

## **Introduction. Creating New Worlds out of Old Texts**

**Elton Barker, Stefan Bouzarovski and Leif Isaksen**

*If Aristagoras were a website, he would be full of links.*

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Despite earlier expectations that globalization would eradicate the need for geographical space and distance, ‘maps matter’ today in ways that were unimaginable a mere two decades ago.<sup>1</sup> Technological advances have brought to the fore an entirely new set of methods for representing and interacting with spatial formations, while the ever-increasing mobility of ideas, capital and people has created a world in which urban and regional inequalities are being heightened at an accelerating pace. As a result, the ability of any given place to reap the benefits of global socio-technical flows mainly hinges on the forging of connections that can transcend the limits of its material location. In contrast to the traditional ‘topographic’ perspective, the territorial extent of economic and political realms is being increasingly conceived through a ‘topological’ lens: as a set of overlapping reticulations in which the nature and frequency of links among different sites matter more than the physical distances between them.

At the same time, a parallel stream of innovation has revolutionized the understanding of space in disciplines such as history, archaeology, classics, and linguistics. Much of this work has been concentrated in the burgeoning field of the ‘digital humanities’, which has been persistently breaking new ground in the conceptualization of past and present places. When seen in the context of globalization-induced dynamics, such developments emphasize the need for developing cartographic approaches that can bring out the inherently networked structure of social space via a lens that is both theoretically integrative and heuristically sharp.

We have decided to respond to these analytical and methodological challenges by focusing on ancient Greek literature: a corpus of work that has often been characterized as being free of the constraints imposed by post-Enlightenment cartography, despite setting the foundations of many contemporary map-making

methods. In the 12 chapters that follow, we highlight the rich array of representational devices employed by authors from this era, whose narrative depictions of spatial relations defy the logic of images and surfaces that dominates contemporary cartographic thought. There is a particular focus on Herodotus's *Histories*—a text that is increasingly taken up by Classicists as *the* example of how ancient perceptions of space may have been rather different to the cartographic view that we tend to assume. But this volume also considers the spatial imaginary through the lens of other authors (e.g. Aristotle), genres (e.g. Hymns), cultural contexts (e.g. Babylon) and disciplines (e.g. archaeology), with a view to stimulating a broad-based discussion among readers and critics of Herodotus and ancient Greek literature and culture more generally.

In fact, many of the disciplinary and conceptual perspectives explored here are at their inception, and have a more general relevance for the wider community of humanities and social science researchers interested in novel mapping techniques. The resulting juxtaposition of more 'traditional', philological discussions of space with chapters dedicated to the exploration of new technologies may jar or even appear uneven, especially since we have not set out to privilege one method over another. But it is through viewing these different approaches in the round and reading them alongside each other that, we maintain, we can best disrupt customary ways of thinking (and writing) about space and catch a glimpse of new possibilities.

### *Map and text*

In the fifth book of his *Histories*, Herodotus describes the journey to Sparta of one Aristagoras, tyrant of Miletus, for the purpose of winning support for a revolt of Ionian Greeks from Persian control. Having gained access to Cleomenes, one of the Spartan kings, and armed with 'a bronze tablet on which the way around the whole earth was engraved, and all the sea and all the rivers' (ἔχων χάλκεον πίνακα ἐν τῷ γῆς ἀπάσης περιόδου ἐνετέμνητο καὶ θάλασσά τε πᾶσα καὶ ποταμοὶ πάντες, 5.49.1),<sup>2</sup> Aristagoras tries to sell his host the conquest of Asia. Using his map as a visual aid, he points out the string of places to be conquered, until they get all the way to Susa, 'where the great king lives and where the storehouses of his wealth are located' (ἐνθα βασιλεύς τε μέγας διαίταν ποιέεται, καὶ τῶν χρημάτων οἱ θησαυροὶ ἐνθαῦτα εἰσὶ, 49.7). His pitch is persuasive enough to gain another

hearing; it is some three days later, when Cleomenes asks how many days' journey it was from the Ionian Sea to the king (50.1), that his mission fails. For Aristagoras makes the fatal mistake of telling the truth—the journey from the sea was some three months (50.2)—at which news Cleomenes bids his Milesian guest leave Sparta before sunset (50.3)!

This episode and the activities of Aristagoras in book 5 more generally raise a number of issues regarding ancient Greek conceptions of geographic space that have attracted widespread comment, including from contributors within this volume.<sup>3</sup> For Paola Ceccarelli, Aristagoras's two speeches—not just his speech to Cleomenes in Sparta but also an earlier meeting with the Persian satrap Artaphernes in Sardis—give 'definition to the Aegean space', as the Milesian attempts 'to push Artaphernes... towards conquering the islands (Hdt. 5.30-32)' and 'to convince the Spartan king to invade Asia (Hdt. 5.49-50)'. The two speeches, which 'cut right across the Aegean, in opposite directions', thereby emphasize 'the role played by the perspective of the speaker (and of the addressee)', as if the Aegean Sea were a blank canvas on which to inscribe different groups' differing perspectives—though the desire for power and control remain consistent.<sup>4</sup> For Mathieu de Bakker, Aristagoras's failure to persuade Cleomenes is foreshadowed by the way in which he presents his map, since his failure to master the cartographical perspective—'he translates the engravings on his *pinax* into concrete data of linear, hodological progression'—alerts Cleomenes to the size of the undertaking.<sup>5</sup> Indeed, as Tim Rood has put it elsewhere, 'Herodotus...prompts reflection on the differences between texts and images through Aristagoras' claim to the totality of his map's spatial representation', which 'seems to be linked with his [Aristagoras'] appeal to a total imperialism'. Seen from this perspective, the problem with Aristagoras's map 'lies not in the nature of cartography per se, but in the crude way in which he tries to exploit the map for a political purpose that the narrator finds suspicious'.<sup>6</sup>

The scene depicting Aristagoras in Sparta comes at a critical juncture in the narrative, as Herodotus makes the transition from documenting Persian power to narrating the subsequent conflict with the Greek world, and brings to light a number of important issues for thinking about Herodotus's representation of geographic space, as we have

discussed elsewhere.<sup>7</sup> In particular, there are at least three themes raised by this scene that are good to think with for approaching the more general question of how a sense of place was conceived and represented in our ancient Greek sources.

The first of these is the *medium* by means of which a view of the world is communicated—in this case, the use of a visual representation embedded within a narrative exegesis. As both de Bakker and Rood are alert to above, Aristagoras’s cartographic visualization contrasts in some shape or form with Herodotus’s *discursive* space—how the author puts spatial ideas and concepts into words. Aristagoras’s bronze engraving attempts to capture the topography of the world—its ways, its sea and its rivers—in a form that is at once complete (ἀπάσης... πάσα... πάντες), abstract and fixed.<sup>8</sup> Indeed, Aristagoras puts these very qualities to use. Using deictic pronouns throughout his pitch to Cleomenes—‘next to the Ionians *here* are the Lydians’ (Ἰώνων μὲν τῶνδε οἶδε Λυδοί); ‘next are the Phrygians *here*’ (οἶδε ἔχονται Φρύγες, 5.49.5); the Cilians ‘possess land that reaches this sea *here*’ (κατήκοντες ἐπὶ θάλασσαν τήνδε, 49.6), etc.—Aristagoras exploits the world in miniature to collapse the distance and distinction between places, and present the effort to traverse this space as minimal.<sup>9</sup> Yet, this strategy and these qualities of completeness, abstraction and fixity ultimately flounder when confronted by the ‘reality’ (τὸ ἐόν, 50.2) of Cleomenes’s question, ‘just how far is it from the Ionian Sea to the King (i.e. Susa)?’ Where Aristagoras had concentrated exclusively on general spatial properties that emphasized connectivity, Cleomenes introduces the concept of time, which has the effect of severing the connection and instead prompts the question, how *long* does it take? As a partial answer or, better, supplement to this question, Herodotus supplies his own discursive representation of the equivalent space. Ostensibly he goes over the same ground in order to bear out the accuracy of Aristagoras’s (foolishly) true answer of thirty days; but he does so by reconfiguring Aristagoras’s bird’s-eye visual display in *hodological* terms—he writes the cartographic space out as a route or a journey.<sup>10</sup> And far from the ‘ease’ that had characterized Aristagoras’s abstract modelling, Herodotus emphasizes the complexity of the space, the difficulty of apprehending it, and the effort required to traverse it, which takes him over two chapters to document (5.52-54). This is not the only time that Herodotus points to a tension between writing space and mapping it; elsewhere

he ‘laughs at’ the overly schematic maps produced by his Ionian contemporaries (4.36.2);<sup>11</sup> and a similar tension can also be found in other authors and genres, as well as at other times. In short, this episode invites us to consider what difference it makes to depict space using words rather than images, as well as distinctions between types of verbal articulations (the spoken word versus the written text<sup>12</sup>) and types of image representation. And, on the basis of these ruminations, we might reflect too on our own contemporary culture and contemporary ways of viewing, where the digital medium in particular appears to be rapidly changing the way we can view, and therefore think about, the world around us or even the world of antiquity.

One way in which this difference seems to manifest itself, if Herodotus’s Aristagoras episode is anything to go by, is between the abstract representation of space and its meaning to those on the ground, so to speak. In the present case, for example, Herodotus records the delay in time (of two days) from Aristagoras’s initial appeal to Cleomenes’s answer, as if the very act of interpreting the engraving struggles free from the conceit that it can capture the whole world all in one go. Indeed, Cleomenes’s decision is marked by subtle but concrete shifts in location—initially ‘to the place that had been agreed’ (ἐς τὸ συγκαείμενον, 50.1), then to his house (ἐς τὰ οἰκία, 51.1), finally ‘to another room’ (ἐς ἕτερον οἴκημα, 51.3)—as the engraving’s persuasive power is finally undone by the kind of detailed topographical mapping that its generalized representation glosses over and where each place has a particular meaning.<sup>13</sup> Thus, where Aristagoras’s engraving presents an abstract product of contemplation, Herodotus’s narrative represents the idea of space as *something lived and experienced*.<sup>14</sup> We see this not only in the fact and manner of Cleomenes’s answer, which exposes the meaninglessness of a generalized topographical model if one cannot tell how far away places and peoples are from each other, but also in Herodotus’s subsequent narrative, which fills the space with measurements, obstructions, and a sense of *what it is like* to journey from the Aegean Sea to Susa. A study of Herodotus and of other authors of the time has the potential to lead to new understandings about the ways in which space was lived and conceived in antiquity rather than rely upon our usual post-Cartesian abstract representations of that world (i.e. topographic maps).

In turn, one key aspect of lived space may very well be the way in which it is *relational*. Clearly the ‘Aristagoras in Sparta’ episode demonstrates certain ties between places that the narrator makes (or those which his historical agents make), but those relationships are configured in significantly different ways. For Aristagoras, the chain of places that he sketches out emphasizes connectedness and ease of communication. Drawing a thread that ties each place to the next as if beads on a string, he makes each place attractive for conquest; ‘conquest’ is certainly the implied theme of this kind of relational mapping and becomes explicit at 49.8, ἄρχειν. At the same time, however, underpinning and cutting across those links is one that Herodotus draws between the two people and the places that they represent—Aristagoras of Miletus, Cleomenes of Sparta. The very fact that the Milesian Aristagoras is in Sparta seeking an alliance against the Persians shows how interconnected this world is, but in a different way, one that connects places from across the waters, which are not topographically proximate to each other (as Cleomenes’s question makes clear). At the same time, this episode results in the expulsion of Aristagoras from Sparta, showing that the ties the Milesian tries to make between the Ionians and the Spartans as leaders of Hellas ultimately come to nought because of the Spartans’ lack of familiarity and kinship with the east, whereas later the Athenians *will* be persuaded by this kind of argument from Aristagoras (5.97). But, before we get there, Herodotus first explores the ties that the Spartans do enjoy or do try to enforce both in the west and with their rival, Athens.<sup>15</sup> Different relational models are available, and differ according to the context, purpose and peoples involved. In short, Herodotus’s narrative is full of networks.

#### *Lived space, networks and the digital medium*

Mentions of lived space bring to mind geographical discussions of the multiple methodological issues associated with conceptualizing spatial formations and relations *per se*. Space is the central study subject of geography: a porous, fluid and indeterminate entity, it can be seen as arising ‘out of the hard and continuous work of building up and maintaining collectives by bringing different things (bodies, animals and plants, manufactured objects, landscapes) into alignment’.<sup>16</sup> Also significant here is the much more specific and rooted concept of ‘place’, which is commonly understood as a coalescence of meanings and practices in a given locale, although

some authors understand it in more dynamic terms, as the ‘process whereby spaces are ordered in ways that open up affective and other embodied potentials’.<sup>17</sup> Over the past thirty years, the mainstream geographical interpretation of space and place has moved from paradigms where these notions were seen in objective and measurable terms, towards thinking that sees them as socially and politically constructed.

Of no less significance in this context are debates surrounding the representation of space. It has been argued that the prevalence of maps in contemporary societies has created a two-dimensional and planar perception of space, replacing the ‘discontinuous patchy space of practical paths by the homogeneous, continuous space of geometry’.<sup>18</sup> Modern political geographers contend that such ‘taxonomic’ forms of spatial representation—which have come to dominate understandings of space since the Enlightenment—have restricted our understanding of space, ‘flattening out’ multiplicity and multi-directionality.<sup>19</sup> In this light, a number of authors have been ‘intrigued by Heidegger’s suggestion that Greek thought did not have a concept of “space” ... and that therefore Greek geometry cannot straightforwardly be related to the geometry understood in terms of Cartesian extension’, especially since this suggests that ‘we can conceive of place—*topos*, *khora*—without space’.<sup>20</sup>

Until well into the fifth century BC, there were, however, very few texts and little prose literature to speak of; there were even fewer maps.<sup>21</sup> Herodotus and the other authors analysed in this book stand as important testimony to the different ways in which space may be conceived of and represented, with a series of micro-narratives that potentially destabilize any one over-arching conception of space by virtue of being structured by human experience or flow.<sup>22</sup> Above all, by being situated at the interstices of geography, literature and culture in the ancient Mediterranean, Herodotus’s contribution has the potential to serve as a critique of geographical readings of literary works, and to be of value to the human geographer interested in the imagination of space through text. Such discussions should also be valuable to scholars of ancient Greek literature, who have often implicitly accepted assumptions about spatial representations inherited from the Enlightenment: a study which raises explicitly the problem of imaginations of space can offer classicists significant discoveries and build ‘new worlds out of old texts’.<sup>23</sup>

It is also worth mentioning that the use of language and text as a method of spatial representation is an important topic in scientific debates at the disciplinary boundary of social geography and cognitive psychology. Work in this domain has highlighted the multiple subconscious perceptive mechanisms and classification systems involved in converting sensory information into conceptual knowledge about the spatial structure of the world.<sup>24</sup> It has emphasized, inter alia, the importance of ‘paths’, ‘edges’, ‘districts’, ‘nodes’ and ‘landmarks’ in creating ‘icons that are intimately identified with a particular geographic scene and location to such an extent that the location is often identified *by* that object, evoking an entire mental scene (e.g. the Eiffel Tower and Paris, and the Golden Gate and San Francisco).’<sup>25</sup>

The importance of paths, edges, nodes and the like bring to mind one particular method by which contemporary geographers and social scientists, departing from the model of Cartesian cartography, have mapped data in an effort to understand highly complex systems. This method is known as network theory. ‘In the most basic sense, a network is any collection of objects in which some pairs of these objects are connected by *links*,’ write David Easley and Jon Kleinberg in a recent introduction, recognizing that the flexible definition means that network approaches may be found in many different domains.<sup>26</sup>

Accordingly, in recent decades network theory has become increasingly important in historical studies with ancient Greece being no exception. In fact scholars now talk of the Mediterranean as a kind of ‘contact zone’ for all kinds of economic, political and social relationships, both between islands themselves (especially of the Aegean Sea) and between the islands and their immediate neighbouring territories on the mainland.<sup>27</sup> As a key recorder of the development and establishment of Greek communities around the Mediterranean, Herodotus has been used as a prime witness for many of the historical networks sketched out and examined.<sup>28</sup> But, rather than using network theory as part of a claim to reconstruct a historical reality on the basis of the *Histories*, our interest here (specifically in Part II) lies instead in its utility for analysing the text itself and the relationships made within it as a way of thinking about Herodotus’s construction of a cultural imagination. Even a cursory reading of

the *Histories* reveals the wide array of different places Herodotus hunts out in the course of trying to explain why Greeks and barbarians came into conflict (1.5.4). A network approach from this perspective means first carefully identifying the occurrence of places<sup>29</sup> as and when they occur in the narrative, and then equally carefully assessing whether the place is mentioned in relation to another and, if so, what form that relationship takes.

Methodologies for representing and analysing networks have been around for a long time—since antiquity in fact—but their complexity makes it challenging for static media, particularly small paper codices such as this book, to do them sufficient justice. The bizarrely elongated format of the *Tabula Peutingeriana*, a Roman itinerary map some seven metres long and just thirty centimetres wide, indicates clearly that the difficulties of presenting large and complex networks are no less significant than those faced when depicting detailed topography.<sup>30</sup> It is therefore only as interactive digital media have become much more commonplace, that network approaches to a wide variety of fields have started to proliferate.<sup>31</sup> Nevertheless, the possibilities afforded by computers go well beyond visualization, effective though this can be. Other methodologies, such as the calculation of centrality metrics for the nodes, edges and graphs that form networks, can ostensibly provide a different route into the material, particularly when that information is in the form of a text. The text mining possibilities afforded by the digital text facilitates just such a network analysis of plot and narrative.<sup>32</sup> Yet—and this is a point that we will come back to again—these interpretations must be handled with caution: they are no more objective than the process of selection and construction that underlies them. Digital resources can usefully bring to light and visualize network patterns; but to make sense of these patterns and to give them value requires close textual analysis.

### *New Approaches, Old Worlds*

Perhaps motivated and in some ways facilitated by the new digital medium, space has become a much discussed topic in classical scholarship. Of course, much of this interest has focused on actual physical locations, with increasing attention to the symbolic charge of certain sites and attempts to read archaeological evidence in the light of historical explanation.<sup>33</sup> The role of physical topography has also led to

productive speculation regarding the spatial semiotics of literary texts, particularly Athenian tragedy.<sup>34</sup> And there have been the beginnings of an analysis of ‘plot’s spatial legacy’ not only in geographic texts but also in epic and historiography.<sup>35</sup> Still, while there have been some efforts to piece together ways of looking in individual ancient literary texts,<sup>36</sup> much more needs to be done regarding the ‘*search of geography and its place*’ in discursive representations of geographic space.<sup>37</sup> In particular, the contemporary digital turn affords the opportunity for reflecting on comparable technological shift from orality to literacy (as well as to abstract visual representations), and for exploring the new methodologies that digital scholarship encourages, not least of all interdisciplinary collaboration.

This volume brings together a wide range of different disciplinary approaches and evidence in order to investigate the topic of ancient Greek conceptions of space from a wide variety of different angles. Under investigation are an array of different ancient Greek genres, including the hymns (Thomas), Ionian science and Athenian tragedy (Ceccarelli), historiography (de Bakker, Rood, Barker and Pelling) and natural history (Stevens). Different methodologies from the disciplines of Classics, Geography and Archaeology are used, including digital resources (Barker and Isaksen, Foxhall et al.), network theory (Brughmans and Poblome, Barker and Bouzarovski) and comparative literature (Murray, Eide). But each contributor shares this volume’s common aim of investigating the ways in which spatial ideas are conceived of and represented in the ancient world, of considering to what extent network theory is a useful model to think with when dealing with geographical concepts in texts, and, more broadly, of reflecting on how these ancient texts might offer new ways of thinking about spatial ideas that differ from and challenge the visual media of our own contemporary culture and even the visualizing assumptions that a modern reader brings to a text.

Integrating such a wide range of disciplinary traditions and thematic perspectives in a single volume has been a challenge, and has necessitated a constant and deep engagement with a diversity of approaches. We have urged each contributor to think of both our overarching aims and the multiple conceptual registers that can be used to study the representation of space in the ancient world. Our desire to disrupt established cartographic paradigms is also reflected in the decision to exercise a

limited level of control over the diverse voices of participating authors, ranging from referencing styles to the questions posed, methods adopted, and outcomes offered. The result is a challenging volume, different sections of which will probably appeal more to different reading constituencies. Nevertheless, it is hoped that, by virtue of confronting the reader to look outside the comfort zone of a particular school of thought (in this case Classical scholarship), new insights into much-studied texts can be brought to light, and new possibilities for future work and interfaces with other disciplines and methods can be opened up. In particular, we suggest that digital approaches, if used critically with due awareness of where its limitations lie, can help us develop alternative viewpoints to canonical cartographic maps of the world.

Maps were rare in the Greco-Roman world. When mentioned in our sources, they are mistrusted and criticized. It is not only Herodotus who “laughs at” the maps produced by his contemporaries (4.36.2); in Aristophanes’s satire on the latest intellectual thinking, *Clouds*, Strepsiades, representative of the Athenian common man, is shown a map of Sparta and responds by leaping back and exclaiming, “So *close*? Can’t you move it away?” (*Clouds* 215).<sup>38</sup> As we have already seen, when Aristagoras later turns up with “a bronze picture, on which the whole world was engraved” (5.49.1)—arguably the first historical ‘map’ in literature—Herodotus invites his readers to reflect on how the map is used to argue in favour of conquest and juxtaposes his own *textual* representation of the same space (5.50-52). Greek spatial knowledge is primarily mediated through *texts*: as Henri Lefebvre has put it, a history of space should include “the history of representations”.<sup>39</sup> Part I addresses this question by investigating the varying kinds of geographic information encoded within different Greek literary genres, in the hope of not only shedding light on each individual representation but also radically reanimating our own spatial understanding.

Investigations of Greek space have tended to begin with Homer, and not just because the Homeric epics are foundational narratives.<sup>40</sup> The *Odyssey*, through the voyage home of Odysseus, has the greatest claim to represent growing Greek awareness of lands both near and far.<sup>41</sup> The *Iliad* too, though spatially fixed on the narrow strip of land between the Achaean ships and Troy’s walls, occasionally lifts the lens to survey broader areas, notably the catalogue of the armies who have gathered at Ilion from the

Trojan hinterland and from all around the Greek world.<sup>42</sup> Oliver Thomas surprises us then by starting with functions of space in Greek hymns. But, as he argues, the hymns as a genre have been largely overlooked in previous studies of space, and yet their spatial configurations serve as useful comparanda for thinking about Herodotus's mental 'landscape'. In particular their spatial mappings are useful in terms of both approaching narrative representations of space and reflecting on material networks of communication, in ways that nicely anticipate (Hestia's analysis of) Herodotus. According to Thomas, the hymns juxtapose up to three spatial viewpoints or 'frames', belonging to the god, the human performers and audience, and characters within an inset myth. He then shows how this juxtaposition is essential to the task of constructing the complex relationship between a god and a community of worshippers. More specifically the alignment of the human and divine frames can suggest a type of empathy or contact between worshippers and deity, while contrast of the frames can (even simultaneously) emphasize the awesome gulf separating them. To take one example of particular relevance to Herodotus: the *Homeric Hymn to Apollo* presents a contrast between Delos's primeval insignificance before Apollo's birth and its role at the time of performance as the prestigious centre of gravity for pilgrimages across the Aegean, including the pilgrimages undertaken by its original audience. Callimachus in his *Hymn to Delos* then pushes the idea to the extreme: Leto searches for a birthplace in a frenzied zigzag, while Delos itself is a moving island, until the two coincide and are both stabilized by Apollo's birth. Thomas argues that such presentations of Delos's place in the world are an essential background to things left implicit in Herodotus's mentions of the island.

In chapter 2, Donald Murray takes a comparative approach to the study of ancient conceptions of space by using an understanding of Mesopotamian cosmic geography and its application in Achaemenid rhetoric to read Herodotus's account of Persian incursions westwards as physical enactments of, and an engagement with, an imperial ideology of world domination. The basis of Murray's study is the Babylonian *Mappa Mundi*, which uses abstract geometric shapes to represent topographic features in ways that envisage and represent familiar lands and cities along with unknown outlying areas beyond the Ocean. Together with an inscription from Persepolis, in which Darius refers to the waters at the end of the world as a 'bitter river'

(*nārmarratum*), the *Mappa Mundi* expresses the ideology that the lands enclosed by the all-encircling Ocean are civilized, and, Murray suggests, that absolute world rule results from crossing that ‘bitter river’. Though he concedes the extreme unlikelihood of Herodotus being familiar with the *Mappa Mundi* and the ideologies which lay behind it, he points out that he did know—and criticized—similar Greek maps, and, moreover, that this criticism comes immediately before his account of Darius’s Scythian campaign, in which the Persian king re-enacted the age-old Mesopotamian tradition of crossing the waters at the end of the world (here, the Bosphorus) as proof of his legitimacy. Similarly, later as Xerxes attempts his own crossing, only to find his first bridge destroyed, he calls the waters (of the Hellespont) the ‘bitter water’ (7.35). Murray posits that reading the *Mappa Mundi* alongside Herodotus allows us to regard the campaigns of Darius and Xerxes as ‘not simply attempting to add new territories to the empire—they were journeying forth into uncharted space, justifying their claims to absolute world rule’ (XXX).

The ‘bitter river’ that attracts the attention of Paola Ceccarelli is the Aegean Sea, which, she argues, has always been a highly charged, and highly contested, space. In chapter 3 Ceccarelli examines changes in the conceptualization of Aegean space during the period of the mid-sixth to the end of the fifth century BC, through four different media. The first of these, the map of Anaximander, Ceccarelli suggests, should be regarded, like the *Mappa Mundi*, ‘not as an attempt at graphically representing the world, but rather...as...a graph that reflected a more general sense of the order of the world’ (XXX), in which two continental landmasses, not yet marked by any value, are separated by an absence, corresponding to Aegean space. Hecataeus’s catalogue, the *Periegesis*, also appears to have depicted two landmasses in two parts, ‘Europe’ and ‘Asia’, and, while he assigns most of the Aegean islands to Europe, he also determines their position vis-à-vis the Asiatic mainland in the ‘Asia’ section. This too is the view of the Chorus in Aeschylus’s *Persians*, who lament the loss of territories previously conquered by Darius, including the islands ‘linked’ to their continent (879), as well as of the islands positioned between the two coasts (889). Finally, in Herodotus the Aegean appears as a problematic space from the beginning, as Croesus sees their conquest as a natural extension of his mainland power, until a wise advisor draws attention to his lack of sea-faring know-how.

According to Ceccarelli, ‘contrary to what one might expect, the space of the Aegean, a space that we must suppose well-known, as it is relatively central, is mapped in a symbolic way: no distances are given, whether in parasangs, stades, or days of navigation; distances are mythical ones, between axial points’ (XXX). Instead, Herodotus follows his predecessors in allowing the Aegean space to be ‘shaped by the perceptions of the people who happen to cross it’ (XXX).

Chapter 4 sees Mathieu de Bakker focus exclusively on Herodotus and tackle the central issue with which this book is concerned, the description of the world exclusively in words. Drawing attention to Herodotus’s ridicule of contemporary mapmakers (4.36.2) and armed with a series of questions—How did Herodotus think that the world around him should be described? What do his spatial descriptions tell us, and what kind of perspectives does his narrative and those of his characters present?—, de Bakker contrasts cartography’s schematic over-generalizations with Herodotus’s empirical study, in which he takes account of unknowns (whether or not the world is surrounded by an Ocean), messiness (the imprecise location of the Nile Delta) and, above all, change. His analysis makes an important correction to Alex Purves’s 2010 study, in which she makes a distinction between the cartographic bird’s-eye perspective and Herodotus’s hodological representation, by demonstrating that the *Histories*’ discursive space is not always hodological (in Egypt, for example, Herodotus provides absolute measurements) and that even hodology can be intertwined with imperialism (such as in Darius’s adventures in Scythia). Even so, the individual’s ambition of gaining a totalizing perspective over his environment in order to exert power over it remains a problem: Xerxes’s aspirations to an Olympian perspective contaminate the fighting in the Salaminian narrows and ultimately contribute to the disaster (8.89.2). For all that Herodotus may adopt occasionally a more abstract viewpoint, his description of space remains down-to-earth and includes admissions of ignorance.

In chapter 5 Tim Rood broadens the discussion of historiographical space by considering the intersection between spatial and temporal description in both Herodotus and Thucydides. Like de Bakker, Rood argues that historical texts posit a more complex construction of space than can be conveyed by the hodological

perspective of the itinerary, and one feature of this complexity is the temporal dimension: just as people often use spatial language for time, so too they often conceive of space in temporal terms. Arguably this approach is most evident in Thucydides's *Archaeology* (1.2-19), in which the author uses the comparative method of 'conjectural history' to study the manners of early Greece; ironically, however, his subsequent war narrative deconstructs the notion of progress, exemplified by the Athenians' ultimate naval defeat in Sicily being figured as a reversion to an old-fashioned style of naval fighting (7.62.2, cf. 1.49.1-2). If anything, Herodotus is even more complex: while he is often conceived of as representing movement away from a Mediterranean core in terms of passage through zones of increasing backwardness, many aspects of his *Histories* run counter to the assumptions of a single evolutionary model. Instead of reducing customs to a single antecedent, he focuses more on synchronic variety amongst multiple forms of civilization and barbarity.

Kathryn Stevens brings Part I to a close by recalling and expanding on Thomas's initial observation of a shift in spatial conceptualization in the Hellenistic age in mapping an intellectual revolution from Aristotle's *Historia Animalium* to Theophrastus's *Historia Plantarum* on the basis of their differing referencing strategies to peoples and places. As expected, the Macedonian conquest and settlement of Egypt and western Asia transformed Greek knowledge about the geography of these regions, which is clearly reflected in the *Historia Plantarum* relative to the *Historia Animalium*. This was not a conceptual break comparable to that which followed the European discovery of America: Stevens demonstrates that 'it is not a true expansion of horizons, but a greater filling in of the spaces between them', that most successfully describes the overall change between the eastern geographies of Aristotle and Theophrastus. Yet the intensification of connections between the Mediterranean and Near East under Alexander and his successors arguably *did* affect the way in which Greeks conceptualized eastern places, as well as how much they knew about them. The *Historia Animalium* presents certain eastern regions as vaguely localized and rather separate from the rest of the *oikoumenē*, lands characterized by exceptional and 'wondrous' phenomena. However, these places appear in the *Historia Plantarum* as increasingly territorial and knowable entities, sources of botanical exempla which parallel rather than disrupt trends identified closer

to home. Furthermore, the increased frequency of connections drawn by Theophrastus between the botanical characteristics of places in Asia and Egypt and those of the Mediterranean heartland may in itself reflect the increased density of political and cultural connections between these regions, which for the first time became part of the same world, which we call Hellenistic. Theophrastus provides, perhaps for the first time in surviving Greek literature, Stevens suggests, ‘a greater sense of that world as a connected whole’ (XXX).

As part of her investigation, Stevens uses contemporary information computing technologies to organize data and visualize patterns, while maintaining a central focus on the text in composing a quantitative and qualitative study of the evidence. Part II follows a similar blended methodology: it sketches out the approaches behind, and initial outcomes of, an interdisciplinary collaborative project that follows the same twin principles of close textual analysis and experimentation with new digital resources. The *Hestia* project involves researchers from Classics, Geography and Digital Humanities in the investigation of the geographical concepts through which Herodotus describes the conflict between Greeks and Persians. The *Histories* of Herodotus provide a fascinating, if frustrating, glimpse into Greek conceptions of the *oikoumene* in the fifth century BC and reveals a cultural interest not only in history and ethnography but also geography and cartography. Indeed, in those two passages that we have already mentioned, Herodotus conveys scepticism about the maps of his day, emphasizing their unreliability both as descriptions of the world (4.36-42) and as navigational aids (5.49-50). This confronts us with a paradox—how can we approach ancient conceptions of space, without imposing either our own world-view or those which Herodotus critiques?

The three chapters in Part II represent the different methodologies that have been brought to bear on the evidence—geographical theory, experimentation with digital resources, and close textual study. This multifaceted approach intentionally emphasizes different ways of thinking about and analyzing conceptualizations of geographic space in Herodotus, using each to challenge elements of the others, so that each method has been informed by, and inevitably bled into, the other. While the combined results of these individual analyses bring to light a number of important

issues for thinking about Herodotus's representation of space more generally, all have taken Book 5 as a case study. As we saw earlier, this book is a critical hinge in a narrative that documents Persia's growing empire in the earlier books as a build up to her conflict with mainland Greeks later on, and has recently attracted two dedicated monographs, from which we have benefitted enormously.<sup>43</sup> These three chapters thus represent inquiries into both the nature of spatial formations in Herodotus, and the analytical approaches that can be used to investigate them. Their dual purpose is reflected in the explicitly methodological tone of the chapters, whose authors offer distinct insights into the multiple ways in which the subject matter of the *Histories* lends itself to diverse inter-disciplinary frameworks.

The central premise of chapter 7 by Stefan Bouzarovski and Elton Barker is that, alongside conventional 'topographical' maps, spatial relationships can also be conceptualized in a 'topological' manner—as sets of overlapping networks in which the nature and the content of links between geographical locations matter more than physical, Cartesian distances. The study owes much to the 'hodological' view of space already discussed by de Bakker, but formalized by a qualitative analysis of the connections that Herodotus draws between spatial concepts over the course of his narrative. As Stevens observes in the previous chapter, place names alone are insufficient to capture the full complexity of spatial constructions depicted in the text, and the solution—to identify and analyse *proxies* (individual characters or groups), who represented places, as well as the places themselves—recalls the point that geographic space is better thought of in terms of lived experience and human agency rather than abstract topography. Like Stevens too, the study is based on close textual analysis, in this case a clause by clause analysis (extending throughout Book 5) of spatial concepts on the basis of their co-presence in a sentence and on the verbal form that connects them, and then evaluated according to the *quality* of the relationship. Using two geographical principles of movement and transformation, that quality is identified as being either spatially static, spatially dynamic, transformative but not involving movement, or spatially-transformative. All four individual graphs, along with the total network map, show a world that is organized around action and influence rather than cartographic location. And, while these initial results bear out the customary understanding of Herodotus's conception of space as a world divided

between East and West, between Persia and the Greek city-states of, especially, Athens and Sparta, the network picture that emerges is a good deal more complex and nuanced, as internal relationships remain critical for determining the shape and nature of the networks.

Thus the network analysis of Book 5 produces a rudimentary dataset out of which a series of network graphs can be generated to visualize, and start to interrogate, Herodotus's discursive representation of space—how he puts spatial ideas and concepts into words and organizes them into a narrative. Given the hugely time-consuming nature of this close textual study, the *Hestia* team also experimented with ways of automating aspects of the process that could facilitate analysis. Chapter 8 presents some initial attempts by Leif Isaksen and Elton Barker at exploring digital technologies for examining Herodotus's *Histories* geospatially. The basis of this study was a digital copy of Herodotus's *Histories* from the Perseus classical library: Isaksen and Barker here discuss the process of data cleaning and aggregating the repurposed text, and sketch out the configuration of the geo-referenced database, which stores the spatial co-ordinates of all place-names, their precise references in the narrative, and their categorization (as settlements, physical features or territories). With such a database, some of the ways in which Herodotus's discursive model can be represented and explored visually are then demonstrated, using different kinds of web-mapping technologies, such as: (i) *Geographical Information Systems* (GIS), through which spatial concepts in the *Histories* can be queried and visualized; (ii) a KML 'Google Earth' layer that provides users with full English and Greek citations of references to locations in the *Histories*; and (iii) a narrative Timeline that shows locations appear and 'fade from memory' as the 'reader' moves along it. As well as discussing the advantages of and challenges posed by these varying visualizations, particular attention is paid to the potential of rapid, automated generation of networks of 'co-presence' for flagging up interesting patterns of linkages between locations.

One clear lesson to have derived from both the painstaking qualitative analysis of textual relationships (discussed in chapter 7) and the rapid generation of 'quick and dirty' network links (presented in chapter 8) is the point that the resulting visualizations are better thought of and approached as *part of* an interpretative process

and not its end result. In this way, *Hestia* arguably demonstrates the use of maps as tools with which to interrogate data as much as an alternative form in which those data are to be represented. It also shows, ultimately, that analyses, even those using the most powerful and nuanced digital tools, need to be underpinned by, derived from, and read alongside, the text. In chapter 9, Chris Pelling and Elton Barker integrate the data-capture and visualization results with more discursive and analytical approaches based on a close reading of Book 5. Book 5 begins by picking up the story of those ‘Persians whom Darius had left in Europe’, immediately locating the reader in a world that looks both forwards and backwards, recalling the high-level clash between East and West in the opening chapters, even as it seems to mark a decisive shift too in those relations—but in what way, and with what consequences for our understanding? The formalist question of the qualitative analysis—what counts as a proxy for a place?—can now be seen to mirror larger interpretative questions, especially regarding civic identity and ideology. Movement is another issue whose importance has already been identified by the previous two chapters: in the close textual analysis of chapter 9, movement can be seen as something of a running sore. The book begins with the forced movement of the Paeonians by the Persians; but even its more peaceable forms, such as immigration, can be equally destabilizing of categories, particularly when claims of autochthony are at stake (as in Athens). Thus Pelling and Barker suggest a more complex picture of East-West relations than a polarizing view allows: it is not that there is no division between Asia and Europe—after all, as Book 5 unwinds we see the battle-lines being drawn up; rather, the divisions are frequently temporary or partial or are subject to constant revision or challenge. The picture that emerges is of a world not rigidly and schematically divided into distinct territories—a model which Herodotus directly criticizes—but one that is interconnected in various ways on various levels at various times. The way Herodotus gets to his representation of war, on a meandering path that leads us through a series of overlapping and increasingly complex networks to depict a world in flux, challenges the notion of an abstract, mappable topography. Instead, it is in the realm of discursive narrative that readers might be better able to grasp the multi-dimensions of the space around them.

The final section of this book, Part III, takes up the potential of the themes and

approaches discussed in Part II for thinking about innovative means of analysing ancient Greek conceptions of space beyond any text. In chapter 10, Tom Brughmans and Jeroen Poblome look to make use of new digital network techniques for exploring, visualizing and analysing data in their investigation of Roman pottery distribution. As the authors point out, Roman tableware distribution is traditionally explored through establishing presences in specific places, which are then visualized as dots on a map. On the basis of a complex aggregation of pottery fragments drawn from diverse research contexts, Brughmans and Poblome build and analyse two network types: (i) a relational network of co-presence representing pottery distribution patterns; and (ii) a geographical network of distance representing a hypothesis of shortest-distance trade routes. Seen in interaction, the distribution of about 30,000 tableware sherds indicates regularities exhibiting a spatial logic, like the key areas of wares' distributions and the importance of proximity to producing centres. Moreover, they suggest that tableware distribution in the Roman East seems to have emerged through a dense web of particular spatially-informed interactions connecting people, places and objects.

Chapter 11 documents the most ambitious attempt yet to capture and analyse the materiality of ancient Greek space. Lin Foxhall and Katharina Rebay-Salisbury outline the Leverhulme 'Tracing Networks' project, which uses new technologies in combination with network theory to investigate the technological knowledge, cultural contact and knowledge exchange across and beyond the Mediterranean region between the late Bronze Age and the late classical period (1500-200 BC). Much of this chapter is methodological and theoretical, not only because it is still in the process of gathering the data but also because of the issues and concerns it raises, not least thinking about the use of IT in a humanities context. As a result this chapter provides a very tangible sense of the difficulty of true multidisciplinary research and the challenges of the differing expectations and working practices that have to be overcome or negotiated for that research to be successful. Its argument that the movement of craft objects and ideas can be revealing of conceptual geography is interestingly developed through a focus on: (i) the life-cycle of objects—the so-called *chaîne opératoire*, in which objects are tracked at every stage of their production, distribution and use; and (ii) cross-craft interaction—the ways in which two or more

crafts make an impact on each other technologically and socially. These different but complementary approaches provide a theoretical framework that allows a diachronic comparative study across cultural contexts. Coupled with the powerful semantic model of the CIDOC-CRM ontology, which provides definitions and a formal structure for describing the implicit and explicit concepts and relationships of material culture data, *Tracing Networks* attempt to reconstruct the human relationships with which the material culture remains were entangled, such as the ways in which the distribution of loom weights in Southern Italy points to the connection between related women living in spatially separated households. All in all, while this chapter frustrates in its atomization of different case studies, nevertheless it provides an invaluable discussion of the kind of multidisciplinary study that the concept of space demands and that new technologies may enable. Above all, it offers a tantalizing glimpse of how a technological excavation of everyday materiality—the lost stories of the most everyday and mundane objects—may in the future complement a study of the literary space of Herodotus.

Inspired by the spatial turn in the humanities coupled with the digital medium, the final chapter takes us beyond antiquity in order to reflect on the use of verbal expressions of geographical information more generally. Øyvind Eide discusses how maps and verbal expressions are different media, and how these differences have consequences not only for *how* things are said, but also for *what* can be said at all using these two media. According to Eide, maps and texts alike have space manifested in the material interface, but the way in which a cognitive space is established based on the material interface differs. Because the spatiality of texts is not directly connected to the spatiality of the described landscape, the landscape spatiality established in the mind of the reader is a reconstructed virtual space. As for maps, the space manifested in the material interface has a spatial similarity to the landscape depicted. Most modern readers will see this similarity, since, even when we are given a description rather than a diagram, we have a ‘natural’—i.e. culturally-embedded—reflex to start building a mental map. But the results are not so clear when one comes across a culture without the reference systems of maps deeply embedded into its patterns of communication and reflection. Taking us beyond the map, Eide’s chapter questions the visualising assumptions that a modern reader brings

to the text.

Divided into these separate parts—texts, maps and ideas on the one hand (chs. 1-6), and technologies, methodologies and theories, on the other (chs. 10-12)—this book aims to sketch out some of the battle lines for rethinking the geography of the ancient world. Our test case is Herodotus’s *Histories* (chs. 7-9), which we explore from different, but mutually complementary perspectives, in order to bring to the surface the spatial data encoded in the text and get a better sense of their complex configurations in narrative form. New digital technologies have a role to play in reinvigorating this field of enquiry.<sup>44</sup> Harris, Bergeron and Rouse go so far as to suggest that (2011: 227): ‘The humanities have long been at risk of treating space, the backdrop to all human behavior and events, as being neutral—a spatial vacuum—an isotropic backdrop to human affairs.’ At the very least, however, by virtue of ‘locating historical and cultural exegesis more explicitly in space and time’, new technology, such as Geographical Information Systems (see ch. 8), ‘finds patterns, facilitates comparisons, enhances perspectives, and illustrates data’.<sup>45</sup> Yet, at the same time, as the Hestia project shows (chs. 7-9), traditional GIS, with its positivist emphasis on precise measurement and categorization, is critically ill-equipped to dealing with the typically ambiguous, complex and pluralistic humanistic data of literary texts. It is not only the case that GIS is notoriously poor at handling uncertain, incomplete and ambiguous data; text-based humanistic enquiries ‘raise fundamental epistemological and ontological issues for GIS applications’.<sup>46</sup> Instead, our provisional insights bring to the fore the underlying ways in which Herodotus constructs space in his *Histories* in terms of *relations* between peoples and places, where space is organised around movement, action and influence rather than according to topographic location.

In ‘A View from the Boundary’, Chris Pelling reflects on the success of, and limitations to, technological ways of viewing ancient space. In particular Pelling warns against the false positivism that ‘information technology’ might seem to engender.<sup>47</sup> As Lorna Hardwick puts it elsewhere, the affordances offered by technology for challenging scholarship’s inherited structures of knowledge can be liberating, ‘if—and only if—the students and other users are equipped to reflect on

the new clusters that they create'. In particular, as humanists adopt scientific methods to try to make sense of these data, 'we also need to be aware of what is at stake in using those digital tools [and] how the tools themselves can distort the research'.<sup>48</sup> At the same time, Pelling recognizes the value of these alternative approaches, including technological visualizations, for defamiliarizing our usual geographic assumptions. Above all, this epilogue demonstrates the extent to which Herodotus's *Histories* is good to think with—raising issues such as the textual and the cartographic, knowledge and power, different ways of seeing (bird's eye versus hodological), time and space. Whatever we may think of Herodotus's discursive space, and however we may interpret its varying manifestations and transformations, there is little doubting his own scepticism of the claims of the latest technology to capture space (as shown by the episode of Aristagoras at Sparta) or his resistance to overly schematic renderings of the world. Understanding the spatial humanities as reflexive practice, rather than the positivist application of tools, raises the challenge of 'integrating the multiple voices and views of our past, allowing them to be seen and examined at various scales; creating the simultaneous context that historians accept as real but unobtainable by words alone'.<sup>49</sup>

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<sup>1</sup> Kraak (2006).

<sup>2</sup> All translations are our own.

<sup>3</sup> On this scene, see especially: Purves (2010) 132-138, 144-150; Rood (2012); cf. Rood (2006) 294-296; Barker et al. (2010) 6-9.

<sup>4</sup> See Ceccarelli (this volume) XXX.

<sup>5</sup> de Bakker (this volume) XXX. As we discuss below, we see this failure rather as exposure of the inherent limitations, or even duplicity, of the visual medium.

<sup>6</sup> Rood (2012) 132, 133.

<sup>7</sup> Barker et al. (2010), (forthcoming). See also: Purves (2010) 118-158; Rood (2012).

<sup>8</sup> As Purves (2010) 135 argues, by virtue of being engraved, Aristagoras's map only offers a snapshot of space and fails to capture its full meaning. Cf. Barker et al. (2010) 4-5. On cartographic representations in antiquity, see Dilke (1985); Harley and Woodward (eds.) (1988), in particular the contributions by Harley (1988), Dilke (1988), and Harley and Woodward (1988); Talbert (2008).

<sup>9</sup> On 'easy' being a watchword in Aristagoras's discourse, see Pelling (2007) 179-180.

<sup>10</sup> Purves (2010) 126 suggests that Herodotus's periodic style deliberately challenges a cartographic approach to spatial representation. On hodological space in ancient cartography, see also Janni (1984).

<sup>11</sup> On his rejection of overly schematic representations see Munson (2001) 84-86; Thomas (2000) 98-100; Purves (2010) 111, 128. Rood (2012) 133-135 nuances this view by drawing attention to the various moments in the *Histories* when the narrator takes a bird's-eye view of a particular place. Cf. de Bakker (this volume).

<sup>12</sup> Herodotus stands on the cusp between orality and literacy (Kurke (2001) 115-37; Marincola (2001) 42) as a pioneer of prose: Goldhill (2002). Though see Thomas (1992) 102-4 for a useful warning against overplaying Herodotus's oral style.

<sup>13</sup> Cf. Purves (2010) 140.

<sup>14</sup> For a discussion of some of the differences between the textual and visual mapping of geographical information, see Eide (this volume). On 'lived space', see XXX below.

<sup>15</sup> See Barker and Pelling XXX below.

<sup>16</sup> Thrift (2003) 105.

<sup>17</sup> Thrift 2003, 105. On the added value of place as opposed to space, see Tuan (1977) 6, who writes: 'What begins as undifferentiated space becomes place as we get to know it better and endow it with value.' Cf. Grethlein (2008) 28. See also the discussions below by de Bakker XXX, Ceccarelli XXX and Stevens XXX.

<sup>18</sup> Harvey (1985) 253.

<sup>19</sup> Gurevich (1985).

<sup>20</sup> Elden (2006) 2.

<sup>21</sup> Thomas (1992).

<sup>22</sup> For space as structured by human experience: Tuan (1978).

<sup>23</sup> Barnes and Duncan (1992) 3; see also Thrift (1996).

<sup>24</sup> Peuquet (2002).

<sup>25</sup> Peuquet (2002) 201 (emphasis in the original). See also Cosgrove and Daniels (1988).

<sup>26</sup> Easley and Kleinberg (2010) 2. See also the Royal Society of Arts (RSA) Animate: <http://www.youtube.com/watch?v=nJmGrNdJ5Gw>, in which Manuel Lima sketches out a paradigm shift in mapping organized complexity, from the hierarchical structure of the tree metaphor to the network structure of the rhizome. Cf. Deleuze and Guattari (1987).

<sup>27</sup> The phrase 'contact zone' comes from Horden and Purcell (2000), though they do not use network theory themselves. Constantakopoulou (2005) draws out the paradox of the islands of the Mediterranean being both insular and connected, and shows how this extends to their links to the mainland. On the application of network theory to antiquity more generally, see e.g. Malkin (2003) and (2011); cf. Malkin, Constantakopoulou and Panagopoulou (2009).

<sup>28</sup> See Malkin (1998).

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- <sup>29</sup> Or spatial concepts more generally. See XXX below for our definition of spatial phenomena.
- <sup>30</sup> Talbert (2008).
- <sup>31</sup> Gregory and Ell (2007); Bodenhamer, Corrigan and Harris (2010); Knowles and Hillier eds. (2008); Talbert (2008); cf. Harley (1989).
- <sup>32</sup> Much of the pioneering work in this field is carried out at the Stanford Literary Lab under the auspices of Matthew Jockers and Franco Moretti (<http://litlab.stanford.edu/>). See, e.g., their pamphlet 'Network Theory, Plot Analysis' ([http://litlab.stanford.edu/?page\\_id=255](http://litlab.stanford.edu/?page_id=255)), which uses a social network theory to explore the relationship of characters to plot in Shakespeare's *Hamlet*.
- <sup>33</sup> See e.g. Osborne and Alcock (1994); Vlassopoulos (2007); Scott (2010).
- <sup>34</sup> Rehm (2002).
- <sup>35</sup> Geographic representation: Girod (1974); Nicolet (1991); Romm (1994); Clarke (1999); Hutton (2005). Epic: Grethlein (2008); Strauss-Clay (2011); Tsagalis (2012). The quotation comes from Purves (2010) 15, whose thought-provoking study ranges over Homeric epic, Ionian science, Herodotus and Xenophon. The close correlation between form and thought in classical historiography of course goes back to Immerwahr (1966).
- <sup>36</sup> See e.g. Bertrand (1997); Greenwood (2006); Platt (2011).
- <sup>37</sup> Harrison (2007) 44.
- <sup>38</sup> The map is not the territory; it always manages the reality it tries to show: Brotton (2012). For the complex joke here, and the extent of the spatial knowledge implied (particularly regarding maps), see Dan, Geus and Guckelsberger (2014) XXX.
- <sup>39</sup> Lefebvre (1991) 42.
- <sup>40</sup> Graziosi and Haubold (2005) 63-149; cf. Barker and Christensen (2013).
- <sup>41</sup> Malkin (1998) uses the figure of Odysseus to rethink Greek 'colonization' movements around the Mediterranean. Grethlein (2008) uses the material culture mentioned in both epics to excavate social memory and build an archaeology of the past through their historical consciousness. Austin (1975) is still pertinent as regards the conceptual apparatus with which the *Odyssey* frames Odysseus's adventures.
- <sup>42</sup> Tsagalis (2012) has an exhaustive study of the different ways in which space is conceptualized in the *Iliad* (particularly through poetic language and metaphor). In addition to her 2011 book, Jenny Strauss-Clay has also been working with IT specialists to map the Catalogue of Ships, drawing attention to the different ways in which Homer organizes space and the possible significance behind those efforts (<http://ships.lib.virginia.edu/>).
- <sup>43</sup> Irwin and Greenwood (eds.) (2007); Hornblower (2014).
- <sup>44</sup> In part due to the extraordinary growth of new geographical technologies, the past decade has seen a growing spatialization of literary studies, coining the term 'Geohumanities': Dear et al. (2011).
- <sup>45</sup> Bodenhamer (2010) 28.
- <sup>46</sup> Harris, Bergeron and Rouse (2011) 228. Cf. Gregory and Healey (2007).
- <sup>47</sup> Though arguably far less among those actually using the technology.
- <sup>48</sup> In Barker et al. (2012).
- <sup>49</sup> Bodenhamer (2008) 230-231.