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The spiral reliefs of the Column of Trajan at Rome present the narrative of the Dacian Wars upon a continuous and elongated cartographic landscape, in which a wealth of landforms, including mountains, rivers, streams, springs, and forests serve not only as a setting of human actions, but become elements of the narrative in themselves, as they yield to the relentless efforts of Trajan and his army and engineers. In depicting the campaigns, the reliefs celebrate to a remarkable degree the military engineers and agrimensores (surveyors) who transformed the land as they cleared, measured, and built during the wars. In a circuit from participation in the historical events to their commemoration, the work of these surveyors ultimately contributed to the design of the Column and the stylistic choices of the Column reliefs themselves. Not only the subjects, but the innovative spiral format and the mode of depiction of the Reliefs are indebted in part to the conventions of cartographic practice, while the conceptual framework within which the column's topographic depictions communicate their ideological freight is tied to traditions of ancient geography. Writers such as Strabo, Pliny and Dio Cassius, while providing inconclusive evidence on the locations of topography in the Reliefs, point to the worldview they express: civilizing, imperial, scopic, rational, organizing, controlling nature. This essay examines the Column reliefs as embedded in wider topographical and geographical traditions during Trajan's reign and in Roman antiquity, and proposes some new avenues for understanding the reliefs in these terms.

Keywords: Column of Trajan; Agrimensores; Periplus; Roman; Strabo

In his *Panegyric* to emperor Trajan, Pliny the Younger imagines the fate of Trajan's foe, the Dacian king Decebalus: 'Though he be defended by the seas between, the mighty rivers or sheer mountains, he will surely find that all these barriers yield and fall away before your prowess, and will find that the mountains have subsided, the rivers dried up and the sea drained away, while his country falls a victim not only to our fleets but to the natural forces of the earth!'¹ Thus Pliny, using hyperbole proper to the occasion, equates the Roman imperial mission under Trajan with Rome's dominion over the earth and its features. A similar equation is evident in Roman art in the relief frieze of the Column of Trajan in the Forum of Trajan at Rome, which depicts the emperor's two campaigns into Dacia or present day Romania in 101e2 and 105e6, as they unfold across the topography of southern Europe (Fig. 1).² The narrative appears on the column as a 190 m long spiral band, placing a bewildering array of some 2640 human figures and over

300 built structures into a continuous and elongated 'cartographic landscape.' An unprecedented wealth of landforms, including mountains, rivers, streams, springs, and forests serve not only as a setting of human actions, but become elements of the narrative in themselves, as they yield to the relentless efforts of Trajan and his army in the conquest of Dacia.

Scholars of the reliefs have long noted the striking fact that more scenes of engineering, building and land work appear on this victory monument than scenes of actual battle.³ A description of one passage in the spiral relief illustrates themes joining landscape, engineering and warfare (Fig. 2).⁴ The Roman army is advancing deep into enemy Dacian territory in the southern Carpathian mountains. At the left, soldiers, helmets off and shields to the side, are cutting trees and moving earth with buckets, probably building a road. Two decapitated heads appear on posts before a probable captured Dacian fortress, and farther to the right,

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¹ Pliny the Younger, *Panegyric* to Trajan 68.16.6-13, trans. B. Radice, *Pliny: Letters and Panegyricus*, Cambridge, Mass., 1969, 361.

² Trajan reigned A.D. 98e117; the Column was dedicated in 113; its base became Trajan's tomb on his death in A.D. 117.

³ Recently, E. Thill, *Civilization under construction: depictions of architecture on the Column of Trajan*, *American Journal of Archaeology* 114 (Jan 2010) 27e43; around one quarter of the length of the reliefs depict battles.

⁴ F. Lepper and S. Frere, *Trajan's Column: A New Edition of the Cichorius Plates*, Gloucester, UK, 1988, pls XLeXLII and 101e105; description is drawn from this interpretation.



Fig. 1. The Column of Trajan in Trajan's Forum, Rome, dedicated A.D. 113. Photograph by the author.

mounted Roman cavalry soldiers traverse a mountainous region, depicted as a series of flat textured panels below undulating ridges. They torch a wooden building on stilts within a fenced Dacian village, while a stone fortress appears high on a ridge above. Below and further right, Trajan himself appears, riding calm and helmetless on horseback, across a curious combination causeway and bridge. A group of Dacian warriors appears behind an undulating ridge to spy the Romans below, who torch another Dacian building. Next comes a Roman fort under construction: a partly finished turf fort is tilted forward in aerial, bird's eye view to reveal a group of soldiers going about the labor of cutting, moving and stacking turves, into what appears rather as an ashlar stone construction, whose hard edges and sharp corners contrast with the undulating topography. Another, completed camp appears just beyond with a tent inside, and Trajan and two officers receive a kneeling enemy figure in a pose of supplication.

The scene is emblematic of the theme of conquest through the mastery of terrain in the reliefs. In recounting the campaigns, they celebrate to a remarkable degree the labors of Trajan's armies, but especially his military surveyors and engineers, who translate enemy land into a Roman province as they clear, measure, excavate and build in the course of two wars. The skills of these specialists were in fact indispensable to the transformation of land that was a central feature of Roman imperialism.⁵ In addition to tasks in the field of war, military surveyors collected data that they later used to create illustrated accounts and maps, and the designers of the reliefs will have drawn from this material in the commemoration of the campaigns.⁶ The reliefs reveal also a familiarity among the designers with spatial and narrative concepts developed in contemporaneous geographical writing.⁷ Roman-centric geography and Roman imperialism often shared ideological goals as well. The geographer Strabo writes to a Roman audience in his *Geographica*: 'Moreover, the greatest generals are without exception men who are able to hold sway over land and sea,' and 'Geography as a whole has a direct bearing on the activities of commanders.'⁸ Roman military ventures were associated with geographical exploration since the Republic, and a reciprocal

relationship developed over time: military campaigns incorporated geographical objectives, and geographical knowledge was acquired and disseminated through *commentarii*, or written dispatches by generals from the field.⁹ So the Column reliefs parallel and illustrate Trajan's lost multivolume written account of the Dacian wars, the *Dacica*.¹⁰ This essay considers such associations in order to address some persistent questions regarding the sources of the Trajan's Column reliefs. Analysis of the reliefs in relation to cartography and geography reveals a debt to these practices in terms of their depicted subjects, formal style and narrative strategy, and underscores the communicative power of landscape and its interventions in their political message. In accordance with recent scholarship on mapping and geographical writing as culturally-specific instruments of persuasion, the frieze may be analyzed on the one hand as a kind of vast populated map, and on the other as an illustrated geographical treatise. Such a focus emphasizes the very depiction of terrain, as well as its mode of depiction, as ideologically freighted activities. I begin by introducing the position of geographical studies in the literature on the Column, and the likely origins of the reliefs' landscape setting in triumphal imagery. Then the role of surveyors, engineers and cartography are assessed, both in the depicted subjects and in the relation of survey practice to the style of the reliefs. I conclude with a discussion of geographical writing as a model and analog to the fusion of landscape and narrative in the frieze. The cultural geography of Strabo provides a means to understand its groundbreaking approach to continuous narrative, and points to the interconnectedness between landscape, storyline and imperialist ideology in the reliefs.

⁵ A. Godlewski and N. Smith (Eds), *Geography and Empire*, Oxford, UK, 1994; C. Nicolet, *Space, Geography, and Politics in the Early Roman Empire*, Ann Arbor, 1991.

⁶ Evidence of the surveyors' contributions to the reliefs is discussed below.

⁷ Modern studies have sought to identify the nature of ancient spatial conceptions or mental maps, to which the Column reliefs may contribute: see for instance R. Talbert, *The Roman worldview: beyond recovery?* in: K. Raaflaub, R. Talbert (Eds), *Geography and Ethnography: Perceptions of the World in Pre-Modern Societies*, West Sussex, UK, 2010, 252e272.

⁸ Strabo, *Geographica* 1.1.16, trans. Horace Jones, *The Geography of Strabo*, Cambridge, Mass., 1960, 31.

⁹ For instance, the geographer and historian Polybius accompanied the general Scipio Aemilianus to Carthage during the Third Punic War, and his coastal explorations led to a written geography of the region, discussed by R. Sherck, Roman geographical exploration and military maps, in: W. Haase, H. Temporini (Eds), *Aufstieg und Niedergang der Römischen Welt*, Berlin, II. 1, 1974, 534e562; the geographer Strabo drew on Caesar's account of Britain and Gaul in his *Bellum Gallicum*; L. Cornelius Balbus, while governor of Africa in c. 20 B.C., made an expedition deep into Libya, and was awarded a triumph for it, where mountains and rivers were carried in procession, Sherck, Roman geographical exploration and military maps, 537.

¹⁰ A fact that points to the complex relationship between art and text in the reliefs: Trajan's account is discussed by Lepper and Frere, *Trajan's Column* (note 4), 226e229; the position of the Column between the Greek and Latin libraries in Trajan's Forum is relevant to this issue, as G. Mangani, *Cartografia Morale: Geografia, Persuasione, Identità*, Modena, 2006, 60, observes.



Fig. 2. Trajan's Column relief, scene with fort building and destruction of enemy camps. Conrad Cichorius: 'Die Reliefs der Traianssäule', Erster Tafelband: 'Die Reliefs des Ersten Dakischen Krieges', Tafel XLXLII, Verlag von Georg Reimer, Berlin, 1896; accessed at Wikimedia Commons, public domain: http://commons.wikimedia.org/wiki/Trajan%27s_Column_-_Cichorius_Plates.

Scholarly background, initial questions

Since the beginning of organized research on the Column of Trajan, scholars have commented on the highly developed sense of setting in the reliefs, and cartographic and geographic principles have been variously applied to their study. However, early writing in this light was limited chiefly to attempts at identification of specific locales and events in the scenes, using the fragmentary ancient literary evidence for the Dacian Wars in combination with data from modern archeology and geography. Since the first such effort by Conrad Cichorius in 1896, this approach has been repeated but has proven to be largely futile or inconclusive at best, as most place depictions on the Column remain resistant to positive identification.¹¹ While the quest for locational specifics continues to be of

interest in recent studies, current work on geographical themes in the reliefs has asked more fruitful questions regarding their stylistic and spatial conventions, elements of cartography in the scenes, depictions of built structures in the landscapes, and the innovative continuous spiral frieze format, which may be indebted to the *rotuli* or continuous scroll forms of certain ancient maps.¹² However, these studies have introduced geography in passing or have referred to the Column in the context of external subjects, and no recent writing has addressed geography and cartography in the reliefs as a primary topic. This essay contributes to the scholarship on the Column of Trajan reliefs through its focus on geographical themes, and by its application of perspectives arising from new

geographical and cartographical scholarship in addressing some of the Column's persistent questions.¹³ This focus will finally serve to underline the art historical revolution represented by the Column, and the very modern conception of its reliefs. Issues of space, narrative and ideology form a bridge between art history and geography that may illuminate both.

One question should be addressed before others: why are landscape and interventions on the land so abundantly depicted in this monument? As discussed below, topography had been incorporated into Roman conquest narratives in art and text since the Republic. Certainly the conquest of Dacia was a geographical achievement: exceptionally challenging terrain was mastered through the efforts of Trajan's skilled experts and men. However, the answer must lie in part in the biography of its patron: Trajan was the paradigm of an emperor who put his stamp on the terrain of Italy and the Mediterranean, famed for expanding the spatial extent of the empire to its maximum (6.5 million sq. km. by his death in 117), engaging in extensive road building, and patronizing ambitious architectural projects. Thus it is fitting that Trajan would forefront this work in his own commentary and in guidelines for the reliefs.¹⁴ Both Pliny the Younger and Dio Cassius emphasize that Trajan was an ever-present, hands on commander during the wars, overseeing each construction and land intervention personally, as is reflected in his numerous appearances on the Column (Fig. 3).¹⁵ In addition, Apollodorus of Damascus, the chief military engineer on both Dacian campaigns, later became the chief designer of the Forum and

¹¹ The first major attempt to equate the reliefs with literary evidence for topography as well as the actual terrain was C. Cichorius, *Die Reliefs der Traianssäule*, Berlin, 1896; others followed, such as G.A.T. Davies, *Topography and the Trajan Column*, *Journal of Roman Studies* 10 (1920) 1e28; K. Lehmann-Hartleben, *Die Trajanssäule: Ein Römisches Kunstwerk zu Beginn der Spätantike*, Berlin, 1926, argued that identification of specific topography on the Column was impossible; but E.T. Salmon, *Trajan's conquest of Dacia, Transactions and Proceedings of the American Philological Association* 67 (1936) 83e105, claimed that 'it is notorious that the chronology and geography of Trajan's Dacian campaigns are very speculative,' before proceeding to speculate on the locations and routes; as Lepper and Frere recently note, 'The Column may indeed have a lot to offer with regard to the run of the episodes in each war, but as an aid for topography it is, and surely will remain, tantalizingly ambivalent,' *Trajan's Column* (note 4), 41; fragmentary description of the wars comes from Dio Cassius' *Roman History*, book 68; of Trajan's own *Dacica* a single sentence is preserved: *inde Berzobim, deinde Aizi processimus*, or 'We then advanced to Berzobim, next to Aizi,' Priscian 520, VI 13; ancient literary sources name only five specific place names associated with the campaigns.

¹² G. Koeppel, *The grand pictorial tradition of Roman historical representation, Aufstieg und Niedergang der Römischen Welt II, Principat* 12.1 (1982) 507e535, Berlin, and esp. 514e517, discusses the spatial conventions adopted in the topographical and architectural depictions on the reliefs; G. Koeppel, *A military itinerarium on the Column of Trajan: scene L*, *Römische Mitteilungen* 87 (1980) 301e306, finds evidence of cartography as a source of the landscape iconography; Thill, *Civilization under construction* (note 3), examines the style as well as subjects of the reliefs' many architectural depictions; the relation of the spiral frieze to linear scrolls or *rotuli* was early explored by T. Birt, *Die Buchrolle in der Kunst: archäologisch-antiquarische Untersuchungen zum antiken Buchwesen*, Leipzig, 1907, 269e315; the roll form of the famous Peutinger map has been recently studied by R. Talbert, *Rome's World: The Peutinger Map Reconsidered*, Cambridge, UK, 2010.

¹³ My hope is thus to contribute both to Column studies and geographical scholarship, as Katherine Clarke writes in *Between Geography and History*, Oxford, UK, 1999, 4: 'a study of the ancient sources in the light of the arguments of modern geographers can contribute to refining some of their assertions, with the result that both the ancient and the modern studies are enriched.'

¹⁴ The role of Apollodorus of Damascus as the designer of the Forum and likely 'maestro' of the reliefs under Trajan's guidance is discussed below: Trajan was a major builder, for which writers such as Pliny and Dio Cassius praise him: most of the roads of Italy were repaired during his reign including the Via Appia, and new roads were built, especially Trajan's *Via Traiana* from Beneventum to Brindisi; R. Laurence writes that 'the scale of works conducted throughout Italy by Trajan was unprecedented, and is confirmed by a shortage of land surveyors,' *The Roads of Roman Italy*, London, 1999, 47e48.

¹⁵ Trajan stands within a fort while overseeing bridge and fort building, Lepper and Frere, *Trajan's Column* (note 4), pl XV; Pliny writes, 'Nothing escaped your direction or your observant eye. a distant look at a camp was not enough for you..,' *Panegyricus* 13.2 and 15.2-5; the veracity matters less than its promotion as the official image of the emperor.

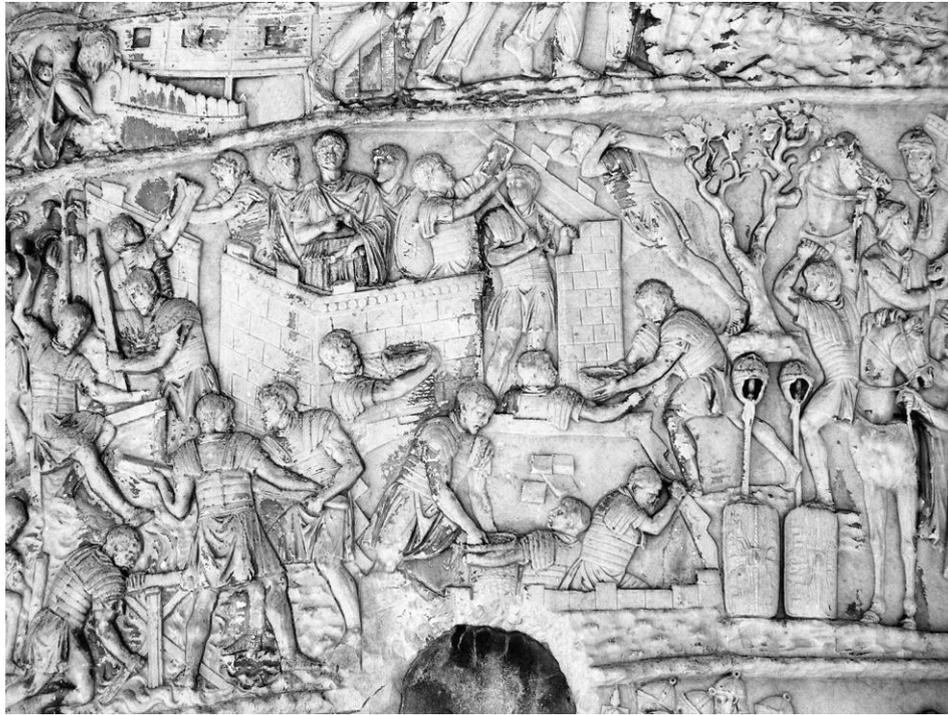


Fig. 3. Trajan's Column relief, scene with Trajan overseeing bridge and fort building. Lepper and Frere, *Trajan's Column*, pl XV. Photograph by the author.

Markets of Trajan, and likely the 'maestro' in charge of the design of the Column reliefs as well, thus creating a reciprocal connection between the execution of the wars and their commemoration.¹⁶ And the surveyor Balbus, who served as lead military surveyor during the wars, afterward wrote an illustrated commentary that will have contributed valuable information to the relief imagery. This arrangement would be rather comparable to the American military's chief surveyors and engineers returning home from a military intervention to direct a very expensive documentary about the experience. However, topography is also central to the formal innovations of the reliefs, and the genius of the designers' pioneering helical linear narrative frieze relies on the establishment of a continuous landscape as its setting.

The extraordinary emphasis on land and its interventions in the Column reliefs has prompted scholars to seek the origins of their richly developed setting. Sources have usually been identified in a pre-existing tradition of Roman triumphal images which are attested in literature from the Republic onward. These images, combining battle scenes with quasi-topographic settings, were produced in varied media for triumphal celebrations at Rome.¹⁷ A visual counterpart and adjunct to the commanders' written accounts or *commentarii*, triumphal images were intended to depict the events and settings of battles fought while conveying a maximal impression of the commander's *virtus*. Painted boards, banners, models and floats were displayed in public or carried aloft among the spoils and

trophies paraded through the capital. 'Here was seen a prosperous country devastated, walls of surpassing size demolished by engines, strong fortresses overpowered, cities with well manned defenses completely mastered, temples set on fire, houses pulled down over their owners' heads,' writes Josephus, who marvels at the procession of images carried in the triumph of Titus and Vespasian after the Jewish wars.¹⁸ So Pliny writes to Trajan: 'Already I seem to see before me a triumph. [I] watch the wagons pass with their loads to show the fearful ventures of the savage foe, each prisoner following, hands bound, *the scene of his own deeds*.' (my italics).¹⁹ A narrative quality may have been introduced when a moving sequence of triumphal images was carried before stationary crowds.²⁰ Triumphal images employed cartographical elements: for instance, Livy writes that in 177 BC, Tiberius Sempronius Gracchus erected in Rome a map of Sardinia superimposed with battles scenes.²¹

Cartography and ideology

The ideological content and persuasive motive that underlie the use of topography in both the triumphal images and the reliefs are clarified through modern scholarship on cartographic practice. On the whole, cartography as a scientific discipline has in the last three decades undergone challenges from various quarters, leading to an understanding of maps not as self evident and neutral descriptions of the world, but as constructed and fraught cultural products & as texts,

¹⁶ The role and identity of Apollodorus are discussed by Lepper and Frere, *Trajan's Column* (note 4), 187e192.

¹⁷ I. Östenberg, *Staging the World: Spoils, Captives, and Representations in the Roman Triumphal Procession*, Oxford, UK, 2009; M. Beard, *The Roman Triumph*, Cambridge, Mass., 2009; R. Brilliant, 'Let the trumpets roar!' The Roman triumph, in: B. Bergmann, C. Kondoleon (Eds), *The Art of Ancient Spectacle*, New Haven and London, 1999, 221e230.

¹⁸ Josephus marvels at the procession of images carried in the triumph of Titus and Vespasian after the Jewish wars, *Bellum Iudicum*, 7.142-144; unfortunately none of these images, often attested in literature, have survived.

¹⁹ Pliny, *Panegyric to Trajan* (note 1), 68.17.1-18.

²⁰ It is significant that these images gained narrative qualities through movement before a static audience, whereas the Column reliefs present static images that may have been 'read' by viewers in motion: the procession of thousands of depicted figures marching on the Column is analogous to the multitudes filing in a triumphal procession, though the direction of depicted movement is reversed: out toward the empire's periphery versus into the heart of the Forum Romanum.

²¹ 'During the year a tablet was placed in the temple of Mater Matuta, there was a representation of the island and pictures of the battles on the tablet,' Livy, *History of Rome*, 41.28; as always, we cannot even be sure what medium the image was created in, much less the specific look of the representation.

presenting 'a deceptive appearance of naturalness and transparency concealing an opaque, distorting, arbitrary mechanism of representation, a process of ideological mystification.'²² As instruments of persuasion, maps have been recognized as essential to colonial

enterprises; so Brian Harley writes of colonial European maps of the Americas as 'spectacular illustrations of how an anticipatory geography served to frame colonial territories in the minds of statesmen

and territorial speculators back in Europe.'²³ Such motives can be located behind the use of landscape in the triumphal images and in the reliefs. If these images prompted Roman viewers to visualize the physical circumstances of distant conquest, the addition of cartographic elements were intended to enhance the feeling of veracity and immediacy in the telling. Giorgio Mangani argues that the very syntax of ancient maps gave them persuasive power, instigating a mnemonic process that created an enduring impression in viewers' minds.²⁴ I argue that the style and content of the reliefs were similarly intended to persuade viewers of the 'scientific, objective truth' of depicted events, however mythologized the account might be. In triggering a reflective process, the reliefs exploited popular perceptions of maps in Roman culture, wherein the very depiction of territory was associated with acquisition and control. Thus a letter of the 290's from the master of a school in Autun to the emperor Diocletian, requesting the repair or replacement of a world map:

Let the young men see and examine daily every land and all seas and whatever cities, peoples, nations, our most invincible rulers either restore by affection or conquer by valor. There let the finest accomplishments of the bravest emperors be recalled through different representations of regions.. *For now, now at last it is a delight to examine a picture of the world, since we see nothing in it which is not our own* (my italics).²⁵

Aside from the writer's evident recognition of persuasive language, the letter traffics in a time-honored equation between visualization of land and its conquest.²⁶ This equation is revealed in numerous ancient references to Roman monuments, such as the great map commissioned by Agrippa at Augustus' request and set up in the Porticus Octaviae in Rome, itself a 'veritable billboard advertising Rome's progress toward world domination.'²⁷ As the practical branch of Roman land measure and imaging, the arts of surveying and map making were tied to imperialism in an explicit manner, and new studies of the Roman surveyors have stressed the centrality of the work of these experts to the project of empire.²⁸

Geography and Empire: Apollodorus and Balbus

The themes of topography and conquest on the reliefs reflect in fact a long history of close ties between military ventures and geographic exploration involving survey, documentation and mapping, as is attested in the records of numerous joint military-geographical expeditions from the Roman Republic onward.²⁹ Daniela Dueck writes of 'a circular line in which cause and effect constantly switch roles, conquests stimulated geography and geography encouraged more conquests.'³⁰ The campaigns of Alexander the Great had already set the stage for this alliance, as Alexander brought with him *bematistai* and *mensores* (literally 'measurers'), survey experts who measured distances by counting paces, and who recorded place names and features in the terrain.³¹ This data was later incorporated into written and illustrated records of the campaigns. Roman commanders seized on Alexander's model, and early began to employ surveyors in the theater of war. Intended chiefly to trumpet their own achievements, they sent informative dispatches or *commentarii* to Rome, which increasingly included geographical description collected by surveyors. Julius Caesar's commentary on the Gallic war, the *Bellum Gallicum*, is a notable example of such a document.³² Geography thus became an element of that Roman aristocratic desire to memorialize personal achievements in biography, serving to provide setting, local color and an aura of factual reporting, but also to equate topographical knowledge with dominance and to see and know the land is to own it: 'veni, vidi, vici.'³³

In the course of the empire, the increasing professionalism of the army led to the rise of a class of trained military surveyors and engineering specialists, whose tasks in the field comprised not only measuring and recording, but also the design and execution of military projects. This was true of Trajan's Dacian Wars, for which the surveyor Balbus was commissioned as lead military surveyor, while the famed Apollodorus of Damascus became Trajan's chief military engineer.³⁴ These men directed the daily measurement and recording of distances, routes and landforms, as well as laying out of camps, and creating the designs of structures such as roads, canals and bridges, and siege machines. Their centrality to the war mission as well as its commemoration is reflected in the fact that after the wars, Apollodorus became the chief designer of the Forum of Trajan and the vast monument to the emperor's successful campaigns, paid for with Dacian spoils.³⁵ Situated in the midst of this grandest of the imperial fora, the Column of Trajan tells the

²² W.J.T. Mitchell, *Iconology: Image, text, ideology*, Chicago, 1986, 8. See also J.B. Harley, Deconstructing the map, *Cartographica* 26, 2 (1989) 1e20; Mangani, *Cartografia Morale* (note 10). Talbert, *Rome's World* (note 12), has undertaken an intensive study of the Peutinger Table using recent theoretical approaches.

²³ J. Brian Harley, Rereading the maps of the Columbian encounter, *Annals of the Association of American Geographers* 82, 3 (1992) 522e536; Harley concludes, 'Maps were the first step in the appropriation of territory,' 532.

²⁴ Mangani, *Cartografia Morale* (note 10), 37e55, treats Roman maps specifically as persuasive mnemonic devices acting like 'telescopes' on distant terrain, writing, 'il processo mnemonico si rivelava come un potente sistema persuasivo' (47).

²⁵ Eumenius, *Panegyrici Latini* 9(4).20.2-21.3, discussed by Talbert, *Rome's World* (note 12), 137e148 and n. 18.

²⁶ Harley discusses the notion of 'map preceding territory' in Rereading the maps of the Columbian encounter (note 23).

²⁷ The map's author and patron are cited by Pliny the Elder, *The Natural History* 3.2.17; quote by T. Corey Brennan, review of C. Nicolet, *Space, Geography, and Politics in the Early Roman Empire*, Ann Arbor, 1991, Bryn Mawr Classical Review 03.02.18, <http://bmc.bryn-mawr.edu/1992/03.02.18.html>.

²⁸ For instance, S. Cuomo, *Divide and Rule: Frontinus and Roman Land-Surveying*, London, 2000.

²⁹ Joint military-geographical ventures such as Nero's expedition into the upper Nile at Nubia and Polybius' studies of the environs of the Tunisian coast during Scipio Aemilianus' sack of Carthage are discussed, with a list of major Roman ventures, by Sherk, Roman geographical exploration and military maps (note 9).

³⁰ D. Dueck, *Strabo of Amasia, A Greek Man of Letters in Augustan Rome*, London and New York, 2000, 125.

³¹ Pliny, *Natural History* 6, 61, discussed by Sherk, Roman geographical exploration and military maps (note 9), 535 and n. 3.

³² Pompey, Julius Caesar, Germanicus, Vespasian and Trajan among others published *commentarii* which included geographic information including maps; Strabo is known to have drawn from Caesar's account for his descriptions of Britain and Gaul.

³³ Written on a placard carried in Julius Caesar's triumph, as described in Suetonius, *De Vita Caesarum: Julius*, 37.2.

³⁴ The identity of Balbus is discussed by B. Campbell, *The Writings of the Roman Land Surveyors: Introduction, Text, Translation, and Commentary*, London, 2000, xxxix-e1.

³⁵ Apollodorus was an expert on siege machines used during the wars, and his treatise on the subject is preserved; L. Lancaster argues that Apollodorus used these skills to design the machinery used for the incredibly difficult task of erecting the Column of Trajan itself, Building Trajan's Column, *American Journal of Archaeology* 103 (Jul 1999) 419e439; a rich assortment of siege machines is depicted in the reliefs; the role and identity of Apollodorus are discussed by Lepper and Frere, *Trajan's Column* (note 4), 15e19.

story of the Dacian Wars with remarkable emphasis on the actions of these experts depicting fort building, road cutting, and designed structures such as buildings, bridges and causeways, along with scenes of battle, appearances by Trajan, diplomatic embassies, sacrifices and marching scenes. Much of the source material for the reliefs will have come from the records created by Balbus and Apollodorus, which were probably translated into narrative imagery by Apollodorus himself, as consensus among scholars identifies him as the 'maestro' of the Forum and Column design, and perhaps of the format and imagery of the reliefs.³⁶ In considering the richness of topographical detail and land work as subjects in the reliefs, the unique role of these experts at both ends of the equation should not be underestimated, although we can be certain that Trajan will have exercised ultimate control over the relief design.

Interventions on the land in Dacia

The Column reliefs reveal a geographical emphasis in their depiction of landscape, but also in the many depictions of interventions on the land during the conquest of Dacia. The frieze depicts the Roman armies having left the territory of Rome, and marching, riding and sailing to engage the Dacians and their allies. Traveling on a northwest route on the order of a thousand miles each way, tens of thousands of legionaries and auxiliaries followed the course of the Danube and its tributaries and upward into the southern Carpathians, which reach an altitude of some 2500 m, and finally toward the mountain fastness of the Dacian capital of Sarmizege-
 thusa.³⁷ As Dio writes, Trajan 'set about scaling the very peaks of the mountains, capturing, not without danger, crest after crest, and drew near the Royal City of the Dacians.'³⁸ As depicted in the reliefs, the armies' inexorable forward and upward push entailed hacking roads out of forests, building causeways across challenging terrain, and building bridges and canals. The Danube features as a virtual protagonist in the Dacian Wars a river which marked a frontier of the Roman empire, a border between the civilized and 'barbarian' world, and the starting point of the Column's depiction of war. Thus Pliny famously writes to Trajan: 'How magnificent it was, August Emperor, to stand on the Danube's bank, knowing that a triumph was certain did you but cross.'³⁹ The Danube is fittingly the chief topographic feature opening the scenes of the Column reliefs, as the Column itself appears to rise from a ring of roiling waters at its base (Fig. 4). The river's well known shaggy personification rises from the waters a seemingly willing witness as the Roman legions cross into enemy territory on pontoon bridges.⁴⁰ Near the so-called

Iron Gates on the Danube, a notoriously treacherous rapid filled gorge between modern Serbia and Romania, Trajan's engineers daringly carved an elevated roadway into the sheer rock cliffs over the river for twelve miles.⁴¹ Half of the width of the road was cantilevered over the flood on wooden beams. The achievement is memorialized on the Tabula Traiani, an inscription carved on the cliff face over the left bank of the Danube.⁴² This carved road is probably depicted on the Column, in a scene with Trajan himself riding on horseback along a rocky ledge, while workers finish a stone tablet.⁴³ At Drobeta (Turnu Severin, Romania), Apollodorus built his famed bridge over the Danube.⁴⁴ Completed by 105, it was the longest arch-span bridge in the world for the next thousand years, and was a crucial factor in the success of the wars. Dio Cassius devotes a lengthy passage to the feat of erecting the bridge in the deep gorge, describing its stone piers rising 150 feet from their foundations in the river bed.⁴⁵ The dedication of this bridge is depicted on the Column, where among the figures shown standing next to Trajan, two carefully delineated characters stand out, whose identities have been proposed as Apollodorus and the surveyor Balbus (Fig. 5).⁴⁶

In their efforts to tame the Danube on the campaigns, Trajan's engineers made canals off the river at particularly dangerous sections. Near modern Sip, Serbia, the remains of one of these canals was the site of discovery in 1969 of an inscription dated A.D. 101, stating that Trajan, 'because of the danger of cataracts, diverted the river and made navigation on the Danube safe.'⁴⁷ This canal or another like it may be depicted on the Column, where an irregular but framed and linear water course is shown running vertically up the scene.⁴⁸ In these interventions on the earth, Trajan appears to take on the mantle of the Hellenistic dynasts before him, whose own works had served grandiose ambitions in the wake of Alexander's.⁴⁹ Trajan in fact modeled himself on Alexander, and hoped to match his exploits.⁵⁰ This relief's emphasis on the 'conquest of topography' is revealing of the theme of man's struggle against nature in ancient thought, and indicative of ancient concepts of environmental determinism. As implied by Pliny in the opening quote, forces of nature and geographical features were understood as participants in human affairs, often in the role of antagonist. The Earth's acquiescence or active aid to a few charismatic figures was a sign of divine sanction. So Pliny describes the failure of Domitian, Trajan's predecessor in Dacia: 'Rivers witnessed this shameful travesty; the Danube and the Rhine were delighted to play their part in our disgrace,' in contrast with the success of Trajan: 'You were scarcely more than a boy when the Rhine and Euphrates were united in admiration for you.'⁵¹ A striking feature of the reliefs

³⁶ R. Bianchi Bandinelli, *Storicità Dell'arte Classica, Nuova Edizione*, Florence, 1950, 209, who proposed the title 'maestro' to describe Apollodorus' role.

³⁷ Lepper and Frere, *Trajan's Column* (note 4), 293e294, estimate an invasion force of 39,000 legionaries and 53,000 auxiliaries, totaling 92,000.

³⁸ Dio Cassius, *Roman History* 68.8.3 (note 11).

³⁹ *Magnum est, imperator auguste, magnum est stare in Danubii ripa, si transeas certum triumphi*, Pliny, *Panegyricus to Trajan*, 68.16.3-4.

⁴⁰ Pliny echoes this personification when he refers to the failure of Domitian, Trajan's predecessor in Dacia: 'Rivers witnessed this shameful travesty; the Danube and the Rhine were delighted to play their part in our disgrace.', *Panegyricus* 82.4.

⁴¹ Discussed by J. , Trajan's canal at the Iron Gate, *Journal of Roman Studies* 63 (1973) 80e85.

⁴² 'The emperor Trajan Augustus Germanicus after cutting down mountains (montibus excisis) made this road,' discussed by Rossi, *Trajan's Column and the Dacian Wars*, Ithaca, 1971, 182.

⁴³ Lepper and Frere, *Trajan's Column* (note 4), pl LXXI; identified by Rossi, *Trajan's Column and the Dacian Wars* (note 42).

⁴⁴ Procopius, *De Aedificiis* 4.6.13 identifies Apollodorus of Damascus as the chief architect of the bridge, and says that Apollodorus wrote a treatise on the bridge's construction; discussed in Lepper and Frere, *Trajan's Column* (note 4), 187.

⁴⁵ Dio Cassius, *Roman History* 68.13 (note 11).

⁴⁶ Lepper and Frere, *Trajan's Column* (note 4), 148 and pl LXXII.

⁴⁷ , Trajan's canal at the Iron Gate (note 41); again it is notable that the act of shaping the earth and diverting the river are commemorated.

⁴⁸ Lepper and Frere, *Trajan's Column* (note 4), pl LIII.

⁴⁹ N. Purcell discusses the cultural background of such landscape modifications, the standards set by Hellenistic dynasts but begun by archaic Greek tyrants and Persian kings: 'Town in country and country in town,' in: E. MacDougall (Ed.), *Ancient Roman Villa Gardens*, Washington, DC, 1987, 187e203, here 193.

⁵⁰ Sherck, *Roman geographical exploration and military maps* (note 9), 541.

⁵¹ Pliny the Younger, *Panegyric to Trajan* 13.4, 82.4, Pliny: *Letters and Panegyricus*, (note 1), 342 and 367.

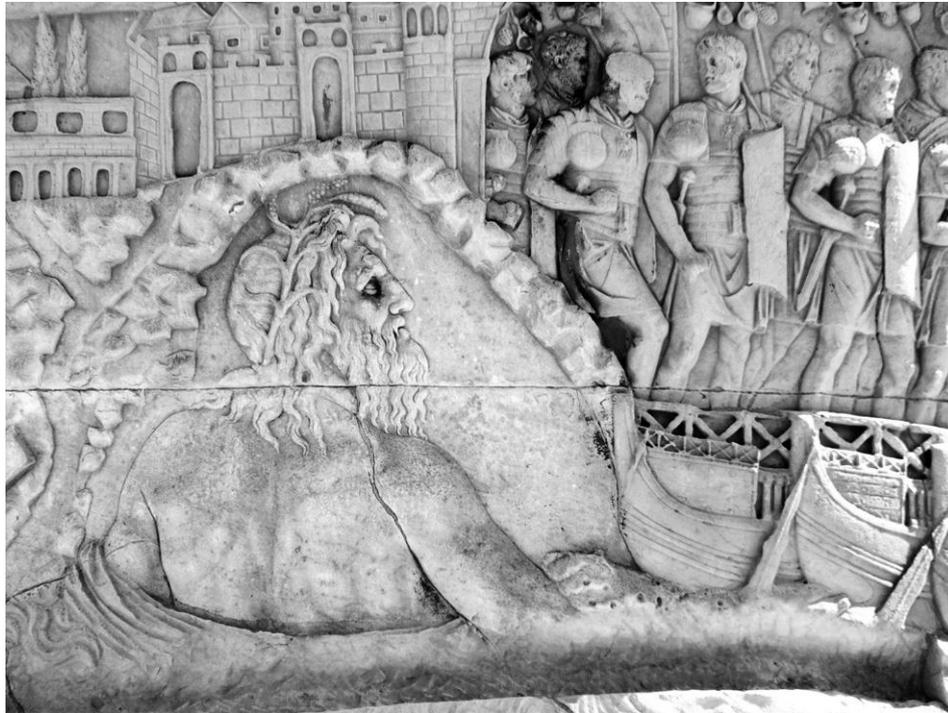


Fig. 4. Trajan's Column relief, detail with Danuvius personified and soldiers on a pontoon bridge. Photograph by the author.

is their celebration not only of Trajan's exploits, but also the efforts of the armies, and especially the achievements of the engineers and surveyors in taming foreign land.

Balbus and the agrimensores

Roman surveyors were called *mensores* or *agrimensores*. The occupation had its most flourishing period during the reign of Trajan in the early second-century A.D., as the emperor expanded the empire to its historic peak, and as he initiated major road building and other projects.⁵² A number of these surveyors accompanied Trajan on his Dacian campaigns.⁵³ Balbus is named as Trajan's chief agrimensor; he was a civilian surveyor and geographer called to duty for the wars, and he wrote an account and record of the work on his return.⁵⁴ Balbus and his team were indispensable to Trajan, as Balbus relates in his surviving commentary, where he writes of Trajan's call to service from his work as a civilian surveyor:

The famous expedition of our most revered emperor intervened, and I thought about nothing but military glory. But after we entered enemy territory for the first time, the operations of our emperor immediately began to require surveying skill. Two aligned straight lines (*rigores*) had to be established, with a defined width for the roadway between them, and by means of these a huge earthwork was constructed to protect communications. In respect of the survey of bridges, we were able to work out from the adjacent bank the width of rivers, even if the enemy launched repeated

attacks. Furthermore, that skill venerated by the gods showed us how to work out the height of mountains that had to be stormed. After it had been tested in the great events in which I participated, I began to cultivate this skill more devoutly, as if it were worshiped in all of the temples, and hastened to complete this book as if I were fulfilling a vow (my italics). Therefore after our mighty emperor had victoriously occupied Dacia, he immediately permitted me to leave the northern region for a year, and I returned to my studies..⁵⁵

Balbus claims to have been indispensable in those interventions that feature so prominently in the Column reliefs: road cutting, building bridges over rivers, and the conquest of mountains. He expresses pride in a sophisticated practice of surveyors' skills under dangerous circumstances and skills which he elevates to a kind of religion. It is notable that Balbus emphasizes a religious background to his art, consideration of which sheds some light on how Roman spatial conceptions intersect with imperialism in the reliefs. The practices of the civilian *agrimensores* arose in fact within a ritual based indigenous Roman tradition, which derived from practices of Etruscan oracular priests, or augurs. Augurs oriented their spatially-grounded readings using sightings of the four quadrants of the sky.⁵⁶ The agrimensor Hyginus Gromaticus (who was active during Trajan's reign) stresses the ritual origin of his art, and describes the actions of the augur in the foundation ritual of a city and its territory: standing on a high exposed temple platform (*auguraculum*), the augur visually scans the land to the horizon and divides it into four quadrants, drawing two crossing lines at the

⁵² In addition to building projects such as the port at Ostia and the Forum, Trajan was a major road builder: most of the roads of Italy were repaired in his reign, as a multitude of milestones attest; Laurence, *The Roads of Roman Italy* (note 14).

⁵³ Sherck, Roman geographical exploration and military maps (note 9); Dilke, Illustrations from Roman surveyors' manuals (note 27).

⁵⁴ Campbell, *Writings of the Roman Land Surveyors* (note 34), 204e215; Sherck, Roman geographical exploration and military maps (note 9), 541e542.

⁵⁵ Balbi ad Celsum, 20e37, in Campbell, *Writings of the Roman Land Surveyors* (note 34), 205.

⁵⁶ Dilke, Illustrations from Roman surveyors' manuals (note 27), 9.

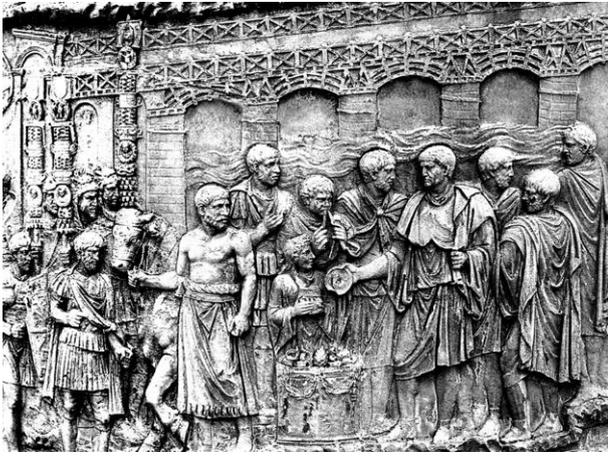


Fig. 5. Trajan's Column relief, detail with possible portraits of Apollodorus and Balbus. Conrad Cichorius: 'Die Reliefs der Traianssäule', Zweiter Tafelband: 'Die Reliefs des Zweiten Dakischen Krieges', Tafel LXXII, Verlag von Georg Reimer, Berlin, 1900; accessed at Wikimedia Commons, public domain: http://commons.wikimedia.org/wiki/File:072_Conrad_Cichorius_Die_Reliefs_der_Traianssäule_Tafel_LXXII.jpg.

physical, conceptual and sacred center.⁵⁷ Hyginus' description suggests that an agrimensor was present during the augural ritual, who would then be responsible for measuring out the territory identified by the augur. Chief among the surveying instruments of the agrimensores was the groma, thought to have been borrowed from an Etruscan instrument whose name derives from the Greek gnomon (or sundial needle).⁵⁸ The groma was a tall staff, surmounted by two crossing poles at right angles.⁵⁹ Sighting across this device translated the augur's four quadrants into the linear, orthogonal division of town plans from the crossing of the principal cardo and decumanus streets. So the locus gromae marked the conceptual and sacred center of a town, much as the oracular temple marked the prima loca gromae of the colony.⁶⁰ The groma was employed to create the division of land into grids, or centuriation, that is so characteristic of Roman settled territory, and it was used to sight for roads and lay out the marching camps and fortresses that appear in such profusion on the reliefs.

Agrimensores on campaign

As Balbus suggests in the aforementioned quote, military agrimensores carried out duties additional to their civilian counterparts. Along with measuring, road surveying and cutting, surveyors laid out marching camps and permanent fortresses as a chief recurrent duty on campaign.⁶¹ By the end of each day on the march in enemy territory, surveyors would move ahead of the body of

troops and proceed to measure out the plan of a new marching camp. They began by placing the *groma* at the chosen center, to divide the space into quadrants and mark the crossing of the two principle avenues and four gates.⁶² Then they laid out the placement of the headquarters, the *principia*, and the *aedes* e the shrine where the battle standards would stand at the *locus gromae* e the spatial and sacred center point of the camp. The surveyed plan was then realized by the soldiers and engineers on their arrival.⁶³ The analogy with the civic practices of surveyors is evident, and the resemblance of orthogonal Roman city plans to camps is not coincidental. So Hyginus writes that 'in military camps the groma is set up at the crossroads where men can assemble, as to a forum.'⁶⁴ The design and placement of the Column itself in the Forum of Trajan may resonate with this emphasis on the surveyors' role. G. Rodenwaldt presented in 1926 the intriguing theory that the design of the Forum of Trajan is intended to recall that of a legionary fortress, with the Basilica Ulpia on the main axis like the camp principium in its plaza, the Forum libraries in positions analogous to the records-stores in a camp, and the Column in its court between, in the location analogous to the *aedes* shrine where the imperial portrait, the Eagle and legionary Standards were placed and worshiped.⁶⁵ This plan recalls again the ritual character of the surveyors' orientation from a center point, and suggests the interpretation of the Column as a kind of axis mundi e appropriate also for the function of the Column base as Trajan's own tomb, on his death in August of A.D. 117.

Marching camps with a standardized internal organization were considered a distinctly Roman form of construction e a reason for Roman military superiority, reflecting a strong discipline. The ability to choose a good camp site was a mark of a good emperor and his expert surveyors. Camps were usually left intact: remains of camps could provide a visual reminder to local peoples of the discipline and presence of the Roman army, as permanent symbols of the power of Rome. Especially in the case of permanent stone fortresses, the image of a great walled compound stood as a sign of the empire itself, and Rome, its capital city of stone. Of the over 300 built structures depicted on the Column reliefs, the majority are camps and fortresses, and thus a considerable portion of the reliefs celebrates the work of the agrimensores and engineers in this ideologically freighted activity. Their very depiction on the Column creates a strong formal contrast with the landscape setting, where undulating mountain crests are continually punctuated by the rigidly straight lines and orthogonal forms of the implanted camps. This contrast is significant, and leads back to the agrimensores' practice: the surveyors' manuals emphasize an essential distinction between the curving lines of 'wild' territory, and the straight lines and right angles of surveyed land: mathematized and geometricized, and thus apprehended by the surveyor.⁶⁶

⁵⁷ Hyginus Gromaticus, whose surname derives from the groma: *Constitutio Limitum* 1e36, in Campbell, *Writings of the Roman Land Surveyors* (note 34), 135; Hyginus begins: 'It has its origin in the heavens, and its legacy is timeless.'

⁵⁸ Dilke, *Illustrations from Roman surveyors' manuals* (note 27), 9.

⁵⁹ A groma was discovered in 1912 in the House of Verus at Pompeii; another is depicted in relief on the tomb of Lucius Aebutius Faustus, from Eporodia in northern Italy.

⁶⁰ Discussed by J. Palet and H. Orengo, 'The Roman centuriated landscape: conception, genesis, and development as inferred from the Ager Tarraconensis case,' *American Journal of Archaeology* 115.3 (Jul 2011) 383e402.

⁶¹ Sherk, *Roman geographic exploration* (note 9), 551; J. Peddie, *The Roman War Machine*, Conshohocken, PA, 1996, 62e64.

⁶² The Column of Marcus Aurelius at Rome shows mensores fixing a camp site using the groma.

⁶³ C.M. Gilliver, *The Roman Art of War*, Charleston, 1999, 65.

⁶⁴ *In castris groma ponitur in tetrantem, qua uelut ad forum conueniatur*; Hyginus Gromaticus, *Constitutio Limitum* 46, in Campbell, *Writings of the Roman Land Surveyors* (note 34), 135; Campbell cites an inscription of 267/268 from the headquarters of the Roman camp at Lambaesis, which calls it the *groma* rather than *principia*.

⁶⁵ This argument is reviewed by P. Davies, 'The politics of perpetuation: Trajan's Column and the art of commemoration,' *American Journal of Archaeology* 101 (Jan 1997) 41e65, here 61 n. 100, as first proposed by G. Rodenwaldt, *Review of H. Lehner, Das Romerlager Vetera bei Xanten. Ein Führer durch die Ausgrabungen des Bonner Provinzialmuseums*, Bonn, 1926, *Gnomon* 2 (1926) 338e339.

⁶⁶ Thus Cuomo observes, 'The opposition between surveyed and non-surveyed territory in Frontinus is presented as one between straight (lines) and right (angles) on the one side and sinuous, wavy or oblique (lines) on the other. These terms are not just descriptive e in ancient Latin and Greek usage, and still in many languages today, they usually carried positive or negative connotations,' *Divide and Rule* (note 28), 12.

Balbus states in his commentary that he was given leave by Trajan after the wars to write his survey text, pointing to the other side of the contributions of the military surveyors to the Column reliefs: documentation and illustration. In civilian practice, agrimensores produced maps of surveyed land and its features, which included manmade structures such as buildings, according to established pictorial traditions.⁶⁷ The permanent versions of these maps were most often etched in bronze and put on public display.⁶⁸ The importance of such survey maps is reflected for instance in their likely use as sources in the famous world map set up by Agrippa at Rome.⁶⁹ Trajan's agrimensores were charged with creating the topographical account of Dacia, including measuring and recording distances and landforms, in text as well as sketches and maps, that would become the visual adjunct to Trajan's own commentary, and that must have formed a crucial backbone to the composition of the Column reliefs themselves. This fact is one that makes the contributions of Balbus and the agrimensores so interesting regarding the Column.

The conventions of depiction developed in survey practice are related in several important aspects to the mode of depiction deployed in the Column reliefs.⁷⁰ The chief features of the pictorial system of the reliefs include a semi-abstract, formulaic rendition of space, combining bird's eye views, stacking of figures, and multiple viewpoints. This mixed system has been discussed in terms of the evolution of Roman relief carving, where it is viewed as a chiefly a Roman innovation.⁷¹ Such a mode contrasts strongly with a Hellenistic Greek derived pictorial mode, which is exemplified for instance in the Alexander Mosaic from Pompeii.⁷² In the mosaic (probably derived from a Hellenistic painting), the ground level is conceived as a plane at 90° to the picture plane, creating a low horizon. All elements of the scene, figures and ground, are presented from a single unified viewpoint. The devices of Hellenistic naturalistic illusionism are employed: depth is suggested by movement of objects within a deep depicted space, with foreshortening, diminution, overlapping and a consistent perspective. Human figures dominate the scene, and elements of landscape are extremely restrained (one dead tree).

In contrast, the Column reliefs' wealth of landscape and setting elements employ varied perspectival systems combined in a single scene. On the one hand, topographical features including mountains are viewed as 'flat' and from a low side view. Terrain usually fills the visual field with no apparent horizon, and runs to the top of the scene like a map, and occasionally features such as rivers run

vertically or at the top border of the relief band ϵ like a map.⁷³ Figures in the reliefs are viewed straight on from the side, and may be 'stacked' vertically if in numbers, but rarely in a depth of more than two figures, and are generally to be read as farther away if higher in the scene, with little diminution for depicted depth. However, built structures such as forts and buildings in cities are presented using an entirely different spatial system: an aerial, axonometric projection, commonly known as 'bird's eye' view. Tilted at an angle and viewed from above to reveal interiors, they inhabit their own three dimensional world.⁷⁴ The overall result is an abstract and formulaic rather than naturalistic rendition of pictorial space. This is an illogical combination of views that contrasts with Hellenistic illusionism, but is consistent with that of Roman map illustrations, which combine perspectives, and where the bird's eye view serves to convey information on the interiors of structures.

We are fortunate that number of Roman survey illustrations have been preserved in the agrimensores' manuals, which are known together as the *Corpus Agrimensorum Romanorum*.⁷⁵ These are original Roman imperial illustrated texts preserved in later copies.⁷⁶ There are two basic types of illustrations in these manuals: map-diagrams, which employ single lines on a flat schematic ground to indicate roads, limites, centuriations, and rivers. Deploying no illusion of space, these works are close to a modern conception of a map, and represent the format of the bronze or marble tablets, such as the so-called Orange Cadasters, that agrimensores prepared for display in colonial towns.⁷⁷ A second type is the pictorial illustration, in which features and structures are depicted in color and with varying degrees of spatial illusionism.⁷⁸ While natural features such as mountains are depicted from a side view, built structures are depicted in the 'bird's eye' axonometric view, as if looking down at an angle with interiors of courtyards and walls exposed. These two categories may be joined, in what has been called 'chorographic cartography,' where flat cartography is combined with three dimensional illustration.⁷⁹ This kind of depiction shares some critical features with the Column of Trajan reliefs, whose traits were discussed above: 'bird's eye' view depictions of structures, a flat treatment of space with the plane tilted upward, and with topography appearing throughout the visual field.

One scene in the Column reliefs directly incorporates a conventionalized representation from such a surveyor's illustration (Figs. 6 and 7).⁸⁰ In the scene, Trajan stands before a zigzag pattern running vertically in raised relief above two arches. Four rhomboids line the turns in the zigzag. This motif quotes the symbol conventions

⁶⁷ 'The appearance of the maps is beautiful and the marking out of the fields is attractive,' Hyginus 6-7, in Campbell, *Writings of the Roman Land Surveyors* (note 34), 135.

⁶⁸ Thus Siculus Flaccus, 'Maps of divided lands have different names; some inscribed them on wooden tablets, others on bronze, others on parchment,' *De Conditionibus Agrorum* 25e27, in Campbell, *Writings of the Roman Land Surveyors* (note 34), 121.

⁶⁹ Dilke, *Illustrations from Roman surveyors' manuals* (note 27), 10.

⁷⁰ Cartographic conventions and their relation to triumphal art are discussed by P. Holliday, *The Origins of Roman Historical Commemoration in the Visual Arts*, Cambridge, UK, 2002, 104e112.

⁷¹ Koeppl, *The grand pictorial tradition of Roman historical representation* (note 12); Holliday, *The Origins of Roman Historical Commemoration in the Visual Arts* (note 71).

⁷² A. Cohen, *The Alexander Mosaic: Stories of Victory and Defeat*, Cambridge, UK, 1997.

⁷³ Additional features of the reliefs evocative of map illustration include for example, rivers running parallel to the spiral frieze (Lepper and Frere pl XIV, XXXV), rivers and other water bodies flowing vertical to the frieze and at the top of the scene (pl XX, LII, XCIV), mountains filling the picture field (pls XLIIeXLIV, LVII), and most explicitly, a vertical zigzag line and lozenges reproducing exactly the agrimensore's symbols for roads and camps or cities (pl XXXVII).

⁷⁴ Examined in Roman paintings by P. Von Blanckenhagen, *Paintings from Boscotrecase*, Heidelberg, 1962, 54e57.

⁷⁵ Campbell, *The Writings of the Roman Land Surveyors* (note 34), Dilke, *Illustrations from Roman surveyors' manuals* (note 27).

⁷⁶ The copies are relatively early, perhaps from the sixth century; Of these, two of the most important have illustrations: A (Arcerianus, 36, 23 Aug. 2), 6th or 7th century, parchment, 31.5 x 24.5 cm., at Wolfenbüttel; and P (Pal. Vat. lat. 1564), 9th century, parchment, 27.8 x 19.2 cm., in the Vatican; Dilke, *Illustrations from Roman surveyors' manuals* (note 27), 11e12.

⁷⁷ The so-called Orange Cadasters are an enormous set of marble survey maps (7.56 x 5.90 m) dated A.D. 77.

⁷⁸ Manuscript P (Pal. Vat. lat. 1564), 9th century, parchment, 27.8 x 19.2 cm., Vatican. Dilke, *Illustrations from Roman surveyors' manuals* (note 27), pl 1e.

⁷⁹ Campbell, *Writings of the Roman Land Surveyors* (note 34), xxiv.

⁸⁰ Peutinger Table, detail: Lepper and Frere, *Trajan's Column* (note 4), pl XXXVII.



Fig. 6. Peutinger Table, detail. Accessed at Wikimedia Commons, public domain: http://commons.wikimedia.org/wiki/File:Tabula_Peutingeriana_Complete.jpg.

of the agrimensores in depicting roads, with jogs indicating distance to each town.⁸¹ Here the rhomboids probably symbolize military camps in aerial perspective, while the arches stand for monumental entries to a bridge. In addition to the other cartographic references in the reliefs, this literal quotation from technical survey maps proves their use in the conception of the reliefs.

In making a connection between them I do not want to suggest that the conventions of surveyors' map illustrations were the direct source of the style and 'syntax' of the reliefs. The surveyor's illustrations are probably themselves derived in part from Roman landscape painting traditions, such as discovered around the bay of Naples e although it has been argued that the bird's eye aerial view in Roman painting was derived from cartographic practice.⁸² In a complex and reciprocal relationship, no single or simple direction of influence can be inferred. However, the reliefs share with the survey maps a heterogeneous mix of perspectives, viewpoints and scales, in contrast with most late republican and early imperial painting which preserves the unified perspective characteristic of Hellenistic depiction. This fragmentation of the unified viewpoint in the Column reliefs has led some writers to view them as an early example of the fragmentation of rational space depiction characteristic of late antique art.⁸³ The relief setting was not derived directly from surveyors' maps; nevertheless the designers of the

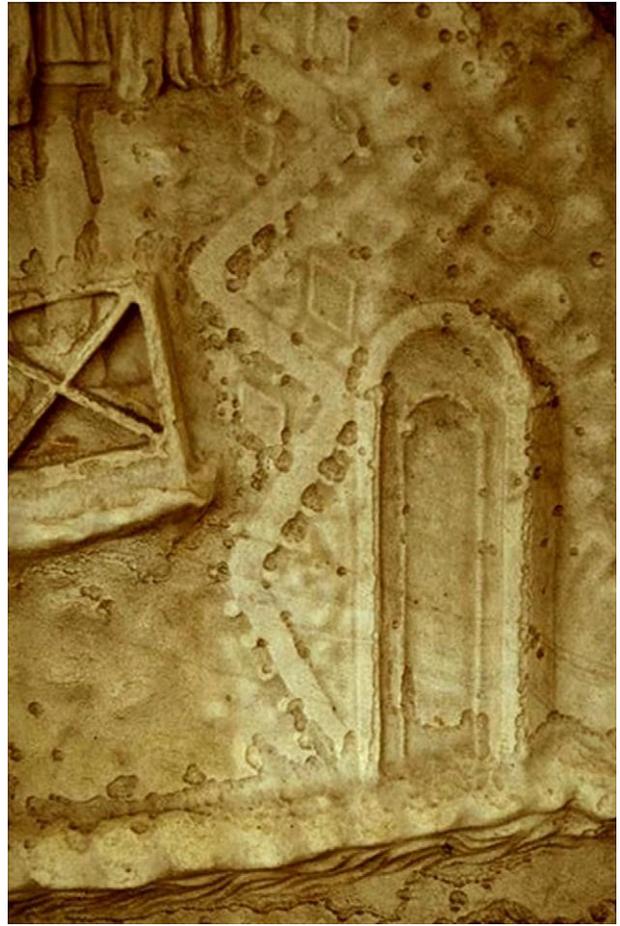


Fig. 7. Trajan's Column relief, detail depicting symbols from agrimensores' manuals. Conrad Cichorius: 'Die Reliefs der Traianssäule', Erster Tafelband: 'Die Reliefs des Ersten Dakischen Krieges', Tafel XXXVII, Verlag von Georg Reimer, Berlin, 1896; accessed at Wikimedia Commons, public domain: http://commons.wikimedia.org/wiki/File:037_Conrad_Cichorius_Die_Reliefs_der_Traianssäule_Tafel_XXXVII.jpg.

reliefs may have consciously adopted elements of their style, in order to push an agenda under the guise of an impartial objectivity. Koeppl and others have argued that the mode of depiction in the reliefs is consistent with an intention to create a 'basically factual official commentary of the various stages of the two Dacian wars,' paralleling the written commentary of Trajan.⁸⁴ I argue that this system serves a didactic and propagandistic function. Like the surveyors' maps, and drawing from a popular familiarity with their conventions, the mixture of perspectival systems creates the effect of an objective presentation, but one that in fact seeks to persuade. And such a system establishes an omniscient and controlling visual relationship to depicted landscape, since the viewer is treated to a privileged viewpoint, allowing them to survey the interiors of open structures such as camps and towns, while simultaneously scanning a wide swath of the depicted terrain.⁸⁵ This perspective

⁸¹ Noted by Koeppl, A military itinerarium on the Column of Trajan (note 12), 301e306.

⁸² Discussed by E. Leach, *The Rhetoric of Space: Literary and Artistic Representations of Landscape in Republican and Augustan Rome*, Princeton, 1988, 82e84; K. Scheffold examined the origins of Roman landscape painting and its debt to linear scroll illustration in *Origins of Roman landscape painting*, *The Art Bulletin* 42, 2 (Jun 1960) 87e96.

⁸³ First suggested by Lehmann-Hartleben, *Die Traianssäule* (note 11), Leipzig; R. Bianchi Bandinelli reassesses this argument in Rome, *The Center of Power*, trans. Peter Green, New York, 1970, 249.

⁸⁴ Koeppl, The grand pictorial tradition of Roman historical representation (note 12), 517.

⁸⁵ Leach, *The Rhetoric of Space* (note 82), 83. The bird's eye view appears elsewhere in Roman art, and is paralleled in literature, where the imagined viewpoint in oneiric or dream writing, as epitomized in Cicero's *Dream of Scipio*, positions the author peering down from high above the earth; discussed by D. Cosgrove, *Apollo's Eye: A Cartographic Genealogy of the Earth in the Western Imagination*, Baltimore, 2001, 49e50.

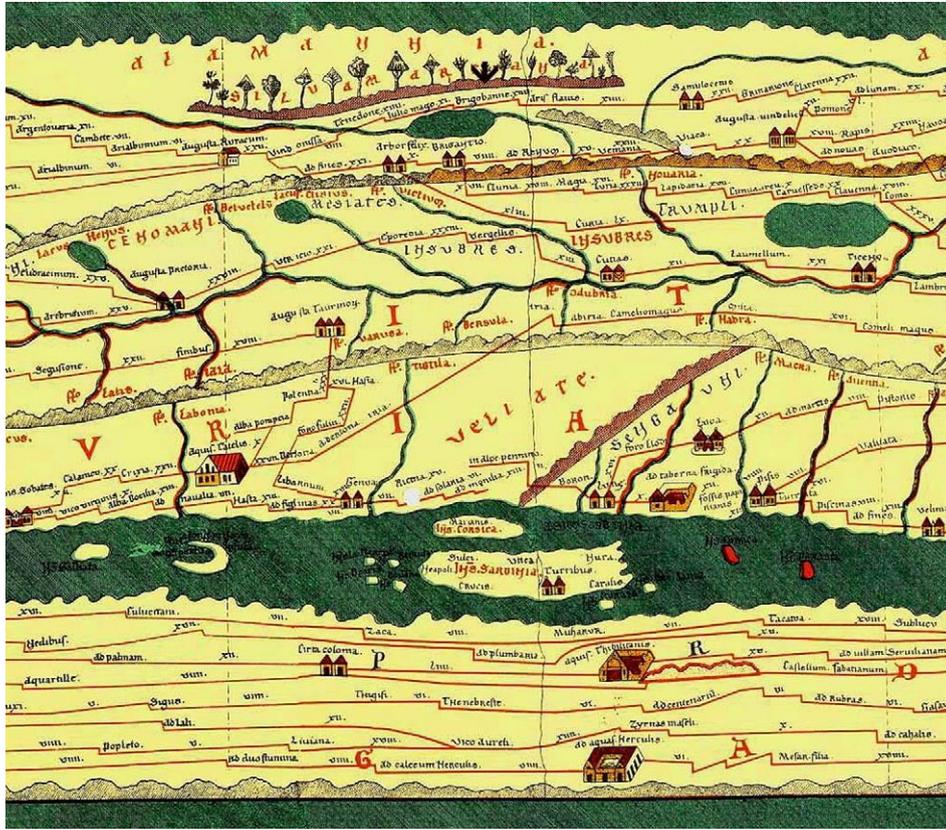


Fig. 8. Peutinger Table, detail with Italy and Mauretania. Hand drawn reproduction by Konrad Miller, *Die Peutingersche Tafel*, Stuttgart, 1962; accessed at Wikimedia Commons, public domain: http://commons.wikimedia.org/wiki/File:Brigobanne_tab_peut.jpg.

recalls the elevated viewpoint required of augurs and agrimensores, as well as the controlling, grasping sense of aerial perspective implied in the term *episkopein* ('to inspect,' 'oversee'), employed by the geographer Strabo in describing terrain.⁸⁶ The modern drone pilot, scanning the intimate details of Afghan courtyards from thousands of feet in the air and from a continent away, is familiar with the contemporary version of this effect.⁸⁷

The Peutinger Table and itineraria picta

The application of mapping conventions beyond the illustrations in surveyors' manuals \in in complete ancient maps \in reveals further formal and ideological connections between cartography and the reliefs. Practical road maps or illustrated place lists known as *itineraria picta* are known to have been used for travel in the empire, both by civilians and by commanders in the field. The Roman writer

Vegetius uses the term, and notes that Roman emperors and commanders carried such illustrated itineraries on campaign.⁸⁸ These itineraries could take the form of a long, rolled scroll or *volumen*, rolled around a central rod, the *umbelicus*. Trajan himself will have carried such an *itinerarium* during the Dacian wars, which is likely depicted in the relief scenes where he holds a scroll.⁸⁹ The only extant example of such an *itinerarium pictum* is the *Tabula Peutingeriana* or Peutinger Table.⁹⁰ The map is preserved as an eleventh- or twelfth-century copy in Vienna, after an original that may date to the second century after Trajan's conquest of Dacia or somewhat later (detail, Fig. 8).⁹¹ The Peutinger Table depicts on parchment a vast network of some 112,000 km of Roman roads, spreading laterally across the territory of the Roman Empire and beyond, in an extremely elongated *rotulus* form now preserved at 34 cm high and approximately 7 m long, but originally even longer. The map notates 6000 linear distances, and its 555 icons locate

⁸⁶ K. Connors, 'Strabo's Episcopalianism: Vision, Power and Geographical Narrative,' paper presented to the American Philological Association, http://apaclassics.org/index.php/annual_meeting/143rd_annual_meeting_abstracts/24.5.connors/, last accessed 7.12.2012.

⁸⁷ A growing scholarship on surveillance and drones in the post-9/11 world has explored the implications of aerial views; G.T. Marx, Seeing hazily (but not darkly) through the lens: some recent empirical studies of surveillance technologies, *Law & Social Inquiry* 30, 2 (Spring 2005) 339e399.

⁸⁸ 'In the first place an emperor ought to have itineraries of all the regions in which war is waged written out very fully, so that he may gain a firm grasp of the distances between places, and may take into account shortcuts, byways, mountains, rivers.. Moreover, for those provinces where crises were occurring, we are assured that the more able commanders had itineraries that were not just noted down but also in picture form. Thus when setting out he would choose a route not only by a mental process but visually.' *Epitoma rei militaris* 3.6.4, trans. M.D. Reeve, *Vegetius, Epitoma rei militaris*, Oxford, 2004, cited in Talbert, *Rome's World* (note 12), 142 and n. 48.

⁸⁹ Such as Lepper and Frere, *Trajan's Column* (note 4), pl IX: emperor Alexander Severus is described as owning an itinerary prepared for an entire campaign: 'Then were listed in order all the halting-places, next the camping-stations, and next the places where provisions were to be found, for the whole length of the march as far as the boundaries of the barbarians' country,' SHA Alexander Severus, 45.2.

⁹⁰ Discussed by R. Talbert, Cartography and taste in Peutinger's Roman map, in: R. Talbert, K. Brodersen (Eds), *Space in the Roman World: its Perception and Presentation*, Münster, 2004, 113e131, and now Talbert, *Rome's World* (note 12); Talbert, 135, regards the original as postdating the creation of Dacia as a province in the early second century, and predating Constantine's rule and move to Constantinople in 324.

⁹¹ Dating of the original is discussed by Talbert, *Rome's World* (note 12), 133e135; detail image from a hand drawn reproduction by Konrad Miller, *Die Peutingersche Tafel*, Stuttgart, 1962.

mansiones (inns), *mutationes* (post stations) and *thermae* (baths), in addition to cities and towns, with Rome placed prominently at dead center. Like the agrimensores' illustrated maps, the Peutinger Table combines symbolic and representational depiction, with the road network painted in red on a field populated with vignettes showing landforms in color, including mountains, rivers and forests, and icons for buildings and cities employ bird's eye views.⁹² The format markedly exaggerates the topography of the Mediterranean, with the North-South distances compressed and the East-West distances greatly expanded.

Among the features comparable to the Column reliefs, the extremely elongated form of the Peutinger Table is clearly of special interest. This horizontal distortion in the map has been viewed as serving to express its putative function in guiding travelers' movement.⁹³ Richard Talbert, who has recently undertaken an intensive study of the Peutinger Table, comments on this format: 'the manner in which the routes forge horizontally and purposefully across the landscape infuses the map with a lively sense of cohesion and dynamism,' and 'the mapmaker's priority in this regard was presumably to maintain an unhindered sense of continuous movement to the right.'⁹⁴ The acute linearity of both the map and the reliefs is demonstrative of what has been called a hodological theory of mental mapping of space characteristic of ancient spatial thought. Derived from the Greek word 'hodos,' path, way, the term has been used to describe a conception of territory as joined in linear fashion by roads, as on *itineraria*.⁹⁵ These Roman imperial travel guides, exemplified by the so-called Antonine Itinerary, present a sequential registry of place names for travelers, and share a linear conception of space.⁹⁶ The linearity of the Peutinger Table further expresses a popular ancient perception of the Mediterranean as exaggerated to minimize the north-south dimension and to elongate the east-west, that is analogous to the Column's conception of the route into southern Europe.⁹⁷ And both share in presenting their linear format in a rolled form, where the Column reliefs may be understood to unroll their scenes upon such a rolled *itinerarium pictum*. Theodor Birt proposed in 1917 in a study of the rotulus form in ancient book arts, that the Column reliefs spiral up the Column like a great scroll.⁹⁸ The Column in this sense can be envisioned as an *umbellicus* around which the scenes unroll. Such an original solution would resonate brilliantly with the spatial context

of the Column itself, flanked as it was by the Greek and Latin libraries, where Trajan's own presentation copy of his *Dacica* was presumably held. If the reliefs were planned using a series of cartoons, these, or a reduction copy, may also have been stored here, perhaps in a rotulus format like that of the Peutinger Table.⁹⁹ And if these cartoons were available for viewing in Trajan's Latin library, they would have enabled close study of the myriad of details depicted on the Column just outside, solving in part the most frustrating of scholarly questions regarding the reliefs: their lack of complete visibility.¹⁰⁰

The column and ancient geography

The linear form of the Peutinger Table and the *itineraria* points to the availability of a route-based, frieze-like concept of the space of the Mediterranean to the designers of the Column, and like the map, the reliefs share the use of this format to impart a sense of forward (rightward) movement. In this respect we approach one of the most innovative aspects of the reliefs: their staging of a continuous narrative within an extensive continuous landscape. If triumphal imagery had led to the fusion of topography with scenes of conquest, what ideas lay behind the evolution of these images into the Column's unprecedented 190-m narrative frieze? In this regard the Column reliefs may be considered in the light of contemporaneous Roman-centric geographical writing, which overlaps with and continues themes discovered in the agrimensores' practice. In addition to spatial notions and a narrative structure, geography could provide them (and us) with a further means to conceptualize the role of terrain and its description in the aims of empire. It does not follow from such a comparison that the Column designers were informed directly or principally by precedents in literature, since visual artists draw most immediately from visual sources. However, the lead designer Apollodorus of Damascus was a literate and educated engineer who wrote treatises himself and likely read the works of ancient geographers, so that it is reasonable to assume his familiarity with geographical concepts.¹⁰¹ Moreover it can be argued that cultural perceptions regarding space and its depiction were shared among the public, and that shared worldviews are reflected in ancient geographical writing as well as in maps and survey practice.¹⁰² However my

⁹² Ultimately the Peutinger Table may derive from the great map commissioned by Agrippa at Augustus' request, and set up in the Porticus Octaviae in Rome.

⁹³ 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, 81e112, who observes that 'if all maps are controlled fiction which mediate specific views of the world, it is nevertheless impossible to tell which comes first in geographic perceptions and distortions, the imagination or the map,' 104.

⁹⁴ Talbert, *Rome's World* (note 12), 163 and 113.

⁹⁵ Laurence writes that 'the road was a fundamental element for the production of territorial space in the creation of a Roman empire; [it] structured a view of Roman space that was linear and emphasized the connectivity between cities [and] altered the nature of space by connecting places that were divided by ranges of mountains. the spatial dimension emphasized a linear view of space,' *The Roads of Roman Italy* (note 14), 197.

⁹⁶ It is notable that the *itineraria* present travel routes as vectors, that is as one directional with a beginning and end; this asymmetry seems to parallel the unidirectional format of the reliefs.

⁹⁷ Discussed by G.W. Bowersock, *The East-West orientation of Mediterranean studies and the meaning of North and South in antiquity*, in: W.V. Harris (Ed.), *Rethinking the Mediterranean*, Oxford, UK, 2005, 167e178.

⁹⁸ Birt, *Die Buchrolle in der Kunst* (note 12).

⁹⁹ See Lepper and Frere, *Trajan's Column* (note 4), 29e30 for issues regarding the use of cartoons in carving the Column Reliefs.

¹⁰⁰ The visibility or lack thereof, of the Column reliefs is a persistent problem examined in the scholarship; while numerous scenarios have been proposed to allow for visibility, such as belvederes on the roofs of the Greek and Latin libraries, the fact remains that much detail must have been largely invisible to viewers on the scene; presumably a viewer could circumambulate and read several spirals of the frieze and perhaps several more from the belvederes, but after that the overwhelming effect must have been the chief impression achieved: the Peutinger Table appears to rely on the same kind of effect of sheer laying on of details, as did monuments such as the *forma urbis*, the enormous marble plan of Rome; the geographer Strabo famously compares his 17 volume *Geographica* to a colossal statue, writing, 'Just as in judging the merits of colossal statues we do not examine each individual part with minute care, but rather consider the general effect and endeavor to see if the statue as a whole is pleasing, so should this book of mine be judged,' 1.1.23.

¹⁰¹ D. Whitehead, *Apollodorus Mechanicus, Siege-matters: Translated with Introduction and Commentary*, Stuttgart, 2010; Apollodorus addresses this treatise to Trajan on the conditions in Dacia, producing designs and illustrations for laying siege in its rugged mountain terrain; Balbus was also a writer and considered himself a geographer as well as an agrimensor; Trajan wrote commentarii including the *Dacica*, and like Strabo, he will have read and used at least the *Bellum Gallicum* of Caesar.

¹⁰² Mangani, *Cartografia Morale* (note 10), 46e48, argues that a culturally determined map consciousness was interiorized in the minds of ancient Romans; Whittaker, *Mental maps* (note 93), is more pessimistic about the level of a shared map sensibility among the Roman public. On the difficulty of assessing ancient perceptions of geographical space, see Talbert, *The Roman worldview* (note 7).

focus here is chiefly on sources available to the designers of the reliefs, rather than their reception.

The Column of Trajan reliefs have long been recognized as a pioneering exemplar of continuous narrative in Roman art, a genre which is itself a distinctive contribution to ancient art.¹⁰³ Numerous partial antecedents have been identified for the frieze in Hellenistic monuments such as the Odyssey Landscape fresco from the Esquiline in Rome, or the second-century B.C. Telephos frieze from the Altar of Zeus at Pergamon.¹⁰⁴ Yet the fact remains that the Column of Trajan is the first known monument that depicts a continuous narrative on a spiral relief, and the only such monument to employ a landscape so richly developed as its setting. In terms of their role in recounting the story of conquest, it is relevant to consider how these two features are related.¹⁰⁵ If no precise antecedents existed for their combination in visual art, a parallel did exist in ancient geographical writing, with its description of space through an account of movement across terrain in time. Examination of Roman era geography through a modern interpretive lens yields insights into the spatial-narrative strategy and interplay between geography and conquest in the reliefs. Useful in this regard are contributions to the scholarly reassessment of geographical discourse which explore its narrative and ideological features in humanistic terms.¹⁰⁶ Already in 1947, J.K. Wright called for study of the fictional qualities of geographical texts and the acknowledgment of the author's voice.¹⁰⁷ This work has recently turned to the works of ancient geographers and among these, Katherine Clarke's *Between Geography and History* treats Hellenistic geographers including Poseidonius, Polybius and Strabo of Amasia.¹⁰⁸ A Greek writer and Roman citizen who lived and wrote at Rome during the reigns of Augustus and Tiberius (and so died a few decades before Trajan's reign), Strabo has recently enjoyed a revival of interest among scholars. Strabo produced a seventeen volume treatise, the *Geographica*, the only complete work of ancient geography to survive, describing the *oikumene*, the inhabited world of his day.¹⁰⁹ Strabo's approach, following earlier writers including Herodotus and Polybius, represents a tradition of cultural geography which places emphasis on historical and ethnographic description, as opposed to a model epitomized in the empirical, non-narrative work of Ptolemy of Alexandria.¹¹⁰ One of Clarke's central arguments in *Between Geography and History* is that history and geography are not wholly separate disciplines in the works of ancient writers, but are aspects of the same descriptive process, depending on whether the temporal or spatial aspect is emphasized.¹¹¹ So Strabo organizes his geographical account through the use of a first person narrative of travel across terrain, and his

descriptions of the earth are interspersed with discussions of local peoples and their histories, always in relation to Rome.¹¹² Much as the events of the Column reliefs unfold against a continuous landscape setting, Strabo envisions the earth 'as a stage, its relief the setting in which historical events take place.'¹¹³ Like Strabo's *Geographica*, the reliefs employ narrative to present a series of events occurring in time and space, however with a shift in emphasis: in the reliefs, terrain unifies actions, while Strabo employs narrative to describe space.

The Column reliefs are comparable to Strabo's *Geographica* and other works of ancient cultural geography in their joining of historical and geographical description, in their imperialist ideology, and in their spatial conception and narrative strategy. Concerning the latter, the Column's continuous landscape frieze may be considered as a visual analog to Strabo's spatial-narrative structure, which adopts the *periplus* genre of geographical writing. In the *periplus*, which characterized the earliest geographical writing in Greek, topographical description unfolds as a linear yet 'spiraling' ship's itinerary, with intermittent stops on a circular route.¹¹⁴ A narrative structure is thus based on incremental travel, usually along a coastline or a river, on which ethnographic as well as cartographic information can be arranged. Strabo is clearly indebted to the *periplus* genre when he organizes his entire geography as a clockwise journey around the Mediterranean from Spain at the Pillars of Hercules. He often begins a passage with a description of sailing before moving to a linear account of the hinterland, where river travel structures much of the description: 'The Sacred Mouth [of the Danube] is the first mouth on the left as one sails into the Pontus; the others come in order thereafter as one sails along the coast towards the Tyras. the three mouths that come next in order..' ¹¹⁵ Similarly, much of the action on the Column is depicted as forward movement along the Danube river and its tributaries. As noted, the Column itself appears to rise from a ring of the Danube's waters at its base, where the river's personification emerges to observe the Roman legions as they cross into enemy territory on pontoon bridges (Fig. 4). Rivers and streams continue to appear and contribute to the linear structure in the reliefs. As with the *periplus* writing, this structure resonates in part because much of the travel on campaign was actually done by boat and by marching along river banks, and in a linear, directional fashion.

Geography and narrative: space and time

If the linearity of the Peutinger Table reveals a hodological view of space shared by the reliefs, the *periplus* model puts a curve on that

¹⁰³ R. Brilliant, *Visual Narratives: Storytelling in Etruscan and Roman Art*, Ithaca, 1984; R. Von Dippe, *The Origin and Development of Continuous Narrative in Roman Art*, 300 B.C. e.A.D. 200, Ph.D. Diss. 2007, UCLA.

¹⁰⁴ J.J. Pollitt, *Art in the Hellenistic Age*, Cambridge, UK, 2006, 198e205, discusses the Hellenistic antecedents to Roman continuous narrative; examples of partial precursors to the spiral column frieze include the banded relief frieze on a Neronian era Jupiter column in Mainz, relief columns such as depicted on the tomb of the Haterii at Rome, and painted depictions of columns festooned with vines in Bacchic contexts, such as in the cubiculum of P. Fannius Synistor, reconstructed at the Metropolitan Museum, New York.

¹⁰⁵ K. Clarke, *Between Geography and History* (note 13), 22e23, contrasts analogous styles of perspective painting and Cubist painting, as attempting to conceptualize time and space from one viewpoint on the one hand, and as the acknowledgment of many viewpoints on the other hand.

¹⁰⁶ Such as Nicolet, *Space, Geography, and Politics in the Early Roman Empire* (note 5); Cosgrove, *Apollo's Eye* (note 85); Dueck, *Strabo of Amasia* (note 30); W. Koelsch, Squinting back at Strabo, *The Geographical Review* 94 (Oct 2004) 502e518.

¹⁰⁷ J.K. Wright, Terra incognita: the place of the imagination in geography, *Annals of the Association of American Geographers* 37 (1947) 1e15.

¹⁰⁸ Clarke, *Between Geography and History* (note 13).

¹⁰⁹ Strabo, *Geographica* (note 8).

¹¹⁰ Koelsch, Squinting back at Strabo (note 106), 503.

¹¹¹ Strabo wrote a *History* which is lost; Polybius and Herodotus similarly joined history and geography in their writing.

¹¹² Dueck writes that 'the result is not a "dry" topographical survey, but rather a combination of several layers of maps, so to speak, the topographic, the ethnic, and the political. If we imagine these three conceptual maps as overlaying transparencies, the overall representation emerges: Strabo of Amasia (note 30), 45; such a layered image might be envisioned in the Column reliefs.

¹¹³ C. Glacken, *Traces on the Rhodian Shore: Nature and Culture in Western Thought from Ancient Times to the End of the Eighteenth Century*, Berkeley and Los Angeles, 1967, 103.

¹¹⁴ Dueck, *Strabo of Amasia* (note 30), 40e44.

¹¹⁵ Strabo, *Geographica* 7.3.15, trans. Horace Jones, *The Geography of Strabo* (note 8), 219.

linearity and starts the story in motion. In a manner parallel to Strabo's, it is this continuous, linear, circling aspect of the frieze that generates a setting where narrative joins time and space, as it constructs the army's advance as a relentless forward penetration of territory. Since the actors in the frieze are more or less continually on the move in one direction, a logical consistency is generated, where forward into Dacia (upward and to the right in the reliefs) is equated with procession into the future, and behind lies the Roman frontier and the past. As in the periplus literature, motion across terrain is teleologically determined (destination identified prior, here victory personified awaits at the end), and periodic halts in that motion (port stops vs. encampments and battles) are brief and intermittent. The resulting innovative format of the reliefs creates the equivalent of what Merrifield calls 'emplotment' in periplus writing, where the narrative binds space and time as a journey from place to place.¹¹⁶ Penelope Davies argues that viewers of the Column would read the reliefs by circumambulating within its enclosing court, thus mimetically following the marching armies in the spiral frieze.¹¹⁷ If so, their actions would reinforce the experience of the narrative as forward, encircling movement, and would enlist viewers into participation in the story, in a manner analogous to the moving first person narrator in the periplus accounts. The interactive effect would be akin to that experienced by moving viewers of the eleventh-century Bayeux Tapestry, which is compared with the Column reliefs in its extremely elongated narrative form (nearly 70 m) and rich landscape setting. 'That very measure of narrative time passing coincided with the [viewer's] visual passage over the Tapestry's spatial fabrication of time, thus uniting narrative and experiential time in the act of perception,' writes Richard Brilliant.¹¹⁸

The reliefs thus stage the narrative of conquest by creating a novel linkage between space and time through movement (depicted and actual), and in the process, they create a visual parallel to the relationship between geography and history writing. 'Every relation between objects in space is bound up with a relation between events in time,' writes J.L. Myres: 'consequently every geographical fact has its historical aspect, and every historical fact its geographic aspect.'¹¹⁹ The reliefs present a visual solution to a related problem addressed by ancient geographers, that of a tension on the one hand between human cognition of space as a collection of discrete places, and of time as a continuity. The use of serial narrative and setting in the Column frieze led the French writer Malissard to apply to it an 'analyse filmique,' using terms and techniques derived from cinema, and while his conclusions have been criticized as a historical, the focus is a valuable one in that it goes to the heart of the reliefs' innovations.¹²⁰ The problem of the cognition of space as a discrete entity versus a continuous experience of time continues to engage modern writers, as for instance in the work of the French philosopher Henri Bergson, who also employed film as an analog.¹²¹ In *Time and Free Will*, Bergson distinguished subjective, 'lived time' (*temps*

vécu) from abstract, represented, scientific time, which may be figured geometrically as a line that branches as events unfold. Bergson argued that unlike the flowing succession of events we experience as time, such a spatial model of scientific time is flawed, as it implies a teleologically determined outcome and denies free will. Can this observation be applied to the linear character of the Column reliefs? While they present both time and space as a continuity, their vector like trajectory offers no deviations from a single climax and dénouement. As Pliny famously writes to Trajan, 'How magnificent it was, August Emperor, to stand on the Danube's bank, knowing that a triumph was certain did you but cross.'¹²² According to official ideology, the outcome of the Dacian wars was a foregone conclusion, and a linear, ascending narrative enforces this message of inevitability.¹²³

Conclusion

Pliny writes to a friend: 'It is excellent to write of the Dacian War. You will describe new rivers set flowing over the land, new bridges built across rivers, and camps clinging to sheer precipices; you will tell of a king driven from his capital and finally to death, but courageous to the end.'¹²⁴ Pliny suggests the manifold points of conversation on Trajan's Column between conquest and ancient geography and cartography, whose study reveals an indebtedness to these practices and finally illuminates the pioneering feat of the relief designers. The achievements of the military surveyors and engineers loom large on the Column reliefs as in the Forum of Trajan itself, shaped and made possible by their efforts both in war and peace. Articulating worldviews shared by the surveyors, geographical writers offered a connection between geography and history in the Column reliefs, setting agents in motion against the backdrop of terrain like a periplus voyage. The portrayals of Romans and their labors and constructions, overlain as if across a great rolling map, create an apt and unparalleled metaphor of conquest. Just as Roman imperial ideology focused on the concept of empire ad termini orbis terrarum, 'to the ends of the earthly globe,' the reliefs describe a process of incursion and 'securing and holding' of distant lands by which empire was made. The bird's eye images of marching camps in the reliefs signify the transplantation of Roman culture 'virally' into the world, where new centers bloom in the newly tamed periphery.¹²⁵ Like the myriad network of linked cities spreading across the expanse of the Peutinger Table, each fort is a little Rome, expressing an ideology of expansion and building that was central to imperial policy since Augustus. 'I found Rome a city of clay and left it a city of marble,' wrote Augustus in his *Res Gestae*; Trajan outdid even Augustus in the jewel of his building program, the Forum of Trajan: 'Its grandeur defies description and can never again be approached by mortal men,' wrote Ammianus Marcellinus.¹²⁶ If the *Res Gestae* described the spatial expansion of Rome to the limits of the world, Trajan realized that ideal to its fullest,

¹¹⁶ A. Merrifield, Place and space: a Lefebvrian reconciliation, *Transactions of the Institute of British Geographers* 18 (1993) 516e531.

¹¹⁷ Davies, The politics of perpetuation (note 65), 60e61.

¹¹⁸ The Bayeux Tapestry: a stripped narrative for their eyes and ears, *Word and Image* 7, 2 (Apr-Jun 1991) 98e127 and 117; the format of the Column reliefs has been proposed as an ultimate model for the tapestry.

¹¹⁹ J.L. Myres, Ancient geography in modern education, in: J.L. Myres (Ed.), *Geographical History in Greek Lands*, Oxford, UK, 1953, 74e75.

¹²⁰ A. Malissard, *Étude filmique de la colonne trajane: l'écriture de l'histoire et de l'épopée latines dans ses rapports avec le langage filmique*, Tours, 1974.

¹²¹ H. Bergson, *Time and Free Will: An Essay on the Immediate Data of Consciousness*, trans. F.L. Pogson, New York, 1959.

¹²² *Magnum est, imperator auguste, magnum est stare in Danubii ripa, si transeas certum triumphi* (note 39).

¹²³ 'A Roman citizen of the late Republic or early principate was accustomed to a simple sequence: Roman army marches out to meet barbarian army, Roman army fights barbarian army, Roman army beats barbarian army,' J.C. Mann, The frontiers of the principate, *Aufstieg und Niedergang der Römischen Welt, Principat* 1 (1974) 508e533 and 509.

¹²⁴ Pliny the Younger, *Letter to Caninius Rufus* 1.

¹²⁵ The military writer Vegetius compared the construction of a Roman camp to a town springing up, Vegetius 1.21, discussed by Gilliver, *The Roman Art of War* (note 63).

¹²⁶ Ammianus Marcellinus 16.10.15, trans. John C. Rolfe, *Ammianus Marcellinus*, Cambridge, Mass, 1963, 251.

extending the reach of the empire to its maximum.¹²⁷ That process is encapsulated in the reliefs of Trajan's Column.

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