Mapping Homer's Catalogue of Ships

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Abstract

This article provides a brief description of *Mapping the Catalogue of Ships*, which maps the towns and contingents of Homer's Catalogue of Ships, analyzing the poet's knowledge and use of ancient Greek geography. We offer a brief account of the questions that drive our research, detail our novel method to analyze Homer's poetry in terms of geospatial organization, and summarize the geospatial organizational principles that we have discovered. We discuss the necessity of a digital format to our research and the presentation of our argument, which requires simultaneous attention to literary, geographical, archival and bibliographical material. The paper also details the Neatline (neatline.org) platform that allows us to achieve these goals. We end with outlining future directions for our research and user interface.

The Research Question

In Book 2 of Homer's *Iliad*, the poet embarks upon a seemingly impossible feat: to enumerate the commanders of the 29 contingents of the Greek expedition to Troy, along with the number of ships and troops belonging to each, and the almost 190 towns from which they came. As an oral poet, Homer composed his verses aloud and extemporaneously, without the use of writing. Nor did Homer have a map at hand; the first maps of the Greek world are invented far later than the *Iliad*. Yet the poet presents his 250-verse masterpiece as an organized tour of the Greek world, subdividing the commanders and their contingents according to geography. It was such a convincing performance that the 1st century BC geographer Strabo would name Homer as the "father of geography." Yet the degree to which Homer was familiar with the details of the ancient Greek landscape remains unclear.[3]

The places named in the Catalogue may be divided into two types: large kingdoms, which are called contingents, and the cities within those kingdoms. The narrative order in which Homer

relates the 29 contingents that make up the Greek fleet follow a well-known geographical principle. Beginning from Boiotia, in central Greece, the poet narrates three circuits of these contingents, moving from one geographical region to the next in a contiguous fashion (Clay, 2011; Minchin, 2001; Kirk, 1985). This well organized plan or mental roadmap serves the oral poet as a "spatial mnemonic" (Clay, 2011), allowing Homer to traverse the more than 180 places he mentions without getting lost in the details (Clay, 2011; Minchin, 2001). One goal of *Mapping the Catalogue of Ships* is to illustrate this large-scale navigation of Greece, making clear for students and scholars the fundamental order that underlies Homer's tour-de-force of memory.

Although the principle according to which Homer moves from contingent to contingent is well understood, the poet's use of geography remains, in its other aspects, mysterious. Several scholars have suggested that Homer may have used ancient travel itineraries to organize the Catalogue (Clay, 2011; Kirk, 1985). However, we lack a detailed analysis of the organizational principles underlying the towns and landscape features that Homer mentions. The main purpose of *Mapping the Catalogue of Ships* is to fill this scholarly gap. Does Homer possess detailed knowledge of local geography for the contingents he names in the Catalogue? Is he aware of ancient travel routes? How might Homer have used such local geography in the composition of his poem? These are the main questions that *Mapping Homer's Catalogue of Ships* seeks to answer.

Methodology

The question of the poet's knowledge and use of geography requires the simultaneous analysis of information from two realms: literature and geography. We took as our starting point the narrative order of the sites named in the Catalogue, which the poet subdivides into groups by contingent. Our first task was to collect the places listed and determine their latitudes and longitudes. Wayne Graham of the Scholars' Lab obtained geo-referencing data from *Pleiades* (http://pleiades.stoa.org/) and matched it with the list of place names from the Catalogue, using a variant of a Levenshtein distance algorithm to account for any spelling discrepancies. While this accounted for the

coordinates of a large majority of sites, a number of locations remain uncertain. Whenever possible, we evaluate previous scholarly research to supply potential locations for such unassigned toponyms. For a small number of sites, evidence is completely lacking. Having ascertained or posited the locations of sites in a particular contingent, we proceed to literary analysis, namely, to determine to what extent the poet had knowledge of the place names he lists, and how he may have used that knowledge to organize his catalogue.

We developed a novel methodology to address these issues, which analyzes the narrative order of toponyms in terms of their geographical distribution. By paying close attention to clusters of toponyms, we have been able to demonstrate that the poet's syntax frequently mirrors geography: regional subdivisions of towns also constitute syntactic and poetic subdivisions, which we call *syntactical groups* and *line-by-line groups*. Syntactical groups are instances in which a single verb governs a group of towns; line-by-line groups are instances in which one or more towns fall within a single verse. We have discovered that these syntactical and line-by-line groups often reflect local geographic features or travel routes.

The Mykenaian contingent, for instance, contains four syntactical groups (Fig. 1), each of them disposed along well-defined travel corridors. The first syntactical group (purple) falls along a south-north route from Mykenai to Korinth; the second (yellow) is directly adjacent to the west, along a south-north route from Orneai to Sikyon; continuing to the west, the third and fourth syntactical groups (green and orange, respectively) fall along the coast, moving east to west. Thus, the entire contingent constitutes four syntactical groups, each located along a travel corridor, with the groups narrated in order from east to the west. Homer's division of his narrative according to features of the local landscape in contingents such as Mykenai clearly demonstrates a knowledge of local geography, which he in all likelihood uses as a "spatial mnemonic," as in the contingent-to-contingent narration.

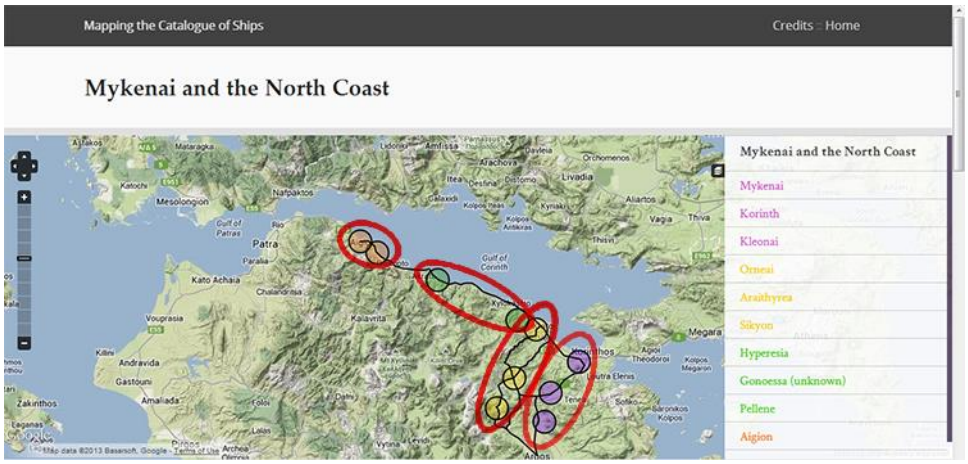


Fig. 1: The four syntactical groups of the Mykenaian contingent [circled]

Where there is sufficient evidence to allow analysis, syntactical and line-by-line groups reflect the geography of a contingent in a large majority of cases. Our initial investigation has determined that 8 out of 29 contingents furnish insufficient data to proceed with analysis, either because the contingent consists of only a single toponym, or because too many of the sites in the contingent are dubious. Of the remaining 21 contingents, our initial findings suggests that Homer mirrors local geography in syntactical or line-by-line groups 17 times.

Digital Presentation as Argumentation

Mapping the Catalogue of Ships (http://ships.lib.virginia.edu/home) is a web application built on the Omeka content management system (http://omeka.org/) and the Neatline plugin for Omeka (http://neatline.org/), featuring exhibits that map the sites mentioned in the Catalogue and demonstrate their underlying geographical organization. Each display also includes the text of the *Iliad*, bibliographic and archival material, as well as original scholarship.

Our argument requires attention to the narrative order, syntax, and verse of a piece of literature, and at the same time to the geographical distribution of sites. To properly demonstrate our theories, therefore, it is absolutely essential that we have a platform capable of simultaneously visualizing text, geographical space, and narrative time. Fortunately for us, the Scholars' Lab directed

our attention to Neatline (neatline.org), a geotemporal exhibit builder that combines all of these features. Neatline allows us to combine Homer's text with a custom-designed map, with both text and points on the map color-coded to reflect syntactical and line-by-line groups. Neatline also provides archiving resources, which are proving to be just as vital to our argument. As noted above, the locations of many sites in Homer's list of place names are doubtful or unknown. Since Neatline allows for map annotation, we can pin archival and bibliographic information to each point on the map, thus providing immediate evidence for the location we propose for any given site (Fig. 2). Since *Mapping the Catalogue of Ships* requires a multi-dimensional analysis, with simultaneous attention to text, archival materials, and narrative time and space, a traditional print format would not suffice for the presentation of our data.

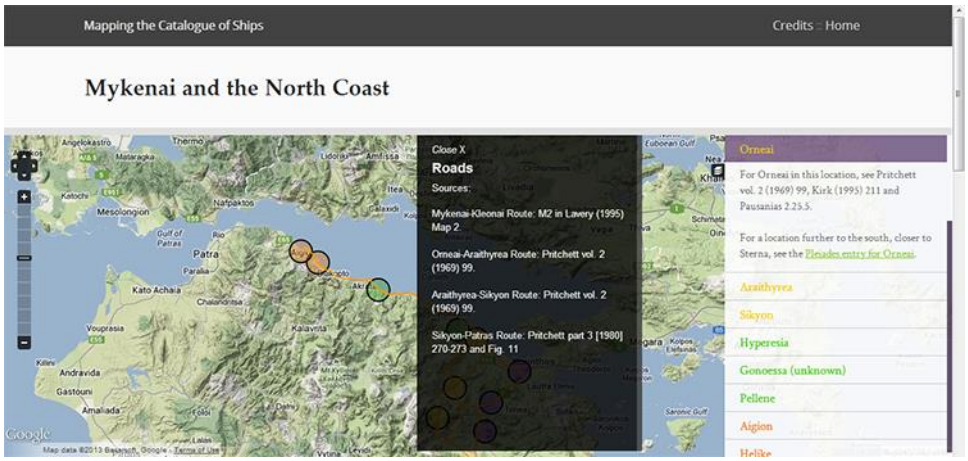


Fig. 2: Annotations on the Mykenai exhibit

An Exception Leads to Digital Discovery

An apparent exception to the geospatial organizational method prevalent elsewhere in the Catalogue may be found in the region of Boiotia, the contingent with which Homer begins. Figure 3 illustrates the apparently chaotic distribution of Boiotian towns, in which syntactical and line-by-line groups do not reflect geographical features or travel routes in any way. Within the Catalogue, this

absence of a correlation between geography and syntactical and line-by-line groups sets Boiotia apart as an oddity.

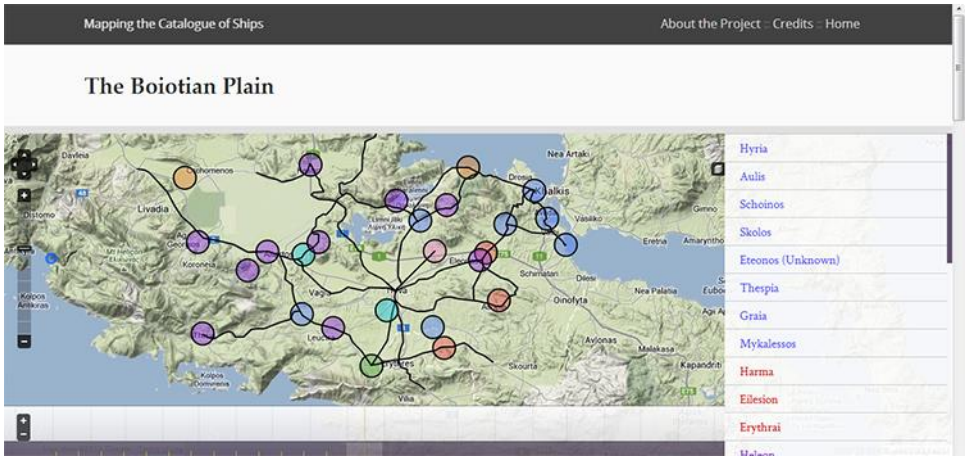
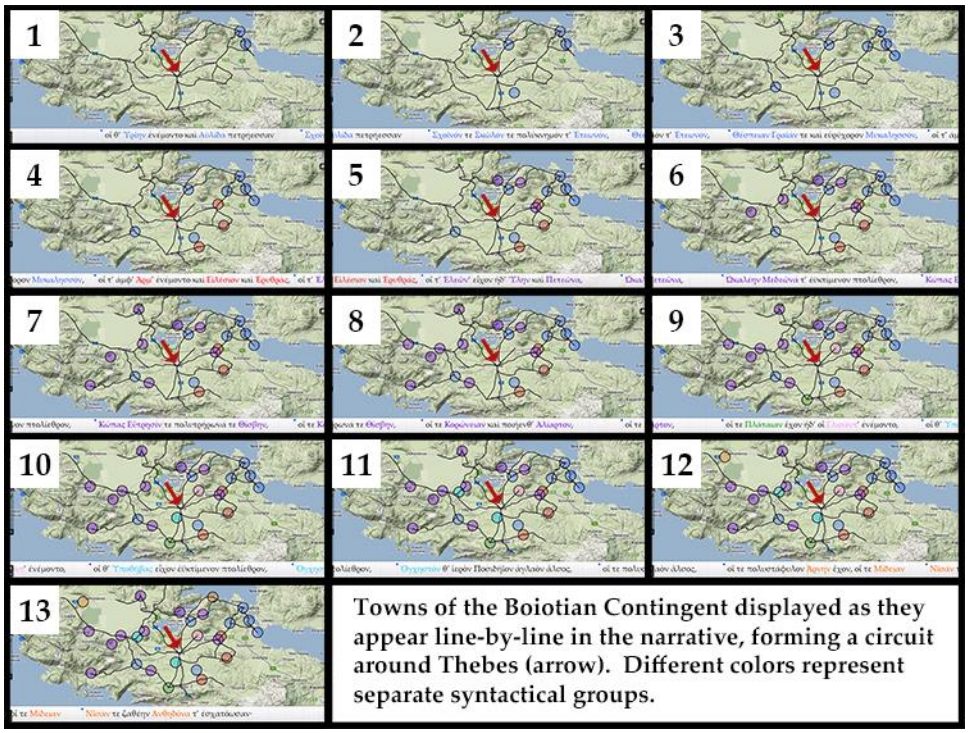


Fig. 3: The apparent geospatial disorder of the Boiotian contingent, where syntactical and line-by-line groups do not reflect geographical features or travel routes

This exceptional feature is not the only peculiarity of the Boiotian catalogue. First, in his list of Boiotian towns, Homer neglects to mention Thebes, the most important Boiotian city, both mythologically and historically. That the oral tradition in which Homer operates was aware of Thebes and familiar with its mythology is evident elsewhere in the *Iliad*, which highlights its absence from the Catalogue.[4] The second oddity is that Boiotia is the first contingent of the Catalogue and that, with 29 towns, it is significantly larger than any of the others. Such pride of place and lavish treatment seems strange given the relative unimportance of the Boiotians in the rest of the poem. [5]

It was only in attempting to create a digital exhibit to represent Boiotia's seeming geospatial chaos that an underlying order came to light, an order which also accounts for the other oddities of the contingent. Having failed to discover any geospatial organization in the narrative sequence of Boiotian sites using pen and paper on a static map display, we set out to create a digital prototype of what would eventually become a Neatline exhibit, with the aid of Edith Gwendolyn Nally, graduate fellow at the Scholars' Lab. We created an exhibit that added towns to a map of Boiotia according to their line-by-line order in the Catalogue (Fig. 4: Towns of the Boiotian Contingent displayed as they

appear line-by-line in the narrative, forming a circuit around Thebes [arrow]. Different colors represent separate syntactical groups.). The digital display allowed us to visualize Homer's list of towns in motion sequentially, giving us a better understanding of how the poetic narrative distributed sites across the landscape. As we clicked through the line-by-line sequence of the towns, it became evident that Boiotia has a geospatial organization all its own. The Boiotian towns define a rough circuit around a central point, namely, the unmentioned city of Thebes in the center of the region; it is as if Homer were standing in in the middle and pointing out toward the other towns like spokes on a wheel.



Towns of the Boiotian Contingent displayed as they appear line-by-line in the narrative, forming a circuit around Thebes (arrow). Different colors represent separate syntactical groups.

Fig. 4

As it turned out, therefore, the use of a digital medium was crucial for our investigation of Boiotia: we would not have discovered that this second mode of organizing space applies to the Catalogue of Ships without attempting to create a digital display of Homer's narrative sequence. This is a good example of what might be termed "digital discovery," [6] that is, an instance in which the

organizational potential afforded by digital technology facilitates a discovery that would have been more difficult or impossible using traditional research methods.

The geospatial scheme evident in Boiotia is found nowhere else in the Catalogue, but it is paralleled in other instances of catalogue poetry, even within the *Iliad* itself. We find it in Book 3, for example, in the *teichoskopia* ("viewing from the wall"), a generic feature of ancient epic poetry where a character stands on the city walls and enumerates allies or enemies while looking out at the battlefield. In Book 3, Priam, king of Troy, points out the heroes of the Greek forces, asking who each one is, while Helen in turn identifies them. Although this catalogue involves individuals rather than towns, it is clear that the location of these men and their battalions are arranged around the city of Troy. The Catalogue of Trojans, which directly follows the Catalogue of Ships, also makes use of this geospatial scheme. There Homer enumerates the Trojan allies, prefacing his list with a description of a hill upon the battlefield (*Il*. 2.811-815). This high vantage point offers the poet a viewing place akin to a *teichoskopia*, from which the Trojans and their allies could be distinguished. In this case Homer does list the towns from which the battalions came, as he had done earlier for the Greeks. When plotted on a map, as in Boiotia, the listed towns radiate out from the central unnamed city of Troy (Fig. 5).

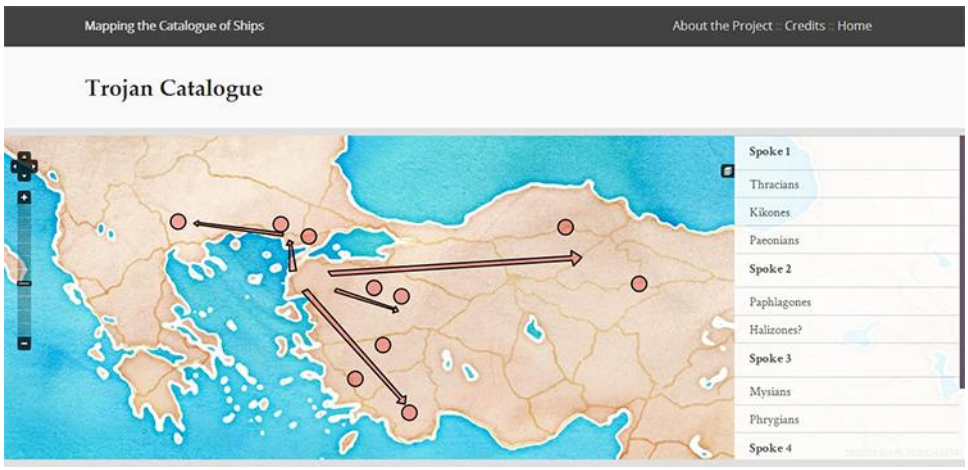


Fig. 5: The spoke-like narration of place-names around Troy in the Trojan Catalogue

Given that the geospatial organizational scheme of Boiotia is so different from what we find elsewhere in the Catalogue of Ships, but is reminiscent of the *teichoskopia* and Trojan Catalogue, we suggest that the narration of the Boiotian contingent may ultimately stem from an oral tradition concerning Thebes in particular. What we have in Boiotia is likely a remnant of a *teichoskopia* and/or enumeration of Boiotian allies fighting on behalf of Thebes. Such a catalogue would have been perfectly at home in the oral tradition about the Seven Against Thebes. According to this tradition, after Oedipus' exile from Thebes, his two sons, Eteocles and Polynices, were to rule in alternating years. When one of them refused to step down after his allotted time, the other raised an army comprised of seven contingents drawn from all over Greece. The hostile host descended upon Thebes, a city famous for its seven gates. Each contingent, led by a heroic champion, arranged itself outside one of the seven gates. This configuration was matched by those besieged within the walls of Thebes, where seven contingents of Boiotian allies, each led by a Boiotian hero, guarded each one of the seven gates.[7]

The incorporation of material from epic traditions involving Thebes into our *Iliad*, possibly including a catalogue of Boiotian allies, would explain the unique geospatial organization of the contingent. It would also better account for the other oddities that scholars have noted; the exclusion of Thebes would be normal in a *teichoskopia* from the city wall, and the large number of towns in the contingent occurs because it is a list of Boiotian towns who fought on the side of Thebes against the Seven. It is finally in this light that the syntactical analysis from elsewhere in the Catalogue may be relevant. There are precisely seven syntactical groups in the Boiotian contingent, one group for each gate in seven-gated Thebes. While syntactical groups frequently reflect geographical realities elsewhere in the Catalogue, in Boiotia they may be a remnant from an earlier layer of mythic tradition.

Future Directions

Technical

At present we have made public four exhibits, each demonstrating key aspects of Homer's use of space, as well as the argumentative potential of the Neatline exhibits that will eventually comprise the interface of *Mapping the Catalogue of Ships.* The exhibit "Peloponnese" provides a glimpse into the large-scale organization of the Catalogue; this contingent-by-contingent view of the Catalogue as a whole will eventually become the gateway into the individual exhibits, where the user will select a region to examine in detail. The exhibits "Mykenai" and "Boiotia" illustrate the two different ways in which Homer employs geography and space discussed in this paper: (1) listing toponyms in syntactical or line-by-line groups that align with features of the landscape and travel routes, or (2) narrating from a central position, as in a *teichoskopia*. These exhibits also demonstrate the versatility of Neatline's mapping and annotation tools. "Mykenai" includes bibliographic and archival data for roads and towns. "Boiotia" utilizes Neatline's timeline feature paired with text to illustrate how we envision the narrative as a 'timeline', simultaneously displaying syntactical groups and line-by-line groups as the user scrolls through each verse. Finally, the "Interactive Text" is a representation of how our interface will appear with fully integrated text and map features.

The integration of text and map in a single display, both in the narrative timeline of "Boiotia" and in the "Interactive Text", is already pushing the limits of Neatline and showing what a versatile and powerful tool it can be. We have worked closely with Jeremy Boggs and David McClure of the Scholars' Lab to implement these features and will continue to collaborate with them to push it even further. As this article is being written, we are working together to add two horizontal navigation bars to the top of the interface, designed to convey Homer's large-scale and small-scale geographical focus. The first navigational bar will be divided into three sections corresponding to the three contingent-by-contingent routes, the second will be divided into 29 sections, each representing a single contingent.

In the future, we hope that our website will become a sandbox where students and researchers can use our data to make their own exhibits and perhaps uncover new ways of interpreting the Catalogue of Ships. Taking advantage of the user access levels already present in Omeka, we intend to reach out to scholars across the globe to create a controlled crowd-sourcing environment. By granting researcher access to specialists related to our work, we can construct a platform for them to bring their valuable knowledge and insight to bear on the project, receive credit for their contributions, and feel part of what we hope will become an ever widening circle of authorship.

Research

Literary and archaeological data on travel routes and the location of ancient sites is diffused throughout a wide variety of ancient texts and modern scholarship. We intend to assemble this existing knowledge in our exhibits, linking to primary texts, articles, archaeological reports, and images. Where such data is unavailable or inaccurate we hope to travel to Greece and document it first-hand.

One of the most exciting facets of this project is the possibility of locating lost archaeological sites on the basis of our theories. If a given syntactical or line-by-line group is comprised of a group of towns that appears to correspond to a roadway or geographical feature, but one of those towns is of undetermined location, then we can speculate with greater accuracy about where one might begin to look for the unknown town. We look forward to working with archaeologists to figure out the most promising candidates.

The practical and literary sides of *Mapping the Catalogue of Ships* are mutually reinforcing. It may be that a precise reading of Homer leads to archaeological discovery. But at the same time, the practical, boots-on-the-ground approach of our exhibit enhances the literary experience, putting the reader in closer contact with the physical landscape of Greece itself, the landscape which we believe helped the poet to compose his Catalogue.

Funding

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[1] This paper was awarded the Paul Fortier Prize at Digital Humanities 2013, in Lincoln, NE, USA.

[2] We would like to offer our heartfelt gratitude to our advisor, Professor Jenny Strauss Clay of the University of Virginia, for conceiving of *Mapping the Catalogue of Ships* and inviting us to collaborate on the project. Professor Clay has been a constant source of aid, scholarly advice and inspiration. We are also deeply grateful to Bethany Nowviskie of the Scholars' Lab, who first brought Neatline to our attention and who has always offered enthusiastic support, aid, and direction. We owe a debt of gratitude as well to Jeremy Boggs and David McClure of the Scholars' Lab, who have been so instrumental to the creation of *Mapping the Catalogue of Ships*, from designing portions of the exhibits to advising us about visual argumentation and teaching us the ways of Neatline. Thanks also to Wayne Graham, Chris Gist, and Kelly Johnston of the Scholars' Lab for their help in the early development of the project and their continued encouragement. Our thanks as well to Edith Gwendolyn Nally, Graduate Fellow of the Scholars' Lab, for frequent conversations about our data and the organization and design of our Neatline display, as well as her help in designing our presentation for DH 2013. This paper is a revised version of our presentation at DH 2013, Lincoln, NE, USA. An earlier version of this paper was presented at the Digital Classicist Berlin. Our thanks to the readers and participants at both of those conferences for their comments.

[3] As the composition of an oral poet, the Catalogue of Ships is the product not only of the poet responsible for the *Iliad*, here called "Homer," but also of the entire oral tradition, consisting of highly formulaic language and content, recreated on the occasion of every bard's performance and stretching back hundreds of years prior to the written form of the poem as we have it. In examining the use of space and geography in Homer's Catalogue, we are also examining the larger Homeric tradition.

[4] The usual scholarly response to this problem has been to argue that Thebes is not mentioned because, according to the mythological timeline, Thebes had been sacked before the mustering of the expedition to Troy. This is a reasonable enough answer, but it is also problematic. For one, it is inconsistent with the archaeological record of Thebes which shows continuous, and indeed, for the most part, prosperous habitation (Dakouri-Hild, 2011a, 2011b). For another, it would mean that Homer here demonstrates an uncharacteristic interest in chronological realism.

[5] One possible explanation is that one of towns in Boiotia, Aulis, was the place in which the fleet assembled before sailing to Troy. But this response only accounts for the priority given to the Boiotians in the Catalogue, but not the amount of space accorded them.

[6] Thanks to Edith Gwendolyn Nally for coining this term.

[7] Scholars have noted other signs of the *Iliad*'s awareness of the oral traditions surrounding the sack of Thebes. Most notably, in Book 7 the Greek forces build a defensive wall around their camp, and quickly the besiegers become the besieged; most of the fighting in the poem is not around the walls of Troy, but around this defensive wall. Though the precise number of gates in the wall has been a matter for debate, in Book 9 Agamemnon, the leader of the expedition, assigns seven commanders together with 100 troops to guard each of the gates. Furthermore, Homer describes these guardians as if they were city guards rather than camp watchmen. Thus this defensive wall begins to resemble the city wall of famously seven-gated Thebes (Singor, 1992). Compare also Aeschylus, *Seven Against Thebes* 369-652, a *teichoskopia* of the forces attacking Thebes, which possibly stems from an oral *Thebaid*.

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