewers.

There are a number of textual sources that may have contributed to the mosaic. Much of the descriptive text has been linked to the *Onomasticon* of Eusebius, a work whose attempts to impose scriptural significance onto the Levantine landscape are not dissimilar from the aims of the mosaic²³⁶. It has been suggested, however, that there may have been an intermediate source – perhaps a pilgrimage guide – which contained information not only from sources like Eusebius, but also from practical documents such as itineraries²³⁷; we have already seen one example of such a text in the *De Situ* of Theodosius.

Of course, we should not rule out the possibility that the mosaicist would have been able to consult a chorographic depiction – either of the *oikoumene* or, specifically, of the Levant – in order to get a pictorial sense of the area: we have already discussed the possibility of cartography acting as a source for further cartography. There is, however, nothing in the presentation of the mosaic to suggest the influence of a ‘road-map’; it is far more plausible to suggest that the arrangement and layout of items within the space of the mosaic reflect both the vagaries of the text and the cartographic imagination of the mosaicist.

²³⁴ Donner, *Mosaic Map*, 25, has identified the white line extending north from Jerusalem as a road, although this does not seem entirely in keeping with the rest of the mosaic.

²³⁵ See, for instance, Avi-Yonah, *Madaba*, 28–30, who frames some of the mosaic’s geographical oddities in terms of the ‘ignorance’ and ‘carelessness’ of the mosaicist.

²³⁶ Avi-Yonah, *Madaba*, 30–31.

²³⁷ L. di Segni ‘The Onomasticon of Eusebius and the Madaba Map’, in Piccirillo and Allietta (eds) *The Madaba Map Centenary*, 115–120.

In its reliance on textual sources and in its goal of achieving accuracy through the representation and identification of topographical features, the Madaba mosaic may certainly be viewed as being part of the Roman chorographic tradition. However where Roman cartography may have attempted to create an image of the world based on a combination of official records, collected observations and a commonly held mythology about the more distant corners of the *oikoumene*, the Madaba mosaic was an attempt to present a section of the world in which the mythology of the past had been superseded by the unassailable topography of the scriptures. As such we may view the Madaba mosaic as a transitional artefact: it is both the last cartographic representation of antiquity and the first surviving image of a landscape in which Jerusalem, and not Rome, had become the centre of the world.

If text had become the principal source on which cartographic expression was based, it follows that any text, regardless of its relationship to the traditions of descriptive geography, could have been translated into a picture of the world. As we just noted, the Madaba mosaic was a combination of received knowledge about the shape and arrangement of the Levant, and topographical details drawn primarily from Christianity. The success of chorography, as we have noted, was its ability to present an image of the *oikoumene* that was consistent with the image suggested by the available literary sources; chorographical representations corresponded less to the actual shape of the world, than to commonly held beliefs about the world's contents. The accuracy of a cartographic representation may have been judged solely on the degree to which it presented a plausible rendering of a particular text.

If chorography was essentially a cartography of belief, we should not be surprised to find that the nature of chorographic representations would have evolved to reflect the prevailing world-view of the time. The classical image of the world as a sphere – and of the *oikoumene* as an island within that sphere – may have continued to offer a starting point for the cartographic images of late antiquity; that vision, however, may increasingly have found itself at odds with the scriptures. Although the Armenian geographer Ananias of Širak found little of use in scriptural texts and was forced to turn to the land and sea voyages of pagan authors, his opinion may not have been widely shared²³⁸. Indeed, from the sixth century onward, geography was characterised

238 'In Holy Scripture we have found nothing definite about geography and are thus obliged to consult pagan authors who have developed geography by land and sea voyages, and have also

by attempts to make the accumulated knowledge of antiquity compatible with the word of the scriptures.

In the *mappaemundi* that emerged during the Medieval period, the tripartite structure of the classical world was often preserved; although the shape of the world had become decidedly more circular and the focal point had shifted from Rome to Jerusalem, the arrangement of topographic features may not have been wholly dissimilar from a Roman chorographic display. The Roman observer, however, might be puzzled by the addition of a circular island at the easternmost point of the *oikoumene*. Yet, for the Christian audience, the cartographic representation would not have been considered complete if it did not contain a representation of the terrestrial paradise, cut off from the *oikoumene*, but continuing to supply water to the great rivers of the world²³⁹.

Attempts to reconcile geographical knowledge with the scriptures would have certainly had an effect on cartographical representations of the *oikoumene*; in the most extreme cases, however, scriptural faith would have been able to mount a challenge to the very foundations of classical cosmological understanding. In the *Christian Topography* of Cosmas Indicopleustes, we have a late antique example of a work in which the long-established relationship between the *oikoumene*, the earth and the cosmos were completely revised in order that they might conform to the authority of scriptural texts²⁴⁰.

There are few certainties about the author of the *Christian Topography*: his name, location and credentials have all, at various times, been called into question²⁴¹. We may recall that Ananias of Širak cited a *Christian Topography* attributed to Constantine of Antioch as one of his sources²⁴². For the most part, however, the text appears to have been transmitted simply as the work of an anonymous Christian²⁴³; only in the

confirmed it through geometry' Ananias *Geog.* L.1.1 (trans. R.H. Hewsen, 42).

239 On the appearance of paradise in *mappaemundi*, see Woodward 'Medieval Mappaemundi' in HoC 1, 302–42 *passim*; Edson, *Mapping Time and Space*, 145–63. On renderings of paradise in maps associated with Cosmas Indicopleustes, see M. Kominko 'New Perspectives on Paradise: The levels of reality in Byzantine and Latin Medieval Maps' in Talbert and Unger (eds) *Cartography in Antiquity and the Middle Ages*, 139–53.

240 Cosmas Indicopleustes *Topographie Chrétienne* in 3 vols. ed. and trans. W. Wolska-Conus (Paris, 1968–73).

241 On the uncertainties surrounding the figure of Cosmas, see E.O. Windstedt *The Christian Topography of Cosmas Indicopleustes* (Cambridge, 1909), 1–5; M.V. Anastos 'The Alexandrian Origin of the *Christian Topography* of Cosmas Indicopleustes', *DOP*, Vol. 3 (1946), 73–80; Wolska-Conus, *Topographie Chrétienne* I, 15–19.

242 On the association of Cosmas with Constantine, see Hewsen, *Ananias of Širak*, 29–30.

243 Wolska-Conus, *Topographie Chrétienne* I, 61 and 116 points out that Photius referred to the work as *The Book of the Christian* (Χριστιανού βιβλος).

tenth or eleventh centuries do we begin to find it associated with an author named Cosmas²⁴⁴. The author is referred to in various manuscripts as Cosmas the Monk (Κοσμά μοναχοῦ) and Cosmas who sailed to India (Κοσμά Ἰνδικοπλεύστου), and it is this latter designation that has become most widely accepted. While the designation of monk has also persisted, there is, in fact, little evidence in the text to suggest that Cosmas led a monastic life²⁴⁵; we can, however, say with some certainty that he lived in Alexandria, and that his work was composed in the middle of the sixth century, perhaps between 547 and 549²⁴⁶.

As a merchant, Cosmas had almost certainly travelled to some of the foreign places he describes in his text; as a geographer, however, he may have been something of an enthusiastic amateur, armed with little more than a detailed knowledge of the scriptures and an absolute faith that everything contained within them was true. His vision of the world, however, is a striking break from the previous millennium of cosmological thought²⁴⁷. Instead of imagining the earth as a sphere within a spherical cosmos, the *Christian Topography* suggests that the cosmos was, in fact, a giant chest with two levels: on the floor of the chest lay the surface of the earth, an island surrounded by seas; on the second level, with its vaulted ceiling was the firmament²⁴⁸.

While the cosmological conception of the *Christian Topography* was not wholly unique – there had, in the previous two centuries, been several similar attempts to situate the world within a scriptural framework²⁴⁹ – it may have been the most thoroughly argued. According to Cosmas, the arrangement and proportions of the world were determined by a passage from Exodus, in which Moses was commanded to build the tabernacle²⁵⁰. The proportions of the surface of the earth were derived from a table, which is described as being two cubits by one cubit²⁵¹; the design and the arrangement

244 Wolska-Conus, *Topographie Chrétienne* I, 59–61. The similarity between author (Cosmas) and subject (cosmos) has led some to believe that the name is a later fabrication; however, Windstedt, *Christian Topography*, 2, reminds us that Cosmas was a common Egyptian name.

245 Anastos, 'Alexandrian Origin', 77.

246 Anastos, 'Alexandrian Origin', 75–77; Wolska-Conus, *Topographie Chrétienne* I, 16. The exact dating comes from references within the text to two eclipses.

247 On the world-view of Cosmas, see the extensive study by W. Wolska-Conus *La Topographie chrétienne de Cosmas Indicopleustes. Théologie et science au VIe siècle* (Paris, 1962). See also Beazley, *Modern Geography* I, 273–303.

248 Cosmas *CT* IV.2.

249 For earlier examples, see Wolska-Conus, *Théologie et science*, 37–61.

250 Cosmas *CT* II.2 describes the tabernacle as 'an impression and an outline of the whole cosmos' (ἡ τύπον ἦν καὶ ὑπογραφή παντὸς τοῦ κόσμου).

251 cf. Exodus 25.23 and Cosmas *CT* II.19.

of items on the table are systematically revealed by Cosmas to parallel the actual structure of the inhabited world. For Cosmas, the word of the scriptures became a kind of extended metaphor through which the shape of the world could be understood.

Despite his single-mindedness of vision, however, Cosmas was not entirely able to escape from the image of the *oikoumene* that had been developed and refined over the course of the previous centuries. We may note that the proportions of the inhabited world proposed by Cosmas – a rectangle twice as long as it was high – are similar to those that appear in Strabo and his predecessors²⁵². Moreover, the notion of the *oikoumene* as an island surrounded on all sides by ocean, and broken into three distinct continents, would not have seemed unfamiliar to Homer, Anaximander, Eratosthenes or Ptolemy²⁵³. For all that Cosmas may have wished to follow the scriptures, he was nonetheless compelled to remain within the bounds of what could be proven by observation.

Cosmas appears to have understood the power of the pictorial image as a means of conceptualising space. From the text of the *Christian Topography* we may infer that images were intended to be an integral part of the treatise²⁵⁴. Indeed, many of the manuscripts contain illustrations of the basic principles described by Cosmas²⁵⁵, and it has been proposed that the earliest extant illustrations – from the ninth century Vatican manuscript (Vat. Gr. 699) – were copied from an archetype that was, in turn, based on drawings by the author himself²⁵⁶. Although we cannot be certain how much the illustrations would have been altered and distorted in transmission between the sixth and ninth centuries, there seems little doubt that images of some description formed a part of the original treatise.

In the fourth book, we find a plan of the *oikoumene* based on the description of the inhabited world that appeared in book two²⁵⁷. The plan appears in all three of the earliest manuscripts, and the three illustrations are so consistent as to suggest that they were all based upon an earlier archetype. Although the outline of the world has been rendered as a rectangle, and the land-mass of paradise has been included beyond the

252 See chapter one, 36.

253 Cosmas *CT* II.28, 29.

254 In Cosmas *CT* Prol.3, the fourth book is described as containing illustrations of the cosmos according to the scriptures (καὶ διαγραφὴ σχημάτων τοῦ κόσμου κατὰ τὴν θείαν Γραφήν).

255 On the illustrations, see Wolska-Conus, *Topographie Chrétienne* I, 124–185; L. Brubaker ‘The Relationship of Text and Image in the Byzantine MSS. of Cosmas Indicopleustes’, *Byzantinische Zeitschrift*, Vol. 70 (1971), 42–57; Kominko ‘New Perspectives on Paradise’, 139–153.

256 Wolska-Conus, *Topographie Chrétienne* I, 174–76; stemma on 185.

257 Cosmas *CT* IV.7. cf. *CT* II.28–33 and II.47–50.

eastern ocean, the diagram presents an image that may have been reasonably familiar to a late antique audience. The *oikoumene*, with its central sea, gulfs and major rivers has survived more or less intact, even if it has been transposed from a segment of the globe onto the bottom of a chest.

The goal of the *Christian Topography* was to describe the inhabited world, and its place within a larger order, in a way that would agree with the word of the scriptures. However, while Cosmas went out of his way to dispute the accepted image of the spherical earth – and to replace it with his model of a flat surface at the bottom of a chest – he leaves the *oikoumene* itself reasonably untouched. For all that Cosmas may have wished to create a new textual framework on which pictorial representations could be based, his vision of the inhabited world may well have been informed by a tradition of textual descriptions and cartographic displays that were an unquestionable part of late antique consciousness.

In the end, it is difficult to determine the extent to which the *Christian Topography* influenced perceptions of the world. While the *mappaemundi* that emerged in the west presented an increasingly schematised and scriptural vision of the earth, they nonetheless retained a connection to the geographical understanding of the classical past. There is, alas, less in the way of evidence from the Byzantine east. We know that the writings and images of Cosmas Indicopleustes survived into the tenth century and beyond; however, from the scholarly commentaries written by Eustathius of Thessalonica in the twelfth century, we may also suggest that Dionysius Periegetes was still in circulation and that Ptolemy could still be counted on as a geographical authority. Although we possess no images to accompany these texts, we should not discount the possibility that they may have continued to act as a source for pictorial representations of the world.

The goal of Ptolemaic geography had been the creation an image of the world based on astronomical observations; text was necessary in order to convey cartographical instructions and to record the various figures that would allow the cartographer to plot the different shapes. The resulting representation was an objective imitation of the *oikoumene* as it might be seen from the heavens; it was an image that existed independently of verbal description and was, therefore, largely free of the inaccuracies that might arise from unreliable narratives, mythology and belief.

The cartographic tradition that developed in the Roman world, on the other hand, was precisely an attempt to render an impression of the world as it was described in textual sources. The images of the world that had been produced and refined by Greek mathematical geographers since at least the time of Eratosthenes may have provided the initial framework into which that textual knowledge could be placed. In the Roman world, however, textual material – based, as it was, on observation and first-hand experience – may have been understood to be more reliable than the numbers proposed by the Greeks; the shape of the world in cartographic representations may have started to conform increasingly to the image of the world preserved in the texts.

Cartography had long been a fine balance between observation and belief: the mathematically derived vision of the world espoused by Eratosthenes and Ptolemy had its foundations in the geographical conception of Homer. Similarly, the chorographic approach to world cartography that became popular during the imperial Roman period, may have been anchored in a conception of the world that came from sightings and meridians. Chorography, however, may have favoured the authority of belief. Faith in the accuracy of the textual source would have allowed for increasingly schematic visions of the world: where the world had once been fixed as an elliptical island, it could now be rendered as a simple circle, or as a area of land stretched out along the entire length of a portico, without any loss of perceived accuracy.

The Roman chorographic approach had been informed by a particular type of textual source that sought to enumerate places of significance, both real and imagined; as those textual descriptions became increasingly filtered through the lens of Christianity, that vision would have been reflected in new chorographic images of the world. We do not, of course, wish to suggest that the topography of the scriptures would have eclipsed the image that had developed over the preceding centuries. Rather, the new layer of Christian mythology would have been gradually incorporated into the accumulated body of Greek and Roman textual material that, together, had helped to create the accepted image of the world.

By the end of antiquity, belief had finally won a decisive victory over observation. The question of whether Ptolemy disappeared or survived in the Medieval or Byzantine periods is irrelevant; if his treatise failed to correspond to the prevailing understanding of the world, it would have been viewed as inaccurate. Ptolemaic cartography may have

seemed as baffling to the Medieval observer as a *mappamundi* can be to someone who has grown up with the Mercator projection. Cartography, as we discussed in chapter three, is ultimately the creation of an image that conforms to our expectations. In the traditions of Roman chorography, the Medieval world would have found the ideal approach for mapping a continually shifting landscape of belief.

CONCLUSION

*T*HE CONSOLIDATION OF VARIOUS LANDS INTO A UNIFIED EMPIRE MAY HAVE been an essentially political act; however in order to claim control over those different regions, it would have first been necessary to understand the limits and content of the newly enlarged imperial space. In the two centuries prior to the reign of Augustus, the city of Rome had expressed its control over Italy by imposing a series of physical structures onto the land: the Romans constructed colonies to oversee regional administration, created regular field systems around those colonies, and built roads that would connect the colonies back to their capital. At the beginning of the imperial period, those same basic strategies for building would be used to impose the presence of Roman rule throughout a much larger geographical space.

The formation of the empire was, therefore, also an act of physical construction. However, few of the individual components in the Roman built environment were recent innovations. Cities had been in existence for thousands of years and, over the previous six centuries, the planned city had been developed and refined in the Hellenistic world; the idea of the permanent road had also been a feature of earlier civilisations and had been employed most effectively by Rome's closest neighbours, the Etruscans. Yet for all its debts to the past, the Roman built environment distinguished itself from its immediate classical predecessors by the degree to which it integrated the processes of construction into larger systems that facilitated centralised control over a vast area. The extensive public works and construction projects that occurred during the beginning of the imperial period were the result of a desire to impose order on the world; only through the establishment of order could the space of the empire be apprehended, measured, and recorded.

In the imperial era, the victory of human ingenuity over the natural world was expressed most clearly in the planned city. Where the earliest human settlements had been the organic result of co-habitation, the planned city represented the rational achievement of an urbanised civilisation, a perfect marriage of monumental form and predetermined function. The walls offered security, the streets excluded noxious winds, and the public spaces were arranged to create a focal point for civic life. The city was the opposite of wild and ungovernable rural space; in the city, one remained in constant contact with the presence of a rationally imposed order.

It is, therefore, not surprising to find that the city would provide both the iconography and the organising principles necessary to make sense of the rural landscape. The orthogonal grid that divided the planned city into a series of equal *insulae* would be reproduced on a larger scale in the extensive land-surveys that occurred throughout the imperial period. Where land had once been bounded according to ancient customs and localised conventions, the Roman survey attempted to impose a consistent order of centuriated field systems and standardised boundary markers. Evidence of urban iconography may be found in the paving slabs and inscribed stones that defined the road network; as the traveller made his way through the wilderness, he would at least have been able to take some consolation in the visual reminders of urban order.

What is intriguing about the built environment that emerged during the imperial period is not its novelty or innovation, but rather the fact that it was able to achieve such a remarkable unity and consistency over such a large geographical area. This consistency was achieved by reducing the processes and systems that defined the built environment to their essence. Instead of formal processes, there was a set of governing ideals that, in a reasonably short time, would spread throughout the empire and remain widely held for several centuries.

Thus, there was no one city plan concocted by Rome and exported to the various corners of the empire; rather, there was an established ideal of what a city should contain, how it should be arranged, and how it should function within the larger framework of Roman administration. While individual cities could deviate from the ideal, the ideal would at least guarantee a series of broadly consistent urban centres that would be able to serve the necessary civic functions. We may say the same thing about the field systems and roads: the fact that the processes of construction were rooted in a

strong imperial ideal would ensure a reasonably consistent implementation in any part of the Roman world.

The imperial ideals that governed the built environment would have taken hold, in part, because they were integrated into the larger processes of central administration. A city was not just a city; it was part of a larger urban hierarchy that culminated in the city of Rome. The centuriated field systems did not merely arise as a means of land allocation, but was, rather, a system that broke the land down into regular segments that could be recorded and administered by an urban authority. The fact that most of these systems were reasonably simple – and that their implementation rarely required any great technical skill – meant that every part of the empire could be apprehended and managed according to the same basic principles.

While the general goal of the built environment was to impose order upon the spaces of the Roman world, the specific aim of construction within the rural landscape was the establishment of a series of physical markers that would allow the vagaries of the landscape to be conveyed through the less arbitrary medium of text. The orthogonal baselines and the inscribed boundary stones that defined the Roman land survey created a physical presence within the landscape, but also allowed the reality of that landscape to be expressed either as a rudimentary cartographic artefact or as a purely textual record. Similarly, the extensive network of paved roads and their attendant milestones allowed for long journeys through large spaces to be presented in the form of a simple list.

Although the built environment was created, in part, as a means of understanding the larger spaces of the empire, there is little evidence to suggest that the constructed elements within the rural landscape were used as a source for cartographic representations of the inhabited world. In fact, the tradition of cartography that emerged during the imperial period may be viewed as another manifestation of the Roman desire for simplification. The shape of the world would have been largely irrelevant to the Roman audience who would, essentially, have wished to see names of places, accompanied perhaps by iconographic representations. In fact, the more schematic the shape of the world became, the more it would have corresponded to the vague descriptions of the *oikoumene* and its arrangement, as it was known from textual sources. Cartography in the Roman world was not an attempt to make sense of the land on a large scale, but rather another strategy for reducing the world to the point where it could be adequately expressed in the form of text.

The systems that developed during the imperial centuries were ingenious, but they were also unsustainable. Ultimately we should not be surprised that the ideals behind the Roman built environment eventually disappeared, but rather than they survived as long as they did. In fact, the imperial period may represent something of an oddity: it was a brief period in the history of human existence where a belief in civic ideals allowed man to claim some dominance over the natural world; it was a temporary victory of rational predetermination over the naturally more chaotic state of human life. In the remains of the imperial Roman built environment, we may see ample evidence of this victory. However, it was not to last.

There are any number of events that could have triggered a large-scale change in the Roman world: it has been suggested, for instance, that the political instability of the third century set in motion a series of events that brought about an end to the systems that defined classical antiquity; the replacement of unfocused paganism with a strongly defined monotheistic religion has also been cited as a cause for larger transformations within the empire; it could even be argued that the establishment of a new capital in Constantinople would have disrupted the balance of imperial life. Those looking for external causes might point to the various migrations, resettlements, invasions and conquests that started to occur with greater frequency from the beginning of the fifth century. While all of these events would have undoubtedly left their mark on the physical world, the changes that occurred in late antiquity may also have been due to a substantial transformation in the ideals that governed the built environment.

Our evidence suggests that the ideals which had informed the creation of imperial urban spaces were still present in both the law and literature of late antiquity. Even in the sixth century it was possible for an author such as Procopius to identify the public institutions that should be contained within the space of a city. The imperial urban ideal, however, may no longer have been as widely held by the people who were responsible for dictating the terms of the city's physical form. While the state continued to view the urban environment as a series of public spaces that formed a core of civic life, in the long-established centres of late antiquity, the urban population may have pursued their construction activities with an increasing disregard for ancient institutions and their corresponding civic values.

Within the physical space of the classical city there had been a fine balance between public and private interests. So long as the public urban institutions remained

important to the population and well regulated by the imperial authority, the balance would be maintained and the classical order would continue to exist. In the established cities of late antiquity, however, the encroachment of private structures into public spaces illustrates how the formal order of the city may have become less important to the urban population. This attitude of indifference toward public spaces and institutions is perhaps more clearly observed in the new towns and villages that emerged during the fourth and fifth centuries, where the urban environment consists primarily of unregulated private structures.

The divide between public and private space in the late antique city may have been complicated by the introduction of the church. Although the church was a public institution, insofar as it provided a spiritual focus for the urban population, the physical building remained a private construction. However, the dominance of the church within civic life resulted in the physical structures playing a more active role in the determination of urban form. While the laws of late antiquity may have wished to regulate the traditional public institutions of the classical city, legal prescriptions were ultimately unable to compete with the desires of the urban population.

Although the ideals governing the form of the city may have changed to reflect the evolving desires of the urban population, we may also suggest that attitudes toward urban space had changed simply because the city was no longer being employed as a tool for urban expansion. In the reduced space of the later Roman empire, the systems of imperial administration may not have relied as heavily on the presence of a widespread urban network; in the absence of a unified urban function, it would not have been necessary for individual cities to adhere quite as strictly to the forms that had become prominent during the early days of the imperial period.

The transformation of imperial practices were also responsible for changes in the rural built environment. The systems for land apprehension that emerged during the era of Augustus had sought to impose an artificial structure on the otherwise ungovernable expanses of rural space in order to express both the value and the physical location of individual landholdings. In the time of Diocletian – when it became necessary to extract further resources from the land – the imposition of a new tax system may have altered the way in which land was perceived by the state. Where the system of centuriation had made it possible to express rural space as text, Diocletian sought to reduce the land even further; however, the desire to express rural spaces as a series

of taxable units effectively removed the geographical element from both the process of land assessment and the system of records through which land was administered. The state was interested in what it could extract from the land, but was no longer willing to take an active role in the organisation of rural space.

A failure to maintain the systems that had dictated the form of the rural landscape may have caused the rural spaces of the empire to revert to a more organic state. Human nature, as we have mentioned, has never been inclined toward arbitrary structures: it favours the natural topography of the land over artificially imposed straight lines, and the natural direction of human movement over the rigidity of the orthogonal intersection. Where the orthogonal field systems had once allowed for the apprehension of larger areas, and for smaller units of land to be understood in terms of their relationship to the larger area, by late antiquity, each individual piece of land may have been perceived as existing in isolation. Without the guidelines of a field system, the shape of the individual properties may have started to realign themselves with the boundaries dictated by the natural world.

The one feature of the imperial built environment that may have continued to function unchanged was the road network. Because the roads provided an essential infrastructure for communication and military movement, the state continued to take an active role in their maintenance, even during times of crisis. Thus, we find little evidence for a decline in the road network either during the instability of the third century, or during the possible economic troubles at the end of the fourth century. However, while the road network would have continued to act as the principal index for land navigation, the paths of the ancient routes may increasingly have found themselves at odds with the topographical consciousness of a Christianised population; although the roads would have remained a physical presence in the Mediterranean world, they may no longer have played so great a role in the perception of a landscape that had come to be dominated by belief.

The absence of a strongly defined built environment would not necessarily have resulted in the disappearance of large-scale spatial awareness; a well-established body of geographical knowledge would have continued to inform perceptions of the larger *oikoumene* into the sixth century and beyond. In fact, in terms of a governing ideal, imperial cartography may not have been wholly dissimilar to the cartographic documents of the later Roman world: what had changed was the information. Imperial

cartography had been an attempt to convey the Romanness of the world through an enumeration of places and names; once the imperial agenda had been removed from cartographic displays, the shape and contents of the world would have naturally started to gravitate toward the dominant beliefs of the people for whom the displays were intended. However without the imperial goal of expressing a world where everything was Roman, there may have been less interest in the distant extremities of the *oikoumene*. While the basic arrangement of lands may have remained consistent throughout late antiquity, the space of the world had started to be reduced to a core of knowledge surrounded by a wilderness of mythology.

In order to create an empire, it was first necessary to determine what that empire contained. Military conquest was only the beginning: the reason that the Roman state was able to effectively govern such a large area is because they were able to take that conquered land and impose upon it a physical framework that allowed for assessment and administration. Through the imposition of a consistent built environment they arrived at a means of expressing imperial space through the reliable medium of text rather than the unreliable medium of images. It was an achievement that would not be replicated for many centuries to come.

Because the built environment was, essentially a consequence of imperial ideals and systems, the eventual dissolution of those systems between the fourth and sixth centuries would have caused the formal qualities of the constructed landscape to change. In the absence of effective imperial control over the processes of construction, the influence of the individual may have once again asserted itself; the rigours of a planned world may have given way to the return of organic development. However, because the Roman built environment had been so closely tied to the processes that had once allowed the empire to be contained and defined, the dissolution of imperial order may also have caused fundamental transformations in the way that the space of the world was perceived at the end of antiquity.

BIBLIOGRAPHY

primary sources

- AGATHEMERUS *Geographiae informatio* in C. Müller, *GGM*², 471–87.
- AMMIANUS MARCELLINUS *Res Gestae* in 3 vols. trans. J.C Rolfe (Cambridge, MA., 1971–1972).
- ANANIAS OF ŠIRAK *The Geography of Ananias of Širak* trans. R.H. Hewsen (Wiesbaden, 1992); *Géographie de Moïse de Corène d'après Ptolémée* ed. and trans. A. Soukry (Venice, 1881).
- Anonymi Byzantini Peri Strategikes* ed. and trans. G. Dennis in *Three Byzantine Military Treatises*. CFHB 25 (Washington, D.C., 1985), 9–135.
- APPIAN *Roman History* in 4 vols. trans. H. White (Cambridge, MA., 1912–1913).
- Byzantinische metrologische Quellen* ed. E. Schilbach (Düsseldorf, 1970).
- Byzantinische metrologische Quellen II* ed. E. Schilbach (Thessalonica, 1982).
- CASSIODORUS *Institutiones divinarum et saecularium litterarum* ed. R.A.B. Mynors (Oxford, 1937); trans. J.W. Halporn *Cassiodorus Institutions of Divine and Secular Learning and On the Soul* (Liverpool, 2004).
- *Variae* ed. T. Mommsen (Berlin, 1894); trans S.J.B. Barnish *Selected Variae of Magnus Aurelius Cassiodorus Senator* (Liverpool, 1992).
- CICERO *Ad Atticum* in 7 vols. ed. and trans. D.R. Shackleton Bailey (Cambridge, 1965–1970).
- CODEX THEodosIANUS *Theodosiani Libri XVI* ed. T. Mommsen and P.M. Meyer (Berlin, 1905), trans. C. Pharr et. al. *The Theodosian Code and Novels and the Sirmondian Constitutions* (Princeton, 1952).
- CORPUS AGRIMENSORUM ROMANORUM:
- (L) *Die Schriften der Römischen Feldmesser* ed. K. Lachmann (Berlin, 1848).
- (T) *Corpus agrimensorum Romanorum* Vol. 1, Fasc. 1. ed. C. Thulin (Leipzig, 1913).
- (C) *The Writings of the Roman Land Surveyors* ed. and trans. B. Campbell (London, 2000).
- (G) *Les Arpenteurs Romains. Tome 1: Hygin le gromatique – Frontin.* ed. and trans. J.-Y. Guillaumin (Paris, 2005)

- Tome 2: Hygin – Siculus Flaccus* ed. and trans. J.-Y. Guillaumin (Paris, 2010).
- Corpus Agrimensorum Romanorum II: Balbus / III: Podismus* (in one vol.) ed. and trans. J.-Y. Guillaumin (Napoli, 1993).
- Corpus Iuris Civilis* Vol. 3: *Novellae* ed. R. Schoell. Sixth edition (Berlin, 1954).
- COSMAS INDICOPLEUSTES *Topographie Chrétienne* in 3 vols. ed. and trans. W. Wolska-Conus (Paris, 1968–73); trans. J.W. McCrindle *The Christian Topography of Cosmas, an Egyptian Monk* (London, 1897).
- DICUIL *Liber de mensura orbis terrae* ed. and trans. J.J. Tierney (Dublin, 1967).
- CASSIUS DIO *Roman History* in 9 vols. trans. E. Cary (Cambridge, MA., 1914–1927).
- DIODORUS SICULUS *Bibliotheca historica* in 12 vols. trans. C.H. Oldfather et al. (Cambridge, MA., 1933–1967).
- DIOGENES LAERTIUS *Vitae philosophorum* ed. H.S. Long (Oxford, 1964), trans. R.D. Hicks *Lives of Eminent Philosophers* in 2 vols. (Cambridge, MA., 1970).
- DIONYSIUS OF HALICARNASSUS *The Roman Antiquities* in 7 vols. trans. E. Cary (Cambridge, MA., 1937–1950).
- DIONYSIUS PERIEGETES *Orbis descriptio* in C. Müller, *GGM*², 104–76.
- Divisio orbis terrarum* ed. A. Riese, *GLM*, 15–20; ed. P. Schnabel, *Philologus*, Vol. 90 (1935) 432–40; ed. L. Bieler, *PRLA*, Vol. 64 (1965), 1–31.
- EGERIA *Silviae uel potius Aetheriae peregrinatio ad loca sancta* ed. W. Heraeus (Heidelberg, 1908); *Itinerarium Egeriae* ed. A. Franceschini and R. Weber, in *CCSL* 175, 27–90; trans. J. Wilkinson *Egeria's Travels to the Holy Land*. Revised edition (Jerusalem, 1981).
- ERATOSTHENES *Die Geographischen Fragmente des Eratosthenes* ed. H. Berger (Leipzig, 1880); ed. and trans. D.W. Roller *Eratosthenes' Geography* (Princeton, 2010).
- EUMENIUS *Pro Instaurandis Scholis* 20 in *XII Panegyrici Latini* ed. R.A.B. Mynors (Oxford, 1964).
- EUSEBIUS *Onomasticon* in *Eusebius Werke III.1: Das Onomasticon der Biblischen Ortsnamen* ed. E. Klostermann (Leipzig, 1904).
- FAVENTINUS *Artis architectonae priuatis usibus adbreuiatus liber*, ed. and trans. M.-T. Cam *Cetius Faventinus Abrégé d'Architecture Privée* (Paris, 2001). An english translation appears in Plommer (see Secondary Literature, below).
- FRONTINUS *De aquaeductu urbis Romae* ed. and trans. P. Grimal *Les Aqueducs de la Ville de Rome* (Paris, 1944); trans. C.E. Bennett *The Aqueducts of Rome* (Cambridge, MA., 1925).
- AULUS GELLIUS *The Attic Nights of Aulus Gellius* in 3 vols. trans. J.C. Rolfe (Cambridge, MA., 1948–1954).
- Geographi Graeci Minores* Vol. 1 ed. C. Müller (Paris, 1855).
- Geographi Graeci Minores* Vol. 2 ed. C. Müller (Paris, 1861).
- Geographi Latini Minores* ed. A. Riese (Heilbronn, 1878).
- Géométries du fisc Byzantin* eds J. Lefort et. al. (Paris, 1991).
- Greek Ostraca in the Bodleian Library at Oxford*. Vol. II ed. J. G. Tait and C. Préaux (London, 1955).
- HERON OF ALEXANDRIA *Metrica* in *Heronis Alexandrini opera quae supersunt omnia* Vol. III ed. H. Schöne (Leipzig, 1903).

- *Definitions and Geometrica in Heronis Alexandrini opera quae supersunt omnia* Vol. IV ed. J.L. Heiberg (Leipzig, 1912).
- HIEROCLES GRAMMATICUS *Synecdemus* ed. E. Honigmann *Le synekdèmos d'Hiérokès et L'opuscule géographique de Georges de Chypre: texte, introduction, commentaire et cartes* (Brussels, 1939).
- Historia Augusta* in 3 vols. trans. D. Magie (Cambridge, MA., 1921–1932).
- Inscriptiones Graecae ad Res Romanas pertinentes* ed. R. Cagnat (Paris, 1911).
- Itineraria Romana* vol. 1 ed. O. Cuntz (Leipzig, 1929).
- Itineraria Romana* vol. 2 ed. J. Schnetz (Leipzig, 1940).
- Itinerarium Burdigalense* ed. P. Geyer and O. Cuntz, reprinted in *Itineraria et Alia Geographica*. CCSL 175 (Turnhout, 1965) 1–26.
- JOSEPHUS *Flavii Iosephi opera* in 7 vols. ed. B. Niese (Berlin, 1885–1895), trans. H.St.J. Thackeray et al. (Cambridge, MA., 1926–1965).
- JULIAN OF ASCALON ed. and trans. C. Saliou *Le traité d'urbanisme de Julien d'Ascalon: droit et architecture en Palestine au VIe siècle* (Paris, 1996).
- LACTANTIUS PLACIDUS *In Statii Thebaida commentum* ed. R.D. Sweeney (Stuttgart, 1997).
- LIBANIUS *Oration 11* trans. G. Downey 'Libanius' Oration in Praise of Antioch (Oration XI), *Proceedings of the American Philosophical Society*, Vol. 103, No. 5 (1959), 652–86.
- LIVY *Ab urbe condita* in 14 vols. trans B.O. Foster et al. (Cambridge, MA., 1919–1959).
- JOHN MALALAS *Chronographia* ed. H. Thurn (Berlin, 2000); trans. E. Jeffreys, M. Jeffreys and R. Scott *The Chronicle of John Malalas* (Melbourne, 1986).
- POMPONIUS MELA *De Chorographia libri tres* ed. P. Parroni (Rome, 1984); ed. and trans. A. Silberman *Pomponius Mela: Chorographie* (Paris, 1988).
- PALLADIUS *Opus agriculturae*. (Book 1 only) ed. and trans. R. Martin *Palladius: Traité d'agriculture*. Tome 1 (Paris, 1976).
- PAUSANIAS *Graeciae descriptio* in 3 vols. ed. F. Spiro (Leipzig, 1903); trans. W.H.S. Jones *Description of Greece* in 5 vols. (Cambridge 1918–1935); see also J.G. Frazer in Secondary Literature, below.
- PHILOSTRATUS *The Life of Apollonius of Tyana* in 2 vols. ed. and trans. C.P. Jones (Cambridge, MA., 2005).
- PLINY *Natural History* in 10 vols. trans. H. Rackham et. al. (Cambridge, MA., 1938–1963).
- PLUTARCH *Lives* in 11 vols. trans. B. Perrin (Cambridge, MA., 1914–1926).
- POLYBIUS *The Histories* in 6 vols. trans. W.R. Paton (Cambridge, MA., 1922–1927).
- PRISCIAN *Institutiones grammaticae* in *Grammatici Latini* vol. II ed. H. Keil (Leipzig, 1855–1880).
- PROCOPIUS *History of the Wars, Anecdota* and the *Buildings* in 7 vols. trans. H.B. Dewing (Cambridge, MA., 1914–1940).
- PROPERTIUS *Elegies* trans. C.P. Goold (Cambridge, MA., 1990).
- PTOLEMY *Geographia* ed. K. Nobbe (Hildesheim, 1966). A translation of the first chapters appears in Berggren and Jones (see Secondary Literature, below).
- QUINTILIAN *Institutio oratoria* in 4 vols. trans. H.E. Butler (Cambridge, MA., 1920–1922).
- Ravennatis Anonymi Cosmographia*, in J. Schnetz, *Itineraria Romana* 2.

- Res gestae divi Augusti* trans. P.A. Brunt and J.M. Moore (Oxford, 1967).
- SERVIUS *Servii Grammatici qui feruntur in Vergilii carmina commentarii* ed. G. Thilo and H. Hagen (Leipzig, 1881–1902).
- STRABO *Geographica* in 3 vols. ed. A. Meineke (Leipzig, 1877), trans. H.L. Jones *Geography* in 8 vols. (Cambridge, MA., 1917–1932).
- SUETONIUS *Lives of the Caesars* in 2 vols. trans. J.C. Rolfe (Cambridge, MA., 1913–1914).
- STEPHANUS OF BYZANTIUM *Ethnica* ed. A. Meineke (Berlin, 1849).
- Sylloge Inscriptionum Graecarum*. Third edition. ed. W. Dittenberger (Leipzig, 1917).
- TACITUS *Annales ab excessu divi Augusti* ed. C.D. Fisher (Oxford, 1906), trans. J. Jackson *The Annals* (Cambridge, MA., 1925–1937).
- THEODOSIUS *De Situ Terrae Sanctae in Itinera Hierosolymitana Saec. III–VIII* ed. P. Geyer *CSEL* 38 (Vienna, 1898), 135–50; reprinted in *CCSL* 175, 113–25; trans. J.H. Bernard *Theodosius* (London, 1893).
- VARRO *De Lingua Latina* in 2 vols. trans. R.G. Kent (Cambridge, MA., 1977–1979).
- *De Re Rustica* trans. W.D. Hooper (Cambridge, MA., 1935).
- VEGETIUS *Epitoma rei militaris* ed. C. Lang (Leipzig, 1885), trans. N.P. Milner *Epitome of Military Science* (Liverpool, 1993).
- VITRUVIUS *De architectura libri decem* ed. V. Rose (Leipzig, 1899), ed. and trans. F. Granger *On Architecture* in 2 vols. (Cambridge, MA., 1931).

secondary literature

- ADAMS, C. AND R. LAURENCE (eds) *Travel and Geography in the Roman Empire* (London, 2001).
- ALBU, E. 'Imperial Geography and the Medieval Peutinger Map', *Imago Mundi*, Vol. 57 No. 2 (2005), 136–48.
- ALCOCK, S.F., J.F. CHERRY AND J. ELSNER (eds) *Pausanias: Travel and Memory in Roman Greece* (Oxford, 2001).
- ALFÖLDI, A. 'On the Foundation of Constantinople: A Few Notes', *JRS*, Vol. 37, (1947), 10–16.
- ANASTOS, M.V. 'The Alexandrian Origin of the *Christian Topography* of Cosmas Indicopleustes', *DOP*, Vol. 3 (1946), 73–80.
- ANDERSON, G. *Philostratus: Biography and belles lettres in the third century AD* (London, 1986).
- ANDERSON, J.C. Jr 'The Date of the Thermae Traiani and the Topography of the Oppius Mons', *American Journal of Archaeology*, Vol. 89, No. 3 (1985), 499–509.
- ANTAYA, R. 'The Etymology of Pomerium', *The American Journal of Philology*, Vol. 101, No. 2 (1980), 184–89.
- APPLETON, J. *The Experience of Landscape* (London, 1975).

- ARAFAT, K.W. 'Pausanias' Attitude to Antiquities', *The Annual of the British School at Athens*, Vol. 87 (1992), 387–409.
- *Pausanias' Greece: Ancient artists and Roman rulers* (Cambridge, 1996).
- ARNAUD, P. 'L'origine, la date de rédaction et la diffusion de l'archetype de la Table de Peutinger', *Bulletin de la Société Nationale des Antiquaires de France* (1988), 302–21.
- 'Pouvoir des mots et limites de la cartographie dans la géographie grecque et romaine', *Dialogues d'histoire ancienne* Vol. 15, No. 1 (1989), 9–29.
- 'À propos d'un prétendu itinéraire de Caracalla dans l'Itinéraire d'Antonin: les sources tardives de l'Itinéraire de Rome à Hierasycaminos', *Bulletin de la Société Nationale des Antiquaires de France* (1992), 374–80.
- 'L'Itinéraire d'Antonin: un témoin de la littérature itinéraire du Bas-Empire', *Geographia Antiqua*, Vol. 2 (1993), 33–49.
- ASHBY, T. AND R. GARDNER 'THE VIA TRAIANA', *PBSR*, Vol. 8 (1916), 104–71.
- ASHBY, T. AND R.A.L. FELL 'The Via Flaminia', *JRS*, Vol. 11 (1921), 125–90.
- AVI-YONAH, M. 'The Development of the Roman Road System in Palestine', *IEJ*, Vol. 1 (1951), 54–60.
- 'The Foundation of Tiberias', *IEJ*, Vol. 1 (1951), 160–69.
- *The Madaba Mosaic Map* (Jerusalem, 1954)
- BACHELARD, G. *The Poetics of Space* trans. M. Jolas (Boston, MA., 1994).
- BAGROW, L. *History of Cartography*. Second Ed. rev. R.A. Skelton (Chicago, 1985).
- BALL, W. *Rome in the East: The transformation of an empire* (London, 2000).
- BALLU, A. *Les Ruines de Timgad (Antique Thamugadi)* (Paris, 1897).
- BANAJI, J. *Agrarian Change in Late Antiquity: Gold, Labour, and Aristocratic Dominance* (Oxford, 2001).
- BARLOW, C.W. 'Codex Vaticanus Latinus 4929', *Memoirs of the American Academy in Rome*, Vol. 15 (1938), 87–124.
- BARNES, T.D. *The New Empire of Diocletian and Constantine* (Cambridge, MA., 1982).
- BASSETT, S. *The Urban Image of Late Antique Constantinople* (Cambridge, 2004)
- BATTY, R. 'Mela's Phoenician Geography', *JRS*, Vol. 90 (2000), 70–94.
- BAVANT, B. 'Caričin Grad and the Changes in the Nature of Urbanism in the Central Balkans in the Sixth Century' in Poulter (ed.) *Transition to Late Antiquity*, 337–74.
- BAVANT, B., V. KONDIĆ AND J.-M. SPIESER (eds) *Caričin Grad II: Le quartier sud-ouest de la ville haute* (Belgrade, 1990).
- BAVANT, B. AND V. IVANIŠEVIĆ *Iustiniana Prima / Caričin Grad* (Belgrade, 2003).
- BEAGON, P. 'A Note on Polybius 24.14.8–9', *Classical Quarterly*, New Series, Vol. 45, No. 1 (1995), 245–48.
- BEARD, M., J. NORTH AND S. PRICE *Religions of Rome* Vol. 1 (Cambridge, 1998).
- BEAZLEY, C.R. *The Dawn of Modern Geography: A history of exploration and geographical science*. Vol. 1: From the conversion of the Roman empire to AD 900 (London, 1897).
- 'Madaba Map', *The Geographical Journal*, Vol. 17, No. 5 (1901), 516–20.
- BECKER, J.A., M. MOGETTA AND N. TERRENATO 'A New Plan for an Ancient Italian City: Gabii Revealed', *AJA*, Vol. 113, No. 4 (2009), 629–42.

- BEDON, R., R. CHEVALLIER AND P. PINON *Architecture et Urbanisme en Gaule romaine* in 2 vols. (Paris, 1988).
- BEESON, C.H. 'The Archetype of the Roman Agrimensores', *Classical Philology*, Vol. 23, No. 1 (January, 1928), 1–14.
- BEHREND, O. AND L.C. COLOGNESI (eds) *Die römische Feldmesskunst* (Göttingen, 1992).
- BEJAOU, F. 'Îles et villes de la Méditerranée sur une mosaïque d'Ammaedara (Haïdra en Tunisie)', *Comptes-rendus des séances de l'Académie des Inscriptions et Belles-Lettres*, Vol. 141, No. 3 (1997) 825–58.
- BERCHEM, D. VAN 'L'Année Militaire dans L'Empire Romain au IIIe Siècle', *Mémoires de la Société Nationale des Antiquaires de France*, Vol. 24 (1937), 117–202.
- 'L'itinéraire Antonin et le voyage en Orient de Caracalla (214-215)', *Comptes-rendus des séances de l'Académie des Inscriptions et Belles-Lettres*, Vol. 117, No. 1 (1973), 123–26.
- BERGER, A. 'Viranşehir (Mokisos), eine byzantinische Stadt in Kappadokien', *Istanbuler Mitteilungen*, Vol. 48 (1998), 349–429.
- 'Streets and Public Spaces in Constantinople', *DOP*, Vol. 54 (2000), 161–72.
- BERGGREN, J. L. AND A. JONES *Ptolemy's Geography: an annotated translation of the theoretical chapters* (Princeton, 2000).
- BERNSTEIN, A.H. *Tiberius Sempronius Gracchus: Tradition and Apostasy* (Ithaca and London, 1978).
- BIELER, L. 'The Text Tradition of Dicuil's *Liber de mensura orbis terrae*', *PRIA*, Sec. C, Vol. 64 (1965/1966), 1–31.
- BISCHOFF, B. *Latin Palaeography: Antiquity and the Middle Ages* (Cambridge, 1990).
- BOATWRIGHT, M.T. 'Tacitus on Claudius and the Pomerium', *Annals* 12.23.2-24' *The Classical Journal*, Vol. 80, No. 1 (1984), 36–44.
- 'The Pomerium Extension of Augustus', *Historia*, Vol. 35, No. 1 (1986), 13–27.
- BOËTHIUS, A. *The Golden House of Nero: Some Aspects of Roman Architecture* (Ann Arbor, 1960).
- *Etruscan and Early Roman Architecture* (New Haven and London, 1978).
- BOSANQUET, R.C. 'Greek and Roman Towns I: Streets', *TPR*, Vol. 5, No. 4 (1915), 286–93.
- BOURAS, C. 'City and Village: Urban Design and Architecture' in *XVI Internationaler Byzantinistenkongress: Akten* (Vienna, 1981), 611–53.
- BOWDEN, W., L. LAVAN AND C. MACHADO (eds) *Recent Research on the Late Antique Countryside* (Leiden, 2004).
- BOWIE, E.L. 'Apollonius of Tyana: Tradition and Reality' in *ANRW* II 16.2 (1978), 1652–99.
- 'Past and Present in Pausanias' in D. Musti and J. Bingen *Pausanias historien: huit exposés suivis de discussions* (Geneva, 1996), 207–30.
- 'Denys d'Alexandrie: un poète Grec dans l'empire Romain', *Revue des Etudes Anciennes*, Vol. 106, No. 1 (2004), 177–85.
- BOWMAN, A.K. AND J.D. THOMAS *Vindolanda: The Latin Writing Tablets*. Britannia Monograph Series No. 4 (London, 1983).
- BOWMAN, G. 'Mapping History's Redemption: Eschatology and Topography in the Itinerarium Burdigalense' in L.I. Levine (ed.) *Jerusalem: Its Sanctity and Centrality to Judaism, Christianity and Islam* (New York, 1998), 163–87.

- BRIMER, B. 'Shivta — An Aerial Photographic Interpretation,' *IEJ*, Vol. 31 (1981), 227–29.
- BRODERSEN, K. *Terra cognita: Studien zur römischen Raumerfassung* (Hildesheim, 1995).
- 'Review: Mapping (In) the Ancient World,' *JRS*, Vol. 94 (2004), 183–90.
- BRODERSEN, K. AND J. ELSNER *Images and Texts in the "Artemidorus Papyrus": Working Papers on P.Artemid.* (Stuttgart, 2009).
- BROSHI, M. 'The Population of Western Palestine in the Roman-Byzantine Period' *BASOR*, No. 236 (1979), 1–10.
- BROWN, F.E. 'Cosa I: History and Topography,' *Memoirs of the American Academy in Rome*, Vol. 20 (1951), 5–113.
- *Roman Architecture* (New York, 1961).
- BRUBAKER, L. 'The Relationship of Text and Image in the Byzantine MSS. of Cosmas Indicopleustes,' *Byzantinische Zeitschrift*, Vol. 70 (1971), 42–57.
- BRUNT, P.A. 'The 'Fiscus' and Its Development,' *JRS*, Vol. 56 (1966), 75–91.
- 'Lex de Imperio Vespasiani,' *JRS*, Vol. 67 (1977), 95–116.
- 'Free Labour and Public Works at Rome,' *JRS*, Vol. 70 (1980), 81–100.
- BUCK, R.J. 'The Via Herculia,' *PBSR*, Vol. 39 (1971), 66–87.
- BUNBURY, E.H. *A History of Ancient Geography* in 2 vols. (London, 1879).
- BURNEY, C.A. 'Urartian Fortresses and Towns in the Van Region,' *Anatolian Studies*, Vol. 7 (1957), 37–53.
- BURNEY, C.A. AND G.R.J. LAWSON 'MEASURED PLANS OF URARTIAN FORTRESSES,' *ANATOLLAN STUDIES*, VOL. 10 (1960), 177–96.
- BURNS, A. 'Hippodamus and the Planned City,' *Historia*, Vol. 25, No. 4 (1976), 414–28.
- BUTZMANN, H. (ed.) *Corpus agrimensorum Romanorum. Codex arcerianus A der Herzog-August-Bibliothek zu Wolfenbüttel (Cod. Guelf. 36.23A)* (Leiden, 1970).
- CAILLEMER, A. AND R. CHEVALLIER 'LES CENTURIATIONS ROMAINES DE TUNISIE,' *ANNALES. ÉCONOMIES, SOCIÉTÉS, CIVILISATIONS*. VOL. 12, NO. 2 (1957), 275–86.
- CAMPBELL, B. 'Sharing out Land: Two Passages in the Corpus Agrimensorum Romanorum,' *The Classical Quarterly*, New Series, Vol. 45, No. 2 (1995), 540–46.
- 'Shaping the Rural Environment: Surveyors in Ancient Rome,' *JRS*, Vol. 86 (1996), 74–99.
- CANFORA, L. *The True History of the So-called Artemidorus Papyrus* (Bari, 2007).
- CARDER, J.N. *Art Historical Problems of a Roman Land Surveying Manuscript: The Codex Arcerianus A, Wolfenbüttel* (New York, 1978)
- CAREY, S. *Pliny's Catalogue of Culture: Art and Empire in the Natural History* (Oxford, 2003)
- CARRIÉ, J.-M. 'Le "Colonat du Bas-Empire": un mythe historiographique?', *Opus*, Vol. 1 (1982), 351–70.
- 'Un Roman des Origines: Les Geneologies du "Colonat du Bas-Empire"', *Opus*, Vol. 2 (1983), 205–51.
- 'Diocletien et la Fiscalité,' *Antiquité Tardive*, Vol. 2 (1994), 33–64.
- CARY, M. 'Direction-Posts on Roman Roads?', *The Classical Review*, Vol. 50, No. 5 (1936), 166–67.

- CASSON, L. *Travel in the Ancient World* (London, 1974).
- CASTAGNOLI, F. 'Le "formae" delle colonie romane e le miniature dei codici dei gromatici,' *Atti della Reale Accademia d'Italia*, Series 7, Vol. 4/4 (1943), 83–118.
- *Le ricerche sui resti della centuriazione* (Rome, 1958).
- *Orthogonal Town Planning in Antiquity* (Cambridge, MA., 1971).
- CHASTAGNOL, A. 'Les cadastres de la colonie romaine d'Orange,' *Annales. Économies, Sociétés, Civilisations*, Vol. 20, No. 1 (1965), 152–59.
- CHEVALLIER, R. 'Essai de chronologie des centuriations romaines de Tunisie,' *Mélanges d'archéologie et d'histoire*, Vol. 70, (1958), 61–128.
- 'Cité et territoire. Solutions romaines aux problèmes de l'organisation de l'espace. Problématique 1948–1973,' in *ANRW* II.1 (1974), 649–784.
- *Roman Roads* trans. N.H. Field (London, 1976).
- CHILDE, V.G. 'The Urban Revolution,' *TPR*, Vol. 21, No. 1 (April, 1950), 3–17.
- CHRISTIE, N. AND S.T. LOSEBY (eds) *Towns in Transition: Urban Evolution in Late Antiquity and the Early Middle Ages* (Aldershot, 1996).
- CLARK, K. *Landscape Into Art* (London, 1949).
- CLAVEL-LÉVÊQUE, M. *Casastres et Espaces Rural: Approches et Réalités Antiques* (Paris, 1983).
- COLVIN, B. *Land and Landscape: Evolution, Design and Control*. Second edition (London, 1970).
- CORCORAN, S. *The Empire of the Tetrarchs: Imperial pronouncements and government AD 284–324*. Revised edition (Oxford, 2000).
- COSGROVE, D. 'Prospect, Perspective and the Evolution of the Landscape Idea,' *Transactions of the Institute of British Geographers*, Vol. 10, No. 1 (1985), 45–62.
- (ed.) *Mappings* (London, 1999).
- *Apollo's Eye: A Cartographic Genealogy of the Earth in the Western Imagination* (Baltimore, 2001).
- COURCELLE, P. *Late Latin Writers and their Greek Sources* (Cambridge, MA., 1969).
- COURTOIS, C. *Timgad: Antique Thamugadi* (Algiers, 1951).
- CRAWFORD, J.S. *The Byzantine Shops at Sardis* (Cambridge, MA., 1990).
- CROKE, B. AND J. CROW 'Procopius and Dara,' *JRS*, Vol. 73 (1983), 143–59.
- CROOK, J.A. *Law and life of Rome* (London, 1967).
- CROWFOOT, J.W. *Early Churches in Palestine* (London, 1941).
- CROWFOOT, J.W., K.M. KENYON AND E.L. SUKENIK *The Buildings at Samaria* (London, 1942).
- DAN, Y. 'Palaestina Salutaris (Tertia) and its Capital,' *IEJ*, Vol. 32 (1982), 134–37.
- DAVIES, H.E.H. 'Designing Roman Roads,' *Britannia*, Vol. 29 (1998), 1–16.
- DAVIES, W. AND P. FOURACRE (eds) *The Settlement of Disputes in Early Medieval Europe* (Cambridge, 1986).
- DAVOS, P. 'La Date du Voyage d'Égérie,' *Analecta Bollandiana*, Vol. 85, No. 1 (1967), 165–94.

- DETLEFSEN, D. *Ursprung, Einrichtung und Bedeutung der Erdkarte Agrippas* (Berlin, 1906).
- DEVINE, A.M. 'Aelian's Manual of Hellenistic Military Tactics: A New Translation from the Greek with an Introduction', *The Ancient World*, Vol. 19 (1989), 31–64.
- DILKE, O.A.W. 'The Roman Surveyors', *Greece and Rome*, Vol. 9, No. 2 (1960), 170–80.
- 'Maps in the Treatises of Roman Land Surveyors', *The Geographical Journal*, Vol. 127, No. 4 (1961), 417–26.
- 'Illustrations from Roman Surveyors' Manuals', *Imago Mundi*, Vol. 21 (1967), 9–29.
- *The Roman Land Surveyors* (Newton Abbot, 1971).
- 'Archaeological and Epigraphic Evidence of Roman Land Surveys' in *ANRW* II.1, (Berlin, 1974), 564–592.
- *Greek and Roman Maps* (London, 1985).
- DILLEMANN, L. 'Ammien Marcellin et les pays de l'Euphrate et du Tigre', *Syria*, Vol. 38, Fasc. 1/2 (1961), 87–158.
- *La Cosmographie du Ravennate* (Brussels, 1997).
- DILLER, A. 'The Tradition of Stephanus Byzantium' *Transactions and Proceedings of the American Philological Association*, Vol. 69 (1938), 333–48.
- 'Julian of Ascalon on Strabo and the Stade', *Classical Philology*, Vol. 45, No. 1 (1950), 22–25.
- *The Tradition of the Minor Greek Geographers* (Lancaster, PA, 1952).
- 'The Authors Named Pausanias', *Transactions and Proceedings of the American Philological Association*, Vol. 86 (1955), 268–79.
- 'Agathemerus, Sketch of Geography', *GRBS*, Vol. 16, No. 1 (1975), 59–76.
- DONNER, H. *The Mosaic Map of Madaba: An Introductory Guide* (Kampen, 1992).
- DELLA DORA, V. 'Topia: Landscape before Linear Perspective' in *Annals of the Association of American Geographers* (forthcoming).
- DORSEY, D.A. 'Shechem and the Road Network of Central Samaria', *Bulletin of the American Schools of Oriental Research*, No. 268 (November, 1987), 57–70.
- DOUGLASS, L. 'A New Look at the Itinerarium Burdigalense', *Journal of Early Christian Studies*, Vol. 4, No. 3 (1996), 313–33.
- DOWNY, G. 'Julian the Apostate at Antioch', *Church History*, Vol. 8, No. 4 (1939), 303–15.
- 'Byzantine Architects: Their Training and Methods', *Byzantion*, Vol. 18 (1946–48), 99–118.
- 'The Composition of Procopius, *De Aedificiis*', *Transactions and Proceedings of the American Philological Association*, Vol. 78 (1947), 171–83.
- 'Libanius' Oration in Praise of Antioch (Oration XI)', *Proceedings of the American Philosophical Society*, Vol. 103, No. 5 (1959), 652–86.
- *A History of Antioch in Syria from Seleucus to the Arab Conquest* (Princeton, 1961).
- DRIJVERS, J.W. 'Ammianus Marcellinus on the Geography of the Pontus Euxinus', *Histos*, Vol. 2 (1998), 268–78.
- DUECK, D. 'The Date and Method of Composition of Strabo's *Geography*' in *Hermes*, Vol. 127, No. 4 (1999), 467–78.

- *Strabo of Amasia: A Greek man of letters in Augustan Rome* (London, 2000)
- DUNCAN-JONES, R. 'Length-Units in Roman Town Planning: The Pes Monetalis and the Pes Drusianus', *Britannia*, Vol. 11 (1980), 127–33.
- *Structure and Scale in the Roman Economy* (Cambridge, 1990).
- DZIELSKA, M. *Apollonius of Tyana in legend and history* (Rome, 1986).
- EDSON, E. *Mapping Time and Space: How Medieval mapmakers viewed their world* (London, 1997).
- ELIOT, C.W.J. 'New Evidence for the Speed of the Roman Imperial Post', *Phoenix*, Vol. 9, No. 2 (1955), 76–80.
- ELSNER, J. 'Pausanias: A Greek Pilgrim in the Roman World', *Past & Present*, No. 135 (1992), 3–29.
- 'Hagiographic Geography: Travel and Allegory in the Life of Apollonius of Tyana', *JHS*, Vol. 117 (1997), 22–37.
- 'The Itinerarium Burdigalense: Politics and Salvation in the Geography of Constantine's Empire', *JRS*, Vol. 90 (2000), 181–95.
- ESPÉRANDIEU, É. 'Concession de terres à des colons d'Orange', *Comptes-rendus des séances de l'Académie des Inscriptions et Belles-Lettres*, Vol. 45, No. 5, (1904), 497–502.
- EVANS, G.R. 'The "Sub-Euclidean" Geometry of the Earlier Middle Ages up to the Mid-Twelfth Century' in *Archive for History of Exact Sciences* Vol. 15, No. 2 (1976), 105–18
- EVANS, H.B. 'Agrippa's Water Plan', *American Journal of Archaeology*, Vol. 86, No. 3 (1982), 401–11.
- EVANS, J.A.S. 'The Dates of the *Anecdota* and the *de Aedificiis* of Procopius', *Classical Philology*, Vol. 64, No. 1 (1969), 29–30.
- EYRE, J.J. 'Roman Education in the Late Republic and Early Empire', *Greece & Rome*, Vol. 10, No. 1 (1963), 47–59.
- FAIRMAN, H.W. 'Town Planning in Pharaonic Egypt', *TPR*, Vol. 20, No. 1 (1949), 33–52.
- FAVRO, D. 'Pater urbis: Augustus as City Father of Rome', *Journal of the Society of Architectural Historians*, Vol. 51, No. 1 (1992), 61–84.
- *The Urban Image of Augustan Rome* (Cambridge, 1996).
- FENTRESS, E. (ed.) *Romanization and the City: Creation, Transformations, and Failures*. JRA Supplementary Series 38 (Portsmouth, RI, 2000).
- FINLAY, M.I. (ed.) *Studies in Roman Property* (Cambridge, 1976).
- FIORANI, F. 'Post-Tridentine "Geographia Sacra": The *Galleria delle Carte Geografiche* in the Vatican Palace', *Imago Mundi*, Vol. 48 (1996), 124–48.
- FOERSTER, G. 'The Early History of Caesarea', *Bulletin of the American Schools of Oriental Research. Supplementary Studies, No. 19: The Joint Expedition to Caesarea Maritima. Volume I. Studies in the History of Caesarea Maritima* (1975), 9–22.
- FOLKERTS, M. 'The Importance of the Pseudo-Boethian Geometria During the Middle Age' in M. Masi (ed.) *Boethius and the liberal arts: a collection of essays* (Berne and Las Vegas, 1981), 187–209.
- FORBES, R.J. *Notes on the History of Ancient Roads and their Construction*. Archaeologisch-historische Bijdragen III (Amsterdam, 1934).
- *Studies in Ancient Technology* Vol. II. (Leiden, 1965).

- FOSS, C. 'The Persians in Asia Minor and the End of Antiquity', *EHR*, Vol. 90, No. 357 (1975), 721-47.
- 'Archaeology and the "Twenty Cities" of Byzantine Asia', *AJA*, Vol. 81, No. 4 (1977), 469-86.
- *Ephesus after Antiquity: A late antique, Byzantine and Turkish City* (Cambridge, 1979).
- 'Syria in Transition, AD 550-750: An Archaeological Approach', *DOP*, Vol. 51 (1997), 189-269.
- FRANCIS, J.A. 'Truthful Fiction: New Questions to Old Answers on Philostratus' "Life of Apollonius"', *The American Journal of Philology*, Vol. 119, No. 3 (1998), 419-41.
- FRANGENBERG, T. 'Chorographies of Florence: The Use of City Views and City Plans in the Sixteenth Century' *Imago Mundi*, Vol. 46 (1994), 41-64.
- FRANKFORT, H. 'Town Planning in Ancient Mesopotamia', *TPR*, Vol. 21, No. 2 (July, 1950), 99-115.
- FRAZER, J.G. *Pausanias's Description of Greece* in 6 vols. (London, 1898).
- FREDERIKSEN, M.W. 'The Republican Municipal Laws: Errors and Drafts', *JRS*, Vol. 55, No. 1/2 (1965), 183-98.
- FREDERIKSEN, M.W. AND J.B. WARD-PERKINS 'The Ancient Road Systems of the Central and Northern Ager Faliscus (Notes on Southern Etruria, 2)', *PBSR*, Vol. 25 (1957), 67-203.
- FRENCH, D. 'Pre- and Early-Roman Roads of Asia Minor. The Persian Royal Road', *Iran*, Vol. 36 (1998), 15-43.
- FRIEDLÄNDER, M.J. *Early Netherlandish Painting: From Van Eyck to Bruegel*. Revised edition. trans. M. Kay (London, 1965).
- FRYE, R.N. 'The Political History of Iran Under the Sasanians' in E. Yarshater (ed.) *The Cambridge History of Iran III: The Seleucid, Parthian and Sasanian Periods* (Cambridge, 2000), 116-80.
- GALLAZZI, C., B. KRAMER AND S. SETTIS ET AL. (eds) *Il papiro di Artemidoro (P. Artemid.)* (Milan, 2008).
- GAMBI, L. AND A. PINELLI, ET AL. *La Galleria delle carte geografiche in Vaticano* 3 vols. (Modena, 1994).
- GARGOLA, D.J. *Lands, Laws, & Gods: Magistrates & Ceremony in the Regulation of Public Lands in Republican Rome* (Chapel Hill, 1995).
- GARLAND, K. *Mr Beck's Underground Map* (London, 1994).
- GARSTANG, J. 'Hittite Military Roads in Asia Minor: A Study in Imperial Strategy with a Map' *American Journal of Archaeology*, Vol. 47, No. 1 (1943), 35-62.
- GATIER, P.-L. 'Villages du Proche-Orient protobyzantin (4ème-7èmes.). Étude régionale' in G.R.D. King and A. Cameron (eds) *The Byzantine and Early Islamic Near East II: Land Use and Settlement Patterns* (Princeton, 1994), 17-48.
- GAUTIER DALCHÉ, P. 'Du nouveau sur Aethicus Ister? À propos d'une théorie récente', *Journal des savants* (1984), 175-186.
- 'Notes sur la «carte de Théodose II» et sur la «mappemonde de Théodulf d'Orleans»', *Geographia Antiqua*, Vol. 3 (1994), 91-106.
- 'La trasmissione medievale e rinascimentale della *Tabula Peutingeriana*' in Prontera (ed.), *Tabula Peutingeriana*, 43-52.

- ‘Du nouveau sur la transmission et la découverte de la Tabula Peutingeriana: la «Cosmographia vetustissima» de Pellegrino Prisciani (†1518)’, *Geographia Antiqua*, Vol. 13 (2004), 71–81.
- *La Géographie de Ptolémée en Occident* (IVe–XVIe siècle). *Terrarum Orbis* 9 (Turnhout, 2009).
- GEIGER, J. ‘Julian of Ascalon’, *JHS*, Vol. 112 (1992), 31–43.
- GELB, I.J., P. STEINKELLER AND R.M. WHITING *Earliest Land Tenure Systems in the Near East: Ancient Kudurrus*. Oriental Institute Publications Vol. 104 (Chicago, 1991).
- GERKAN, A. VON *Griechische Städteanlagen: Untersuchungen sur Entwicklung des Städtebaues im Altertum* (Berlin, 1924).
- GERMER-DURAND, E. *La carte mosaïque de Madaba: découverte importante*, 1897 (Paris, 1897).
- GIBSON, J.J. *The Perception of the Visual World* (Cambridge, MA., 1950).
- GIBSON, M. (ed.) *Boethius: His Life, Thought and Influence* (Oxford, 1981).
- GOFFART, W. *Caput and Colonate: Towards a History of Late Roman Taxation* (Toronto, 1974).
- ‘Christian Pessimism on the Walls of the Vatican *Galleria delle carte geografiche*’, *Renaissance Quarterly*, Vol. 51, No. 3 (1998), 788–827.
- GOLD, V.R. ‘The Mosaic Map of Madaba’, *The Biblical Archaeologist*, Vol. 21, No. 3 (1958), 49–71.
- GOMBRICH, E.H. *Art and Illusion: A study in the psychology of pictorial representation*. Second edition (London, 1962).
- ‘The ‘What’ and the ‘How’: Perspective Representation and the Phenomenal World’ in Rudner and Scheffler, *Logic and Art: essays in honor of Nelson Goodman* (Indianapolis, 1972) 129–49.
- *Norm and Form: Studies in the art of the Renaissance I*. Fourth edition. (Oxford 1985).
- GORGES, J.-G. ‘Nouvelle lecture du fragment de Forma d’un territoire voisin de Lacimurga’, *Mélanges de la Casa de Velázquez*, Vol. 29, No. 1 (1993), 7–23.
- GREATREX, G. ‘The dates of Procopius’ works’, *BMGS*, Vol. 18 (1994), 101–14.
- GREGORY, C.R. ‘The Madaba Map’, *The Biblical World*, Vol. 12, No. 4 (1898), 244–50.
- GREGORY, D. ET AL. (eds) *The Dictionary of Human Geography*. Fifth edition (Oxford, 2009).
- GRENIER, A. *Manuel d’Archeologie Gallo-Romaine*. Troisième Partie. (Paris, 1958)
- GRIMAL, P. *Roman Cities* trans. G.M. Woloch (Madison, 1983)
- GUILLAUMIN, J.-Y. ‘La signification des termes contemplatio et observatio chez Balbus et l’influence héronienne sur la traité’ in J.-Y. Guillaumin (ed.) *Mathématiques dans l’antiquité* (St.-Etienne, 1992), 205–14.
- GWYNN, D.M. (ed.) *A.H.M. Jones and the Later Roman Empire* (Leiden, 2008).
- HABICHT, C. ‘An Ancient Baedeker and His Critics: Pausanias’ “Guide to Greece”’, *Proceedings of the American Philosophical Society*, Vol. 129, No. 2 (1985), 220–24.
- *Pausanias’ Guide to Ancient Greece* (Berkeley, 1985).
- HAIMAN, M. ‘Agriculture and Nomad-State Relations in the Negev Desert in the Byzantine and Early Islamic Periods’ *BASOR*, No. 297 (1995), 29–53.

- HAKIM, B.S. 'Julian of Ascalon's Treatise of Construction and Design Rules from Sixth-Century Palestine,' *Journal of the Society of Architectural Historians*, Vol. 60, No. 1 (2001), 4–25.
- 'Mediterranean urban and building codes: origins, content, impact, and lessons' *Urban Design International*, Vol. 13 (2008), 21–40.
- HALL, P. *Cities in Civilization: culture, innovation and urban order* (London, 1998).
- HAMILTON, R.W. *Guide to the Historical Site of Sebastieh* (Jerusalem, 1936).
- HAMMOND, M. *The City in the Ancient World* (Cambridge, Mass., 1972).
- HAMMOND, N.G.L. 'The Western Part of the via Egnatia,' *JRS*, Vol. 64 (1974), 185–94.
- HARLEY, J.B. AND D. WOODWARD (eds) *The History of Cartography*. Volume 1 (Chicago, 1987).
- HARRIES, J. AND I. WOOD (eds) *The Theodosian Code: Studies in the Imperial Law of Late Antiquity* (London, 1993).
- HARRIS, W.B. 'The Roman Roads of Morocco,' *The Geographical Journal*, Vol. 10, No. 3 (1897), 300–03.
- HARRIS, B.F. 'Apollonius of Tyana: Fact and Fiction,' *Journal of Religious History*, Vol. 5 (1969), 189–99.
- HARTSHORNE, R. *The Nature of Geography: A critical survey of current thought in the light of the past* (Lancaster, PA., 1939).
- HASELBERGER, L. *Urbem Adornare: Rome's Urban Metamorphosis Under Augustus*. JRA Supplementary Series 64 (Portsmouth, RI., 2007).
- HAVERFIELD, F. *Ancient Town-planning* (Oxford, 1913).
- 'Centuriation in Roman Britain,' *The English Historical Review*, Vol. 33, No. 131 (1918), 289–96.
- HEATH, T. *A History of Greek Mathematics* Vol. II (Oxford, 1921).
- HEATHER, P. 'The Huns and the End of the Roman Empire in Western Europe,' *EHR*, Vol. 110, No. 435 (1995), 4–41.
- HEIDEGGER, M. *Poetry, Language, Thought* (New York, 1971).
- HELGERSON, R. 'The Land Speaks: Cartography, Chorography, and Subversion in Renaissance England,' *Representations*, No. 16 (Autumn, 1986), 50–85.
- HENDY, M. 'Mint and Fiscal Administration under Diocletian, His Colleagues, and His Successors A.D. 305–24,' *JRS*, Vol. 62 (1972), 75–82.
- HENIG, M. (ed.) *Architecture and Architectural Sculpture in the Roman Empire* (Oxford, 1990).
- HEURGON, J. 'La date des gobelets de Vicarello,' *Revue des Études Ancienne*, Vol. 54 (1952), 39–50.
- 'La fixation des noms de lieux en latin d'après les itinéraires routiers,' *Revue de philologie, de littérature et d'histoire anciennes*, Series 3, Vol. 26 (1952) 169–78.
- 'The Date of Vegoi's Prophecy,' *JRS*, Vol. 49 (1959), 41–45.
- HIATT, A. 'The Cartographic Imagination of Thomas Elmham,' *Speculum*, Vol. 75, No. 4 (2000), 859–86.
- HINRICHS, F.T. 'Der römische Straßenbau zur Zeit der Gracchen,' *Historia*, Vol. 16, No. 2 (1967), 162–76.

- HIRSCHFELD, Y. 'Farms and Villages in Byzantine Palestine', *DOP*, Vol. 51 (1997), 33–71.
- HOHLFELDER, R.L. ET AL. 'Sebastos: Herod's Harbor at Caesarea Maritima', *The Biblical Archaeologist*, Vol. 46, No. 3 (1983), 133–43.
- HOHLFELDER, R.L. 'Beyond Coincidence? Marcus Agrippa and King Herod's Harbor', *Journal of Near Eastern Studies*, Vol. 59, No. 4 (2000), 241–53.
- HOLLIS, A.S. *Fragments of Roman Poetry c.60 BC–AD 20* (Oxford, 2007).
- HOLUM, K.G. ET AL. (eds) *King Herod's Dream: Caesarea on the Sea* (New York, 1988).
- HOPKINS, K. 'Taxes and Trade in the Roman Empire (200 B.C.–A.D. 400)', *JRS*, Vol. 70 (1980), 101–25.
- HOSKINS, W.G. *The Making of the English Landscape* (London, 1955).
- HOWARD-JOHNSTON, J.D. 'The Education and Expertise of Procopius', *Antiquité Tardive*, Vol. 8 (2001), 19–30.
- HOWE, T.N. 'Vitruvian Critical Eclecticism and Roman Innovation', *Memoirs of the American Academy in Rome*, Vol. 50 (2005), 41–65.
- HUNT, E.D. *Holy Land Pilgrimage in the Later Roman Empire AD 312–460* (Oxford, 1982).
- HUNTER, L.W. 'Cicero's Journey to His Province of Cilicia in 51 BC', *JRS*, Vol. 3, Part 1 (1913), 73–97.
- HUNTER, R. 'The *Periegesis* of Dionysius and the Traditions of Hellenistic Poetry', *Revue des Etudes Anciennes*, Vol. 106, No. 1 (2004), 217–31.
- HUTTON, W. *Describing Greece: Landscape and literature in the Periegesis of Pausanias* (Cambridge, 2005).
- ISAAC, B.H. *The Limits of Empire: the Roman army in the East* (Oxford, 1990).
- JACKSON, J.B. *Discovering the Vernacular Landscape* (New Haven and London, 1984).
- *Landscape in Sight: Looking at America* ed. H.L. Horowitz (New Haven and London, 1997).
- JACOB, C. 'The Greek Traveler's Areas of Knowledge: Myths and Other Discourses in Pausanias' Description of Greece', *Yale French Studies*, No. 59 (1980), 65–85.
- *La Description de la terre habitée de Denys d'Alexandrie, ou, la leçon de géographie* (Paris, 1990).
- 'Toward a Cultural History of Cartography', *Imago Mundi*, Vol. 48 (1996), 191–98.
- *The Sovereign Map: Theoretical Approaches in Cartography Throughout History* (Chicago, 2006).
- JAILLETTE, P. 'Les dispositions du Code Théodosien sur les terres abandonnées' in J.-L. Fiches (ed.) *Le IIIe Siècle en Gaule Narbonnaise: Données régionales sur la crise de l'Empire* (Sophia Antipolis, 1996), 333–404.
- JANKO, R. 'The Artemidorus Papyrus', *The Classical Review*, Vol. 59, No. 2 (2009), 403–10.
- JANNI, P. *La mappa e il periplo: cartografia antica e spazio odologico* (Rome, 1984).
- JELlicoe, G. AND S. JELlicoe *The Landscape of Man* (London, 1975).
- JOHNSON, R.J. ET AL. (eds) *The Dictionary of Human Geography*. First through fourth editions (Oxford, 1981, 1986, 1994 and 2000).
- JOHNSTON, W.R. 'Emphyteusis: A Roman "Perpetual" Tenure', *The University of Toronto Law Journal*, Vol. 3, No. 2 (1940), 323–47.

- JONES, A.H.M. 'The Aerarium and the Fiscus', *JRS*, Vol. 40 (1950), 22–29.
- 'Capitatio and Iugatio', *JRS*, Vol. 47, No. 1/2 (1957), 88–94.
- 'The Roman Colonate', *Past & Present*, No. 13 (1958), 1–13.
- 'Over-Taxation and the Decline of the Roman Empire', *Antiquity*, Vol. 33 (1959), 39–43.
- *The Later Roman Empire 284–602: a social, economic and administrative survey* in 3 vols. (Oxford, 1964).
- *The Cities of the Eastern Roman Provinces*. Second edition (Oxford, 1971).
- JONES, C.P. 'The Claudian Monument at Patara', *Zeitschrift für Papyrologie und Epigraphik*, Vol. 137 (2001), 161–68.
- 'Apollonius of Tyana's Passage to India', *GRBS*, Vol. 42 (2001), 185–99.
- KALLET-MARX, R. *Hegemony to Empire: The Development of the Roman Imperium in the East from 148 to 62 BC* (Berkeley, 1995).
- KASTER, R.A. *Guardians of Language: the grammarian and society in late antiquity* (Berkeley, 1988).
- KAZHDAN, A. AND A. CUTLER 'Continuity and Discontinuity in Byzantine History', *Byzantion*, Vol. 52 (1982), 429–78.
- KEDAR, Y. 'Ancient Agriculture at Shivtah in the Negev', *IEJ*, Vol. 7 (1957), 178–89.
- KEHOE, D.P. *Law and the Rural Economy in the Roman Empire* (Ann Arbor, 2007).
- KENNEDY, H. 'From Polis to Madina: Urban Change in Late Antique and Early Islamic Syria', *Past & Present*, No. 106 (1985), 3–27.
- 'The last century of Byzantine Syria: a reinterpretation', *Byzantine Forschungen*, Vol. 10 (1985), 141–83.
- KENNEDY, H. AND J.H.W.G. LIEBESCHUETZ 'Antioch and the Villages of Northern Syria in the Fifth and Sixth Centuries AD: Trends and Problems', *Nottingham Medieval Studies*, Vol. 32 (1988), 65–90.
- KENT, R.G. 'The Etymological Meaning of Pomerium', *Transactions and Proceedings of the American Philological Association*, Vol. 44 (1913), 19–24.
- KING, G.R.D. AND A. CAMERON (eds) *The Byzantine and Early Islamic Near East II: Land Use and Settlement Patterns* (Princeton, 1994).
- KLOTZ, A. 'Die geographischen commentarii des Agrippa und ihre Überreste' in *Klio* 24 (1931), 386–466.
- KNIGHT, R.P. *The landscape, a didactic poem. In Three Books. Addressed to Uvedale Price, Esq.* (London, 1794).
- KOCH, R.A. *Joachim Patinir* (Princeton, N.J., 1968).
- KOSTOF, S. *The City Shaped: Urban Patterns and Meanings Through History* (London, 1991).
- KOTKIN, J. *The City* (London, 2005).
- KRAMER, B. 'The Earliest Known Map of Spain (?) and the Geography of Artemidorus of Ephesus on Papyrus', *Imago Mundi*, Vol. 53 (2001), 115–20.
- KRAUTHEIMER, R. *Early Christian and Byzantine Architecture* (Harmondsworth, 1965).
- 'The Constantinian Basilica', *DOP*, Vol. 21 (1967), 115–40.

- KRINSKY, C.H. 'Seventy-Eight Vitruvius Manuscripts' in *Journal of the Warburg and Courtauld Institutes*, Vol. 30 (1967), 36–70.
- LABROUSSE, M. 'Le pomerium de la Rome impériale', *Mélanges d'archéologie et d'histoire*, Vol. 54 (1937), 165–99.
- LAING, G.J. 'Roman Milestones and the Capita Viarum', *Transactions and Proceedings of the American Philological Association*, Vol. 39 (1908), 15–34.
- LAIYOU, A.E. (ed.) *The Economic History of Byzantium: From the seventh through the fifteenth century* (Washington, D.C., 2002).
- LAMPL, P. *Cities and Planning the Ancient Near East* (London, 1968).
- LANCASTER, L.C. 'Building Trajan's Markets', *American Journal of Archaeology*, Vol. 102, No. 2 (1998), 283–308.
- 'Building Trajan's Markets 2: The Construction Process', *American Journal of Archaeology*, Vol. 104, No. 4 (2000), 755–85.
- *Concrete Vaulted Construction in Imperial Rome: Innovations in Context* (Cambridge, 2005).
- LASSUS, J. *Antioch on-the-Orontes V: Les Portiques d'Antioche* (Princeton, 1972).
- LAST, H. 'The Fiscvs: A Note', *JRS*, Vol. 34 (1944), 51–59.
- LAURENCE, R. *The Roads of Roman Italy: Mobility and Cultural Change* (London, 1999).
- 'Milestones, Communications, and Political Stability' in L. Ellis and F.L. Kidner (eds) *Travel, Communication and Geography in Late Antiquity* (Aldershot, 2004), 41–58.
- LAVAN, L. AND W. BOWDEN (eds) *Recent research in late-antique urbanism*. JRA Supplement 42 (Portsmouth, R.I., 2001).
- LAVEDAN, P. AND J. HUGUENEY *Histoire de l'Urbanisme: Antiquité*. Second edition. (Paris, 1966).
- LEE, A.D. *Information and Frontiers* (Cambridge, 1993).
- LEMERLE, P. *The agrarian history of Byzantium from the origins to the twelfth century: the sources and problems* (Galway, 1979).
- LENSKI, N.E. *The Cambridge Companion to the Age of Constantine* (Cambridge, 2006).
- LEVI, A. AND M. LEVI *Itineraria Picta: Contributo allo studio della Tabula Peutingeriana* (Rome, 1967).
- LEWIN, K. 'Field Theory and Experiment in Social Psychology: Concepts and Methods', *American Journal of Sociology*, Vol. 44, No. 6 (1939), 868–96.
- LEWIS, H.A.G. Review of *The New Cartography* by A. Peters, *The Geographical Journal*, Vol. 154, No. 2 (1988), 298–99.
- LEWIS, M.J.T. *Surveying Instruments of Greece and Rome* (Cambridge, 2001).
- LIEBESCHUETZ, J.H.W.G. 'The end of the ancient city' in Rich (ed.) *The City in Late Antiquity*, 1–49.
- *Decline and Fall of the Roman City* (Oxford, 2001).
- LIEU, S.N.C. (ed.) *The Emperor Julian: panegyric and polemic*. Second edition. (Liverpool, 1989).
- DE LIGT, L. 'Poverty and Demography: The Case of the Gracchan Land Reforms', *Mnemosyne*, Fourth Series, Vol. 57, No. 6 (2004), 725–57.

- LILLEY, K. (ed.) *Mapping Medieval Geographies* (forthcoming, 2012).
- LINTOTT, A.W. *Judicial Reform and Land Reform in the Roman Republic* (Oxford, 1992)
- LOZOVSKY, N. *The Earth is Our Book* (Ann Arbor, 2000).
- 'Roman Geography and Ethnography in the Carolingian Empire', *Speculum*, Vol. 81 (2006), 325–64.
- 'Maps and Panegyrics: Roman Geo-Ethnographical Rhetoric in Late Antiquity and the Middle Ages' in Talbert and Unger (eds) *Cartography in Antiquity and the Middle Ages*.
- LUGAND, R. 'Note sur l'itinéraire maritime de Rome à Arles', *Mélanges d'archéologie et d'histoire*, Vol. 43 (1926). 124–39.
- LYNCH, K. *The Image of the City* (Cambridge, MA., 1960).
- MACDONALD, W.L. *The Architecture of the Roman Empire*. Vol. 1 (New Haven and London, 1982).
- *The Architecture of the Roman Empire*. Vol. 2: *An Urban Appraisal* (New Haven and London, 1986).
- MACKAY, P.A. 'Procopius' *De Aedificiis* and the Topography of Thermopylae', *American Journal of Archaeology*, Vol. 67, No. 3 (1963), 241–55.
- MACMULLEN, R. 'Roman Imperial Building in the Provinces', *Harvard Studies in Classical Philology*, Vol. 64 (1959), 207–35.
- 'The Epigraphic Habit in the Roman Empire', *The American Journal of Philology*, Vol. 103, No. 3 (1982), 233–46.
- *Romanisation in the Time of Augustus* (New Haven and London, 2000).
- MACREADY, S. AND F.H. THOMPSON (eds) *Roman Architecture in the Greek World* (London, 1987).
- MANGO, C. *Byzantium: The Empire of New Rome* (London, 1980).
- *Le développement urbain de Constantinople (IVe–VIIe siècles)* (Paris, 1990).
- MANN, J.C. 'Epigraphic Consciousness' *JRS*, Vol. 75 (1985), 204–06.
- MANSUELLI, G.A. 'Marzabotto. Dix années de fouilles et de recherches', *Mélanges de l'Ecole française de Rome: Antiquité*, Vol. 84, No. 1 (1972), III–44.
- MARKUS, R.A. 'How on Earth Could Places Become Holy? Origins of the Christian Idea of Holy Places', *Journal of Early Christian Studies*, Vol. 2 (1994), 257–71.
- MARROU, H.I. *A History of Education in Antiquity* (London, 1956).
- MATHEWS, T.F. *The Early Churches of Constantinople: Architecture and Liturgy* (University Park, PA, 1971).
- MAUNDE THOMPSON, E. *An Introduction to Greek and Latin Palaeography* (Oxford, 1912).
- MAYERSON, P. 'Ancient Agricultural Remains in the Central Negeb: The Teleilat el-'Anab', *BASOR*, No. 153 (1959), 19–32.
- 'The Desert of Southern Palestine According to Byzantine Sources', *Proceedings of the American Philosophical Society*, Vol. 107, No. 2 (1963), 160–72.
- 'The City of Elusa in the Literary Sources of the Fourth–Sixth Centuries', *IEJ*, Vol. 33 (1983), 247–53.
- MCCRACKEN, G. 'Tibullus, Messalla and the via Latina', *The American Journal of Philology*, Vol. 53, No. 4 (1932), 344–52.

- MCCREDIE, J.R. 'Hippodamus of Miletus' in Mitten, Pedley and Scott, *Studies presented to George M.A. Hanfmann* (Mainz, 1971) 95–100.
- MEINIG, D.W. (ed.) *The Interpretation of Ordinary Landscapes* (Oxford, 1979).
- MERLEAU-PONTY, M. *Phenomenology of Perception* trans. C. Smith (London, 1962).
- MENDYK, S. 'Early British Chorography', *The Sixteenth Century Journal*, Vol. 17, No. 4 (Winter, 1986), 459–81.
- MERRILL, E.T. 'The Bodleian MS of the Notitia', *Classical Philology*, Vol. 3, No. 2 (1908), 190–95.
- MEYER, E.A. 'Explaining the Epigraphic Habit in the Roman Empire: The Evidence of Epitaphs', *JRS*, Vol. 80 (1990), 74–96.
- MILLAR, F. 'The Fiscus in the First Two Centuries', *JRS*, Vol. 53 (1963), 29–42.
- 'Emperors, Frontiers and Foreign Relations, 31 BC to AD 378', *Britannia*, Vol. 13 (1982), 1–23.
- 'Empire and City, Augustus to Julian: Obligations, Excuses and Status', *JRS*, Vol. 73 (1983), 76–96.
- MILLER, K. *Mappaemundi: Die ältesten Weltkarten*. in 6 vols. (Stuttgart, 1895–1898).
- *Die Peutingersche Tafel oder Weltkarte des Castorius* (Stuttgart, 1916).
- *Itineraria Romana: Römische Reisewege an der Hand der Tabula Peutingeriana dargestellt* (Stuttgart, 1916).
- MITCHELL, S. 'Requisitioned Transport in the Roman Empire: A New Inscription from Pisidia', *JRS*, Vol. 66 (1976), 106–31.
- 'Imperial Building in the Eastern Roman Provinces', *Harvard Studies in Classical Philology*, Vol. 91 (1987), 333–65.
- MOFFITT, J.F. 'Medieval Mappaemundi and Ptolemy's Chorographia', *Gesta*, Vol. 32, No. 1 (1993), 59–68.
- 'The Palestrina Mosaic with a »Nile Scene«: Philostratus and Ekphrasis; Ptolemy and Chorographia', *Zeitschrift für Kunstgeschichte*, Vol. 60, No. 2 (1997), 227–47.
- MOMMSEN, T. 'Der Begriff des Pomerium', *Hermes*, Vol. 10, No. 1 (1876), 40–50.
- MOUNTFORD, J.F. 'Silvia, Aetheria, or Egeria?', *The Classical Quarterly*, Vol. 17, No. 1 (1923), 40–41.
- MOUTERDE, R. 'Une dédicace d'Apamée de Syrie à l'approche de Caracalla et l'itinerarium Antonini', *Comptes-rendus des séances de l'Académie des Inscriptions et Belles-Lettres*, Vol. 96, No. 3 (1952), 355–63.
- MOYNIHAN, R. 'Geographical Mythology and Roman Imperial Ideology' in R. Winkes (ed.) *Age of Augustus* (Louvain-la-neuve, 1985), 149–62.
- MÜLLENHOFF, K. 'Über die Römische Weltkarte', *Hermes*, Vol. 9, No. 2 (1875), 182–95.
- MUMFORD, L. *The City in History: Its Origins, Its Transformations, and Its Prospects* (New York, 1961).
- MURGIA, C.E. 'The Dating of Servius Revisited', *Classical Philology*, Vol. 98, No. 1 (January 2003), 45–69.
- NAGLE, D.B. 'The Etruscan Journey of Tiberius Gracchus', *Historia*, Vol. 25, No. 4 (1976), 487–89.
- NAGY, R.M. ET AL. (eds) *Sepphoris in Galilee: Crosscurrents of Culture* (Raleigh, 1996).

- NEGEV, A. 'Survey and Trial Excavations at Haluza (Elusa), 1973', *IEJ*, Vol. 26, (1976), 89–95.
- NICOLET, C. 'De Vérone au Champ de Mars: *Chorographia* et Carte d'Agrippa', *Mélanges de l'école française de Rome*, Vol. 100, No. 1 (1988), 127–38.
- *Space, Geography and Politics in the Early Roman Empire* (Ann Arbor, 1991).
- NICOLET, C. AND P. GAUTIER DALCHÉ 'Les «quatre sages» de Jules César et la «mesure du monde» selon Julius Honorius: réalité antique et tradition médiévale', *Journal des savants*, (1986), 157–218.
- NOHL, H. 'Palladius und Faustinus in ihrem Verhältniss zu einander und zu Vitruvius' in *Commentationes Philologicae in Honorem Theodori Mommseni* (Berlin, 1877), 64–74.
- NORBERG-SCHULZ, C. *Genius Loci: Towards a Phenomenology of Architecture* (New York, 1980).
- OLDHAM, R. D. 'The Antonine Itinerary of the Aurelian Road between Aix and Arles', *The Geographical Journal*, Vol. 72, No. 1 (1928), 58–60.
- OLIVER, J.H. 'The Augustan *Pomerium*', *Memoirs of the American Academy in Rome*, Vol. 10 (1932), 145–82.
- 'North, South, East, West at Arausio and elsewhere' in R. Chevallier (ed.) *Mélanges d'archéologie et d'histoire offerts à A. Piganiol* Vol. 2 (Paris, 1966), 1075–79.
- OLMSTEAD, A.T. *History of the Persian Empire* (Chicago, 1948).
- OLWIG, K.R. 'Recovering the Substantive Nature of Landscape', *Annals of the Association of American Geographers*, Vol. 86, No. 4 (December, 1996), 630–53.
- 'Has 'geography' always been modern?: *choros*, (non)representation, performance, and the landscape', *Environment and Planning*, Vol. 40 (2008) 1843–61.
- OSTROGORSKY, G. 'Byzantine Cities in the Early Middle Ages', *DOP*, Vol. 13 (1959), 45–66.
- *History of the Byzantine State*. Second edition (Oxford, 1968).
- VAN PAASSEN, C. *The Classical Tradition of Geography* (Groningen, 1957).
- PAIS, E. *Ancient Italy* (Chicago, 1908).
- PALET, J.M. AND H.A. ORENGO 'The Roman Centuriated Landscape: Conception, Genesis, and Development as Inferred from the Ager Tarraconensis Case', *American Journal of Archaeology*, Vol. 115, No. 3 (2011), 383–402.
- PALLU DE LESSERT, C. 'Syntaxe des routiers Romains et les déformations des noms de lieux dans l'Afrique Romaine', *Mémoires de la Société Nationale des Antiquaires de France*, Series 7, Vol. 5 (1904–5), 115–38.
- PATTENDEN, P. 'Sundials in Cetus Faventinus', *Classical Quarterly*, New Series, Vol. 29, No. 1 (1979), 203–12.
- PATTERSON, J.R. 'The City of Rome: From Republic to Empire', *JRS*, Vol. 82 (1992), 186–215.
- PETERS, A. *Die Neue Kartographie* trans. W. Kaiser et al. (New York, 1983).
- *Peters Atlas of the World* (Harlow, 1989).
- PEVSNER, N. 'Terms of Architectural Planning in the Middle Ages', *Journal of the Warburg and Courtauld Institutes*, Vol. 5 (1942), 232–37.
- 'Richard Payne Knight', *The Art Bulletin*, Vol. 31, No. 4 (December, 1949), 293–320.

- PICCIRILLO, M. AND E. ALLIATA (eds) *The Madaba Map Centenary 1897–1997: Travelling through the Byzantine Umayyad Period* (Jerusalem, 1998).
- PIGANIOL, A. *Les Documents Cadastraux de la Colonie Romaine d'Orange*. Gallia Supplement 16 (Paris, 1962).
- PIGANIOL A. AND J. SAUTEL 'Inscriptions cadastrales d'Orange', *Gallia*, Vol. 13, No. 1 (1955), 5–39.
- PLATNER, S.B. 'The Pomerium and Roma Quadrata', *The American Journal of Philology*, Vol. 22, No. 4 (1901), 420–25.
- PLATNER, S.B. AND T. ASHBY *A topographical dictionary of ancient Rome* (Oxford, 1929).
- PLOMMER, H. *Vitruvius and Later Roman Building Manuals* (Cambridge, 1973).
- POULTER, A.G. (ed.) *The Transition to Late Antiquity on the Danube and Beyond*. Proceedings of the British Academy 141 (Oxford, 2007).
- POYNTON, J.B. 'Roman Education', *Greece & Rome*, Vol. 4, No. 10 (1934), 1–12.
- PRETZLER, M. 'Turning Travel into Text: Pausanias at Work', *Greece & Rome*, Vol. 51, No. 2 (2004), 199–216.
- PRONTERA, F. (ed.) *Tabula Peutingeriana. Le Antiche Vie Del Mondo* (Florence, 2003).
- PYE, N. Review of Peters Atlas of the World by A. Peters, *The Geographical Journal*, Vol. 155, No. 2 (1989), 295–97.
- Review of Map of the World: Peters Projection, *The Geographical Journal*, Vol. 157, No. 1 (1991), 95–96.
- RALEGH RADFORD, C.A. 'Justiniana Prima (Tsaritsin Grad): a 6th cent. City in Southern Serbia', *Antiquity*, Vol. 28, No. 109 (1954), 15–18.
- RAMSAY, A.M. 'Roman Postal Service under the Republic', *JRS*, Vol. 10 (1920), 79–86.
- 'The Speed of the Roman Imperial Post', *JRS*, Vol. 15 (1925), 60–74.
- RAMSAY, W.M. *The Historical Geography of Asia Minor* (London, 1890).
- 'Phrygian Orthodox and Heretics, 400–800 AD', *Byzantion*, Vol. 6 (1931), 1–35.
- RATTI, S. AND M. CLAVEL-LÉVÊQUE 'Le substrat augustéen dans la Constitutio limitum d'Hygie le Gromatique et la datation du traité', *Dialogues d'histoire ancienne*, Vol. 22 No. 2 (1996), 220–38.
- RAYNOR, D.H. 'Moeragenes and Philostratus: Two Views of Apollonius of Tyana', *The Classical Quarterly*, Vol. 34, No. 1 (1984), 222–26.
- REED, N. 'Pattern and Purpose in the Antonine Itinerary', *The American Journal of Philology*, Vol. 99, No. 2 (1978), 228–54.
- REIFENBERG, A. 'Caesarea: A Study in the Decline of a Town', *IEJ*, Vol. 1 (1951), 20–32.
- REINHOLD, M. *Marcus Agrippa: A Biography* (Geneva, N.Y., 1933).
- RÉMONDON, R. *La Crise de L'Empire Romain de Marc-Aurèle a Anastase* (Paris, 1964).
- REYNOLDS, L.D. *Texts and Transmission: A Survey of Latin Classics* (Oxford, 1983).
- REYNOLDS, L.D. AND N.G. WILSON *Scribes and Scholars: A guide to the transmission of Greek and Latin literature*. Third edition (Oxford, 1991).
- RICH, J. (ed.) *The City in Late Antiquity* (London, 1992).
- RICHARDSON, J.S. 'The Ownership of Roman Land: Tiberius Gracchus and the Italians', *JRS*, Vol. 70 (1980), 1–11.

- RICHARDSON, L. *A New Topographical Dictionary of Ancient Rome* (Baltimore, 1992).
- RICHMOND, I. A. AND C. E. STEVENS 'The Land-Register of Arausio', *JRS*, Vol. 32 (1942), 65–77.
- RIVET, A.L.F. 'Viae aviariae?', *Antiquity*, Vol. 56 (1982), 206–7.
- *Gallia Narbonensis: Southern France in Roman Times* (London, 1988).
- RIVET A.L.F. AND K. JACKSON 'The British Section of the Antonine Itinerary', *Britannia*, Vol. 1 (1970), 34–82.
- RIVET, A.L.F. AND C. SMITH *The Place-names of Roman Britain* (London, 1979).
- RODDAZ, J.-M. *Marcus Agrippa* (Rome, 1984).
- RODGERS, R.H. *An Introduction to Palladius* (London, 1975).
- RODRÍGUEZ ALMEIDA, E. *Forma urbis marmorea: aggiornamento generale 1980* in 2 vols. (Rome, 1981).
- RODRIGUEZ, C. 'The Porticus Vipsania and Contemporary Poetry', *Latomus*, Vol. 51 (1992), 79–93.
- RODWELL, W. 'Milestones, Civic Territories and the Antonine Itinerary', *Britannia*, Vol. 6 (1975), 76–101.
- ROMANO, D.G. 'Roman Surveyors in Corinth', *Proceedings of the American Philosophical Society*, Vol. 150, No. 1 (2006), 62–85.
- ROMER, F.E. *Pomponius Mela's Description of the World* (Ann Arbor, 1998).
- W.W. ROUSE-BALL *A Short Account of the History of Mathematics* Third Ed. (London, 1901).
- RUBIN, R. 'Settlement and Agriculture on an Ancient Desert Frontier', *Geographical Review*, Vol. 81, No. 2 (1991), 197–205.
- RUSSELL, J. 'Transformation in Early Byzantine Urban Life: The Contribution and Limitations of Archaeological Evidence' in *The 17th International Byzantine Congress: Major Papers* (New Rochelle, N.Y., 1986), 137–54.
- SÁEZ FERNÁNDEZ, P. 'Estudio sobre una inscripción catastral colindante con Lacimurga', *Habis*, Vol. 21 (1990), 205–27.
- SALLER, R.P. AND B.D. SHAW 'Tombstones and Roman Family Relations in the Principate: Civilians, Soldiers and Slaves', *JRS*, Vol. 74 (1984), 124–56.
- SALLMANN, K.G. *Die Geographie des älteren Plinius in ihrem Verhältnis zu Varro* (Berlin, 1971).
- SALVIAT, F. 'Orientation, extension et chronologie des plans cadastraux d'Orange' in *Revue Archéologique de Narbonnaise* Vol. 10 (1977), 107–18.
- SALWAY, B. 'The Nature and Genesis of the Peutinger Map', *Imago Mundi*, Vol. 57 No. 2 (2005), 119–35.
- SARRIS, P. *Economy and Society in the Age of Justinian* (Cambridge, 2006).
- SAUER, C.O. *Land and Life: A selection from the writings of Carl Ortwin Sauer* ed. J. Leighly (Berkeley and Los Angeles, 1963).
- SAUVAGET, J. 'Le plan de Laodicée-sur-Mer', *Bulletin d'Études Orientales*, Vol. 4 (1934), 81–114.
- SCHAMA, S. *Landscape and Memory* (London, 1995).
- SCHELTEMA, H.J. 'The *nomoi* of Iulianus of Ascalon' in M. David et al. (eds) *Symbolae*

- ad jus et historiam antiquitatis pertinentes Julio Christiano Van Oven dedicatae* (Leiden, 1946), 349–60.
- SCHIBILLE, N. 'The Profession of the Architect in Late Antique Byzantium', *Byzantion*, Vol. 79 (2009), 360–79.
- SCHNABEL, P. 'Die Weltkarte des Agrippa als wissenschaftliches Mittelglied zwischen Hipparch und Ptolemaeus', *Philologus*, Vol. XC (1935), 405–40.
- SCHULTEN, A. 'Römische Flurkarten', *Hermes*, Vol. 33, No. 4 (1898), 534–65.
- SCHWEDER, E. 'Ueber die Weltkarte und Chorographie des Kaisers Augustus I', *Philologus*, Vol. LIV (1895), 319–44.
- 'Ueber die Weltkarte und Chorographie des Kaisers Augustus II', *Philologus*, Vol. LIV (1895), 528–59 and *Philologus*, Vol. LVI (1897), 130–62.
- SCOTT, R. 'Justinian's Coinage and Easter Reforms and the date of the Secret History', *BMGS*, Vol. II (1987), 215–21.
- SCULLARD, H.H. *The Etruscan Cities and Rome* (London, 1967).
- SEAR, F. *Roman Architecture* (London, 1982).
- SEECK, O. 'Zur Kritik der Notitia Dignitatum', *Hermes*, Vol. 9, No. 2 (1875), 217–42.
- SEGAL, A. *The Byzantine city of Shivta (Esbeita)* (Oxford, 1983).
- 'Shivta – A Byzantine Town in the Negev Desert', *Journal for the Society of Architectural Historians*, Vol. XLIV, No. 4 (December, 1985) 317–28.
- SHERESHEVSKI, J. *Byzantine Urban Settlements in the Negev Desert*. Beer-Sheva V (Beer-Sheva, 1991).
- SHERK, R.K. 'Roman Geographical Exploration and Military Maps' in *ANRW* II.1 (Berlin, 1974), 534–62.
- SHIPLEY, F.W. 'Chronology of the Building Operations in Rome from the Death of Caesar to the Death of Augustus', *Memoirs of the American Academy in Rome*, Vol. 9 (1931), 7–60.
- *Agrippa's Building Activities in Rome* (St. Louis, 1933).
- VAN SICKLE, C.E. 'The Repair of Roads in Spain under the Roman Empire', *Classical Philology*, Vol. 24, No. 1 (1929), 77–88.
- 'The Public Works of Africa in the Reign of Diocletian', *Classical Philology*, Vol. 25, No. 2 (1930), 173–79.
- SIDEBOTTOM, H. 'Pausanias: Past, Present, and Closure', *The Classical Quarterly*, New Series. Vol. 52, No. 2 (2002), 494–99.
- SILBERMAN, A. 'Le premier ouvrage latin de géographie: la Chorographie de Pomponius Méla et ses sources grecques', *Klio*, Vol. 71 No. 2 (1989), 571–81.
- SIVAN, H. 'Who Was Egeria? Piety and Pilgrimage in the Age of Gratian', *The Harvard Theological Review*, Vol. 81, No. 1 (1988), 59–72.
- SJOBERG, G. *The Preindustrial City* (New York, 1960).
- SMITH, J.T. *Roman Villas: A Study in Social Structure* (London, 1997).
- SMITH, R.R.R. AND C. RATTÉ 'Archaeological Research at Aphrodisias in Caria, 1995', *American Journal of Archaeology*, Vol. 101, No. 1 (1997), 1–22.
- SODINI, J.-P. 'La contribution de l'archéologie à la connaissance du monde byzantin (IVe–VIIe siècles)', *DOP*, Vol. 47 (1993), 139–184.

- 'Habitat de l'Antiquité Tardive', *Topoi Orient-Occident*, Vol. 5, No. 1 (1995), 151–218.
- SODINI, J.-P., G. TATE, ET AL. 'Déhès (Syrie du nord) Campagnes I-III (1976-1978): recherches sur l'habitat rural', *Syria*, Vol. 57, No. 1 (1980), 1–304.
- SPIESER, J.-M. 'La christianisation de la ville dans l'Antiquité tardive', *Ktema*, Vol. 11 (1986), 49–55.
- SPIRN, A.W. *The Language of Landscape* (New Haven and London, 1998).
- STADTER, P.A. 'The Ars Tactica of Arrian: Tradition and Originality', *Classical Philology*, Vol. 73, No. 2 (1978), 117–28.
- STEIN, E. *Histoire du bas-empire* in 2 vols (Paris, 1949).
- STEWART, A. AND C.W. WILSON *Itinerary from Bordeaux to Jerusalem* (London, 1887).
- STOCKTON, D. *The Gracchi* (Oxford, 1979).
- STROUD, D. *Capability Brown*. New edition (London, 1975).
- SUNDWALL, G.A. 'Ammianus Geographicus', *The American Journal of Philology*, Vol. 117, No. 4 (1996), 619–43.
- SUTHERLAND, C.H.V. 'Aerarium and Fiscus during the Early Empire', *AJP*, Vol. 66, No. 2 (1945), 151–70.
- SWAIN, S. AND M. EDWARDS (eds) *Approaching Late Antiquity: The Transformation from Early to Late Empire* (Oxford, 2004).
- SYME, R. 'Military Geography at Rome', *Classical Antiquity*, Vol. 7, No. 2 (1988), 227–51.
- *Anatolica: Studies in Strabo* (Oxford, 1995).
- TALBERT, R.J.A. 'Author, Audience and the Roman Empire in the Antonine Itinerary' in R. Haensch and J. Heinrichs (eds) *Herrschen und Verwalten: Der Alltag der römischen Administration in der Hohen Kaiserzeit* (Köln, 2007), 256–70.
- 'Konrad Miller, Roman Cartography, and the Lost Western End of the Peutinger Map' in U. Fellmeth, P. Guyot and H. Sonnabend (eds) *Historische Geographie der Alten Welt: Grundlagen, Erträge, Perspektiven* (Hildesheim, 2007), 353–66.
- 'Peutinger's Roman Map: the Physical Landscape Framework' in M. Rathmann (ed.) *Wahrnehmung und Erfassung geographischer Räume in der Antike* (Mainz am Rhein, 2007), 221–30.
- *Rome's World: The Peutinger Map Reconsidered* (Cambridge, 2010).
- TALBERT, R.J.A. AND K. BRODERSEN (eds) *Space in the Roman World: It's Perception and Presentation* (Münster, 2004).
- TALBERT, R.J.A. AND R.W. UNGER (eds) *Cartography in Antiquity and the Middle Ages: Fresh Perspectives New Methods* (Leiden, 2008).
- TATE, G. *Les Campagnes de la Syrie du Nord du IIe au VIIe Siècle* (Paris, 1992).
- TAYLOR, J.E. *Christians and the Holy Places: The Myth of Jewish-Christian Origins* (Oxford, 1993).
- TCHALENKO, G. *Villages antiques de la Syrie du Nord* in 3 vols (Paris, 1953–1958).
- TEALL, J.L. 'The Age of Constantine Change and Continuity in Administration and Economy', *DOP*, Vol. 21 (1967), 11–36.
- TEJADA, J.V. 'Warfare, History and Literature in the Archaic and Classical Periods: The Development of Greek Military Treatises', *Historia*, Vol. 53, No. 2 (2004), 129–46.
- THÉVENOT, E. *Les Voies Romaines de la Cité des Éduens* (Brussels, 1969).

- THOMPSON, E.A. *A Roman Reformer and Inventor: being a new text of the treatise De Rebus Bellicis* (Oxford, 1952).
- THOMSON, J.O. *History of Ancient Geography* (Cambridge, 1948).
- THONEMANN, P. 'Estates and the Land in Late Roman Asia Minor', *Chiron*, Vol. 37 (2007), 435–78.
- THULIN, C. *Die Handschriften des Corpus Agrimensorum* (Berlin, 1911).
- TIERNEX, J.J. 'Ptolemy's Map of Scotland', *JHS*, Vol. 79 (1959), 132–48.
- 'The Map of Agrippa', *PRIA*, Vol. 63 (1963), 151–66.
- VAN TILBURG, C. *Traffic and Congestion in the Roman Empire* (London, 2007).
- TOMLINSON, R. *From Mycenae to Constantinople: The evolution of the ancient city* (London, 1992).
- TONEATTO, L. 'Tradition manuscrite et éditions modernes du *Corpus agrimensorum Romanorum*' in Clavel-Lévêque, *Cadastrés* (Paris, 1983), 21–50.
- TROUSSET, P. 'La "carte d'Agrippa": nouvelle proposition de lecture', *Dialogues d'histoire ancienne*, Vol. 19, No. 2 (1993), 137–57.
- TSAFRIR, Y. (ed.) *Ancient Churches Revealed* (Jerusalem, 1993).
- TSAFRIR, Y. AND K.G. HOLUM 'Rehovot-in-the-Negev: Preliminary Report, 1986', *IEJ*, Vol. 38 (1988), 117–27.
- TSAFRIR, Y. AND G. FOERSTER 'Urbanism at Scythopolis-Bet Shean in the Fourth to Seventh Centuries', *Dumbarton Oaks Papers*, Vol. 51, (1997) 85–146.
- Č. VASIĆ 'Le plan d'urbanism de la ville haute: essai de reconstruction', in B. Bavant, V. Kondić and J.-M. Spieser (eds) *Caričin Grad II: Le quartier sud-ouest de la ville haute* (Belgrade, 1990), 307–15.
- VANHAVERBEKE, H. *The Chora of Sagalassos: the evolution of the settlement pattern from prehistoric until recent times* (Turnhout, 2003).
- VANN, R.L. *Caesarea Papers: Straton's Tower, Herod's Harbour, and Roman and Byzantine Caesarea*. Journal of Roman Archaeology Supplementary Series No. 5 (Ann Arbor, 1992).
- VERBRUGGHE, G.P. 'The Elogium from Polla and the First Slave War', *Classical Philology*, Vol. 68, No. 1 (1973), 25–35.
- WALKER, P.W.L. *Holy City, Holy Places? Christian Attitudes to Jerusalem and the Holy Land in the Fourth Century* (Oxford, 1990).
- WARD-PERKINS, B. *From Classical Antiquity to the Middle Ages: Urban Public Building in Northern and Central Italy AD 300–850* (Oxford, 1984).
- WARD-PERKINS, J.B. 'The Career of Sex. Julius Frontinus', *The Classical Quarterly*, Vol. 31, No. 2 (April, 1937), 102–05.
- 'Early Roman Towns in Italy', *TPR*, Vol. 26, No. 3 (October, 1955), 126–54.
- 'Etruscan and Roman Roads in Southern Etruria', *JRS*, Vol. 47 (1957), 139–43.
- 'From Republic to Empire: Reflections on the Early Provincial Architecture of the Roman West', *JRS*, Vol. 60 (1970), 1–19.
- *Cities of Ancient Greece and Italy: Planning in Classical Antiquity* (London, 1974).
- *Roman Imperial Architecture* (New Haven and London, 1981).
- WARDEN, P.G. 'The Domus Aurea Reconsidered', *Journal of the Society of Architectural Historians*, Vol. 40, No. 4 (1981), 271–78.

- WATKINS, T.H. 'Colonia Marciana Traiana Thamugadi: Dynasticism in Numidia', *Phoenix*, Vol. 56, No. 1/2 (2002), 84–108.
- WEBER, C. 'Egeria's Norman Homeland', *Harvard Studies in Classical Philology*, Vol. 92 (1989), 437–56.
- WEBER, E. (ed.) *Tabula Peutingeriana: Codex Vindobonensis 324* (Graz, 1976).
- WEINGARTEN, S. 'Was the Pilgrim from Bordeaux a Woman? A Reply to Laurie Douglass', *Journal of Early Christian Studies*, Vol. 7, No. 2 (1999), 291–97.
- WEST, M.L. 'Notes on Dionysius Periegetes', *The Classical Quarterly*, Vol. 42, No. 2 (1992), 568–69.
- WHEELER, G.H. 'Textual Errors in the Itinerary of Antoninus', *The English Historical Review*, Vol. 35, No. 139 (1920), 377–82.
- WHITBY, M. 'Justinian's Bridge over the Sangarius and the Date of Procopius' *de Aedificiis*', *JHS*, Vol. 105 (1985), 129–48.
- 'Procopius' Description of Dara' in P. Freeman and D. Kennedy *The Defense of the Roman and Byzantine East* (Oxford, 1986), 737–83.
- WHITE, K.D. *Roman Farming* (London, 1970).
- WHITE, L.M. *Building God's House in the Roman World* (Baltimore, 1990).
- WHITTAKER, C.R. 'Agri deserti' in M.I. Finlay (ed.) *Studies in Roman Property* (Cambridge, 1976), 137–65.
- 'Mental Maps: Seeing Like a Roman' in P. McKechnie (ed.) *Thinking Like a Lawyer: essays on legal history and general history for John Crook on his eightieth birthday* (Leiden, 2002), 81–112.
- WHITTOW, M. 'Early Medieval Byzantium and the End of the Ancient World', *Journal of Agrarian Change*, Vol. 9, No. 1 (2009), 134–53.
- WILKEN, R. *The Land Called Holy: Palestine in Christian history and thought* (New Haven and London, 1992).
- WILKES, J.J. *Dalmatia* (London, 1969).
- WILKINSON, J. *Jerusalem Pilgrims Before the Crusades* (Warminster, 1977).
- *Egeria's Travels to the Holy Land*. Revised edition (Warminster, 1981).
- WILLIAMSON, C. 'Monuments of Bronze: Roman Legal Documents on Bronze Tablets', *Classical Antiquity*, Vol. 6, No. 1 (1987), 160–83.
- WILSON, M.I. *William Kent: Architect, Designer, Painter, Gardener, 1685–1748* (London, 1984).
- WISEMAN, T.P. 'Viae Anniae', *PBSR*, Vol. 32 (1964), 21–47.
- 'Viae Anniae Again', *PBSR*, Vol. 37 (1969), 82–91.
- 'The Census in the First Century B.C.', *JRS*, Vol. 59, No. 1/2 (1969), 59–75.
- 'Roman Republican Road-Building', *PBSR*, Vol. 38 (1970), 122–52.
- 'Julius Caesar and the Hereford World Map', *History Today*, Vol. 37, No. 11 (1987), 53–57.
- WOLF, C.U. 'Eusebius of Caesarea and the Onomasticon', *The Biblical Archaeologist*, Vol. 27, No. 3 (1964), 65–96.
- WOLSKA-CONUS, W. *La Topographie chrétienne de Cosmas Indicopleustès. Théologie et science au VI^e siècle* (Paris, 1962).

- 'Deux contributions à l'histoire de la géographie I: La Diagnosis Ptoléméenne: date et lieu de composition', *Travaux et Mémoires*, Vol. 5 (1973), 259–73.
- 'Deux contributions à l'histoire de la géographie II: La «carte de Théodose II»: sa destination?', *Travaux et Mémoires*, Vol. 5 (1973), 274–79.
- WOOLF, G. 'Monumental Writing and the Expansion of Roman Society in the Early Empire', *JRS*, Vol. 86 (1996), 22–39.
- WYCHERLEY, R.E. 'Hippodamus and Rhodes', *Historia*, Vol. 13, No. 2 (April, 1964), 135–39.
- WYLIE, J. *Landscape* (London, 2007).
- ZAITSEV, E.A. 'The Meaning of Early Medieval Geometry: From Euclid and Surveyors' Manuals to Christian Philosophy', *Isis*, Vol. 90, No. 3 (1999), 522–53.
- ZANKER, P. *The Power of Images in the Age of Augustus* (Ann Arbor, 1988).