

THE UNIVERSITY OF CHICAGO

THE STRATEGIDES AND THEMES: A QUANTITATIVE APPROACH TO THE  
BYZANTINE EMPIRE'S ADMINISTRATIVE STRUCTURE

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BRIAN WILLIAM SALAS

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To Lauren,  
My North Star

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## GENERAL INTRODUCTION

Geography plays a significant role in shaping the organization and actions of any state. It affects political and military activities, contributes to the development of social structures, and can dictate the flow of information. All states are shaped by, and dependent on, such geographical constraints. Despite the importance of these factors, the specific spatial makeup of the Byzantine Empire has not been properly assessed in a holistic manner that utilizes the most intensive analytical and quantitative resources currently available, especially through computer mapping.

The objective of this study is to interrogate how the Byzantine Empire understood and spatially organized its territorial holdings within Asia Minor between the seventh and eleventh centuries. This will reveal the level of knowledge of geographical principles that were available to administrators and the extent to which they valued these principles and applied them to the large-scale challenges in governance that they faced.

Methodologically, this objective will here be pursued by investigating the spatial composition of the administrative divisions that defined the territories of the Roman state in this period: the strategides, the themes, and, finally, the ducates/katepanates that held jurisdiction over the minor themes. Not only should these administrative divisions be integral to any discussion of the governance of the middle Byzantine period, but they possessed quantifiable topographies that are conducive to understanding broader spatial principles. Combined with the extant historical record, enough can be understood about the spatial composition of the boundaries, cities, and road networks of these administrative bodies to apply geographic information systems (GIS) and other analytical means to draw conclusions about how they



functioned. For a period that is marked by a paucity of extant documentation from the imperial bureaucracy in regards to census figures, land surveys, and *itineraria*, as well as little stated rationale behind territorial organization, such a study helps to fill an important lacuna in Byzantine administrative history.

### **Comparison to Existing Scholarship**

The strategides lie at the heart of the Byzantine reaction to the early Muslim conquests of the seventh century. Consequently, interest into how the empire survived this tumultuous historical shift has attracted significant inquiry, leading to a clearer understanding of several important aspects regarding the organization of the strategides and themes.

Prior studies have succeeded in reconstructing the hierarchical structure of the civil and military administration within both the strategides and themes. John Haldon's research is the most notable in terms of military organization, especially in works such as *Byzantine Praetorians: An Administrative, Institutional, and Social Survey of the Opsikion and Tagmata, c.580–900*; *Warfare, State, and Society in the Byzantine World, 565–1204*; and his summation and new formulation of the system in a book co-authored by Leslie Brubaker, *Byzantium in the Iconoclast Era, c.680–850: A History*. Haldon and Brubaker's book reflects a more sophisticated and advanced understanding of administrative evolution in this period by clearly articulating that the strategides were a distinct administrative precursor to the themes. They further explain that the strategides' *strategoī* functioned only in a military role parallel to the civil bureaucracy of the provinces, while the thematic *strategoī* possessed both military and civil oversight.

From a geographical approach, most of the scholarly work aims to identify what themes existed and at what time. This has been accomplished somewhat by comparing court lists and mentions of the themes in the literary record. The most notable summation of the geographical identities of Byzantium's administrative units is found in *Η Μικρά Ασία των θεμάτων: Έρευνες πάνω στην γεωγραφική φυσιογνωμία και προσωπογραφία των Βυζαντινών θεμάτων της Μικράς Ασίας (7ος–11ος αι.)*, ed. by Kountoura-Galake, et al. Oikonomides, Nesbitt, and McGeer supplement this geographical understanding by cataloging the empire's administrative bodies predicated on mentions found within Dumbarton Oaks's sigillographic holdings. Perhaps the most contentious issue regarding the strategides and themes concerns a timeline of when the empire devised these organizations. In the absence of new evidence, the broad strokes of this debate are now largely settled.<sup>1</sup>

The goal of this present investigation is not to correct technical errors regarding the current understanding of the strategides and themes. Instead, the goal of this present study is to demonstrate that this understanding is incomplete and to expand the paradigm of what can be discussed and understood from the standpoint of spatial arrangement and geographical logic about these administrative entities.

One critical component missing from these prior studies is a careful accounting of the strategides and themes as spatial entities. It is certain that officials on the imperial and local levels documented the reasons for geographical organization and the maintenance of the strategides and themes as spatial entities, as the system was too large and vital to the longevity of the empire to not take these matters into consideration. However, while there exists a general

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<sup>1</sup> The debate regarding the origin and dating of the strategides and themes is too long to deconstruct here and is thoroughly considered and summarized by Leslie Brubaker and John Haldon, *Byzantium in the Iconoclast Era, c. 680–850: A History* (Cambridge: Cambridge University Press, 2011), 723–71. The gradual evolution of this system is explained in chapters 1–3 of the present study.

understanding about when they took shape, there is little direct rationale for why the strategides and themes were arranged in this particular fashion. This leaves a significant gap in our knowledge of how the empire's approach to administrative geography structurally functioned.

Important geographical works on the themes, such as John Haldon's 2021 translation and commentary of the *De Thematibus*, exemplify the state of scholarship on this matter. Coverage of the system contains relatively undetailed maps that show a generalized depiction of the historic regions that the themes occupied, but not in a manner comprehensive enough to be effective in analyzing them from a spatial perspective, especially when it comes to terrain and geographical realities on the ground rather than seen stratospherically.<sup>2</sup> *Η Μικρά Ασία των Θεμάτων* by Kountoura-Galake, et al., the most important single work on the geography of the themes, does not even contain a map. This is not to denigrate the meticulous nature of these works, but rather to emphasize that a detailed geospatial analysis of the themes was never considered.

The reasons why the strategides and themes have not been considered in these terms is potentially due to a lack of sources. There are no surviving maps from the seventh through eleventh centuries that visually articulate the composition of the strategides and themes. In addition, there are no bureaucratic documents from this period that provide comprehensive demographic and topographical figures to supply a granular and firm rationale behind territorial organization. Konstantinos VII Porphyrogenetos's *De Thematibus* is the notable surviving insight devoted to the themes, and while it serves as an invaluable guide, it was meant to be a general geographical overview and did not attempt to include the bureaucratic specificity to

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<sup>2</sup> *De Thematibus*, ed. Haldon, 71–72.

address such questions. Without such documents to inform an argument, it was easier for prior studies to coalesce around other aspects of the system instead of engaging in speculation.

What enables the present study to engage with the question of spatial organization is the use of GIS. Until the advent of sophisticated computational modeling programs within the past two decades, it was not possible to envision these spatial administrative entities beyond a rough approximation of their borders, let alone as entities which can be interrogated through a suite of digital tools that have the ability to provide tangible and conclusive results regarding their composition. While the use of GIS in Byzantine studies has shown greater acceptance and growth in the past two decades,<sup>3</sup> this tool has not been applied to the strategides or themes in any meaningful sense. This study will demonstrate that GIS and computational analysis can be feasibly conducted in regards to the strategides and themes and that these techniques can engage with the administrative bodies to a degree that can provide substantive insight into how the Byzantines spatially understood and conceived of these systems.

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<sup>3</sup> Some instances that demonstrate the practicality of GIS on studies of the Byzantine Empire include the following. For GIS for understanding the Medieval Jewish Diaspora, see Nicholas de Lange, "Mapping the Jewish Communities of Medieval Anatolia," in *Spatial Webs: Mapping Anatolian Pasts for Research and the Public*, ed. C.H. Roosevelt (Istanbul: Koç University Press, 2021), 181–92. For GIS articulating Byzantium's maritime routes, see Johannes Preiser-Kapeller, ed., *Harbours and Maritime Networks as Complex Adaptive Systems* (Mainz: Schnell and Steiner, 2015). For GIS producing a digital database and for visualizing georeferenced archaeological monuments, see Athos Agapiou, Andreas Georgopoulos, Charalambos Ioannidis, and Marinos Ioannides, "A Digital Atlas for the Byzantine and Post Byzantine Churches of Troodos Region (Central Cyprus)," in *Proceedings of the 38th Conference on Computer Applications and Quantitative Methods in Archaeology, Granada, Spain, April 2010*, eds. F. Contreras, M. Farjas, and F.J. Melero (Oxford: Archaeopress, 2013): 307–11. For GIS applied to discerning social networks, see the works of Margaret Mullett, *Theophylact of Ochrid: Reading the Letters of a Byzantine Archbishop* (New York: Ashgate, 1997) as well as Giovanni Ruffini, *Social Networks in Byzantine Egypt* (Cambridge: Cambridge University Press, 2008). For GIS as a means to trace Constantinople's infrastructure, see Francesca Ruggeri, Martin Crapper, James Riley Snyder, and Jim Crow, "A GIS-Based Assessment of the Byzantine Water Supply System of Constantinople," *Water Supply* 17, no. 6 (2017): 1534–43. For GIS as a way to discern viewsheds, see Giacomo Ponticelli, "The View from 'Pre-Crusader' Shawbak: Towards a First Contextualization through GIS Visibility and Spatial Analyses," *Studies in Ancient Art and Civilisation* 24 (2020): 153–68. For GIS as the organizing component of a holistic (archaeological, textual, climatological) investigation into a geographical region, see John Haldon, Hugh Elton, and James Newhard, eds., *Archaeology and Urban Settlement in Late Roman and Byzantine Anatolia: Euchaita-Avkat-Beyözü and its Environment* (Cambridge: Cambridge University Press, 2018).

## **Methodology—GIS**

This study relies heavily on the use of GIS to answer a series of research questions. As such, it is useful to briefly explain what GIS is and its applicability.

Geographic information systems (GIS) are computer-based tools that are used to store, visualize, analyze, and interpret geospatial data. Geospatial data is data that consists of information related to locations on the Earth's surface. Through such data, it is possible to map objects and spatial based phenomena, tying them to a specific geographical area.

Such systems differ from traditional cartographical studies because the visualization and interpretation of geographical features can be done in a single computer file. This enables layered comparisons that are mathematically beyond the practicable scope of a paper map. For example, a traditional map can easily represent the boundaries of an administrative body. However, to know the total area a body encompasses could require a meticulous accounting that takes several hours to determine. With GIS, the total area can be ascertained almost instantaneously.

Moving beyond this straightforward example, GIS has the ability to compute quantitative methods that are virtually impossible to perform by hand and were not widely incorporated into historical studies until the 1990s and 2000s. Several of these methods are investigated and defined throughout this present study. These terms include: Alpha Indices, area comparisons, betweenness centralities, bivariate and multivariate correlations, Central Place Theory, centroids, clustering coefficients, degree distributions, demographic distributions, heatmaps, isochrone surveys, network connectivity, node-to-node distances, path lengths, satellite overlays, scale-free networks, spatial buffers, and Voronoi diagrams.

Different GIS programs serve differing needs. This study utilizes the software programs QGIS and GeoDa to generate the maps and perform the accompanying analysis. QGIS is an open-source platform that permits the editing and visualization of geographic data.<sup>4</sup> This is useful for creating maps that integrate multiple spatial data sets related to the composition of the strategides and themes. GeoDa is the other software used in this study.<sup>5</sup> While it can perform many of the same geospatial functions as QGIS, its utility lies in its ability to perform more complex quantitative calculations involving connectivity, probability distributions, clustering, bivariate and multivariate correlations, and network analysis.<sup>6</sup>

## **Research Questions**

This study focuses on four central research questions. These questions are aimed at evaluating how Byzantine leadership perceived and organized their territorial holdings within Asia Minor during the seventh through eleventh centuries. This analysis seeks to determine the level of geographical insights available to the empire's administrators and the extent to which they applied these concepts in their large-scale governance practices.

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<sup>4</sup> "QGIS," accessed February 27, 2024, <http://qgis.org>.

<sup>5</sup> "GeoDa," accessed February 27, 2024, <http://geodacenter.github.io>.

<sup>6</sup> "Introducing GeoDa," accessed February 27, 2024, <http://geodacenter.github.io/#:~:text=GeoDa%20is%20a%20free%20and,exploring%20and%20modeling%20spatial%20patterns>.

***Research Question 1: Is a computational GIS approach to the strategides and themes feasible?***

Before any quantitative tests are conducted on the strategides and themes, it is first necessary to answer if this investigative approach is even practicable and has the potential to yield results that are reliable and substantive. Because GIS-based approaches to Byzantine studies are relatively new when compared to long-established disciplines (archaeology, sigillography, paleography, etc.), caution needs to be exerted to ensure that the study is conducted under parameters that are grounded in logic and reproducibility. Bad data sets combined with illogical or ungrounded arguments will still produce outputs, but any results derived from these are nonsensical and useless. In computer science, this concept is referred to as “garbage in, garbage out” and must be carefully accounted for when establishing the parameters of a study.

This investigation intends to show that enough is known about the composition of the strategides and themes to computationally engage with them in a meaningful manner. This study also intends to build upon the small existing body of research to show that, if carefully selected and implemented, the use of GIS in Byzantine studies can engage with substantive questions that cannot be pursued by other disciplines.

An approach to this research question first requires answers to a subset of two additional questions.

***Research Question 1a: Is there enough data to create a viable model of the strategides and themes?***

A model is only as good as the data input into it. Despite the versatility of modern computational software, a robust dataset is still necessary to perform any functional operations. Consequently, a computational study of the strategides and themes cannot even be attempted without first affirming that there are quantifiable data sources to serve as the foundation for building the models.

An answer to this question is predicated on the knowability of three factors: the locations of administrative borders, cities, and the road network. This study demonstrates that there is sufficient data regarding the strategides and themes to conduct a meaningful inquiry into their spatial organization through quantitative means.

**Chapter 4** demonstrates that the mid-tenth century *De Thematribus* is comprehensive and reliable enough to arrive at a useful heuristic of the borders of the Anatolian themes. The few minor errors that do exist within the text are annotated and corrected by Pertusi in his Italian translation from 1952, with Haldon also affirming the geographical reliability of the text in the preface to his 2021 English translation. This chapter goes through the description of each Anatolian theme mentioned in the *De Thematribus* to produce the most detailed map of the eastern themes and the first to be a computer generated basemap that enables GIS analysis.

**Chapter 5** determines that the locations of the capitals and a representative number of urban centers can also be determined to a high degree of accuracy. While specific population figures are impossible to ascertain, this study utilizes the heuristic of counting the number of urban centers found within Anatolia under the reign of Leon VI in the early ninth century. These



figures are derived from the *Notitia Episcopatum* (*Notitia 7*), which lists the metropolitans, archbishoprics, and suffragans throughout the empire. This produces a list of 386 settlements within the jurisdiction of the Anatolian themes which can then be georeferenced to a GIS map.

**Chapter 6** ascertains that enough is understood about the road network to create a representative model. The theoretical underpinnings of reconstructing a pre-modern road network come from Walter Scheidel's *Orbis*.<sup>7</sup> Scheidel's model utilizes GIS to reconstruct the arterial roads of the Roman Empire ca.200 CE. However, *Orbis* cannot be directly implemented into the present study because it does not align with the chronology of the strategides and themes, with the road portion of Anatolia also lacking a useful level of granularity. Nevertheless, it demonstrates the viability of using a road network to quantify aspects of the ancient world.

Systematic studies of the road network within Anatolia have been conducted,<sup>8</sup> making it unnecessary to recreate this model from scratch. The most useful resource for these figures is found within the *Tabula Imperii Byzantini* which provides textual descriptions of individual road segments accompanied by schematics visualizing them as a network between cities.<sup>9</sup> Once compiled, this method produces a road model that spans over 34,000 km. This data can subsequently be redrawn onto a digitized basemap that also includes the administrative boundaries of the strategides and themes, and the location of the capitals and cities.

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<sup>7</sup> For a list of key works that articulate Roman and Medieval transportation, see pages 224–25.

<sup>8</sup> David French, *Roman Roads and Milestones of Asia Minor*, 10 vols. (London: BIAA Electronic Monograph, 2012–16).

<sup>9</sup> For a comprehensive list of sources used in the creation of this road map, see the section “The Location of the Road System” pages 233–38.

***Research Question 1b: Is the topography of Anatolia during the middle Byzantine period conducive to this form of inquiry?***

Just because data exists does not mean that a model can be reliably created. Data must be balanced against historical and geographical features that can restrict the utility of an analysis. **Chapter 6** considers this question in detail and demonstrates that the topography of Anatolia is indeed conducive to GIS analysis. The chapter begins by demonstrating that, from a transportation perspective, Anatolia's travel routes are relatively easy to ascertain and highly conducive to quantitative analysis. Most travel in the region was conducted overland and along well-delineated routes. With important cities such as Amorion, Amaseia, Ankyra, and Chonai situated inland and a lack of navigable rivers available as transportation connections, ship transportation served little use for most of Asia Minor. This led to well-established overland travel routes being chosen predominantly based on distance and travel time.

The components that make a network study applicable to Anatolia for this timeframe are constancy within the region's geography and the empire's stable control over this territory. This chapter demonstrates that such factors are highly conducive to quantitative analysis. Throughout the duration of the themes, until the mid-eleventh century, accessibility stayed consistent even with decline in the quality of roads after the sixth century. In addition, Asia Minor remained solidly under east Roman control and there were no major obstructions to internal movement along the roads. Finally, an overview of Anatolia's topography<sup>10</sup> demonstrates that overland travel within the strategides and themes was of a generally uniform nature, permitting quantitative comparisons across the entirety of the road network.

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<sup>10</sup> Catherine Kuzucuoğlu, Attila Çiner, and Nizamettin Kazancı, eds., *Landscapes and Landforms of Turkey* (Cham, Switzerland: Springer, 2019).

Affirmation of this research question is important because it demonstrates for the first time that questions regarding the strategides and themes of the middle Byzantine period can be expanded to encompass questions regarding their physical makeup. This enables the subsequent three research questions pursued in this study.

The importance of these findings can be extended beyond their implementation into this study. The models created to answer the research question can be repurposed to answer an array of other historical questions regarding the topography of Byzantine Anatolia beyond those addressed towards the composition of the strategides and themes. Any questions regarding the spatial organization of settlements, transportation along the road network, connectivity, trade, and social relationships tied to distance can utilize this dataset.

***Research Question 2: What criteria were used to divide the strategides and themes?***

With a model established, various questions can be asked concerning the spatial composition of the strategides and themes.

As covered in **chapters 1-3**, certain political motivations for broader territorial divisions of the empire are knowable from the extant sources. Territorial restructuring due to the early Muslim conquests, rebellions against the emperor from the *strategoi*, and expansion along the eastern front are well-documented externalities that influenced the administrative makeup of Anatolia between the seventh and eleventh centuries.

However, such broad rationales are not sufficient to interrogate this question on a granular scale. For example, as will be discussed in chapter 1, it is understood that the initial

permutation of the strategides consisted of the reconstituted armies that withdrew to Anatolia during the early Muslim conquests. But why did the strategides assume these particular shapes and sizes? There was no shortage of permutations that they could have assumed and, believing that this broad answer supplies sufficient rationale, takes away the agency of administrators that had to meticulously consider an array of criteria that would impact the political, military, and fiscal composition of the empire. Just because broad historical events created a framework within which these decisions had to be carried out did not mean that administrators lacked options for how they wanted the empire to be structured and function. By ascertaining specific organizational patterns using GIS, it is possible to expand the paradigm of how Byzantine administrators understood and conceived of the empire as a spatial entity.

Methodologically, this research question is pursued over two chapters. **Chapter 5** considers criteria that could have been used when fashioning these administrative units. This includes total size, the distribution of arable land, and demography.

Total size—in terms of total size, the strategides show a strong correlation to being divided into relatively equitable portions. In contrast, the themes do not adhere to this organizational metric, exhibiting a wide range of shapes and sizes to address specific political and military necessities. This demonstrates a more deliberate method of organization by emphasizing administrative flexibility over spatial uniformity.

Arable land—The east Roman empire, like most ancient societies, derived the bulk of its wealth from revenues on farming, making the division of arable land another viable metric for analysis. Synthesizing the archaeological, palynological, and climatological evidence<sup>11</sup> with

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<sup>11</sup> For a summary of these studies, see pages 180–82.

extant first-hand accounts of agricultural production provide enough certitude to support two broad claims:

1) Arable land was distributed more evenly in the original strategides than in the themes. This equitable allocation of land among the strategides suggests a deliberate strategy rather than a random distribution.

2) The themes were not divided to have comparable or equal amounts of arable land and resources, demonstrating no concerted efforts by the centralized government to consider this metric in their formation.

Population—Population had the potential to contribute to the power of the strategides and themes. With more residents comes more taxable income, which in turn provides more funds for military expenditures. Major cities and extensive urban regions also attract intellectuals and skilled workers, which can significantly influence trade and lead to the development of regional centers of power.

While specific population figures are impossible to ascertain, this study utilizes the heuristic of counting the number of urban centers found within Anatolia during the ninth century. These figures are derived from the *Notitia Episcopatum*, which produces a list of 386 settlements. Plotting these cities on the maps of administrative divisions illustrates that urbanization was concentrated in the western part of Asia Minor, which then tapered sharply towards the east into the Anatolian Plateau. The densest concentration of cities was found in the eastern section of the Thrakesion Theme, while the central area of the Kibyrraiotai also boasted a notable number of urban centers.

Once again, the strategides exhibit a high degree of uniformity concerning population distribution. In contrast, overall population parity was decisively not a factor at play in devising the arrangement of the theme system.

This chapter concludes that the early strategides exhibited strong hallmarks of premeditation in terms of more equitable distribution of the values of land area, arable land, and population, exemplifying the desire to have the field armies that coalesced in Anatolia in the mid-seventh century be allocated more equivalent resources. However, these factors decidedly did not play a role in the organization of the theme system.

**Chapter 7** continues the exploration of research question 2 by pursuing criteria used to arrange the strategides and themes in relation to the location of their capitals. Inquiry into the organization of the Abbasid *junds* by Blankinship,<sup>12</sup> albeit without the incorporation of GIS, demonstrates the applicability of this line of analysis into a contemporary and neighboring empire. The tests conducted in this chapter do not have any methodological basis in prior studies of the Byzantine Empire, but they are well-established methods of inquiry within the broader GIS field of territorial organization.

Voronoi diagrams<sup>13</sup> use the concept of proximity in relation to fixed points to test how much the administrative system was partitioned around the location of the capitals. The diagrams ascertain that the shapes and sizes of the themes were not organized entirely around the location of the capitals, but that these structures factored in political externalities.

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<sup>12</sup> Khalid Blankinship, *The End of the Jihad State: The Reign of Hisham ibn 'Abd al-Malik and the Collapse of the Umayyads* (Albany, NY: State University of New York Press, 1994), 47–48.

<sup>13</sup> Franz Aurenhammer, Rolf Klein, and Der-tsai Lee, *Voronoi Diagrams and Delauney Triangulations* (London: World Scientific, 2013); Atsuyuki Okabe, Barry Boots, Kokichi Sugihara, and Sung Nok Chui, *Spatial Tessellations: Concepts and Applications of Voronoi Diagrams* (New York: Wiley, 2000); Atsuyuki Okabe, Barry Boots, and Kokichi Sugihara, "Nearest Neighbourhood Operations with Generalized Voronoi Diagrams: A Review," *International Journal of Geographical Information Systems* 8, no.1 (1994): 43–71.

The second test looks at how centrally located the capitals were in regards to their own strategides and themes. The application of centroids<sup>14</sup> ascertains the locations of the capitals in relation to the territories they administered. This tests the premise of the importance of locality in administrative organization. Roughly half of the fifteen themes analyzed adhere to certain principles of centrality, while others completely deviate from this pattern. This variation suggests an effort to prioritize centrality when feasible, but a willingness to abandon it when other priorities demanded attention. The strategides show no correlation to centrality.

Finally, isochrone maps<sup>15</sup> are implemented that show how long it took to arrive at various points within an administrative unit when departing from the capital. These maps test to see if the location of the road network influenced capital locations and administrative boundaries. If this relationship is affirmed, this would grant the roads an outsized role in broader imperial organizational principles. These isochrone maps conclusively demonstrate that considerations of accessibility played an important role in determining the overall shapes and sizes of the themes. Despite the array of permutations the themes assumed, as well as the limitations imposed by geography and the locations of traversable roads, virtually every point within a theme could be accessed within 300 km or a ten-day walk or march. This uniform radius of coverage is achieved so consistently that it clearly indicates that there is a larger organizational principle at work.

When this isochrone test is applied to the strategides, they exhibit no adherence to distance and travel time as an organizational factor. This reveals an important contrast between

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<sup>14</sup> Fahui Wang, *Quantitative Methods and Applications in GIS* (Boca Raton: CRC Press, 2006), 13; Michael De Smith, Michael Goodchild, and Paul Longley, *Geospatial Analysis: A Comprehensive Guide to Principles, Techniques, and Software Tools* (Leicester, UK: Matador, 2007), 79–80; Robert Laurini and Derek Thompson, *Fundamentals of Spatial Information Systems* (San Diego: Academic Press, 1999), 269–70.

<sup>15</sup> Kim Dovey, Elek Pafka, and Mirjana Ristic, eds., *Mapping Urbanities: Morphologies, Flows, Possibilities* (New York: Routledge, 2018), 102; M.J. Kraak, *Mapping Time: Illustrated by Minard's Map of Napoleon's Russian Campaign of 1812* (Redlands, CA: Esri Press, 2014).

the strategides and themes in the organizational characteristics that the empire decided to emphasize.

Although the empire functioned essentially as a network of roads connecting various population centers, the strategides were not primarily designed with this connectivity in mind. Instead, their focus was on maintaining consistency in size, demographics, and arable land. This approach highlights the empire's prioritization of each administrative unit having the necessary resources to function effectively and uphold defense and stability. The early Muslim conquests forced the strategides to form quickly; with pressure from these external factors, the metrics of total land, arable land, and population were considered easier and more important to coalesce around. It was not until the relative stability of the early ninth century that the metrics of travel time and communication were deemed to be more useful.

The three computational tests in chapter 7 provide tangible answers to the spatial organization of the strategides and themes in relation to their capitals. The results of this chapter suggest that Byzantine administrators functionally envisioned their presence within Anatolia as a series of nodes (urban centers, natural resources) tied together through the system of roads. In the prolonged setup of the theme system, there was ample opportunity to organize the administrative units based on factors such as size, land use, or demographics. Yet, these considerations were mostly set aside in favor of aligning with transportation and communication logistics. The reliance on the road network to dictate the size and layout of the themes underscores a commitment to these logistical priorities. This view has been put forth in relation to other pre-modern civilizations,<sup>16</sup> but this study provides the first firm and quantifiable results that support

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<sup>16</sup> Pekka Hämäläinen, "The Kinetic Empires of Native American Nomads" in *The Oxford World History of Empire*, vol. 2, *The History of Empires*, eds. Peter Bang, C.A. Bayly, and Walter Scheidel (Oxford: Oxford University Press, 2021), 1048; Pekka Hämäläinen, "What's in a Concept? The Kinetic Empire of the Comanches," *History and*



the validity of this conceptualization. This broadens the understanding of how Byzantine administrators perceived, not only the strategides and themes, but their relationships to the locations of the capitals, road network, and topographical features.

***Research Question 3: How did the strategides and themes function as a cohesive network?***

**Chapter 8** expands on the concept of connectivity from chapter 7 by exploring how the strategides and themes related to one another and functioned as a collective network.

Consideration of the strategides and themes as a network is useful because several important aspects regarding their organization can only be understood through such a model.

The ability to collaborate when necessary was an essential trait of the *strategoï*, and this carried over into the design of the themes. The themes had a degree of autonomy, yet their borders were permeable, facilitating trade, information flow, and cultural exchanges. Therefore, it is imperative to recognize that the operations and challenges of each administrative division cannot be fully understood in isolation. Their effectiveness and the scope of their responsibilities must be assessed in the context of their relationships with neighboring themes and their roles within the larger network.

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*Theory* 52, no. 1 (2013): 81–90; Monica Smith, “Networks, Territories, and the Cartography of Ancient States,” *Annals of the Association of American Geographers* 95, no. 4 (2005): 832–49; Monica Smith, “Territories, Corridors, and Networks: A Biological Model for the Premodern State,” *Complexity* 12, no. 4 (2007): 28–35; Kerry Ward, *Networks of Empire: Forced Migration in the Dutch East India Company* (Cambridge: Cambridge University Press, 2009); Mitch Hendrickson and Stéphanie Leroy, “Sparks and Needles: Seeking Catalysts of State Expansions, A Case Study of Technological Interaction at Angkor, Cambodia (9<sup>th</sup> to 13<sup>th</sup> Centuries CE),” *Journal of Anthropological Archaeology* 57 (2020): <https://doi.org/10.1016/j.jaa.2019.101141>; Lauren Benton, *A Search for Sovereignty: Law and Geography in European Empires, 1400–1900* (Cambridge: Cambridge University Press, 2009); Claudia Glatz, “Empire as Network: Spheres of Material Interaction in Late Bronze Age Anatolia,” *Journal of Anthropological Archaeology* 28, no. 2 (2009): 127–41; Mario Liverani, “The Growth of the Assyrian Empire in the Habur/Middle Euphrates Area: A New Paradigm,” *State Archives of Assyria Bulletin* 2 (1988): 86.

Earlier research has validated the use of network analysis for examining relationships within the Byzantine Empire. This includes Margaret Mullett's pioneering study on Theophylact of Ochrid,<sup>17</sup> which marked the initial application of network theory to Byzantium; Giovanni Ruffini's examination of sixth-century Egyptian social networks;<sup>18</sup> and Johannes Preiser-Kapeller's exploration of maritime networks in the Aegean and Mediterranean Seas.<sup>19</sup>

Outside of Preiser-Kapeller, scholarship into Byzantine networks is largely relegated to investigating social networks.<sup>20</sup> In contrast, the present study concerns topographical networks. While these two types of network analysis are similar in that they use analogous organizational principles (eg. distance, clustering, degree of the network, and betweenness centralities) they diverge in important ways. A social network analysis looks for social relationships that seek to tie together things like ecclesiastical, imperial, or patronage networks. This is useful for visualizing the relationships between individuals, what intellectual circles people ran in, and how these ties could lead to the exchange of ideas due to familiarity. However, oftentimes the use of GIS tools in such studies are frequently more symbolic than grounded in quantifiable mathematics.

In contrast, a topographical network analysis looks for relationships that are tied directly to and contingent upon geographical limitations. So instead of discerning how specific individuals related to one another, it shows how geography helped to dictate how bodies like the strategides and themes could interact. Ultimately, because the topographical networks considered in this chapter are geospatially tied to specific points within Anatolia, the hard restrictions placed upon the empire by geography make it more quantifiable and applicable to GIS.

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<sup>17</sup> Mullett, *Theophylact of Ochrid*.

<sup>18</sup> Ruffini, *Social Networks in Byzantine Egypt*.

<sup>19</sup> Preiser-Kapeller, ed., *Harbours and Maritime Networks*.

<sup>20</sup> David Allen Parnell, "The Social Networks of Justinian's Generals," *Journal of Late Antiquity* 8, no. 1 (2015): 114–35.

To address the research question of how the strategides and themes functioned as a cohesive network, chapter 8 first creates a graphical visualization of the thematic network and then uses a series of metrics to test the robustness of the overall system to demonstrate how the network functioned. The results show how the geographical and structural elements shaped interactions among the strategides and later the themes. They also demonstrate how the connectivity system favored or disadvantaged specific regions within Anatolia.

The main computational tests implemented to determine the overall robustness of the topographical network and its constituent parts are:

- Path length, as explained through Central Place Theory
- The clustering coefficient
- Degree of the network
- Betweenness centrality

In regards to the concepts of clustering, degree of the network, and betweenness centralities, these tests have not been applied to the spatial organization of the strategides and themes. These require engagement with the literature external to Byzantine studies that reinforce the applicability of creating such models.

### *Path Length and Central Place Theory*

Regarding path length, a high degree of regularity is found within the distribution of thematic capitals. This arrangement reflects a strategic choice to locate the capitals within the largest and most influential cities, thereby approximating the distribution principles of Central Place Theory.

Such a structure benefitted the network by promoting uniform distances across Anatolia, which in turn enhanced overall cohesion and prevented any capitals from being isolated. Additionally, it deterred *strategoï* from forming overly strong alliances.

Central Place Theory is the only one of these tests that has been applied to Byzantine history. Johannes Koder employed this theory to Asia Minor and Macedonia, showcasing its effectiveness.<sup>21</sup> Katerina Ragkou also used this approach to analyze the cities of the Peloponnese from the eleventh to fourteenth centuries,<sup>22</sup> while Athanasios Vionis applied the methodology in Byzantine Boeotia to study settlement patterns.<sup>23</sup> This present study is the first to apply this analysis to the strategides and themes. While Koder's approach serves as a useful starting point for Anatolia's built geography, it is very out-of-date with several revisions to Central Place Theory advanced in the intervening years.<sup>24</sup>

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<sup>21</sup> Johannes Koder, "The Urban Character of the Early Byzantine Empire: Some Reflections on a Settlement Geographical Approach to the Topic," in *The 17th International Byzantine Congress, Major Papers* (New Rochelle, NY: Aristide D. Caratzas, 1986), 155–87; Johannes Koder, "Παρατηρήσεις στην οικιστική διάρθρωση της κεντρικής Μικράς Ασίας μετά τον 6ο αιώνα: Μια προσέγγιση από την οπτική γωνία της 'θεωρίας των κεντρικών τόπων'," in *Byzantine Asia Minor (6<sup>th</sup>–12<sup>th</sup> cent.)*, ed. Stelios Lampakis (Athens: Institute for Byzantine Research, 1998), 248–49, 251–55; Johannes Koder, "Για μια εκ νέου τοποθέτηση της εφαρμογής της θεωρίας των κεντρικών τόπων: Το παράδειγμα της μεσοβυζαντινής Μακεδονίας," in *Historical Geography: Roads and Crossroads of the Balkans from Antiquity to the European Union*, eds. E. P. Dimitriadis, A. P. Lagopoulos, and G. Tsotsos (Thessalonika: 1998), 33–49.

<sup>22</sup> Katerina Ragkou, "The Economic Centrality of Urban Centers in the Medieval Peloponnese: Late 11<sup>th</sup>–Mid-14<sup>th</sup> Centuries," in *Central Places and Un-Central Landscapes: Political Economies and Natural Resources in the Longue Durée*, eds. Giorgos Papantoniou and Athanasios Vionis (Basel: MDPI, 2019): 292–96.

<sup>23</sup> Athanasios K. Vionis, "Understanding Settlements in Byzantine Greece: New Data and Approaches for Boeotia, Sixth to Thirteenth Century," *Dumbarton Oaks Papers* 71 (2017): 128.

<sup>24</sup> Daniel Knitter and Oliver Nakoinz, "The Relative Concentration of Interaction—A Proposal for an Integrated Understanding of Centrality and Central Places," *Land* 7, no. 3 (2018): 1; Eike Gringmuth-Dalmer, "Kulturlandschaftsmuster und Siedlungssysteme," *Siedlungsforschung* 14 (1996): 8.

## *Clustering and Anticlustering*

In terms of clustering,<sup>25</sup> the regularity of the thematic capitals adheres more closely to the concept of anticlustering.<sup>26</sup> In an anticluster, nodes are arranged to enhance between-group similarity and within-group heterogeneity across the system. This approach is opposite to clustering, which focuses on increasing similarity within a group and minimizing it between different groups. In practical terms, this means that thematic capitals were strategically placed to avoid leaving any region without a capital if the region logically should have one. Equitable spacing between thematic capitals was enacted in a meticulous fashion that produced close administrative coverage over the near entirety of the themes, encouraging greater integration of all imperial landholdings into the network.

By applying anticlustering and eschewing clustering, Byzantine administrators sought to extend the central government's influence throughout the eastern half of the empire, while preventing *strategoï* from forming powerful regional alliances. This strategy balanced autonomy with utility all within Constantinople's intent to maintain control over its territories.

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<sup>25</sup> Steve Strogatz and Duncan Watts, "Collective Dynamics of 'Small-World' Networks," *Nature* 393 (1998): 440–42; Matthew Jackson, *Social and Economic Networks* (Princeton: Princeton University Press, 2008), 34–37; Peter Rogerson and Ikuho Yamada, *Statistical Detection and Surveillance of Geographic Clusters* (Boca Raton: CRC Press, 2009); Marcus Kaiser, "Mean Clustering Coefficients: The Role of Isolated Nodes and Leafs on Clustering Measures for Small-World Networks," *New Journal of Physics* 10, no. 8 (2008): <https://iopscience.iop.org/article/10.1088/1367-2630/10/8/083042>; Michelle Girvan and Mark Newman, "Community Structure in Social and Biological Networks," *Proceedings of the National Academy of Sciences* 99, no. 12 (2002): 7821–26.

<sup>26</sup> Martin Papenberg, "K-Plus Anticlustering: An Improved K-Means Criterion for Maximizing Between-Group Similarity," *British Journal of Mathematical and Statistical Psychology* (2023): <https://doi.org/10.1111/bmsp.12315>; Martin Papenberg and Gunnar Klau, "Using Anticlustering to Partition Data Sets into Equivalent Parts," *Psychological Methods* 26, no. 2 (2021): 161–74; Michael Brusco, "Combining Diversity and Dispersion Criteria for Anticlustering: A Bicriterion Approach," *British Journal of Mathematical and Statistical Psychology* 73, no. 3 (2019): 375–96; H. Späth, "Anticlustering: Maximizing the Variance Criterion," *Control and Cybernetics* 15, no. 2 (1986): 213–18; Ventzeslav Valev, "Set Partition Principles Revisited," in *Joint IAPR International Workshops on Statistical Techniques in Pattern Recognition (SPR) and Structural and Syntactic Pattern Recognition (SSPR)*, eds. Adnan Amin, Dov Dori, Pavel Pudil, and Herbert Freeman (Berlin: Springer, 1998), 875–81.

The combination of a low clustering coefficient with the high average distance between capitals prevented the formation of small-world networks among the themes. These are networks that are marked by densely clustered nodes that promote frequent and close interactions among its members. The lack of these small-world networks further suggests that Byzantine administrators prioritized uniformity across the empire rather than allowing the development of concentrated, localized centers.

### *Degree of the Network*

The degree of the network<sup>27</sup> is the third test of network connectivity. This concept underlines the fact that the more connections a node has, the more opportunities for meaningful interactions. The findings in chapter 8 reveal a high degree of network connectivity among the themes, meaning that no thematic capital was completely isolated thanks to a fairly uniform distribution of connections across the network. This equitable connectivity helped minimize the impact of distance when coordinating political or military affairs.

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<sup>27</sup> Sai Zhang, Cihan Tepedelenlioglu, Andreas Spanias, and Mahesh Banavar, *Distributed Network Structure Estimation Using Consensus Methods* (San Rafael, CA: Morgan and Claypool, 2008), 29; Mark Newman, “The Structure and Function of Complex Networks,” *SIAM Review* 45, no. 2 (2003): 167–256; Wenzhong Shi, Anthony Yeh, Yee Leung, Chenghu Zhou, eds., *Advances in Spatial Data Handling and GIS: 14<sup>th</sup> International Symposium on Spatial Data Handling* (Berlin: Springer, 2012), 132.

## *Betweenness Centrality*

The chapter concludes by examining how the presence of Constantinople played an outsized role on the themes. This is done through the concept of betweenness centralities.<sup>28</sup> Betweenness centrality is a way to quantify the significance of individual nodes within a network. It calculates the frequency with which a node appears on the shortest path between any two other nodes. Nodes with high betweenness centrality are considered more crucial within the network because they often act as critical points of connection that affect the flow of travelers, resources, or information.

Unlike most empires where the imperial capital was accessible from multiple directions, Constantinople's location on a narrow peninsula limited its options for directly linked cities (nodes). This meant that 70 percent of the overland traffic between Constantinople and Anatolia had to pass through the cities of Nikomedeia and Nikaia. These cities had high measures of betweenness centrality and correspondingly high levels of importance to the network. This reinforces Konstantinos V's decision to create the Optimaton Theme as an extension of Constantinople's hegemony and remains a unique solution to a problem that existed in no other contemporaneous empire.

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<sup>28</sup> Linton Freeman, "A Set of Measures of Centrality Based on Betweenness," *Sociometry* 40, no. 1 (1977): 35–41; Alain Barrat, Marc Barthélemy, Romualdo Pastor-Satorras, and Alessandro Vespignani, "The Architecture of Complex Weighted Networks," *Proceedings of the National Academy of Sciences of the United States of America* 101, no. 11 (2004): 3747–52; Mark Newman, *Networks: An Introduction* (Oxford: Oxford University Press, 2010).

***Research Question 4: How did the ducates/katepanates and minor themes function as administrative entities?***

**Chapter 9** engages with this research question regarding administration along the empire's eastern frontier in two distinct steps.

Step 1: The first step produces a map of the territorial extent of the ducates/katepanates during the early eleventh century.

The foundation for this inquiry is primarily based off of Krsmanović's<sup>29</sup> discernment of the political administrative structure of the ducates/katepanates. Krsmanović's work provides a general understanding of the ducates'/katepanates' administrative organization, but it does not interrogate them as spatial entities, necessitating the creation of a GIS accessible map akin to those created in chapter 4.

Data for delineating these administrative boundaries is determined through an understanding of the minor themes. The reason for this is that the ducates/katepanates were only described in terms of the minor themes under their jurisdictions. Despite this connection, there has not been a comprehensive tabulation of the minor themes' numbers and locations. The primary resources for understanding this come from the court register of the *Escorial Taktikon* (ca.971–75) as well as sigillographic evidence. Most of these seals are found within the holdings of the Dumbarton Oaks seal collection, as well as catalogs compiled by Oikonomides, Seibt, McGeer, Nesbitt, Zacos, and Schlumberger. These findings are compiled in appendix 1 which

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<sup>29</sup> Bojana Krsmanović, *The Byzantine Province in Change: On the Threshold Between the 10<sup>th</sup> and 11<sup>th</sup> Century* (Belgrade: Institute for Byzantine Studies, 2008). The composition of the eastern frontier as a perpetual ebb and flow of political authority firmly grounded in a militarily stable organization is also considered by Catherine Holmes, "Byzantium's Eastern Frontier in the Tenth and Eleventh Centuries," 83–104.



lists the locations and dates of existence for the seventy minor themes. This provides the foundation for the creation of the most accurate map of the ducates'/katepanates' territorial extents, and the first basemap that can be used to interrogate the geospatial principles that governed their organization.

The same tests from chapters 5 and 7 that were applied to the strategides and themes are implemented on the ducates/katepanates and include measures of shape, size, demography, centrality, and isochrone surveys. These tests are important because the territorial extents of the ducates/katepanates are little understood and no attempt has been made to discern what factors went into their spatial organization. Implementing these tests demonstrates that the ducates/katepanates were not divided according to the metrics of land size, arable land, or population, as these figures varied widely between each administrative unit. When an isochrone test is implemented, it ascertains that the largest and most important ducates of Antioch, Chaldia, and Mesopotamia had the worst internal accessibility of any administrative entity during the entirety of the Byzantine Empire, demonstrating that the ducates did not and could not administratively function akin to the Roman Themes. For actually effective defense, the minor themes necessitated a degree of autonomy within their respective jurisdictions.

Step 2: The study then turns to the minor themes, creating a network model and applying a series of tests to ascertain its robustness as a system.

As most evidence regarding the minor themes consists of the information supplied by the extant seals, mainly their locations and a rough timeline discerned from stylistic elements, discussion about them has been primarily relegated to their identification as individual sites. This

study challenges the notion that the minor themes functioned as independent geographical entities, disconnected from their surroundings. Instead, these thematic locations were strategically placed according to overarching principles designed to maximize the empire's long-term stability in its newly acquired territories.

The rest of this chapter analyzes broader organizational trends within the minor themes to see how they functioned as a collective network of defense. These analytical tools have not been applied to a study of the minor themes, but their methodological backgrounds are firmly established. The section begins by ascertaining the average jurisdiction for each minor theme through the creation of spatial buffers<sup>30</sup> which amounted to an approximately 30 km sphere of coverage around each administrative capital. Such jurisdictions made approximately 75–85 percent of holdings along the eastern front accessible within one to two days of travel from a thematic capital. This is the first study to provide an approximation of administrative jurisdictions, enabling the minor themes to be evaluated as spatial entities beyond the location of their capitals. Using these distances, a connectivity model is then created to demonstrate how the minor themes related to one another as part of a broader network.

The remainder of the chapter implements a series of quantitative tests on this network model. Some of these tests have already been used in chapters 7 and 8 as applied to the strategides and themes, which include: the degree of the network, the lengths of connections, clustering, and centralities. Two additional tests are utilized that reflect the unique nature of the minor themes.

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<sup>30</sup> De Smith, Goodchild, and Longley, *Geospatial Analysis*, 151–53.

The first is an investigation of scale-free networks<sup>31</sup> which looks at the shape of the thematic network to see if it operated as a collection of hubs or a mesh. If it was organized around hubs, that means administrators favored a small subset of nodes (minor themes) to the disadvantage of the collective function of the network. A mesh network, meanwhile, is characterized by the multiple pathways available to connect with other nodes throughout the system, privileging equality of movement over dependence on nodes of outsized importance.<sup>32</sup> The chapter argues that the network of minor themes functioned more akin to a mesh than to a hub.

The second test assesses the network's Alpha Index ( $\alpha$ ).<sup>33</sup> This metric evaluates how many independent circuits exist within a network, a measure often applied in discussions about road connectivity. Essentially, the utility of this metric lies in the idea that the more routes available for travel, the greater connectivity throughout the system.

These tests ascertain that the minor themes were organized and functioned as a collective network capable of providing coverage and assistance to neighboring themes without close oversight from the ducates/katepanates. These results are noteworthy as they highlight the detailed and strategic approach of the tenth-century conquests, which were carefully designed to progressively extend the Byzantine-controlled front in a way that enhanced network

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<sup>31</sup> Newman, "Structure and Function of Complex Networks," 167–256; L.A.N. Amaral, A. Scala, M. Barthelemy, and H.E. Stanley, "Classes of Small-World Networks," *PNAS* 97, no. 21 (2000): 11149–52; Albert-László Barabási and Eric Bonabeau, "Scale-Free Networks," *Scientific American* 288, no. 5 (2003): 50–59; S.N. Dorogovtsev and J.F.F. Mendes, *Evolution of Networks: From Biological Networks to the Internet and WWW* (Oxford: Oxford University Press, 2003); Réka Albert and Albert-László-Barabási, "Statistical Mechanics of Complex Networks," *Reviews of Modern Physics* 74, no. 1 (2002): 47–97.

<sup>32</sup> Noah Friedkin, "University Social Structure and Social Networks among Scientists," *American Journal of Sociology* 83, no. 6 (1978): 1451; Kaveh Pahlavan, *Understanding Communications Networks—for Emerging Cybernetics Applications* (Gistrup, Denmark: River Publishers, 2021), 372.

<sup>33</sup> Jean-Paul Rodrigue, Claude Comtois, and Brian Slack, *The Geography of Transport Systems* (New York: Routledge, 2013), 314–15; K.J. Kansky, *Structure of Transportation Networks: Relationships between Network Geometry and Regional Characteristics* (Chicago: University of Chicago Press, 1963); Edward Taaffe, Howard Gauthier, and Morton O'Kelly, *Geography of Transportation* (Englewood Cliffs, N.J.: Prentice Hall, 1973), 104–5.

connectivity. The findings further articulate the empire's understanding of spatial organization and its ability to incorporate this knowledge into decisions on governance along its frontiers.

## Sources

To answer these research questions, this study draws from a broad range of primary sources. The most important singular work is the *De Thematibus*, composed at the court of Konstantinos VII Porphyrogenetos. The *De Thematibus* is a peculiar creation that was organized around a geographical description of each theme, while simultaneously integrating imperial propaganda and historical and mythological foundations for the various territories. This is a valuable historical document that offers the clearest viewpoint into the Byzantine conception of the themes. As such, the *De Thematibus* will serve as a crucial underpinning to this investigation.

The other useful work created under Konstantinos VII is the *De Administrando Imperio*. The themes do not serve as the main subject of this text but it still provides considerable depth into the importance and role of the themes in relation to the numerous groups and peoples surrounding the Byzantine world. This provides another useful examination of how Byzantium perceived its place in the world and how the themes fit into that schema.

The ninth and tenth centuries were marked by a paucity of literary texts, but some of the more important authors relevant to this project include: Theophanes, Theophanes Continuatus, Nikephoros, Yahya of Antioch, Leon the Deacon, and Ioannes Skylitzes. Military manuals such as the *Taktika* of Leon VI attest to the organization of thematic armies and provide useful information on the themes as entities. In terms of ecclesiastical documents, the *Notitia*

*Episcopatum* (particularly *Notitia 7* from the period of Leon VI), provides insight into the composition and distribution of the empire's urbanization, a factor essential to quantifying spatial organization.

Four extant lists of the precedence of titles and offices (*taktika*) from the ninth and tenth centuries outline court protocol within the imperial palace and the makeup and ranking of the administrative structure of several positions within the empire, including thematic ranks. Taken together, they reflect administrative changes to the themes over a timespan of around a century and a half. These are the *Taktikon Uspenskij* (ca.811–13), the *Kletorologion* of Philotheos (899), the *Taktikon Benešević* (ca.934–44), and the *Escorial Taktikon* (ca.971–75).

Contributing to a view external to Byzantine sources are several Arabic geographers who drew up lists and commentaries on the themes. The earliest is from Ibn Khordadbeh (ca.845–48), who took his list of themes from Ibn Abi Muslim al-Jarmi who was part of a Byzantine prisoner exchange in 843. Lists are also known from Ibn al-Faqih al-Hamadani's *Mukhtasar Kitab al-Buldan [Concise Book of Lands]* (ca.902), Qudama b. Ja'far's, *Kitab al-Kharaj [Book of the Land Tax]* (ca.930), al-Mas'udi's *Kitab al-Tanbih w'al-Ishraf [The Book of Indication and Revision]* from 956, and al-Idrisi's *Geography* (1154). Al-Tabari also spoke of the themes in a peripheral fashion, mentioning theme names, commanders, and other aspects in a historical context.

Seals are also an invaluable source, with a substantial number surviving from the ninth and tenth centuries. The work of Nicolas Oikonomides, Werner Seibt, Jean-Claude Cheynet, John Nesbitt, Cecile Morrison, Eric McGeer, Jonathan Shea and others establish criteria for dating seals. Even in the absence of an already secured date, an analysis of abbreviations, ligatures, and stylistic fashions makes it possible to date seals to within a few decades of their

production.<sup>34</sup> Seals also attest to many themes and capitals within the more turbulent east not found within any written sources.<sup>35</sup> While sigillographic information alone cannot determine the exact size of these themes, the use of geographical data can assist in determining the relative location of the theme, what cities they encompassed, a rough timeline of their existence, and some of the bureaucratic structure put in place.

### **Limitations in the Project's Scope**

To effectively address the research questions, it is necessary to place limitations on the scope of the project. This study does not investigate how these administrative units affected the specific individuals under their jurisdiction. It instead takes a macroscopic approach to administrative affairs. Such a method is necessary because the paucity of surviving sources does not permit inquiry on such a granular level. Many of the spatial entities discussed are only known through brief passages or the chance survival of an individual seal, placing sharp restrictions on what types of questions can be asked. Moreover, the quantitative techniques employed are designed to account for large datasets that encompass thousands of square kilometers of land and are not meant to consider individual cases.

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<sup>34</sup> Nicolas Oikonomides, *A Collection of Dated Byzantine Lead Seals* (Washington, DC: Dumbarton Oaks, 1986), 151–69.

<sup>35</sup> Eric McGeer, John Nesbitt, and Nicolas Oikonomides, eds., *Catalogue of Byzantine Seals at Dumbarton Oaks and in the Fogg Museum of Art*, vol. 4, *The East* (Washington, DC: Dumbarton Oaks, 2001), 143.

## Temporal Constraints

While this study focuses on the theme system, it also discusses the administrative divisions of the strategides, ducates/katepanates, and minor themes as a way to show how the system evolved due to external and internal changes between the early Muslim conquests of the mid-seventh century until the arrival of the Seljuks in the mid-eleventh century.

The date used when referring to the size and composition of the strategides is ca.730. The reign of Leon III is the earliest secure date for the strategides as distinctive spatial entities and reflects how the empire desired to reconstitute the armies of the east that withdrew into Anatolia during the Muslim conquests of the seventh century.

When quantitative analysis is conducted specifically on the themes, the timeframe under study is ca.950, when the theme system attained its highest degree of territorial stability and complexity. This is also close to the time of the composition of the *De Thematis*, which provides the most detailed articulation of thematic landholdings, making this the best representation of the system.

Finally, quantitative analysis of the ducates/katepanates and minor themes centers on the early decades of the eleventh century. This timeframe demonstrates how the flexible nature of this system was capable of handling the temporal and spatial limitations of communication, which tested its functionality at the period of its greatest territorial extent.

## Geographical Constraints

In addition to the time constraints outlined above, another important parameter for this study is its geographic limitations. As it is not feasible in a work of this length to account for the totality of Byzantium's landholdings, this project will focus primarily on the administrative entities of the eastern half of the empire. This principally constitutes the territorial possessions of Anatolia. After the seventh century Muslim conquests, this included holdings as far east as the Taurus and Anti-Taurus Mountain ranges. It is this territorial extent that defines the parameters for most of this study.

Acquisitions during the late tenth century expanded the borders into the Armenian highlands in the northeast and portions of the Levant in the south. As such acquisitions were organized into a distinctive amalgamation of ducates/katepanates and minor themes that did not alter the composition of the preexisting themes, these territorial additions are considered in their own chapter (chapter 9).

Anatolia is chosen as the area of study because it constituted the largest and wealthiest portion of the Byzantine Empire during this period. The region was the heart of the empire's population and economic engine, home to the largest cities and the highest level of urbanization. It served as the base for the most powerful and important strategides and themes whose *strategoï* held the most sway in dictating imperial practices. As a result, the Byzantine government considered Anatolia to be its most important territory.

Anatolia's geography is also highly conducive to analysis. While Anatolia was under a frequent military threat from Muslim forces along the eastern frontier, it maintained a high level of geographical stability. The eastern borders experienced very few permanent fluctuations,



because Muslim incursions into the region amounted to little more than seasonal raiding campaigns that did not seek to establish a permanent occupation, leaving the administrative structure of Anatolia largely intact. This allows for a more precise evaluation of internal changes within the administrative units without having to account for an empire being largely reactionary to external threats.

Compare this to the European holdings of the empire where the presence of groups such as the Bulgars and Slavs resulted in permeable borders susceptible to sizeable sways in territorial holdings. This adds an array of external variables that makes a proper analysis of the empire's western holdings significantly more difficult to account.

For the reasons of stability and political importance, Anatolia proves to be the best lens through which to interrogate the empire's understanding of spatial organization.

## **PART I—HISTORY OF THE STRATEGIDES AND THEMES**

### **Introduction: Summary of Sections**

Part I of this study is an inquiry into how the Byzantines created the strategides and themes and how their territorial extent changed over centuries to accommodate the empire's evolving needs. This part moves chronologically, dividing the spatial administration of the empire's eastern half into three distinct development phases that span from the mid-seventh century up to the mid-eleventh century.

These three phases demonstrate the arc of spatial administration within Anatolia, from the initial reaction to the Muslim conquests, to a period of internal restructuring, and finally to a phase of aggressive expansion, encapsulating the empire's ability to successfully adapt the system to diverse challenges.

**Phase One: The Strategides.** The first phase started in the 630s when the armies of the east began to coalesce into distinctive administrative entities that evolved into the earliest strategides in the mid-seventh century. This development was in direct response to the early Muslim conquests that ousted the Byzantines from Egypt, Syria, and the Levant. The conquests forced the Byzantine armies to reconstitute in Anatolia, which resulted in the formation of five strategides. These commands exerted military control through their *strategoï* while running parallel to the preexisting provincial model of civil administration.

While the initial formation of the strategides forestalled total collapse of the empire from external threats, it lacked the forethought requisite in arranging them in a way most conducive to governance. *Strategoï*-led rebellions challenged the emperor's authority and contributed to a power imbalance between the strategides and the central government. This necessitated a rethinking of how to constitute these administrative bodies by the mid-eighth century. In response, Konstantinos V (r.741–75) initiated a series of divisions and restructurings that defined the spatial organization of the system during the latter half of the eighth century.

**Phase Two: The Themes.** The second distinct phase of administrative development commenced around the 810s with the creation of the themes. This was planned as a way to combine the military authority of the strategides with the civil jurisdiction entrusted in the provinces under a singular administrative structure. In this new system, spatial reorganization continued with the borders of the themes repeatedly redefined to optimize their efficacy. This resulted in the formation of sixteen distinct themes in Anatolia by the mid-tenth century. The phase concluded with the fully realized division of Anatolia's themes in a fashion that facilitated a satisfactory defense along the eastern frontier.

**Phase Three: The Ducates/Katepanates and Minor Themes.** The third and final stage of administrative development discussed in this study commenced in the 960s with the Byzantine reconquests along the eastern Anatolian frontier. Due to the efforts of a succession of general-emperors, including Nikephoros II Phokas, Ioannes Tzimiskes, and Basil II, for the first time in the history of the themes the Byzantine Empire saw a continuous expansion of its eastern landholdings. This necessitated an expansion of the system to accommodate the acquisition of

this new territory. Instead of simply enlarging the preexisting themes, the emperors greatly expanded the system of smaller and more flexible themes and placed them under the broader authority of the ducates and katepanates. These minor themes, which were first attested in the 930s, were much smaller than previous versions and were designed to be capable of addressing the Byzantine army's rapidly changing military needs along the frontier. Primarily based around a town or fortification, these units eschewed the traditional thematic administrative structure and could quickly manifest along the contested eastern frontier to consolidate territorial gains and facilitate continued military advances. This phase concluded in the mid-eleventh century when territorial acquisitions reached their apogee.

This third phase exemplifies the adaptability of the administrative system to accommodate an expanding empire without placing undue duress on the existing themes, whose borders had been refined over the prior two centuries. By redefining what a theme could constitute, the empire successfully pivoted its administrative apparatus from a static model of defense to a dynamic one of conquest.

## CHAPTER 1—THE STRATEGIDES

### Origin of the Strategides—The Early Muslim Conquests

This first phase of spatial administrative reform was characterized by the strategides. These administrative divisions found their origins in the response to the Muslim conquests of the early seventh century. During this period, the Byzantine Empire's eastern territorial holdings constituted Asia Minor (east to what is modern Armenia), Syria, and the Levant (terminating south on the frontier of modern Saudi Arabia and east up to the Euphrates River), as well as encompassing the bulk of North Africa and Egypt. Except for conflicts with the Sasanians that resulted in temporary swings of territorial expansions and contractions, the eastern frontier of the empire remained generally stable and relatively unchanged since the second century.

This status quo changed upon the death of Muhammad in 632, when his successors, the Rashidun Caliphs, were able to devise a string of military victories that ousted the Byzantine Empire from a sizeable portion of its landholdings.<sup>1</sup> After the decisive defeat at the Battle of Yarmouk in 636, Islamic forces routed the Byzantine army, which made its position in Syria and the Levant untenable.<sup>2</sup> This led the emperor Herakleios to withdraw troops from the region behind the Taurus and Anti-Taurus mountain ranges, along what is now the southern border of Turkey with Syria. With this decision, the cities of Syria and the Levant were effectively defenseless and surrendered or succumbed to the Muslim forces in rapid succession, with

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<sup>1</sup> Hugh Kennedy, *The Great Arab Conquests: How the Spread of Islam Changed the World We Live In* (Philadelphia: Da Capo Press, 2007).

<sup>2</sup> Kennedy, *Great Arab Conquests*, 83–85.

Damascus captured in 634, and Jerusalem and Antioch submitting in 637.<sup>3</sup> Egypt, the other significant Byzantine landholding, and the breadbasket of the empire, was lost to Amr b. al-As in 641, precipitating the end of Byzantium's presence in Africa by the end of the seventh century.<sup>4</sup> When Slav and Avar encroachments into the Balkans are factored in, this series of conquests reduced the territorial extent of the Byzantine Empire from approximately two million square kilometers under Justinian to one million square kilometers by the mid-seventh century, a halving of territory within the span of a century.<sup>5</sup>

The abruptness and decisiveness of this defeat was unprecedented in Roman history and necessitated assured action to forestall total collapse, as happened to the Sasanian Empire in 651.<sup>6</sup> Herakleios's strategic retreat provided an initial reprieve, but Muslim military advances continued throughout the seventh century, culminating in an unsuccessful siege of Constantinople in 717–18.<sup>7</sup> This necessitated a dramatic pivot in military and administrative practices.

It is from this tumultuous background that the strategides emerged. The strategides were designed to function in a military capacity as a way to organize the reconstituted armies of the east. Each was headed by a *strategos*, a command vested with only a military function.<sup>8</sup> This arrangement granted the *strategoï* a degree of autonomy to organize and deploy troops in a manner that could more effectively respond to Muslim incursions along the eastern frontier.

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<sup>3</sup> Kennedy, *Great Arab Conquests*, 79–80, 88, 90–93.

<sup>4</sup> Walter Kaegi, *Muslim Expansion and Byzantine Collapse in North Africa* (Cambridge: Cambridge University Press, 2010).

<sup>5</sup> Warren Treadgold, *A Concise History of Byzantium* (London: Bloomsbury Publishing, 2020), 5.

<sup>6</sup> Parvaneh Pourshariati, *Decline and Fall of the Sasanian Empire: The Sasanian-Parthian Confederacy and the Arab Conquest of Iran* (New York: I.B. Tauris, 2008).

<sup>7</sup> Theophanes, *Chronicle*, 398–99.

<sup>8</sup> Brubaker and Haldon, *Byzantium in the Iconoclast Era*, 734.

A timeline for the precise order of events relating to the formation of the strategides is unclear and remains up for debate, but under the reign of Leon III, the strategides model was decidedly in existence. The armies retreating from the periphery of the empire and reforming within Anatolia coalesced into distinct spatial entities by the 730s, and as Haldon and Brubaker explain, military command at this point had taken on a “clear geographical identity.”<sup>9</sup> As a result, these geographical identities ca.730 form the basis for this study into the spatial definition of the strategides. Subsequent geospatial references to the strategides should be taken as referring to this period.

The strategides ran parallel to the provincial system of civil administration already in place, which had existed in a similar form since the early fourth century.<sup>10</sup> This dual system of administration persisted until around the second decade of the ninth century when the theme system finally fused all military and civil functions into a single command. While the strategides shared physical space with the provinces, their territorial extents did not map onto each other in a one-to-one ratio. Compared to the initial four strategides, a total of twenty-four provinces existed in Anatolia, which were divided into three diocese: the Diocese of Pontus (which included the provinces of Armenia I, Armenia II, Armenia Major, Bithynia, Galatia I, Galatia II Salutaris, Helenopontus, Honorias, Kappadokia I, Kappadokia II, Paphlagonia, and Pontus Polemoniacus), the Diocese of Asia (Asia, Caria, Hellespontus, The Islands, Lycia et Pamphylia, Lydia, Phrygia Prima, Phrygia Secunda, and Pisidia), and the Diocese of the East (Cilicia I, Cilicia II, and Isauria).<sup>11</sup>

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<sup>9</sup> Brubaker and Haldon, *Byzantium in the Iconoclast Era, 735*.

<sup>10</sup> Brubaker and Haldon, *Byzantium in the Iconoclast Era, 665–722*.

<sup>11</sup> Timothy David Barnes, *The New Empire of Diocletian and Constantine* (Cambridge, MA: Harvard University Press, 1982), 201–8; Constantin Zuckerman, “Sur la liste de Vérone et la province de Grande Arménie, la division de l’empire et la date de création des diocèses,” *Travaux et Mémoires* 14 (2002): 617–37. The *Laterculus Veronensis* lists the names of the empire’s 96 provinces divided into 12 dioceses as they stood in the early fourth century. The

While the Byzantine Empire created the strategides out of military expediency, its organization was not derived *ex nihilo*. The strategides utilized certain preexisting boundaries of the provinces to facilitate organization.<sup>12</sup> Aspects of the provincial model were emulated due to the ease provided by such a ready-made template. The empire already had a preponderance of military and administrative issues to worry about without spending undue time formulating boundaries *de novo*. Likewise, many of the provinces made sense in terms of their borders. The provinces already followed several logical geographical features such as rivers, lakes, and other bodies of water, as well as mountain ranges and valleys. For instance, the Halys River and the Pontic and Taurus Mountains had long served as natural demarcations. To select other boundaries when such easy and logical delineations already existed would simply be contrarian and logistically counterproductive.

However, this does not imply that the shapes of the strategides were predetermined, as there was ample room to form them in a fashion that administrators felt most conducive to forestalling the emergent Muslim threat. With twenty-four provinces within the eastern half of the empire, there were numerous permutations that the original four strategides could have assumed. This created the potential of thousands of combinations for the new territories. Therefore, the spatial composition of the strategides should be viewed as one forcibly devised under external pressures, while still retaining the flexibility for administrators to arrange them in a fashion deemed most conducive to Anatolia's survival.

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*Notitia Dignitatum* from around a century and a half later provides a slightly modified but similar list. The 24 provinces listed above constitute what remained in the east after the mid-seventh century.

<sup>12</sup> Brubaker and Haldon, *Byzantium in the Iconoclast Era, 700*.



## The Original Strategides

The first iteration of the strategides consisted of four distinct divisions: the Anatolikon, Armeniakon, Opsikion, and Thrakesion, with a fifth maritime division, the Kibyrraiotai, added later. This section discusses what characterized these initial divisions and demonstrates how their formation derived from a mixture of administrative inertia and abrupt necessity.



MAP 1.1. The original Anatolian strategides (approximation)

## *Anatolikon*

The Anatolikon constituted a sizeable portion of central Asia Minor, covering the regions of Lycaonia, Pisidia, Isauria, and parts of Galatia Salutaris.<sup>13</sup> Its capital remains unknown, but the city of Amorion was the logical site, as it was the largest and most important center within the territory.

The Anatolikon took its name from its origins in the Army of the East, derived from the remnants of the army withdrawn after the Muslim conquests of Syria and the Levant.<sup>14</sup> Created at the same time of the other original strategides, its army is first mentioned by Theophanes for the year 669,<sup>15</sup> having suffered considerable losses during the hasty withdrawal of the 630s–40s. It also served as the principal bulwark along the contested Tarsus and Anti-Tarsus frontier until the late eighth century. This made it the target of nearly annual invasions and placed it as the staging ground for the bulk of Byzantine counter raids against the Umayyads and Abbasids during the mid-eighth century.<sup>16</sup> This required the Anatolikon to have an experienced and sizeable military outlay, which granted it a degree of influence and distinction. It served as the senior-most command, whose *strategos* ranked first on lists of court precedence.<sup>17</sup>

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<sup>13</sup> *De Thematribus*, ed. Pertusi, 114–15.

<sup>14</sup> John Haldon, “More Questions about the Origins of the Imperial Opsikion,” in *Millennium-Studien: Zu Kultur und Geschichte des ersten Jahrtausends n. Chr.*, eds. Wolfram Brandes, Alexander Demandt, Helmut Krasser, et. al. (Berling: De Gruyter, 2017), 33; Brubaker and Haldon, *Byzantium in the Iconoclast Era*, 724.

<sup>15</sup> Theophanes, *Chronicle*, 352.14; Eleonora Kountoura-Galake et al., *Η Μικρά Ασία των θεμάτων: Έρευνες πάνω στην γεωγραφική φυσιογνωμία και προσωπογραφία των Βυζαντινών θεμάτων της Μικράς Ασίας (7ος –11ος αι.)* (Athens: National Hellenic Research Foundation, Institute for Byzantine Research, 1998), 41, 89; Nicolas Oikonomides, *Les listes de préséance byzantines des IXe et Xe siècles* (Paris: Éditions du Centre National de la Recherche Scientifique, 1972), 348.

<sup>16</sup> Asa Eger, *The Islamic-Byzantine Frontier: Interaction and Exchange among Muslim and Christian Communities* (London: I.B. Tauris, 2015).

<sup>17</sup> *Kletorologion* of Philotheos, 100–1; *Taktikon Benešević*, 244–45; *Escorial Taktikon*, 262–63.

## *Armeniakon*

The Armeniakon occupied northeastern Asia Minor, consisting of the regions of Pontus, Armenia Minor (Lesser Armenia), and the northern portion of Kappadokia, with Amaseia serving as the capital.<sup>18</sup> It was bordered to the west by the Opsikion and Anatolikon.

Like its administrative analogues, it was created from the remnants of one of the old East Roman field armies after the retreat from the Muslim conquests. In this instance, the army of the *magister militum per Armeniam* withdrew west from Armenia, serving as the source for its name.<sup>19</sup> First mention of the administrative unit dates to 667/8 in relation to a revolt by its *strategos* Saborios,<sup>20</sup> with its earliest sigillographic attestation in 717/8.<sup>21</sup>

## *Opsikion*

The Opsikion's first definitive attribution is from 680,<sup>22</sup> with it potentially dating back to the mid-650s.<sup>23</sup> Situated in the northwestern portion of Asia Minor, the Opsikion constituted the regions of Bithynia, Mysia, and portions of Galatia, Lydia, and Paphlagonia; with its capital at Nikaia. It encompassed the Asian portion of the Dardanelles and ended in the east with a border along the Halys River.

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<sup>18</sup> *De Thematribus*, ed. Pertusi, 117–18.

<sup>19</sup> Haldon, "Imperial Opsikion," 33–34; Brubaker and Haldon, *Byzantium in the Iconoclast Era*, 724.

<sup>20</sup> Kountoura-Galake et al., *Μικρά Ασία των Θεμάτων*, 113.

<sup>21</sup> BZS.1958.106.688 "N. and N., *kommerkiarioi* of the *apotheke* of Koloneia and all the provinces of the Christ-loving Armeniakon" (717/8).

<sup>22</sup> *Acta Conciliorum Oecumenicorum*, II/2, 1, 14.20–21. Justinian II's letter describes one Theodore, *komes* of the Opsikion.

<sup>23</sup> Haldon, "Imperial Opsikion," 31–41.

The core of these troops composed the imperial retinue, the *Obsequium* (later *Opsikion*), which accompanied the emperor on campaign.<sup>24</sup> This proximity to Constantinople and the emperor led to it exercising an outsized role in imperial politics throughout the late-seventh century and early-eighth century, which would only be curtailed by its division into three administrative units in the mid-eighth century. In order to clearly delineate the territorial authority of the emperor and *strategoi*, no military commander exercised control over Constantinople, which served as its own separate administrative entity.

### ***Thrakesion***

The Thrakesion lay to the south of the Opsikion. Geographically, it consisted of the regions of Ionia, Lydia, and portions of Caria and Phrygia Pacatiana. The Thrakesion's capital was most likely at Chonai, the demographic and economic hub. Ibn Khordadbeh lists it as Ephesos, but this was firmly within the Samos Theme's jurisdiction by the ninth century and most likely did not move prior to that.<sup>25</sup> This analysis agrees with Foss's assertion of Chonai being the most probable location.<sup>26</sup>

The first mention of the Thrakesion comes significantly later than the other three strategides, when one Christopher, a “*tourmarches* of the Thrakesion” was sent by Justinian II to

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<sup>24</sup> Kaldellis and Kruse, *Field Armies*, 90–91; Brubaker and Haldon, *Byzantium in the Iconoclast Era*, 724; John Haldon, *Byzantine Praetorians: An Administrative, Institutional, and Social Survey of the Opsikion and Tagmata, c. 580–900* (Bonn: R. Habelt, 1984), 443–44.

<sup>25</sup> Ibn Khordadbeh, *The Book of Roads and Kingdoms [Kitāb al-Masālik wa l-Mamālik]*, 84; al-Idrisi, *Geography*, 299.

<sup>26</sup> Clive Foss, *Ephesus after Antiquity: A Late Antique, Byzantine and Turkish City* (Cambridge: Cambridge University Press, 1979), 195–96.

Cherson in 711.<sup>27</sup> The first time the *strategos* is referenced, one Sisinnios, is not until ca.740, meaning that little is known of its role during the formative period of the mid- and late-seventh century.<sup>28</sup>

The Thrakesion derived its name from the army of the *magister militum per Thracias*.<sup>29</sup> This was a part of the old East Roman army, which moved from territories in Europe to strengthen Byzantine holdings in Egypt. After their failure to staunch the advances of Amr b. al-As they were reallocated to western Anatolia where they remained.

### ***Thrake***

Briefly turning to the European portion of the empire, the first administrative unit to be constituted in the region under this reorganized system was that of Thrake sometime around 680 in the territory west of Constantinople.<sup>30</sup> Like the other original strategides, Thrake's formation was predicated on the arrival of an external threat, in this case the Bulgars.<sup>31</sup> While this study is focused on Anatolia, this bears mentioning because its early command was under the *komes* of the Opsikion, a special analogue to the position of *strategos*. This meant that, for a time, a single command existed in both Europe and Anatolia.<sup>32</sup> The first mention of a separate *strategos* of

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<sup>27</sup> Kountoura-Galake et al., *Μικρά Ασία των θεμάτων*, 201.

<sup>28</sup> Theophanes, *Chronicle*, 414.31–33, 419.9–10, 421.3–6; *De Thematribus*, ed. Pertusi, 124–25.

<sup>29</sup> Brubaker and Haldon, *Byzantium in the Iconoclast Era*, 724.

<sup>30</sup> Brubaker and Haldon, *Byzantium in the Iconoclast Era*, 731. The Acts of the sixth council describe a Theodore who held the title of *komes* of the Opsikion and *hypostrategos* of Thrake.

<sup>31</sup> Ralph-Johannes Lilie, “‘Thrakien’ und ‘Thrakesion’”. Zur byzantinischen Provinzorganisation am Ende des 7. Jahrhunderts.” *Jahrbuch der Österreichischen Byzantinistik* 26 (1977): 28–35.

<sup>32</sup> Johannes Koder, “Macedonia in Byzantine Spatial Thinking,” in *Byzantine Macedonia: Identity, Image and History: Papers from the Melbourne Conference, July 1995*, eds. John Burke and Roger Scott (Leiden: Brill, 2000), 16; Haldon, *Byzantine Praetorians*, 194. A Theodore, *komes* of the Opsikion and *hypostrategos* of Thrake, is mentioned in the Acts of the sixth council in 680.

Thrake was not until 742,<sup>33</sup> indicating that such an administrative arrangement did not last into the reforms of Konstantinos V, as singular military control over the area directly surrounding Constantinople proved risky for the emperor. Aside from islands in the Aegean Sea, this was the only command to encompass parts of Europe and Asia, reinforcing its generally divided nature. The Opsikion's administration of Thrake also reinforced the subordinate nature of administration in Europe to the more populous and powerful eastern analogues, a hierarchy that stood for the duration of the strategides and later themes.

### **Karabisianoi and Kibyrraiotai—Maritime Additions**

In addition to the initial four Anatolian strategides, another important administrative division was created that does not fit neatly into this category but was nevertheless critical to spatial developments in the east. Just as the field armies of the east were eventually solidified into well-delineated spatial bodies, so too were the empire's naval forces.

The Arabs' decision to create a navy in the 640s and 650s imperiled the near total hegemony that Roman maritime forces had enjoyed in the Mediterranean and Aegean Seas for centuries. Raids on Crete and Rhodes (653), the Battle of the Masts (654), and subsequent assaults on Constantinople solidified a permanent Arab naval presence in the region.<sup>34</sup> The Byzantines needed to devise a response to this novel threat by reshaping the navy to conform to the new administrative system. In the process, they demonstrated the adaptability of the strategides system to address a shifting military reality.

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<sup>33</sup> Kountoura-Galake et al., *Μικρά Ασία των θεμάτων*, 41.

<sup>34</sup> Salvatore Cosentino, "Constantine II and the Byzantine Navy," *Byzantinische Zeitschrift* 100, no. 2 (2008): 577–603.

## *Karabisianoï*

In direct response to these new threats, the empire devised the Karabisianoï as their first permanent naval force.<sup>35</sup> Like the original strategides, the exact time of its creation remains elusive. It is not until 678 that the first firm attestation of the Karabisianoï was given in relation to the siege of Thessaloniki.<sup>36</sup> Sigillographic evidence suggests the continuation of the Karabisianoï in some capacity until at least the late eighth century.<sup>37</sup>

This force, while not constituting one of the strategides itself, paralleled them in aspects of its composition. The group was named after the troops it comprised, with Karabisianoï meaning “people of the ships.” It was also led by a *strategos*.<sup>38</sup> This *strategos* undoubtedly had a base from which to direct naval operations, potentially operating within the western half of the empire, even though its precise location remains unknown.<sup>39</sup>

## *Kibyrraiotai*

While the Karabisianoï retained this maritime role into the late eighth century, the Kibyrraiotai emerged along the southern coast of Anatolia as an administrative entity that more closely mirrored the spatial composition of the other four strategides.

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<sup>35</sup> Brubaker and Haldon, *Byzantium in the Iconoclast Era*, 725.

<sup>36</sup> *Miracles of Saint Demetrios*, II, 254.

<sup>37</sup> Brubaker and Haldon, *Byzantium in the Iconoclast Era*, 729.

<sup>38</sup> Fogg 843 “N., patrikios and *strategos* of the Karabisianoï” (seventh/eighth century); nos. 1981, 2614, and 2656 in George Zacos and Alexander Vegler, *Byzantine Lead Seals*, vol. 1 (Basel: J.J. Augustin, 1972).

<sup>39</sup> Brubaker and Haldon, *Byzantium in the Iconoclast Era*, 725, 729. Potential sites could be at Chios, Rhodes, and Samos.

The idea of the Kibyrraiotai as a military unit preceded the attribution of a *strategos*. A “*droungarios* of the Kibyrraiotai” was first mentioned in relation to a naval expedition against Carthage in 698, indicating its possible subordination to either the larger Karabisianoï that commanded the operation, or as a branch of the Anatolikon.<sup>40</sup> The date of the creation of a *strategos* remains uncertain, but the Kibyrraiotai assumed a defined territory by the time of Leon III in the early eighth century.<sup>41</sup>

Geographically, the Kibyrraiotai constituted parts of Caria, Lycia, Pamphylia, and portions of Isauria.<sup>42</sup> The Mediterranean Sea formed the whole of its southern front and it was bordered to the north by the Thrakesion and Anatolikon. This gave it a peculiarly long shape: approximately 100 kilometers from north to south, but nearly 600 kilometers running from west to east. Contrast this to the neighboring Thrakesion and Anatolikon, which were decidedly more compact and square shaped. This unusual shape reflected its unique utility: as an administrative units focused on maritime activities, it was tasked with hosting the fleet and protecting Asia Minor’s Mediterranean coast. The Kibyrraiotai was the first to assume such innovations, but this trend would continue when future administrative divisions that directly abutted the volatile frontier assumed distinctive features to facilitate their efficacy in warfare and defense.

The creation of the Kibyrraiotai also initiated a trend that would come to exemplify changes to the strategides, and later, the themes: the division of a preexisting administrative unit to create a new one. For most of the strategides’ and themes’ existence in Asia Minor, the amount of territory under Byzantine control remained relatively stable, with little expansion or contraction. This meant that any territorial changes required the division of a preexisting

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<sup>40</sup> Theophanes, *Chronicle*, 370.23.

<sup>41</sup> Brubaker and Haldon, *Byzantium in the Iconoclast Era*, 730.

<sup>42</sup> *De Thematribus*, ed. Pertusi, 150.



administrative body. In this instance, the Kibyrraiotai carved its existence from the southern coastal portions of the Thrakesion and Anatolikon.

The formation of the Kibyrraiotai closes out the initial phase of the formation of the strategides, which was characterized as a reactionary period focused on reconstituting the administration of the empire on a firm footing against a well-defined external enemy.

### **Factors Influencing the Formation of the Strategides**

Ultimately, the spatial organization of the original strategides is attributable to two distinct factors:

- 1) The organization of the provincial system of Anatolia.
- 2) The surviving elements of the eastern army that retreated in the wake of the early Muslim conquests.

These reflect a system that arose from a mixture of planned and opportunistic decisions based on concerns for the immediate present. Unlike prior provincial reforms made in times of relative stability, the creation of the strategides arose at a junction when survival of the empire was not entirely assured. The consolidation of the eastern armies into an effective defensive force was largely predicated on the chance survival of certain military elements, making it impossible to have a lengthy process of premeditation when organizing the system.

Nevertheless, as shall be shown in chapter 5, the spatial organization of the strategides was predicated on a relatively equitable distribution of total land, arable land, and demography. This demonstrates a level of administrative forethought intended to facilitate the survival of the

remaining armies by allocating them roughly equivalent resources to defend the remnants of the empire's presence in the east.

### **Restructuring the Strategides**

That the Byzantine Empire forestalled a complete collapse and survived beyond the mid-seventh century is a testament to the quick and effective creation of the strategides. However, after the initial threat of complete conquest by the Umayyad Caliphate subsided, fractures in the system needed to be addressed to ensure its longevity as a viable administrative entity. This took the form of a series of internal rebellions perpetrated by the *strategoi*, particularly those from Asia Minor. This came about because the empire vested too much power within these regional commanders, power which emboldened them to take advantage of the weakened centralized leadership after the upheavals of the mid-seventh century. Such an imbalance was tolerable when the greatest danger to the empire assumed the form of the Umayyad Caliphate, but once the immediacy of that threat subsided, it became necessary for the emperor to reign in the *strategoi* to effectively secure his own position.

To remedy this problem, emperors starting with Konstantinos V devised ways to limit the power of rebellious *strategoi* without undermining the effective defensive capabilities of the strategides themselves. This is what characterized Anatolia's administrative development during the early to mid-eighth century: rectifying the creation of the original strategides by dividing them to create several new ones, resulting in a more flexible and stable system.

## The Example of the Opsikion

The shift in spatial strategy during the eighth century is best exemplified by looking at the Opsikion and its transformation from a constant source of rebellions to an asset from whose lands the emperor could draw strength and ensure personal security. Its strategic proximity to the center of government afforded it a considerable level of influence during the late seventh and early eighth centuries.

This authority was reflected in the title of the commander. Eschewing the title of *strategos* granted to leaders of the other strategides, the head of the Opsikion was referred to as a *komes*, a title denoting its importance to Constantinople.<sup>43</sup> In addition, for a time in the late seventh and potentially early eighth century, the *komes* of the Opsikion also administered Thrake.<sup>44</sup> This meant that the lands controlled by the Opsikion extended to the walls of Constantinople from both Europe and Asia Minor, entirely encircling the emperor. If a premium is placed on the proximity to power, there was no administrative unit better positioned.

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<sup>43</sup> BZS.1955.1.699 “Artavasdos, *patrikios* and *komes* of the imperial Opsikion” (eighth century); BZS.1958.106.807 “Isoes, *patrikios* and *komes* of the imperial Opsikion” (eighth century); BZS.1947.2.121 “Gregory, imperial *spatharios* and *komes* of the imperial Opsikion” (eighth century); BZS.1951.31.5.976 “Petronas, *patrikios* and *komes* of the imperial Opsikion” (eighth/ninth century); reference to a *komes* is also found in a signet ring declaiming, “Lord help Leontius, *patrikios* and *komes* of the imperial Opsikion guarded by God,” Metropolitan Museum of Art, Accession Number: 1982.282; Brubaker and Haldon, *Byzantium in the Iconoclast Era*, 740.

<sup>44</sup> “Theodore, *patrikios*, *komes* of the Opsikion, and *hypostrategos* of Thrake” (c.680/1); Brubaker and Haldon, *Byzantium in the Iconoclast Era*, 731; Haldon, *Byzantine Praetorians*, 194; *De Thematribus*, ed. Pertusi, 156.

## Rebellions from the Opsikion

This imbalance of power proved detrimental to Constantinople, and it led to a series of uprisings during the late seventh and early eighth centuries. In 668, not long after the inception of the strategides, Mizizios led a coup attempt after Constans II was killed in residence in Sicily.<sup>45</sup> Sources are divided on Mizizios's role in, and the length of the usurpation, but this was the first rebellion by a *komes* of the Opsikion.

Justinian II was one of the few emperors shrewd enough to understand and harness the Opsikion's power base for his own benefit, providing him success as both an exiled rebel and later as a way to secure his own defense as an emperor. During his first reign from 685–95, Justinian II appointed Barasbakourios as the Opsikion's *komes*. Upon his mutilation and exile in 695 by Hellas's *strategos* Leontios,<sup>46</sup> Justinian II utilized this connection to the Opsikion when in ca.704 Barasbakourios went with Justinian II on a mission to the Bulgars in a successful attempt to rally the support that would help bring him back to the throne for a second reign that lasted from 705–11.<sup>47</sup> This move geographically encircled and isolated Constantinople from the rest of the empire, effectively blocking the capital from acquiring external support and facilitating Justinian II's victory.

The end of Justinian II's first reign led to a period of political instability, in which a series of six emperors ruled in rapid succession until the ascension of Leon III.<sup>48</sup> During this timeframe, the Opsikion played a key role in determining who would hold the imperial throne. After the death of the Opsikion's favorite Justinian II at the hands of Philippikos Bardanes in

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<sup>45</sup> Theophanes, *Chronicle*, 352.1–5; Anthony Kaldellis, *The New Roman Empire: A History of Byzantium* (Oxford: Oxford University Press, 2023), 398–99.

<sup>46</sup> Nikephoros, *Short History*, 95–97; Kaldellis, *New Roman Empire*, 418.

<sup>47</sup> Theophanes, *Chronicle*, 368–69; Nikephoros, *Short History*, 103; Kaldellis, *New Roman Empire*, 434.

<sup>48</sup> Kaldellis, *New Roman Empire*, 438.

711,<sup>49</sup> its *komes* Georgios Bouraphos rose in rebellion, having Philippikos blinded in the Hippodrome and instilling Anastasios II as emperor in 713.<sup>50</sup>

Anastasios II attempted to stabilize his tenuous claim to power by imposing strict discipline on the Opsikion's armies through measures such as executing the officers responsible for the conspiracy against Philippikos.<sup>51</sup> This proved unsuccessful, for the Opsikion's army again rose up in 715, not even two years later. Bristling against the new regime, they overthrew Anastasios II and proclaimed Theodosios III emperor. Unlike with Philippikos, where troops were able to infiltrate Constantinople and force his abdication, Theodosios III engaged in a siege of the city, only victorious when Anastasios II fled to Nikaia and was eventually compelled to retire to a monastery in Thessalonike.<sup>52</sup>

In 717, the period of political instability came to an end with the ascension of Leon III. During his reign, Anastasios II made Leon III *strategos* of the Anatolikon, granting Leon III legitimacy to rebel under the pretext of avenging Anastasios II's overthrow. Further motivation was given by framing Theodosios III as an illegitimate figurehead for the Opsikion's army. To reinforce his position, Leon III allied himself with Artabasdos, the *strategos* of the Armeniakon in a successful siege of Constantinople.<sup>53</sup> This demonstrates the ease in which the strategides could collude with one another and amass large forces against the emperor.

The year 718 witnessed an attempted continuation of the series of rebellions by the Opsikion's commander Isoes, but ultimately proved unsuccessful in unseating Leon III.<sup>54</sup>

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<sup>49</sup> Nikephoros, *Short History*, 111–13.

<sup>50</sup> Theophanes, *Chronicle*, 383; Kaldellis, *New Roman Empire*, 418; “Georgios (Bouraphos), *patrikos* and *komes* of the Opsikion” (before 713), in Christies Auction (unpublished), <https://www.christies.com/en/lot/lot-1538629>.

<sup>51</sup> Nikephoros, *Short History*, 113; Theophanes, *Chronicle*, 383.

<sup>52</sup> Theophanes, *Chronicle*, 385–86; Kaldellis, *New Roman Empire*, 440.

<sup>53</sup> Theophanes, *Chronicle*, 387–90; Kaldellis, *New Roman Empire*, 440.

<sup>54</sup> Nikephoros, *Short History*, 125.

It was another two decades until the final two major coup attempts conducted during this hundred-year time span. These were made against the emperor Konstantinos V in 741/42 and 766. The first was conducted by Artabasdos, who served as *komes* of the Opsikion and held the rank of *kouropalates*, one of the highest dignities of the imperial court.<sup>55</sup> While Konstantinos V was on campaign against the Umayyads on the eastern frontier, Artabasdos marched on Constantinople and was acclaimed emperor by popular support. Konstantinos V subsequently took refuge in Amorion, capital of the Anatolikon.

What ensued next highlights the pivotal role played by the strategides in the early eighth century in terms of their sway over imperial authority. Artabasdos installed his son Niketas as *strategos* of the Armeniakon, solidifying an alliance of the northern strategides, which also included Thrake and the Opsikion.<sup>56</sup> Likewise, Konstantinos V established a powerbase among the Anatolikon and Thrakesion strategides. The two contenders to the throne met in battle in 743/744, resulting in Artabasdos's defeat. Artabasdos fled back to the Opsikion but was ultimately captured, blinded, and exiled to the Chora monastery.

One final attempt against Konstantinos V came in 766, which was led by the Opsikion's commander David and ultimately proved unsuccessful.<sup>57</sup> The scale of this was much smaller than Artabasdos's rebellion and signaled the diminishment of the *strategos*'s outsized power as a result of Konstantinos V enacting his reforms.

This litany of just the major uprisings centered around the Opsikion, prior to the mid-eighth century, exemplifies the perils to the emperor of permitting the strategides to amass such power.

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<sup>55</sup> Theophanes, *Chronicle*, 414–15; Kaldellis, *New Roman Empire*, 450–51.

<sup>56</sup> Theophanes, *Chronicle*, 417–18.

<sup>57</sup> Theophanes, *Chronicle*, 436.26–437.19, 437.25–439.5; Brubaker and Haldon, *Byzantium in the Iconoclast Era*, 238.

## Dividing the Opsikion and Creating New Administrative Centers

Weary from the ultimately unsuccessful coup attempt, the emperor Konstantinos V sought to end this political turmoil by curtailing the authority of the *komes* and stripping the Opsikion of its sources of power. Under his reign, the Opsikion was divided into three parts, with two new administrative units created whole cloth.<sup>58</sup>



MAP 1.2. The Opsikion before mid-eighth century divisions

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<sup>58</sup> Brubaker and Haldon, *Byzantium in the Iconoclast Era*, 741.



MAP 1.3. The Opsikion with divisions

### ***Boukellarion***

The Boukellarion constituted the largest new geographical center, comprising the eastern portion of the former Opsikion. It was bordered to the east by the Armeniakon, to the south by the Anatolikon, and to the west by the Optimaton. The first mention of a *strategos* comes from 767/8, establishing an upper date for its creation and Konstantinos V's wider reforms.<sup>59</sup>

<sup>59</sup> McGeer, Nesbitt, and Oikonomides, *Catalogue of Byzantine Seals*, 4:1–2; seal no. 1656 in Zacos and Veglery, *Byzantine Lead Seals*, vol. 1; Brubaker and Haldon, *Byzantium in the Iconoclast Era*, 741. Oikonomides and Nesbitt argue for an earlier date of conception due to seals of *strategoi* and *domestikoi* that bear stylistic indications of belonging to the first half of the eighth century, placing the date in the first decade of Konstantinos V's reign in the 740s. This dating is probable, as Konstantinos V would most likely have enacted the reforms soon after Artabasdos's rebellion, but no secure date is attributable before 767/8.



As part of the effort to diffuse the Opsikion's former power, the Boukellarion was subordinate in rank to strategides such as the Anatolikon and Armeniakon. The new center took Ankyra as its capital, the former seat of the Opsikion's *strategos*. The Boukellarion would become subdivided again in the early ninth century, curtailing its military capabilities even further.

### ***Optimaton***

The Optimaton was the second spatial body created out of the remnants of the Opsikion, replacing the Opsikion as the closest neighbor to Constantinople. It constituted Asia Minor's side of the Bosphorus, encompassing the Mesothynia (modern Kocaeli Peninsula) as far east as the Sangarios River (modern Sakarya River), with Nicomedia serving as the capital.<sup>60</sup> Its name derived from the *optimates*, an elite unit of cavalry established by Tiberios II (r.574–82) of potentially Gothic origin.<sup>61</sup> As with the Boukellarion, a restructured form of this group served as the core of the new administrative unit. First mention of the Optimaton came in 773, but its formation most likely occurred contemporaneously with the Boukellarion under Konstantinos V.<sup>62</sup>

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<sup>60</sup> *De Thematribus*, 124.

<sup>61</sup> John Haldon, *Warfare, State, and Society in the Byzantine World, 565–1204* (London: Routledge, 2005), 196.

<sup>62</sup> Brubaker and Haldon, *Byzantium in the Iconoclast Era, 741*; Haldon, *Byzantine Praetorians*, 222–27.

## *Opsikion*

As for the Opsikion itself, a reduced form of it persisted in northwestern Anatolia, bordered to the west by the Aegean Sea and to the north by the Sea of Marmara. It maintained its southern borders with the Thrakesion and Anatolikon, with the Optimaton constituting the eastern boundary as a buffer between itself and Constantinople. With the original seat at Ankyra now belonging to the Boukellarion, Nikaia served as its new capital.<sup>63</sup> Ultimately, the creation of the two new administrative units reduced the Opsikion in size from approximately 105,400 km<sup>2</sup> down to 41,700 km<sup>2</sup>, or a reduction of about 60 percent.<sup>64</sup> Accounting for the late seventh and potentially early eighth century when the Opsikion exercised administrative control over Thrake, its diminution becomes even more pronounced.

## *Aegean Sea*

Following Konstantinos V's reforms, the Opsikion underwent one additional important reworking with the creation of the Aegean Sea along the western coast. Like the Kibyrraiotai and Samos, this was done to provide a mainland base for maritime operational oversight, in this case over the northern Aegean Islands.<sup>65</sup> The Aegean Sea's creation and assumption of the Opsikion's littoral likely occurred in the first half of the ninth century. This is predicated on the *Taktikon Uspensky*'s mention of a *droungarios*, and not a *strategos*, in the second decade of the ninth

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<sup>63</sup> *De Thematribus*, 117.

<sup>64</sup> See table 5.1 "Theme Sizes."

<sup>65</sup> *De Thematribus*, 162.

century, implying it only served as a maritime force at that time.<sup>66</sup> However, a *strategos* was firmly attested by 843.<sup>67</sup>

This left the Opsikion bereft of the majority of its access to the sea with key ports such as Kyzikos and Abydos stripped away, leaving only the less vital portion around Nikaia and its port of Kios. This was not an explicit punishment like Konstantinos V's earlier divisions, but rather a necessity to fashion an effective maritime presence along the southern and western coastline of Asia Minor.

In many respects, the relationship between the Opsikion and the Aegean Sea should be viewed as a sharing of responsibilities instead of a hard administrative division. The Opsikion's *strategos* retained control over army activities in both territories, with the Aegean Sea concentrating on maritime defense and the raising of sailors.<sup>68</sup> This division created complementary spheres of mutual defense and enabled a more effective navy.

Coordination between the two *strategoï* was also seen in the conscription of sailors from the Opsikion into the Aegean Sea's navy. In the tenth century, Slavs who were forcefully settled in the Opsikion were seen serving on the Aegean Sea's ships, showing a sense of cooperation.<sup>69</sup> While this arrangement was not as detrimental to the authority of the Opsikion's *strategos* as Konstantinos V's reforms, it still further curtailed his authority from its once lofty position.

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<sup>66</sup> *Taktikon Uspenskij*, 52–53.

<sup>67</sup> Oikonomides, *Les listes de préséance byzantines*, 46–47.

<sup>68</sup> Hélène Ahrweiler, *Byzance et la mer: La marine de guerre, la politique et les institutions maritimes de Byzance aux VIIe–XVe siècles* (Paris: Presses universitaires de France, 1966), 76–79, 132–33.

<sup>69</sup> Ahrweiler, *Byzance et la mer*, 402.

## Other Efforts to Curb the Opsikion's Power

In addition to the creation of new strategides out of its landholdings, other efforts were undertaken to curtail the power of the Opsikion. The elevated titles of *komes* and *patrikios* for the commander were stripped away and replaced with titles such as *spatharios*, *protospatharios*, and *topoteretes*.<sup>70</sup> This decline in prestige was reflected in imperial court lists—the *Kletorologion* of Philotheos from 899, *Taktikon Benešević* of 934–44, and *Escorial Taktikon* of the 970s places them fourth in terms of the *strategoi*, below the Anatolikon, Armeniakon, and Thrakesion commanders.<sup>71</sup> The *strategos* also witnessed a reduction in his annual salary from forty pounds of gold to thirty pounds by the ninth century. This denied the *strategos* a useful source of revenue but, more importantly, dropped him to a secondary tier of compensation along with lesser administrative divisions such as the Boukellarion and Makedonia.<sup>72</sup> This was accompanied by a corresponding decline in the number of troops commanded by the *strategos*. The combined armies of the Boukellarion, Opsikion, and Optimaton in the ninth century could wield a combined force of around 18,000 troops which was a bit smaller than the original incarnation of the Opsikion.<sup>73</sup>

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<sup>70</sup> Brubaker and Haldon, *Byzantium in the Iconoclast Era*, 741; Theophanes, *Chronicle*, 438.12.

<sup>71</sup> *Kletorologion* of Philotheos, 100–1; *Taktikon Benešević*, 246–47; *Escorial Taktikon*, 264–65.

<sup>72</sup> *De Ceremoniis*, 494, 696–97.

<sup>73</sup> Haldon, *Warfare, State, and Society*, 314.

## The Geography Problem and Constantinople

Konstantinos V's reforms also addressed a pernicious problem relating to geographically fixed spatial bodies. Namely, whatever *strategos* was the closest to the seat of the emperor at Constantinople held an outsized influence over other *strategoï* simply due to proximity. As evidenced in the Opsikion, this disparity facilitated seditious activity. Yet, no matter how the strategides were subdivided, by default there was always a geographical neighbor to the imperial capital. So, while the Opsikion's power was curtailed by its division, that still left the new Optimaton geographically alongside the eastern border of Constantinople. It was certainly smaller than the Opsikion, only occupying 16 percent of its former footprint,<sup>74</sup> and lacked the historical social ties that facilitated the formation of opposition parties, but actions still had to be taken to ensure that this did not simply emerge over time as the new center of power.

To rectify this geographical problem, Konstantinos V implemented two distinct practices:

- 1) He took away the Optimaton's geographical advantage by stripping its administrative and military capabilities.
- 2) He created the *tagmata*, a military force loyal to the emperor and independent of the strategides to swiftly put down any rival claimants to the throne.

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<sup>74</sup> See table 5.1 "Theme Sizes."

## The Optimaton—Restricting Regional Power

Arising from Konstantinos V's division of the Opsikion in the 740s, the Optimaton constituted much of the western historical area of Bithynia. The bulk of it occupied the Mesothynia (modern Kocaeli Peninsula) with the Black Sea to the north and Sea of Marmara to the south. The Asian side of the Bosphorus served as the western border, terminating in the east at the Sangarios River.<sup>75</sup>

This placed the Optimaton directly adjacent to Constantinople. As evidenced by the Opsikion, such proximity to the imperial seat held the potential to foster a regional commander of immense power. While the Optimaton did not start out as an important powerbase, if left unchecked, there existed the possibility that it could one day pose a risk to Constantinople. The solution was to deprive the administrative unit of its core sources of power and transform it into an auxiliary in the sphere of Constantinople's orbit.

The most important administrative change was the reduction in the *strategos*'s authority. This was reflected in naming conventions. Unlike other strategides, and later the themes, the commander was typically referred to as a *domestikos*,<sup>76</sup> with the usual term *strategos* rarely applied.<sup>77</sup> Significantly, this appeared frequently in official correspondence, indicating a codified diminishment of its highest official. The term *domestikos* was not used in relation to the

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<sup>75</sup> *De Thematribus*, 124.

<sup>76</sup> Telemachos Lounghis, "The Decline of the Opsikian Domesticates and the Rise of the Domesticates of the Scholae," *Byzantine Symmeikta* 10 (1996): 27–36. The position of *domestikos ton scholon* took on an outsized role by the mid-ninth century as the ostensible commander-in-chief of the army, but this should not be conflated with the diminutive position that *domestikos* implied for the Optimaton's commander.

<sup>77</sup> DO 55.1.1248 "N., imperial *protospatharios* and *domestikos* of the Optimaton" (eighth century); DO 55.1.1210 "...ros, imperial *spatharios* and *domestikos* of the Optimaton" (ninth century); DO 58.106.1534 "Christophoros, imperial *protospatharios*, epi tou Chrysotriklinou, and *domestikos* of the Optimaton" (tenth century); DO 58.106.4633 "Nikephoros, *protospatharios* and *ek prosopou* of the *strategos* of the Optimaton" (eleventh century); DO 58.106.2358 "Nicholas, *ek prosopou* of the Optimaton" (ninth/tenth century). The *ek prosopou* here referring to an acting *strategos* for a vacant office to be filled.

commander of any other theme, but in the eighth century was reserved for the leaders of the *tagmata* groups such as the *exkoubitoi*, *hikanatoi*, *noumeroi*, and *scholai*. This aligned the Optimaton more closely with the imperial military retinue than as an independent administrative entity.<sup>78</sup> This connection was reinforced by the Optimaton having the position of the *topoteretes*, which in the *tagmata*'s hierarchy was the second in command to the *domestikos*.<sup>79</sup>

This diminishment of the Optimaton's status was reflected in its rank in the imperial hierarchy. The *Taktikon Benešević* of ca.934–44 and the *Escorial Taktikon* of the 970s ranked the Optimaton's commander below every single contemporary *strategos*.<sup>80</sup>

Another administrative aberration found after the creation of the themes in the early ninth century is the lack of any *tourma* and *tourmarches*, the subdivision and administrator below the theme and *strategos*, respectively. This was the only one of the themes to lack such a position, or comparable position, and was due to its proximity to Constantinople. To forestall the formation of any powerful and self-serving commanders, administrators from the capital played a larger role in local affairs. This was likely also the reason for the lack of any *droungarios*, a glaring omission for a maritime power, especially one that covered the eastern portion of the Bosphorus and a sizeable stretch of the Black Sea coastline.

These omissions were deliberate, as a litany of other officials of the civil administration remained identical to the other strategides. For example, Nicolas Oikonomides and John Nesbitt identified sigillographic evidence of such administrative titles as *anagrapheus*, *basilikos*, *chartouliarios*, judges, and *protonotarios* that were present in the Optimaton.<sup>81</sup> The deliberate

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<sup>78</sup> Lounghis, "Opsikian Domesticates," 27–36.

<sup>79</sup> DO 58.106.1628 "Theodore, imperial *spatharios* and *topoteretes* of the Optimaton" (ninth century).

<sup>80</sup> *Taktikon Benešević*, 248–49; *Escorial Taktikon*, 270–71.

<sup>81</sup> John Nesbitt and Nicolas Oikonomides, eds., *Catalogue of Byzantine Seals at Dumbarton Oaks and in the Fogg Museum of Art*, vol. 3, *West, Northwest, and Central Asia Minor and the Orient* (Washington, DC: Dumbarton Oaks, 1996), 117; Fogg 103 "Georgios Andreiomenos, judge and *anagrapheus* of the Optimaton" (eleventh

enfeeblement of the Optimaton did not escape the observation of contemporary authors, which the *De Thematibus* described this lack of *tourmai* as a clear indication of its inferior status.<sup>82</sup>

To compensate for the absence of these high positions, the Optimaton shared administrative duties with other types of appointed officials. Seals attest to the presence of two additional *strategoï* that fell within the geographical boundaries of the Optimaton, one corresponding to Euxeinos Pontos<sup>83</sup> and the other to Stenon.<sup>84</sup> Euxeinos Pontos referred to the Black Sea, in which this position held jurisdiction over the mouth of the Black Sea just north of Constantinople. Likewise, Stenon referred to the Bosphorus. This controlled the area south of the Euxeinos Pontos.<sup>85</sup> While these *strategoï* physically presided over land in the Optimaton, they were more closely associated with Constantinople. This is demonstrated by a seal of Stenon's *strategos*, who also listed his duty as a judge at Constantinople, known as the judge of the Velum.<sup>86</sup> The placement of these two *strategoï* belies their geographical strategic importance. Command of the strait connecting Constantinople to the Black and Mediterranean Seas was

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century); Fogg 2112 "Michael, *spatharokandidatos* and epi tou Chrysotriklinou of the Optimaton" (tenth/eleventh century); Fogg 455 "Nicholas, imperial *spatharios* and *chartoularios* of the Optimaton" (ninth/tenth century); DO 55.1.3347 "Gregory Taronites, *magistros*, *vestarches*, judge, and *doux* of the Optimaton" (eleventh century).

<sup>82</sup> Lounghis, "Opsikian Domesticates," 30; *De Thematibus*, 119.

<sup>83</sup> DO 47.2.994 "Ioannes Amiroopoulos, *patrikios* and *strategos* of Euxeinos Pontos" (tenth/eleventh century); Fogg 463 "Michael, *protospatharios*, *hypatos* and *strategos* of Euxeinos Pontos" (eleventh century).

<sup>84</sup> DO 47.2.255 "Konstantinos, *vestarches*, judge of the Velum, and *strategos* of the Stenon" (eleventh century); seal no. 234 "Konstantinos Chapse, *vestarches* and *strategos* of the Stenon (eleventh century), in Vitalien Laurent, *La collection C. Orghidan: Documents de sigillographie byzantine* (Paris: Presses Universitaires de France, 1952).

<sup>85</sup> DO 47.2.93 "Sergios, imperial *vestetor* and *kommerkiarios* of Pontos" (eighth/ninth century); Fogg 108 "Ioannes, (imperial?) *spatharokandidatos* and *kommerkiarios* of Hieron and Pontos" (tenth/eleventh century); Nesbitt and Oikonomides, *Catalogue of Byzantine Seals*, vol. 3; *De Administrando Imperio*, 53.524; Leon the Deacon, *History*, 94. The terms "Pontos" and Euxeinos Pontos" potentially referred to anywhere along the southern coast of the Black Sea, and indeed the *De Administrando Imperio* referred to a "Plagitika tou Pontou" regarding the littoral of the Armeniakon and the region further east in Paphlagonia. However, Nicolas Oikonomides and John Nesbitt interpreted the sigillographic data as placing it at the northern point of the Bosphorus where a *kommerkiarioi* would operate. They cite seals referring to a *kommerkiarios* at Pontos and another that mentions a *kommerkiarios* of both Hieron and Pontos. Hieron definitively was at the northern entry to the Bosphorus from the Black Sea; couple this with when Leon the Deacon referenced a *strategos* at the "Euxeinos and all the littoral," and this appears to be the better interpretation, especially when considering that the *strategos* of Stenon played a parallel role at the southern end of the Bosphorus.

<sup>86</sup> DO 47.2.255 "Konstantinos, *vestarches*, judge of the Velum, and *strategos* of the Stenon" (eleventh century); Nesbitt and Oikonomides, *Catalogue of Byzantine Seals*, 3:129.



critical for controlling the flow of commerce, with *kommerkiarioi* managing customs stations and collecting tolls on ships.<sup>87</sup> The threat of sea incursions from Islamic sources to the south and, by the mid-ninth century, from the Rus to the north, also warranted firm control of the region.

This added layer of command was warranted by the Optimaton's diminished military capabilities. The Optimaton held the distinction as the only one of the strategides to not have its own standing army. As military autonomy was a central element in the founding of the strategides, this came as a major departure. Instead of soldiers, the Optimaton supplied mules and mule drivers to pull the baggage train of the *tagmata*, the elite mobile troops created under Konstantinos V and controlled by the emperor.<sup>88</sup> With these actions, it shifted from a semi-independent offensive body to an auxiliary unit that responded to the demands of the emperor.

### **The *tagmata***

With the Optimaton administratively gutted and no longer capable of even fielding an army, the emperor had to fill this vacuum or else risk a neighbor such as the Opsikion or Boukellarion simply reemerging as a regional rival to the throne. This is where the second part of Konstantinos V's plan emerged, specifically in the development of the *tagmata*. While this did not contribute to the long-term stability of the empire as a whole, something that even the period

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<sup>87</sup> Nicolas Oikonomides, "The *Kommerkiarios* of Constantinople," in *Byzantine Constantinople: Monuments, Topography, and Everyday Life*, ed. Nevra Necipoglu (Leiden: Brill, 2001), 235–44.

<sup>88</sup> Brubaker and Haldon, *Byzantium in the Iconoclast Era*, 743.

of upheaval between 695–717 did not seriously affect,<sup>89</sup> this change was aimed at securing the personal survival of the individual emperor against potential rivals.

The *tagmata* were a formation of professional soldiers stationed in and around Constantinople. The idea of the *tagmata* preceded Konstantinos V, originating as an imperial guard. However, by the mid-eighth century, these units held little practical utility beyond a ceremonial role. Konstantinos V reorganized and expanded these troops into a dedicated contingent, with the objective of being loyal only to the emperor and capable of putting down a rebellion if one arose.<sup>90</sup> They first appeared in the sources in 765, but, like the division of the Opsikion, this was probably also in reaction to Artabasdos' usurpation attempt of 741/2.<sup>91</sup>

The *tagmata* consisted principally of cataphracts, a form of heavily armored cavalry. This enabled a greater range of mobility compared to a normal military division that had to account for slower infantry units. The *tagmata* were also maintained on a permanent basis, permitting the emperor to swiftly counteract any emergent internal threats, as well as the ability to reinforce Constantinople's defenses in the event of a strong external enemy. When the emperor wished to embark on a campaign, the *tagmata* constituted the core of the army, with the Optimaton hauling the baggage train, and other troops supplementing its ranks.<sup>92</sup> With the Optimaton lacking a standing army, the *tagmata* were garrisoned within its borders as well as in Thrace in the outskirts of Constantinople. The *tagmata's* success was also achieved without compromising the underlining geographical intent of the strategides, with them retaining sufficient autonomy to address external threats.

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<sup>89</sup> Kaldellis, *New Roman Empire*, 438.

<sup>90</sup> Haldon, *Byzantine Praetorians*, 228–35; Haldon, *Warfare, State, and Society*, 78.

<sup>91</sup> Brubaker and Haldon, *Byzantium in the Iconoclast Era*, 741.

<sup>92</sup> Brubaker and Haldon, *Byzantium in the Iconoclast Era*, 743.

Through these measures, Konstantinos V successfully defused the problem of the Optimaton's close proximity to the capital and turned the pernicious issue of geography into a personal asset for the emperor. The Optimaton served as the only overland route to Constantinople from the east, so total control of it successfully transformed a geographical liability into a protective asset. Just as the Taurus and Anti-Taurus frontier served as a buffer with the Islamic empires to the south and east, so too did the Optimaton buffer the emperor at Constantinople from machinations within Anatolia. The string of threats that challenged the emperor's hegemony during the late seventh and early eighth centuries from the Opsikion quickly evaporated, with no similar aggressions emerging out of the replacement Optimaton.

These measures alone, of course, did not bring a total cessation to acts of rebellion from commanders in Anatolia. But what they did do is provide the emperor with reassurances that a rebellion would not foment on his immediate doorstep and enabled a suitable response time when ones did arise deeper into Anatolia.

### **Thomas the Slav and the Role of the Opsikion's Loyalty**

With this litany of efforts to curtail the power of the Opsikion, how did these actions mitigate rebellions in practice? The revolt by Thomas the Slav in the 820s serves as a useful case study in this regard. This movement proved a major existential threat to the emperor, but exemplifies the success of the reorganized Opsikion and the layers of loyalty implemented to geographically insulate Constantinople.

Atypical for an uprising in Anatolia at this time, Thomas was the head of a *tourma* in the Anatolikon, not the *strategos*.<sup>93</sup> Thomas built an alliance by consolidating the outlying territories of Asia Minor, which included his core supporters from the Anatolikon, Thrakesion, as well as the maritime power of the Kibyrraiotai, whose ships ferried his troops from Asia Minor into Europe. The emperor Michael II retained the loyalty of the Armeniakon, Opsikion, and Optimaton, with the Opsikion under the control of his nephew Katakylas.<sup>94</sup>

The alliance formed by Thomas outstripped that of Michael II in military capacity, but his inability to secure the administrative units nearest to Constantinople proved key in his failure. Unable to assail Constantinople from the east, Thomas was forced to cross into Europe from the Thrakesion-controlled port of Abydos. With his eastern flank secure, Michael II was able to integrate the mobile *tagmata* and armies of the Opsikion and Armeniakon into Constantinople's defense. This granted his numerically smaller forces enough of an advantage to successfully defend the city.

Several factors contributed to Thomas's defeat, namely the insurmountable defenses of Constantinople, but as Paul Lemerle sets forth, Thomas's inability to control the critical Asian commanders adjacent to Constantinople allowed Michael II a source of reinforcements and supplies, to the detriment of Thomas's forces in Europe.<sup>95</sup> The reorganized template of mitigating provincial power first laid forth by Konstantinos V secured the loyalty of the eastern administrative units closest to the capital and enabled the imperial forces of Michael II to overcome the greatest rebellion of the ninth century.

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<sup>93</sup> Brubaker and Haldon, *Byzantium in the Iconoclast Era*, 634.

<sup>94</sup> Brubaker and Haldon, *Byzantium in the Iconoclast Era*, 634; Kaldellis, *New Roman Empire*, 398–99.

<sup>95</sup> Paul Lemerle, "Thomas le Slave," *Travaux et mémoires* 1 (1965): 297.

## Further Success in Reworking the Opsikion

After Konstantinos V's reforms of the mid-eighth century, two more rebellions of the Opsikion took place. These machinations against the emperor are not notable for their successes—in fact, both failed—but instead because they represented a notable drop off in attempts to usurp power.

In 866 the Opsikion's *strategos* Georgios Peganes commenced a rebellion against Michael III after Basil I was proclaimed co-emperor.<sup>96</sup> This action was spurred by Symbatios, the *strategos* of the Thrakesion. After the assassination of his father-in-law Bardas, Symbatios hoped to be elevated as a co-emperor but was sidelined in favor of Basil.<sup>97</sup> In previous centuries, an alliance consisting of the armies of the Opsikion and Thrakesion lands could have formed a formidable challenge to Constantinople. However, this rebellion, which fomented in the summer of 866, was summarily put down by the following winter, with its conspirators mutilated and exiled.<sup>98</sup>

Sometime between 928 and 932 a revolt fomented under Basil Chalkocheir against the emperor Romanos I Lekapenos.<sup>99</sup> Unlike the rebellion of Symbatios and Peganes, who commanded the themes from the highest level, this rebellion started from the ground up. In the 920s, Basil amassed a following by impersonating the deceased general Konstantinos Doukas. This uprising was forestalled by one of the Opsikion's *tourmarches* who had him arrested and tried by the Eparch of Constantinople, resulting in the loss of his hand as punishment. By the end of the 920s, Basil resumed his dissent within the Opsikion, amassing another following and seizing the stronghold of Plateia Petra, from which he pillaged the surrounding areas. This time,

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<sup>96</sup> Skylitzes, *Synopsis*, 128–29.

<sup>97</sup> Skylitzes, *Synopsis*, 112–13.

<sup>98</sup> Skylitzes, *Synopsis*, 129.

<sup>99</sup> Skylitzes, *Synopsis*, 220.

the imperial army intervened and the revolt was decidedly extinguished with Basil's execution at the Amastrion.

These two rebellions exemplify the success of the Opsikion's revised structure. First, the combined strengths of the downgraded Opsikion and Thrakesion *strategoi* was not sufficient enough to pose an existential threat to the emperor at Constantinople, even during an uneasy succession. And second, the threat of popular uprisings was likewise manageable when the theme's army was coupled with reinforcements from the emperor. This effectively negated the two principal routes of sedition.

Over the span of nearly three centuries, from the 770s to the 1050s, no additional large-scale rebellions arose from the Opsikion. Compare this to the first century of the Opsikion's existence when eight sizeable uprisings occurred between 668 and 766, leading to the usurpation of five emperors. Certainly, this is not a direct apples-to-apples comparison, as a number of other factors can come into play to strengthen or weaken a government's efficacy. But the sheer incongruity of the number and magnitude of these events makes it undeniable that the reconfiguration of the Opsikion played a crucial role in this dramatic change.

## CHAPTER 2—THE THEMES

### The Emergence of the Theme System

Up to this point, the strategides functioned in a military capacity, leaving the civil administrative operations in the hands of provincial officials, with the two spatial entities functioning in parallel. As Haldon and Brubaker contend, a powerful individual *strategos* could wield de facto control over elements of the civil administration within his territory simply due to his outsized military function, but de jure authority relegated him to a separate command sphere.<sup>1</sup>

This changed in the early ninth century, when the emperor Nikephoros I combined military and civil functions under a single spatial administrative body known as the themes. Despite Theophanes indirectly attributing the presence of the themes to Herakleios,<sup>2</sup> Zuckerman has convincingly argued that such a reference is anachronistic and that there is no other source attesting to the themes before the second decade of the ninth century.<sup>3</sup> Instead, Zuckerman points to a series of fiscal measures enacted by Nikephoros I in 809/810 as the impetus for the formation of the themes.<sup>4</sup> The first reform forcibly took soldiers from Anatolia and resettled them in other regions of the empire deemed pertinent for strategic operations. The second reform restructured the payment system of the army. Soldiers were now enrolled into the army with part of the fiscal burden transferred from the central government to the communities from which the recruits resided. Troops that could not afford to pay for military equipment were financed by

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<sup>1</sup> Brubaker and Haldon, *Byzantium in the Iconoclast Era, 734*.

<sup>2</sup> Theophanes, *Chronicle*, 303.10.

<sup>3</sup> Constantin Zuckerman, "Learning from the Enemy and More: Studies in "Dark Centuries" Byzantium," *Millennium 2* (2005): 128.

<sup>4</sup> Zuckerman, "Learning from the Enemy," 125–34.

taxes collectively raised from their own cities and villages. These reforms had the effect of combining the civil and military authority under the command of the *strategos*, dismantling the provincial structures and replacing the strategides with the themes.<sup>5</sup>

As Živković has attributed the creation of the *Taktikon Uspenskij* to the reign of Michael I (811–13), this listing of multiple themes indicates that the new administrative system was quickly and fully implemented across the empire's territories within a handful of years.<sup>6</sup> The first decades of the ninth century also witnessed the establishment of several officials tied directly to the themes (*chartoularioi*, *dioiketai*, *epoptai*, *protonotarioi*, and *strateutai*), further proof of the speed with which the thematic system replaced and dominated the civil and military structure of Anatolia.<sup>7</sup>

### **Administrative Divisions under the Theme System**

The curtailment of the Opsikion's power is the most prominent example of dividing up an administrative unit for strategic purposes, but it was not the only occurrence. Divisions and realignments throughout Anatolia continued in earnest after the establishment of the theme system to facilitate governance over the eastern half of the empire. As follows are the more consequential realignments up to the early tenth century.

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<sup>5</sup> Brubaker and Haldon, *Byzantium in the Iconoclast Era*, 744–50.

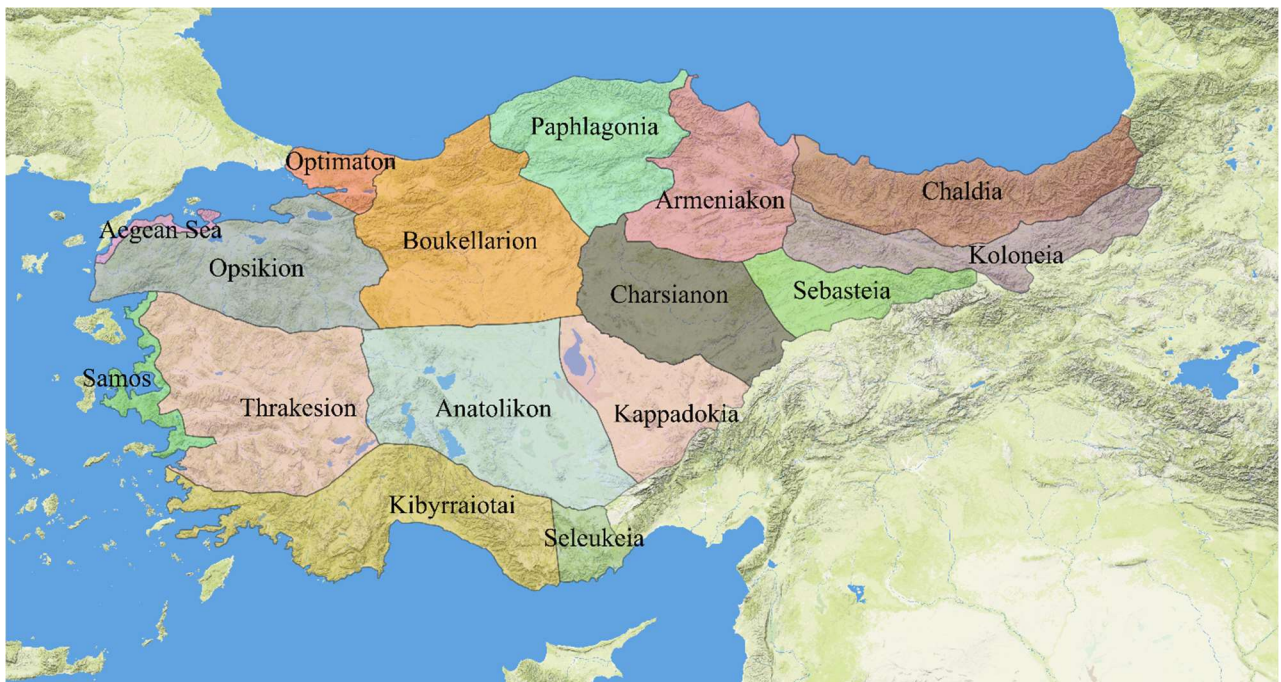
<sup>6</sup> The date of the *Taktikon Uspenskij* is derived from the revised dating of Tibor Živković, "The Date of the Creation of the Theme of Peloponnese," *Byzantina Symmeikta* 13 (1999): 141–55; Brubaker and Haldon, *Byzantium in the Iconoclast Era*, 752.

<sup>7</sup> Friedhelm Winkelmann, *Byzantinische Rang- und Ämterstruktur im 8. und 9. Jahrhundert: Faktoren und Tendenzen ihrer Entwicklung* (Berlin: Akademie-Verlag, 1985), 125–35.





MAP 2.1. The Anatolian strategides before divisions (approximation)



MAP 2.2. The administrative makeup of Anatolia after divisions

## Thrakesion

The Thrakesion survived relatively intact compared to the other original strategides of the Anatolikon, Armeniakon, and Opsikion. This was due to its geographic location in the western portion of Asia Minor. It neither directly bordered Constantinople, as in the case of the Opsikion, nor was it positioned along the active military frontier like the Anatolikon and Armeniakon. This unique station permitted a different approach to check its outsized powers by means other than geographic diminishment.

Konstantinos V undertook the first important measures against the prominence of the Thrakesion, not by redefining its borders but through administrative restructuring, seeking to ensure its loyalty by personally selecting several of its *strategoi*. The most notable appointment being the elevation of Michael Lachanodrakon who demonstrated staunch loyalty.<sup>8</sup> By such means, the emperor skirted the necessity of having to create new administrative units and their accompanying administrative structure.

The authority of the Thrakesion was also curtailed by diminishing its military function. With the recession of a direct Islamic threat to Constantinople and the formation of a stronger presence along the Kilikian frontier, by the late eighth century the Thrakesion was no longer an important military bulwark. This made it feasible to curtail or redirect its military capabilities, effectively reducing the risk of rebellious *strategoi* without the worry of not having an effective fighting force against external threats. In addition, instead of leaving large numbers of troops

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<sup>8</sup> Theophanes, *Chronicle*, 440, 451; BZS.1947.2.181 “Michael [Lachanodrakon], *patrikios*, imperial *protospatharios*, and *strategos* of the Thrakesion” (eighth century).

internally with a drastically reduced local utility, they were dispatched on expeditions. The most notable of these were against Muslim-held Crete in 911, 949, and 960.<sup>9</sup>

### *Samos*

The only significant reduction in the Thrakesion's territory came with the creation of Samos. The Thrakesion's relationship with Samos closely parallels that of the Opsikion to the Aegean Sea. The Samos Theme was first attested in the *Kletorologion* of Philotheos in 899 and was formed at some point during the second half of the ninth century.<sup>10</sup> It constituted the littoral portion of the Thrakesion Theme from Adramyttion in the north to at least Samos in the south, where it bordered the Kibyrraiotai Theme. This consisted of the bulk of Anatolia's western coast, with the Aegean Sea Theme responsible for the remainder to the north. Like the Aegean Sea and Kibyrraiotai Themes, this was established as a mechanism for defending the coast of Asia Minor and its outlying islands.

Also akin to those administrative units, Samos had a territorially shared relationship with its neighbor, with Samos responsible for defense of the coastline and the Thrakesion fielding responsibility for defense of the mainland. This is evidenced in Samos' *strategos* being based at

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<sup>9</sup> Leon the Deacon, *History*, 62.

<sup>10</sup> *Kletorologion* of Philotheos, 100–1; John Nesbitt and Nicolas Oikonomides, eds., *Catalogue of Byzantine Seals at Dumbarton Oaks and in the Fogg Museum of Art*, vol. 2, *South of the Balkans, the Islands, South of Asia Minor* (Washington, DC: Dumbarton Oaks, 1994), 134–35. No mention is given in the *Taktikon Uspenskij* (early ninth century) of a Samos Theme, which creates a potential terminus post quem for its formation. Nicolas Oikonomides and John Nesbitt postulate that a naval *strategos* potentially resided on the island of Samos but was abolished after the realignment of the navy during the creation of the Kibyrraiotai in the early eighth century. Then a new incarnation of Samos appeared in the later ninth century, which now encompassed the coastal portion of the Thrakesion Theme. Either way, the Samos Theme did not affect the landholdings of the Thrakesion Theme until the second half of the ninth century.

Smyrna with two *tourmarches* at Adramyttion and Ephesos,<sup>11</sup> the key port cities of the region. However, at least in the ninth century, the Thrakesion also had a *tourmarches* at Adramyttion. This indicates a geographical overlap of administrative duties with each theme responsible for disparate military objectives.<sup>12</sup> In contrast, the *tourma* of Ephesos, according to the *De Thematibus*, was under the sole control of the Samos Theme due to its negligible importance outside of its naval capabilities.<sup>13</sup> The preponderance of seals depicting military officials at Samos in comparison to a dearth of civilian administrators hints at these day-to-day tasks being carried out by the Thrakesion's functionaries, lending credence to the necessity of Thrakesion officials in cities ostensibly under Samos' *strategos*.<sup>14</sup>

Ultimately, the formation of Samos was not intended to hinder an overpowered Thrakesion by depriving it of territory and an outlet to the sea. Instead, it reflected an evolving system, consolidating and reorganizing its maritime forces to more efficiently field a navy against external threats.

## **Anatolikon**

As previously mentioned, the Anatolikon's first reduction of territory was for the creation of the naval Kibyrraiotai in the early eighth century along the southern Mediterranean coast.

Konstantinos V's sweeping reforms in the mid-eighth century left the Anatolikon largely untouched. This was potentially a result of it serving as Konstantinos V's refuge and main source

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<sup>11</sup> *De Thematibus*, 160.

<sup>12</sup> DO 58.106.3023 "Anthes, imperial *spatharios* and *tourmarches* of Adramyttion" (eighth/ninth century).

<sup>13</sup> *De Thematibus*, 158.

<sup>14</sup> Nesbitt and Oikonomides, *Catalogue of Byzantine Seals*, 2:131.

of support during Artabasdos' usurpation.<sup>15</sup> During his tenure as emperor, the personal loyalty afforded by it proved an asset, therefore making a reduction of its territory counterproductive.

This calculus changed with the formation of the *kleisoura* of Kappadokia out of the eastern and south-eastern portions of the Anatolikon along the frontier zone, perhaps around 806–13, before being elevated to the status of full theme within two decades. This new theme of Kappadokia was centered around Lake Tatta (modern Lake Tuz) with Koron as its capital. Prior to this, Kappadokia was attested as a *tourma* of the Anatolikon, so its separation required no major additional realignments.<sup>16</sup> This division must have occurred early in Theophilos's reign because the first *strategos* of Kappadokia is mentioned in 830, just a year after he became emperor, suggesting its reformation as a priority.<sup>17</sup>

The final major change to the Anatolikon came under Leon VI (r.886–912) as part of a strategic realignment. The Anatolikon and Boukellarion ceded the region north and west of Lake Tuz to Kappadokia which formed the *tourma* of Kommata.<sup>18</sup> In turn, Kappadokia's *tourma* of Kasa and the *bandon* of Nyssa were made part of Charsianon to expand its importance as a bulwark along the frontier.

The diminishment of the Anatolikon mirrors its role as a bastion against threats from the Islamic frontier. As part of the original strategides, it took the brunt of Islamic raids and served as the principal conduit from which counterattacks were amassed by way of the Taurus Mountains. The creation of Kappadokia had the dual effect of curtailing the Anatolikon's size by about a third, from 86,000 km<sup>2</sup> to 58,300 km<sup>2</sup>, while maintaining military efficacy around Kilikia. Unlike the earliest strategides, which assumed a more uniformly square shape,

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<sup>15</sup> Brubaker and Haldon, *Byzantium in the Iconoclast Era*, 158.

<sup>16</sup> *De Administrando Imperio*, 50.11.90–91; *Taktikon Uspenskij*, 54–55.

<sup>17</sup> Kountoura-Galake et al., *Μικρά Ασία των θεμάτων*, 262.

<sup>18</sup> *De Administrando Imperio*, 50.101–10; Klaus Belke, *Tabula Imperii Byzantini*, vol. 4, *Galatien und Lykaonien* (Vienna: Verlag der Österreichischen Akademie der Wissenschaften, 1984), 118, 135, 137, 143, 193.

Kappadokia was elongated in a rectangular shape that afforded it a reduced presence along the frontier. This aligns with the other administrative units along the Kilikian front (Anatolikon, Charsianon, and Seleukeia) having an elongated shape and a reduced border with Islamic-held territory. This redistributed the burden of defending the frontier from the Anatolikon alone to four themes that could work in concert.

These changes resulted in a reduction of the Anatolikon's strategic importance. It still held prominence in the imperial ranking of *strategoi*,<sup>19</sup> but its position as an important military bulwark was now shared with Charsianon, Kappadokia, and Seleukeia (elevated to a theme under Romanos I).<sup>20</sup> This curtailed authority was reflected in its diminished role in fomenting internal rebellions. After Thomas the Slav's failed efforts in the 820s, the Anatolikon would not play a role in any significant rebellions until 1022 when its *strategos* Nikephoros Xiphias unsuccessfully conspired against Basil II.<sup>21</sup>

## **Armeniakon**

The Armeniakon located in the northeastern extreme of Asia Minor was another one of the original strategides that derived its power from its size and strategic position along the frontier. Like the Opsikion, it proved active in several revolts during the eighth century, aligning with Leon III during his rebellion in 715, with Artabasdos in 742, and against Irene in 790.<sup>22</sup> As a consequence of these actions, coupled with an expanding Byzantine presence into the eastern

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<sup>19</sup> He is ranked fourth in prominence among the *strategoi* in the *Kletorologion* of Philotheos, *Taktikon Benešević*, and *Escorial Taktikon*; *Kletorologion* of Philotheos, 100–1; *Taktikon Benešević*, 246–47; *Escorial Taktikon*, 264–65.

<sup>20</sup> *De Thematibus*, ed. Pertusi, 147–48.

<sup>21</sup> Skylitzes, *Synopsis*, 346.

<sup>22</sup> Brubaker and Haldon, *Byzantium in the Iconoclast Era*, 159.

frontier, the Armeniakon underwent significant divisions and loss of territory during the ninth century. To best understand the division of Armeniakon into smaller theme, each resulting administrative body will be discussed separately here.

- **Charsianon.** Initially, Charsianon served as a *tourma* of the Armeniakon, constituting the southwestern portion, and named after the eponymous fortress. Seals indicate this region was granted autonomy during the first half of the ninth century when it was raised to the rank of a *kleisoura*.<sup>23</sup> It was not until sometime between 863–72 that it was granted the status of a full theme.<sup>24</sup>

Uncommon in the creation of new themes, Charsianon derived from portions of the Armeniakon, Boukellarion, and Kappadokia.<sup>25</sup> This was part of the realignment of Kappadokia and the pivoting from the Anatolikon and Armeniakon’s responsibility for defense along Asia Minor’s entire eastern frontier, to an array of eight smaller themes, nimbler in their responses. This division was more difficult than performing the conventional one-to-one conversion of a *tourma* into a new theme but was clearly deemed necessary for the strategic purposes of frontier defense.

- **Chaldia.** Chaldia initially served as the northeastern-most *tourma* of the Armeniakon, comprising the eastern area of the Pontic Alps and running along the Black Sea coast, with the important coastal city of Trebizond under its jurisdiction.<sup>26</sup> Chaldia rose to the

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<sup>23</sup> DO 55.1.1284 “N., *kleisourarches* of Charsianon” (ninth century).

<sup>24</sup> *De Administrando Imperio*, 50–90; Theophanes Continuatus, 181.6–182.20; Skylitzes, *Synopsis*, 101; Kountoura-Galake et al., *Μικρά Ασία των Θεμάτων*, 299; Oikonomides, *Les listes de préséance byzantines*, 348. In 863, the head of the region’s troops is called a *kleisourarches*, but it is not until 872 that the first mention of a *strategos* is given.

<sup>25</sup> McGeer, Nesbitt, and Oikonomides, *Catalogue of Byzantine Seals*, 4:107.

<sup>26</sup> McGeer, Nesbitt, and Oikonomides, *Catalogue of Byzantine Seals*, 4:85; Oikonomides, *Les listes de préséance byzantines*, 349; *De Thematribus*, ed. Pertusi, 73, 137–39; Kountoura-Galake et al., *Μικρά Ασία των Θεμάτων*, 287–97, 459–68.

status of a full theme by the second decade of the ninth century, according to its inclusion in the *Taktikon Uspenskij*.<sup>27</sup>

- **Koloneia.** Like most frontier districts, this former portion of the Armeniakon may have started as a *kleisoura*.<sup>28</sup> It was elevated to a theme with a *strategos* by 863.<sup>29</sup> The theme was centered around its capital, the city of Koloneia, and, according to the *De Thematibus*, also included Neokaisareia (modern Niksar), Arabrakanoi (likely modern Ardos), and Nikopolis (Pürk), as well as sixteen fortresses.<sup>30</sup>
- **Sebasteia.** Sebasteia as an independent entity is not referenced before the early tenth century, with its first mention as a *kleisoura* in 908 and a theme in 911.<sup>31</sup> This former portion of the Armeniakon guarded the frontier along the middle course of the northern Euphrates River and was based around the city of Sebasteia (modern Sivas). The decision to form the theme likely stemmed from defensive purposes and, by the late tenth century, was further buttressed along its eastern front with the minor themes of Melitene, Samosata, and Tephrike.

Ultimately, the Armeniakon was divided to produce or contribute to four additional administrative units. The Armeniakon experienced the most significant reduction of all the initial strategides, losing over 80 percent of its landholdings. The Armeniakon no longer shared a border with the frontier, with its extent now consisting of just the original northwestern section

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<sup>27</sup> *Taktikon Uspenskij*, 48–49; Živković, “Theme of Peloponnese,” 141–55.

<sup>28</sup> Oikonomides, *Les listes de préséance byzantines*, 349; Anthony Bryer and David Winfield, *The Byzantine Monuments and Topography of the Pontus* (Washington, DC: Dumbarton Oaks Research Library and Collection, 1985), 147.

<sup>29</sup> McGeer, Nesbitt, and Oikonomides, *Catalogue of Byzantine Seals*, 4:125; Oikonomides, *Les listes de préséance byzantines*, 349.

<sup>30</sup> *De Thematibus*, 133–34; Bryer and Winfield, *Topography of the Pontus*, 147.

<sup>31</sup> *Taktikon Benešević*, 246–47; McGeer, Nesbitt, and Oikonomides, *Catalogue of Byzantine Seals*, 4:128; *De Thematibus*, ed. Pertusi, 142. This was included in the listings of the *Taktikon Benešević* but not the *Kletorologion* of Philotheos.



along the Black Sea. Unlike with the Opsikion, where the decision for its breakup was explicit, the reasons for dividing the Armeniakon are not as clear. However, the reasons fall in line with the general strategic shifts along the eastern frontier, with the creation of smaller and more versatile administrative entities that could more quickly respond to external threats. That this simultaneously removed the Armeniakon as an effective source of internal dissent provided only further incentive for such actions.

### **Kibyrraiotai**

Predicated on the maritime defense of Anatolia's southern coast, the Kibyrraiotai largely maintained this focus and, consequently, retained most of its original territorial extent. The only major change occurred with the creation of Seleukeia out of its eastern portion to adjust to a changing strategic reality along the frontier. After the eighth century, Islamic forces took control of the strategic region of Kilikia, placing pressure on reorganizing the region of Seleukeia for the defense of the frontier.

This new administrative unit was situated around the eponymous city of Seleukeia (modern Silifke) and was initially elevated to the status of a *kleisoura*, which is attested in the first half of the ninth century, before finally attaining the status of theme somewhere between 927–34 under Romanos Lekapenos.<sup>32</sup>

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<sup>32</sup> *De Thematribus*, ed. Pertusi, 147–48; Friedrich Hild and Hansgerd Hellenkemper, *Tabula Imperii Byzantini*, vol. 5, *Kilikien und Isaurien* (Vienna: Verlag der Österreichischen Akademie der Wissenschaften, 1990), 402–6; Oikonomides, *Les listes de préséance byzantines*, 350.

Despite the reapportionment of the Kibyrraiotai to buttress the landward section of the frontier, the new Seleukeia Theme was organized to still maintain coastal security. The theme was divided into two distinct commands, one for the land and one for the maritime portion, with a naval detachment commanded by a *droungarios*.<sup>33</sup> Korykos (modern Kizkalesi) also served as an important naval base and seat of a *tourma*.<sup>34</sup>

## **Boukellarion**

Carved out of the initial mid-eighth century breakup of the Opsikion, the Boukellarion itself underwent further reductions to its landholdings. In the 820s the eastern half was broken off to create Paphlagonia, with first mention of a *strategos* dating to 826.<sup>35</sup>

The loss of territory to Paphlagonia proved to be the largest change to the Boukellarion, but it faced one additional reduction under Leon VI. In the early tenth century, seven southern and southeastern *banda* were removed and reassigned to the frontier themes of Charsianon and Kappadokia.<sup>36</sup> This resulted in the loss of areas around Lake Tuz and the portion east of the Halys River. Not a considerable loss of land, but a certain indication of the Boukellarion's waning importance in contrast to the expanding roster of frontier themes.

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<sup>33</sup> *De Thematribus*, ed. Pertusi, 147–48.

<sup>34</sup> DO 58.106.4484 “Michael, imperial *spatharios* and *tourmarches* of Korykos” (tenth century); DO 58.106.5274 “Kalos, imperial *spatharokandidatos* and *tourmarches* of Korykos” (tenth century).

<sup>35</sup> Kountoura-Galake et al., *Μικρά Ασία των θεμάτων*, 276; Oikonomides, *Les listes de préséance byzantines*, 349; *De Thematribus*, ed. Pertusi, 136–37; The first reference to the theme is found in Michael Stoudites, *The Life of Theodore Stoudites*, col. 1284A–B.

<sup>36</sup> *De Administrando Imperio*, 50.98–100.

## **Purpose of the Divisions**

The initial impetus for dividing the strategides sprung from the desire to curtail the power of the individual *strategoi* and quell internal dissent. This is why the earliest divisions were targeted at undermining the power of the Opsikion. With the advent of the themes in the early ninth century, the focus of administrative divisions largely shifted to securing and expanding the eastern frontier. The Seleukeia Theme was created out of the Kibyrraiotai Theme to fortify the Kilikian front. The Kappadokia and Charsianon Themes were also created to buttress security along the northern side of the Taurus Mountains. Likewise, the maritime themes of the Aegean Sea and Samos were formed to forestall a sea invasion of Anatolia and to facilitate Byzantine hegemony in the Aegean and Mediterranean Seas.

The shift from having only the Anatolikon and Armeniakon maintaining frontier defense to having the responsibility shared by the Anatolikon, Chaldia, Charsianon, Kappadokia, Koloneia, Sebasteia, and Seleukeia helped with organizing and ensuring a proper defense. These new and reworked themes each had a smaller footprint along the frontier, which allowed their respective armies to increase operational flexibility and more quickly address hostile incursions. For example, the initial incarnation of the Anatolikon Theme had a presence along the frontier of roughly 190 kilometers, and the Armeniakon Theme with an even longer border of approximately 800 kilometers, the defense of which proved to be a complex operation. In contrast, the revised Anatolikon Theme's frontier border extended about 60 kilometers, roughly in line with the border length for the other neighboring themes of Charsianon and Seleukeia.

## Conclusion

Under its original incarnation, Anatolia consisted of five strategides: the Anatolikon, Armeniakon, Kibyrraiotai, Opsikion, and Thrakesion. Konstantinos V's reforms brought the total to seven by adding the Boukellarion and Optimaton. By the early tenth century, the series of internal divisions resulted in sixteen administrative units. On top of the original strategides, this included the Aegean Sea, Chaldia, Charsianon, Kappadokia, Koloneia, Paphlagonia, Samos, Sebasteia, and Seleukeia.

The original strategides occupied approximately 479,100 km<sup>2</sup> of land, making each roughly 95,800 km<sup>2</sup>. With only a minor amount of new territory acquired and incorporated into Charsianon during this timeframe, this left these newly organized territories virtually the same footprint as the original ones. This resulted in the territorial average for each theme dropping to approximately 34,200 km<sup>2</sup>. This exemplifies the amount of change the system experienced and the willingness of the imperial administration to undertake such restructurings to facilitate their goals. The efficacy of having smaller themes was deemed preferable, as themes were subdivided freely but never combined to form larger ones. This trend of making smaller, more flexible themes, along with a renewed focus on the eastern frontier only accelerated with the acquisition of new territories during the tenth century and serves as the defining feature of the third and final stage of thematic development.

## CHAPTER 3—THE DUCATES/KATEPANATES AND MINOR THEMES

### Introduction

Following the series of internal realignments discussed in chapter 2, administrators viewed the system as effective enough to satisfy their objective of defending against external threats without sacrificing internal stability. Occasional thematic divisions continued when administrative expediency warranted, but no major overhaul of the system was undertaken. This satisfaction with the system's performance continued until disruptive events that commenced in earnest in the 960s demanded substantive changes to the very idea of what constituted a theme.

This overhaul marked the third and final stage of administrative development. It was a period characterized by the fracturing of this status quo, in which the Byzantine Empire pivoted from a defensive footing and gained the capacity to engage in a sustained and successful period of military conquests.

The success of these conquests and the accompanying transformation of the theme system was contingent upon two major changes that arose in the late tenth century: the revitalization of the Byzantine military accompanied by the weakening of centralized authority in the Islamic world.

## A Half-Century of Military Prowess

For over half a century, the empire found itself under the governance of emperors skilled in warfare and eager to expand their borders.<sup>1</sup> Most notably this included: Nikephoros II Phokas (r.963–69), Ioannes Tzimiskes (r.969–76), and Basil II (r.976–1025). Nikephoros II Phokas began these conquests in earnest by completing the long-desired seizure of Kilikia in 963–65, taking the important centers of Tarsos and Aleppo from the Hamdanids.<sup>2</sup> This substantial weakening of the Hamdanids at Aleppo provided an opening for subsequent advances. In the early 970s, Ioannes Tzimiskes invaded Upper Mesopotamia, seizing territory from the de facto regional power, the Hamdanid Emir of Mosul, Abu Taghlib.<sup>3</sup> Then in 975, Tzimiskes turned south towards Syria, extending control over the entirety of the Levantine Mediterranean coast from Antioch down to Balaneos.<sup>4</sup> While some of these lands were lost during the rebellions of Bardas Skleros and Bardas Phokas during the 970s and 980s,<sup>5</sup> Basil II reinitiated the series of conquests by reasserting authority over Aleppo and encroaching into Fatimid controlled portions of the Levant.<sup>6</sup> This brought the Byzantine Empire to its largest territorial extent since the initial Islamic conquests of the seventh century.

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<sup>1</sup> Oikonomides, *Les listes de préséance byzantines*, 350, 359–60; Friedrich Hild and Marcell Restle, *Tabula Imperii Byzantini*, vol. 2, *Kappadokien (Kappadokia, Charsianon, Sebasteia und Lykandos)* (Vienna: Verlag der Österreichischen Akademie der Wissenschaften, 1984), 86. The 930s mark the earliest appearance of new administrative units in the form of the minor themes derived from military acquisitions. Tephrike/Leontokome was given a *strategos* sometime between 934–44, and Asmosaton (modern Aşmuşat) and Chozanon were conquered in 938 and elevated to the status of theme at some point thereafter, with firm attribution for Chozanon in 956.

<sup>2</sup> Skylitzes, *Synopsis*, 258–60; William Garrood, “The Byzantine Conquest of Cilicia and the Hamdanids of Aleppo, 959–965,” *Anatolian Studies* 58 (2008): 127–40.

<sup>3</sup> Anthony Kaldellis, *Streams of Gold, Rivers of Blood: The Rise and Fall of Byzantium, 955 A.D. to the First Crusade* (Oxford: Oxford University Press, 2017), 74–79.

<sup>4</sup> Matthew of Edessa, *Chronicle*, 1.19–21.

<sup>5</sup> Michael Psellos, *Chronographia*, 1.6–18.

<sup>6</sup> Seta Dadoyan, *The Fatimid Armenians: Cultural and Political Interaction in the Near East* (Leiden: Brill, 1997), 109; Yaacov Lev, “The Fatimids and Byzantium, 10th–12th Centuries,” *Graeco-Arabica* 6 (1995): 190–208; Paul Stephenson, *The Legend of Basil the Bulgar-Slayer* (Cambridge: Cambridge University Press, 2010), 32.

## A Decline in the Islamic World

The success of these conquests was contingent upon not just the strength of the Byzantine Empire, but also the decline of a unified Islamic world capable of forestalling such pressures. From its inception in the mid-eighth century, the Abbasid Caliphate served as Byzantium's most persistent threat along the eastern frontier, sustaining pressure through annual raids. However, by the mid- to late-ninth century, Abbasid control over its peripheral territories began to wane as a result of internal infighting.<sup>7</sup> This abatement of centralized authority led to the formation of autonomous and semi-autonomous emirates along the frontier of what is now Syria and Northern Iraq.

One prominent example is the emergence of the Hamdanid Emirate of Aleppo in the mid-tenth century.<sup>8</sup> Although the Hamdanids initially ruled in the name of the Abbasids, the dynasty ultimately exerted de facto control over much of the Kilikian frontier, reaching its apogee under Sayf al-Dawla (r.945–67). Islamic control over the frontier only grew more convoluted, and consequently diluted, with the emergence of the Uqaylids and Marwanids in the late tenth century.<sup>9</sup>

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<sup>7</sup> Tayeb El-Hibri, *The Abbasid Caliphate: A History* (Cambridge: Cambridge University Press, 2021), 143, 292; Matthew Gordon, *The Breaking of a Thousand Swords: A History of the Turkish Military of Samarra (A.H. 200–275/815–889 C.E.)* (Albany, New York: State University of New York Press, 2001); Hugh Kennedy, *When Baghdad Ruled the Muslim World: The Rise and Fall of Islam's Greatest Dynasty* (Boston: Da Capo Press, 2005), 261–96.

<sup>8</sup> Hugh Kennedy, *The Prophet and the Age of the Caliphates: The Islamic Near East from the Sixth to the Eleventh Century* (New York: Routledge, 2022), 252–67.

<sup>9</sup> Beatrice Forbes Manz, *Nomads in the Middle East* (Cambridge: Cambridge University Press, 2021), 73–77; Thomas Ripper, *Die Marwāniden von Diyār Bakr. Eine kurdische Dynastie im islamischen Mittelalter* (Würzburg: Ergon Verlag, 2000).

This decline in centralized command reached an inflection in 965 when the Buyid Dynasty took control of Baghdad, effectively turning the Abbasid Caliph into a figurehead.<sup>10</sup> Divided into three courts at Baghdad, Ray, and Shiraz, Buyid control proved to be even more fractured and less centralized than their predecessors, making this an ideal moment of vulnerability which the Byzantine Empire was able to exploit.

The resultant Byzantine conquest of new territory in the east, the first appreciable gains since the formation of the themes, necessitated a revised approach for how to administer its landholdings. It is this rapid expansion in the wake of territorial conquests that characterizes this final stage of the theme system: a period marked by a reduction in the size of these new themes, a considerable expansion to the number of themes, and the emergence of the ducates/katepanates as a means of organizing these new themes.

### **The Minor Themes**

One of the most significant spatial administrative changes during the late tenth and early eleventh centuries was the creation of the minor themes. These new themes, mainly derived from recently conquered lands, were accorded the same administrative titles as the Roman Themes, but differed in several key ways. Most strikingly, unlike the original themes and those formed during the period of thematic reformation, these minor themes were significantly smaller in size,

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<sup>10</sup> Roy Mottahedeh, *Loyalty and Leadership in an Early Islamic Society* (Princeton: Princeton University Press, 1980); John Donohue, *The Buwayhid Dynasty in Iraq 334 H./945 to 403 H./1012: Shaping Institutions for the Future* (Boston: Brill, 2003).



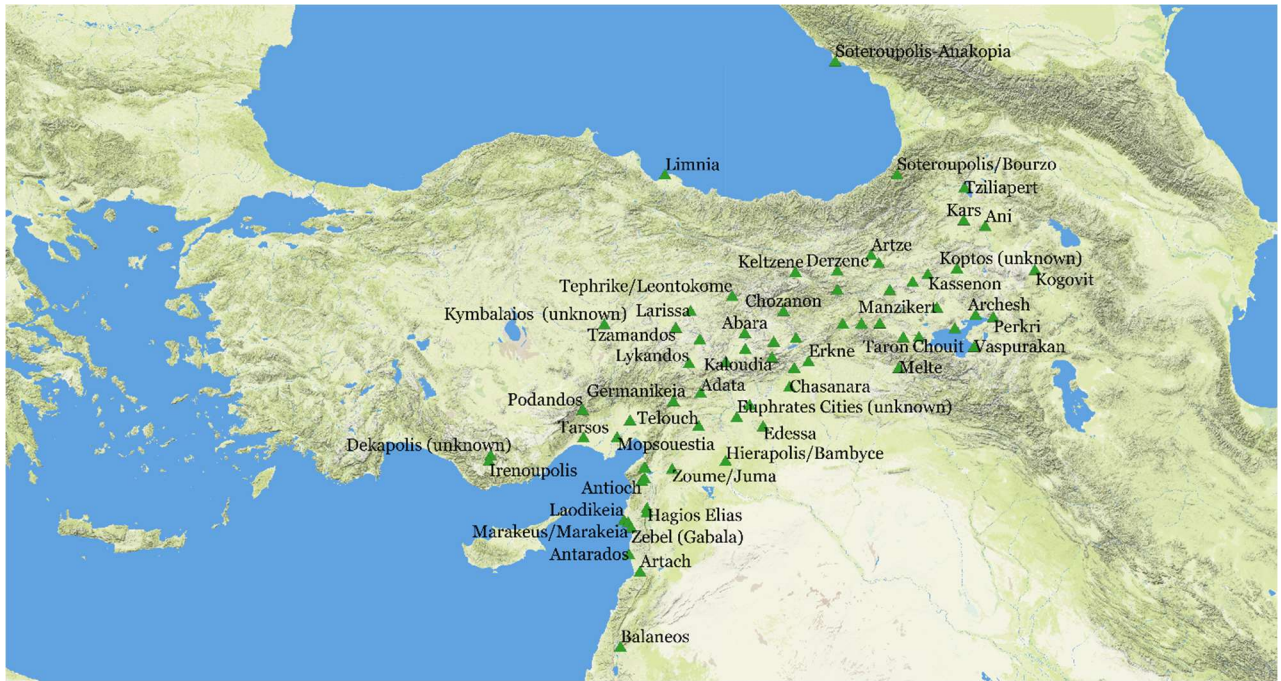
generally coalescing around a single city or fortification. This meant that their administrative structure also differed in terms of size and strategic purpose.

Such a radical departure from the preceding thematic structure warrants an in-depth inquiry into the minor themes. The remainder of this chapter details the organizational structure of the minor themes by describing their common features and placing them within the context of the wider Byzantine administrative shift of the period.

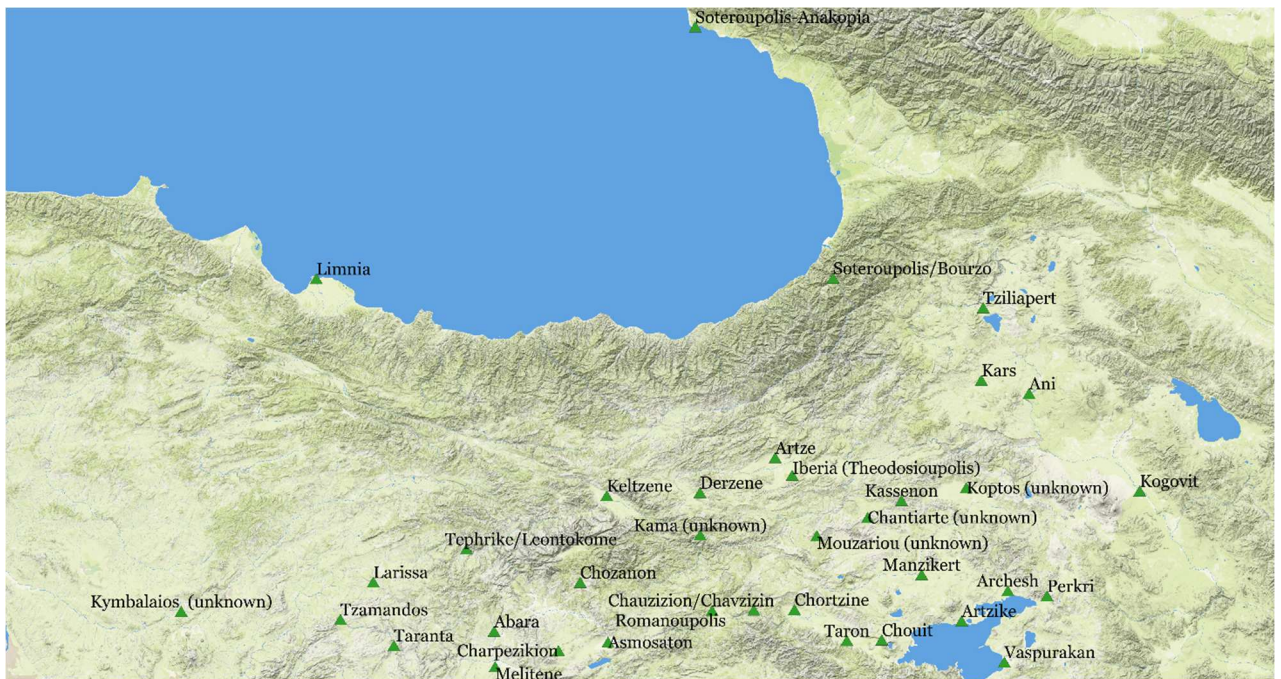
### **List of the Minor Themes**

Unlike the creation of new administrative units in the prior centuries, the number of themes founded during this period is far greater—sixteen Roman Themes compared to seventy known minor themes. This necessitates the creation of a list for ease of comprehension. This list is compiled under appendix 1 and denotes each minor theme's capital, approximate dates of existence, location, and association with the ducates/katepanates, if applicable.

This list can be converted into a map to visualize the locations of the minor themes. This is the first depiction of the theme system's full extent. The first map depicts the seat of the *strategos* for each of the minor themes. Not every minor theme existed simultaneously, with some conquered or rendered administratively redundant not long after their inception, but this map provides an overview of the territorial range within which the theme system operated during the late tenth and early eleventh centuries.



MAP 3.1. Anatolia's minor themes

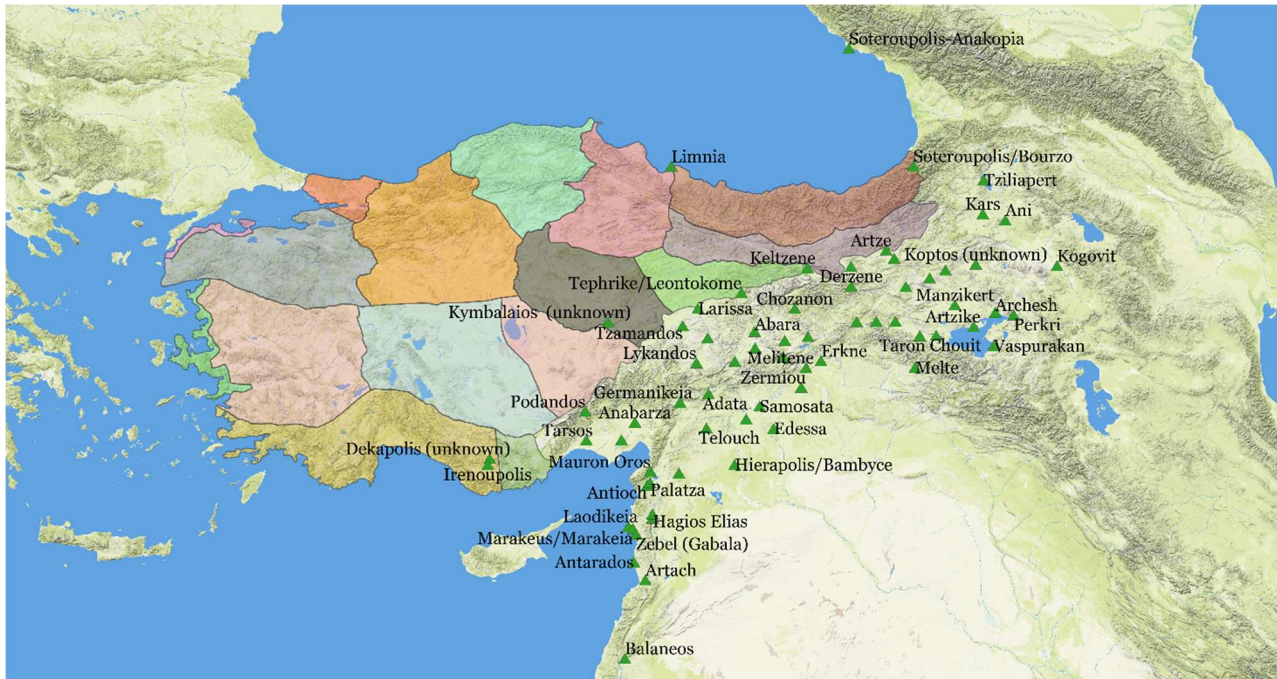


MAP 3.2. Anatolia's minor themes (northern detail)



MAP 3.3. Anatolia's minor themes (southern detail)

This next map visualizes both the Roman Themes established prior to the mid-tenth century and the minor themes created thereafter. The two are delineated through separate symbols, exemplifying the location of the minor themes along the eastern frontier of Anatolia, as well as their reduced size and increased quantity when comparing them to their predecessors.



MAP 3.4. The Anatolian themes at their territorial height, differentiating the Roman and minor themes (Roman Themes denoted by shaded regions, minor themes denoted by green triangles)

### Location of the Minor Themes

One of the most readily apparent features of the minor themes is their location. They were almost exclusively concentrated along Anatolia's contested eastern and southeastern frontier. This reflects the military impetus behind their creation, as a means to consolidate and administer newly acquired landholdings. In most instances, the creation of these themes was nearly coterminous with the Byzantine Empire's acquisition of new territory. For example, Nikephoros II Phokas's conquest of Antioch in 969 was almost immediately followed by the city's elevation to thematic status with the installation of a *doux*.<sup>11</sup> The routine of conquest/acquisition followed

<sup>11</sup> Vitalien Laurent, "La chronologie des gouverneurs d'Antioche, sous la seconde domination byzantine (969–1084)," *Mélanges de l'Université Saint-Joseph* 38 (1962): 219–54; Hans-Joachim Kühn, *Die byzantinische Armee*

quickly by the territory's elevation to the status of theme is so predictable that it serves as a useful metric for gauging Byzantium's encroaching hegemony in the late tenth/early eleventh centuries.

The formation of new themes seems like the logical option for dealing with the new territory, but the empire could have also simply expanded the authority of the preexisting themes over these lands. It would not be difficult to have frontier themes such as Charsianon, Kappadokia, and Sebasteia extend their jurisdictions in accordance with military advances. The reason this was not done is because the Byzantines wanted to administer the newly acquired territory in a manner fundamentally different from the preexisting themes. The new landholdings were much more tenuous in nature with a higher potential for expansion and contraction. This made it easier to fashion a series of smaller, more agile themes.

The minor themes' locations on the frontier necessitated an even more responsive system of governance that the preexisting themes could not accommodate. Just as the original themes were devised as a way to address enemy incursions without having to waste time by first consulting with the central government in Constantinople, so too did the minor themes require an even more rapid method of addressing an attack. By focusing the theme around a garrisoned fortification with its own autonomy, a measured response could be nearly instantaneous. On the other hand, if themes such as Charsianon and Kappadokia were expanded and had to account for military matters along the fluid frontier distant from their own capitals, viable military actions would be severely hindered.

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*im 10. und 11. Jahrhundert: Studien zur Organisation der Tagmata* (Vienna: Fassbaender, 1991), 170–81; Jean-Claude Cheynet, Cécile Morrisson, and Werner Seibt, *Les sceaux byzantins de la Collection Henri Seyrig* (Paris: Bibliothèque nationale, 1991), 114; Jean-Claude Cheynet, *Sceaux de la collection Zacos (Bibliothèque nationale de France) se rapportant aux provinces orientales de l'empire byzantin* (Paris: Bibliothèque nationale, 2001), 22–23.

While new themes were created along the frontier, almost no further divisions were made to the themes already in place prior to the early tenth century. The main aberration to this is found with the creation of the Mesopotamia Theme. This theme was derived from the newly acquired land of Taron combined with preexisting holdings from the Chaldia and Koloneia Themes.<sup>12</sup> In terms of organization, Mesopotamia recurrently serves as an outlier, with this novel thematic agglomeration potentially due to the bulk of its land being derived from Manuel Bagratuni's Armenian kingdom. Installing veteran administrators from Chaldia and Koloneia potentially facilitated an easier incorporation of Mesopotamia into the wider theme system.

This shows that the empire was satisfied with the number and size of these themes, which were able to properly balance control with operational efficacy. From a bureaucratic perspective, this proved to be a logical choice. Each theme contained its own complicated governmental apparatus of offices and duties. If the preexisting themes were functioning properly and there was no overwhelming incentive to reconfigure a thematic government, then any restructuring would only contribute to administrative disorder. Once again, inertia proved to be the preferred course of action when the system was adequately functioning.

With the Roman Themes now behind a multi-tiered layer of frontier themes, they grew more insulated to raids and defensive actions. This reduced the importance of their respective armies, and in turn reduced the authority of the local *strategos*. With these themes posing a diminished threat to Constantinople, further realignments proved to be no longer necessary.

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<sup>12</sup> *De Administrando Imperio*, 50.1.117–32.

## Cities as the Minor Themes' Nucleus

In virtually every instance, sixty-five out of seventy cases, the minor theme's name was derived from the settlement serving as the seat of the *strategos*, e.g., the *strategos* of the Melitene Theme was located at the city of Melitene. These settlements varied in population size and built purpose, ranging from large urban agglomerations such as Antioch and Edessa, to small but strategic fortifications such as Balaneos, Podandos, and Soteroupolis/Bourzo. What they had in common was that these capitals were vital to the sustainability of these new themes.

The administrative structure of the minor themes is exemplified by this naming convention. Administratively, these new themes shared several aspects with the old ones but had to adapt to their geographical realities. Each of the minor themes was led by a *strategos* and included administrative positions common to the preexisting themes such as: the *anagrapheus*,<sup>13</sup> *hypatos*,<sup>14</sup> *kourator*,<sup>15</sup> *logothetes*,<sup>16</sup> *magistros*,<sup>17</sup> *patrikios*,<sup>18</sup> *protospatharios*,<sup>19</sup> *spatharios*,<sup>20</sup> *tourmarches*,<sup>21</sup> and *vestarches*<sup>22</sup> to name a few. However, the minor themes' locations along the active frontier necessitated that they be established on more of a military footing, with the principal function of these new themes predicated upon the defense of a small portion of the

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<sup>13</sup> DO 55.1.2066 “Michael, *spatharios* epi tou Chrysotriklinou, *logariastes* of the grand *kouratorikon*, *artoklines*, and *anagrapheus* of Chaldia, Derzene, and Taron” (eleventh century).

<sup>14</sup> Seal no. 802 “Konstantinos, *hypatos* and *strategos* of the Kassenon” (second third of the eleventh century), in Munich, Staatliche Münzsammlung 580, Ex M.-L. Zarnitz private collection (purchased from the auction Münz Zentrum (Rheinland) 78 (September 7–9, 1994)).

<sup>15</sup> DO 58.106.5502 “Michael Kataphloron, imperial *kourator* of Manzikert and of Inner Iberia” (early eleventh century).

<sup>16</sup> DO 55.1.4379 “Kyriakos, *patrikios* and general *logothetes* of the apotheke of Koloneia and Kamacha” (702–4).

<sup>17</sup> DO 58.106.4919 “Theodore Pegonites, *magistros* and *doux* of Edessa” (1066–67).

<sup>18</sup> Fogg 874 “Eustratios Botaneiates, *patrikios*, *anthypatos*, and *strategos* of Zebel” (eleventh century).

<sup>19</sup> DO 58.106.1645 “Palatinos, imperial *protospatharios* and *strategos* of Taranta” (tenth century).

<sup>20</sup> DO 58.106.4887 “Theoktistos, imperial *spatharios* and *tourmarches* of Larissa” (ninth century?).

<sup>21</sup> DO 58.106.2443 “Andrew, imperial *spatharokandidatos* and *tourmarches* of Paltos” (tenth/eleventh century).

<sup>22</sup> DO 58.106.827 “Niketas, *patrikios*, *praipositos epi tou koitonos*, *vestarches*, and *strategos* of Kama” (eleventh century).

frontier. Without a permanent base for the military to operate out of, such as a city or fortification, no proper, sustained defense could be successful. This reflected the method by which these new themes were added, with the Byzantine army conquering a settlement then setting it up with a proper administrative apparatus and garrison. The majority of these themes centered on a fortress defending a strategic location such as a mountain pass or along a trunk road. Most were garrisoned with a standing force ranging between 500 and 1,000 troops.<sup>23</sup>

The only exceptions to this naming convention were Dekapolis, Euphrates Cities/Trans-Euphrates Cities, Hexapolis, Iberia, and Vaspurakan. In the cases of the Dekapolis (“ten cities”), Euphrates Cities, and Hexapolis (“six cities”), which had no singular dominant settlement, the themes still retained an urban connection in their names, emphasizing the importance of cities to their existence. As for Iberia and Vaspurakan, their unique formation through the acquisition of local kingdoms made them larger than the other minor themes and spatially more akin to the original themes. This expanded area of influence necessitated a different approach to governance beyond focusing on a singular settlement and is reflected as such in their names.

Contrast this naming convention with the administrative units created prior to the tenth century. The first four strategides, Anatolikon, Armeniakon, Opsikion, and Thrakesion, took their names from the remnants of the armies that settled in the region. This continued with the creation of the Optimaton and Boukellarion, with both also named after preexisting military units. After this, the naming convention switched to describing a geographical region, as seen with the Aegean Sea, Chaldia, Kappadokia, Paphlagonia, and Samos. It is not until the arrival of the Charsianon, Koloneia, Sebasteia, and Seleukeia Themes that the convention switched to naming the theme after the principal fortification/city. Each of these predated the creation of the

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<sup>23</sup> Haldon, *Warfare, State, and Society*, 103–6.



minor themes, but they did start out as *kleisourai* and held a similar defensive purpose. Once they were raised to the status of full theme, they assumed the general size of the other themes but retained their names as a vestige of their initial creation. The only exception being the Charsianon Theme, where the *strategos*' seat moved from Charsianon to the larger Kaisareia.

This demonstrates that, while cities were vital components in the formation of the early themes, their creation and continued existence did not completely hinge upon the survival of the capital, as was more common with the minor themes.

### **Small Size of the Minor Themes**

As these themes were primarily centered around the jurisdiction of a singular city or fortress, their overall size was considerably smaller than the preexisting themes.

Some of the minor themes such as Ani, Kars, Manzikert, and Vaspurakan ostensibly held dominion over a sizeable area around their capitals, however the geographical clustering of many of the minor themes demonstrates their limited jurisdictions. Chapter 9 ("Minor Themes and Territorial Responsibility") estimates the average coverage of each minor theme to be approximately a 30 km radius from the thematic capital, amounting to 2,800 km<sup>2</sup> (1,100 mi<sup>2</sup>) of jurisdiction (see map 9.5). At 8 percent the size, this is considerably smaller than the Roman Themes which averaged 34,200 km<sup>2</sup> (13,200 mi<sup>2</sup>) (see table 5.1).

This diminutive size made a theme's defense more manageable as it mainly consisted of the protection of a singular capital and the adjacent outlying areas. Having a large number of themes in close proximity to one another also facilitated communication and mutual defense

among *strategoi*, important aspects in an actively contested region. This is returned to in chapter 9 when interactions among the minor themes are interrogated through quantitative geospatial means.

### **Expansion in the Number of Themes**

The objective of basing the theme around a capital and a small, manageable territory meant that the number of new themes could proliferate quickly in light of military conquests and because there was no fixed limit to how many themes could be added to the system. This resulted in the rapid expansion in the total number of themes.

From the early tenth to the early eleventh century, a total of seventy new themes were added to the empire's eastern holdings. This was by far the quickest expansion to the system. For comparison, the first hundred years of the Anatolian portion of the strategides system, from the mid-seventh to mid-eighth century, witnessed the creation of just five administrative units. The next 150 years saw the addition of eleven administrative units, bringing the total to sixteen, a roughly threefold increase. A century later the total stood at eighty-six distinct themes, a seventeen-fold increase from the seventh century.

This expansion is textually exemplified in the court manuals of the ninth and tenth centuries. These manuals list the empire's civil and military offices and their respective ranking in the imperial court. As a result, they provide a snapshot of all the *strategoi* that existed at certain points in time. The earliest, the *Taktikon Uspenskij* of the second decade of the ninth century lists eighteen *strategoi* throughout the entirety of the empire, reflecting the period just

after the formation of the theme system and before the advent of the minor themes.<sup>24</sup> By 899, as evidenced in the *Kletorologion* of Philotheos, the total number of *strategoï* marginally increases to twenty-six.<sup>25</sup> In the final extant court list, the *Escorial Taktikon* of the mid-970s, this expands to eighty-two *strategoï*.<sup>26</sup> This is a significant increase that does not even fully reflect the territorial expansion and creation of new themes that would continue apace into the early eleventh century.

The seventy themes added during this timeframe did not all coexist simultaneously. Instability along the frontier and a readiness to establish new themes ensured that some of them were short-lived. An example of this was the Theme of Mauron Oros. It was established in 968 to serve as a base for Michael Bourtzes to conduct raids on Antioch's hinterland as part of the effort to make the city capitulate. Once Antioch fell in 969, just the following year, the purpose of the theme was satisfied. Bourtzes was recalled to Constantinople and no new *strategos* was assigned to Mauron Oros, suggesting the conclusion of its status as a theme.<sup>27</sup> Another theme, that of Pagrae, served a similar purpose. It was based around a fortification built from scratch in 965 with its main purpose to assist in the conquest of Antioch.<sup>28</sup> No record of the theme survives beyond 969, with it likely paralleling Mauron Oros in its reduction in status. These are extreme instances in terms of brevity, but this accords with the very ad hoc nature of some of these themes. Since they were founded around a singular fortification, it meant that their permanent

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<sup>24</sup> *Taktikon Uspenskij*, 47–63; Tibor Živković, “Uspenskij’s Taktikon and the Theme of Dalmatia,” *Byzantina Summetika* 15 (2008): 49–85.

<sup>25</sup> *Kletorologion* of Philotheos, 102–5.

<sup>26</sup> *Escorial Taktikon*, 262–73.

<sup>27</sup> Leon the Deacon, *History*, 132–33, 136; Yahya, *Chronicle*, II, 816; Skylitzes, *Synopsis*, 261; No. 183 “Kemales, *protospatharios* and *strategos* of Mauron Oros” (late eleventh century), in Cheynet, Morrisson, and Seibt, *Les sceaux byzantins de la Collection Henri Seyrig*; Catherine Holmes, “Byzantium’s Eastern Frontier in the Tenth and Eleventh Centuries,” in *Medieval Frontiers: Concepts and Practices*, eds. David Abulafia and Nora Berend (London: Routledge, 2016), 97–98.

<sup>28</sup> Leon the Deacon, *History*, 125; Anna Komnene, *Alexiad*, 13.12.

status was not necessary and would be a waste of military resources once they met their initial objective. This highlights just how willing the empire was to elevate and demote the minor themes as a way to facilitate military matters.

The thematic list from the *Escorial Taktikon* provides just a snapshot of the themes from the mid-970s. Likewise, seals prove the existence of certain themes, but not when they were founded nor their lifespan. This uncertainty makes it impossible to prove how many concurrent themes the empire had at its zenith, but the trajectory of rapidly expanding the system during the tenth century remains undeniable.

## **The European Themes**

To underscore the level of thematic expansion undertaken in Asia Minor during the tenth and early eleventh centuries, it is useful to compare concurrent thematic developments in Byzantine controlled Europe. While Asia Minor saw the creation of at least seventy unique themes, only six were founded over the same period in Europe.

- Expansion into southern Italy in the mid-tenth century led to the creation of the themes of Calabria in ca.950 and Lucania in ca.968.<sup>29</sup>
- The 970s saw the creation of a theme in Makedonia known as Neos Strymon, after detaching from the preexisting theme of Strymon.<sup>30</sup>

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<sup>29</sup> *Escorial Taktikon*, 264–65; Ghislaine Noyé, “New Light on the Society of Byzantine Italy,” in *Social Change in Town and Country in Eleventh-Century Byzantium*, ed. James Howard-Johnston (Oxford: Oxford University Press, 2020), 158.

<sup>30</sup> *Escorial Taktikon*, 268–69, 357.

- The final expansion resulting in the creation of new European themes occurred after Basil II's conquest of the First Bulgarian Empire. 1018 saw the creation of the themes of Bulgaria and Sirmium, followed around 1020 by Paradounabon.<sup>31</sup>

In general, the tenth-century themes of Asia Minor were also substantially smaller than their European counterparts. Along with the imbalance between the number of themes created in Europe versus Anatolia, this serves as another visible indication that the eastern frontier was the empire's priority in terms of military interest. The only European analogue to this is from Southern Italy, which developed small themes after conquests initiated by Nikephoros Phokas the Elder in the 880s.<sup>32</sup> But even these were far fewer in number and constituted more than just a singular city or fortress, much different from some of the smallest themes to appear in the east.

### **Administering the Minor Themes—the Ducates and Katepanates**

While most of the administrative structure of the minor themes mirrored that of the larger preexisting ones, some important changes were enacted that better served their unique origin.

The size and number of the minor themes necessitated a broader command structure to adequately organize matters of defense and offense. This led to the establishment of the ducates

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<sup>31</sup> Alexandru Madgearu, *Byzantine Military Organization on the Danube, 10th–12th Centuries* (Leiden: Brill, 2013), 56, 88–100; Krsmanović, *Byzantine Province in Change*, 192–200.

<sup>32</sup> Barbara Kreutz, *Before the Normans: Southern Italy in the Ninth and Tenth Centuries* (Philadelphia: University of Pennsylvania Press, 1996), 63–66; Christos Tsatsoulis, “Some Remarks on the Date of Creation and the Role of the Maritime Theme of Cephalonia (End of the 7<sup>th</sup>–11<sup>th</sup> Century),” in *Studies in Byzantine Sigillography, 11*, eds. Jean-Claude Cheynet and Claudia Sode (Berlin: Walter de Gruyter, 2012), 162.

and katepanates—large, regional commands along the eastern frontier that oversaw and coordinated the actions of multiple minor themes with their own auxiliary combat units. Along with the minor themes, the creation of the ducates/katepanates accounts for the second substantial shift in Anatolia’s spatial administration during the latter half of the tenth century.

The *tagmata*, the force reformed by Konstantinos V in the mid-eighth century as a mobile cavalry division, assumed an expanded role by the mid-tenth century. To facilitate the military expansion, tagmatic units independent of the thematic *strategoi* became more commonplace along the eastern frontier. These included specialized units such as the *Athanatoi*<sup>33</sup> and *Stratelatai*,<sup>34</sup> both organized during the 960s to 970s. This led to the creation of the *doux* and *katepano* as a means of organizing these units while still maintaining the defensive structure inherent to the nature of the minor themes. As evidenced in the *Escorial Taktikon*, the position of the *doux* is firmly attested by the mid-970s for Antioch, Chaldia, and Mesopotamia, not long after territorial conquests along the eastern frontier began in earnest.<sup>35</sup>

The concepts of a *doux* and *katepano* had different connotations prior to the 960s. *Katepano* previously referred to a low-level court functionary and was most notably attached to the Mardaite commander of the Kibyrraiotai navy.<sup>36</sup> The term *doux* had roots in the Roman Republic and, in the fourth century CE, referred to military officials within the provinces.<sup>37</sup> With

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<sup>33</sup> Leon the Deacon, *History*, 179.

<sup>34</sup> Skylitzes, *Synopsis*, 165–68, 170.

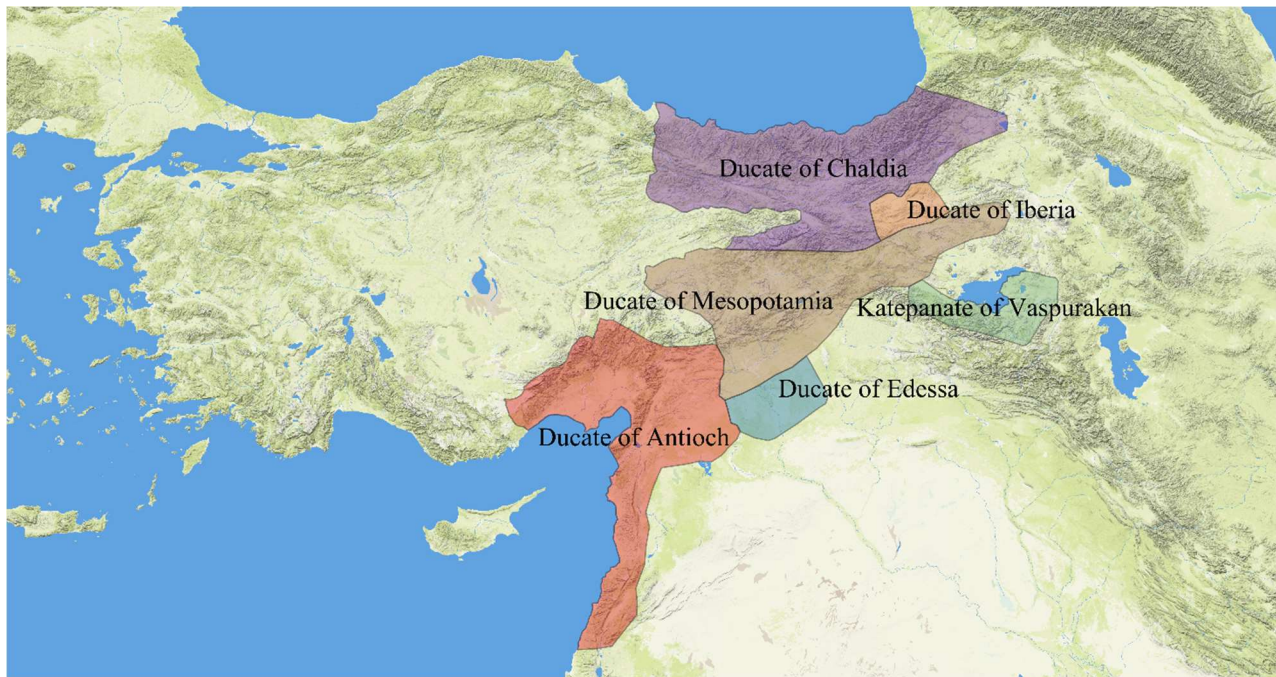
<sup>35</sup> *Escorial Taktikon*, 262–63.

<sup>36</sup> BZS.1958.106.5166 “Theodosios, imperial *protospatharios* and *katepano* of the Mardaitai” (ninth/tenth century); BZS.1951.31.5.2125 “Leon, *anthypatos*, *patrikios*, *vestes*, and *katepano* of the Mardaitai” (tenth/eleventh century); Miloš Cvetković, “The Settlement of the Mardaites and their Military-Administrative Position in the *Themata* of the West: A Chronology,” *Zbornik radova Vizantoloskog instituta* 54 (2017): 69.

<sup>37</sup> Anthony Kaldellis and Marion Kruse, *The Field Armies of the East Roman Empire, 361–630* (Cambridge: Cambridge University Press, 2023), viii.

the advent of several new themes and the restructuring of the *tagmata*, these terms came to refer to a regional commander whose authority extended over several of the minor themes.<sup>38</sup>

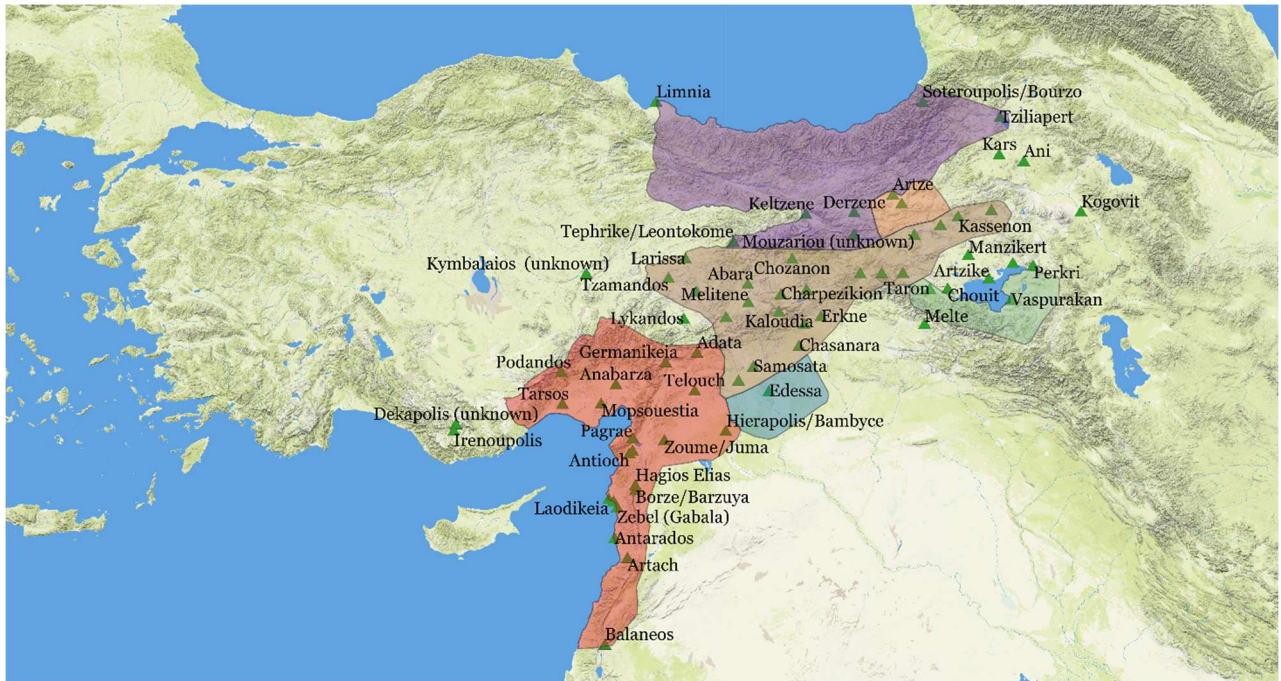
Maps 3.5–3.7 show the *ducat*es/*katepanates* along the eastern frontier and their relationship to the minor themes.



MAP 3.5. The ducates/katepanates along the eastern frontier

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<sup>38</sup> Haldon, *Warfare, State, and Society*, 84–85.

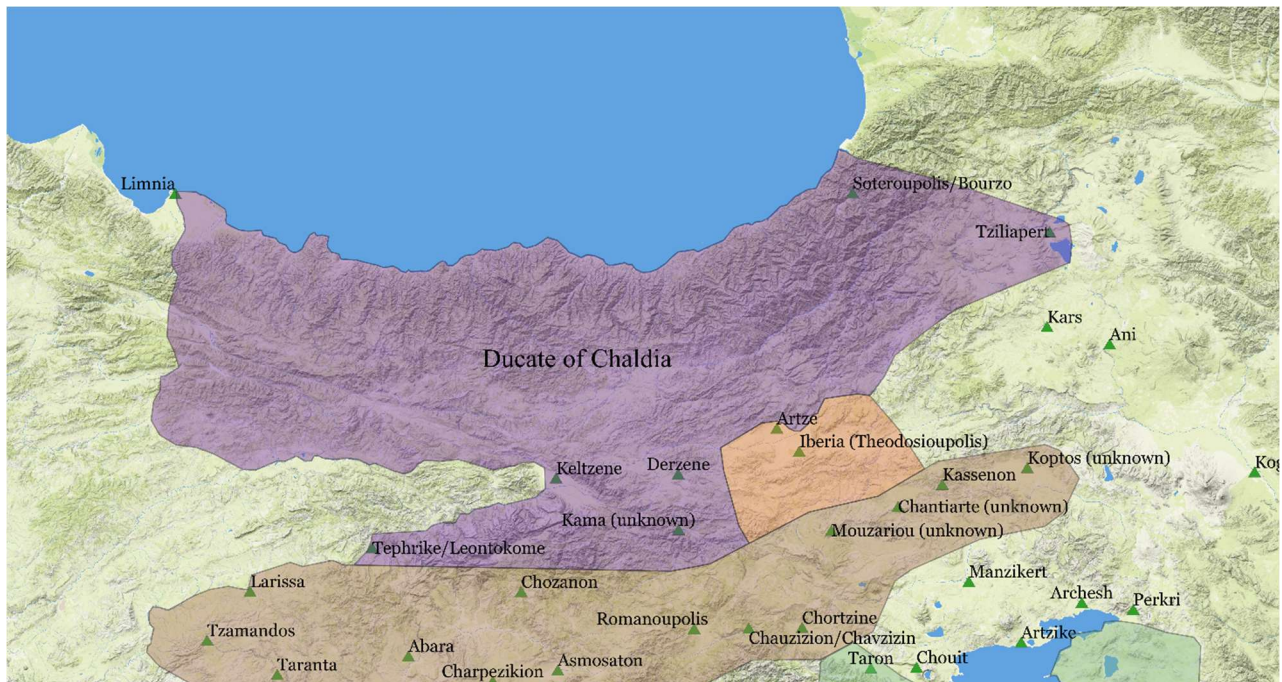


MAP 3.6. The ducates/katepanates along the eastern frontier with the minor themes (ducates/katepanates identified by shaded regions, minor themes denoted by green triangles)

The first ducates and *katepanates* to oversee the minor themes consisted of Antioch (969), Chaldia (969), and Mesopotamia (969/71). Of the three, Chaldia and Mesopotamia already served as well-established themes along the eastern frontier, making them logical centers of command.



## Ducate of Chaldia<sup>39</sup>



MAP 3.7. The Ducate of Chaldia

The original theme of Chaldia covered the far northeastern region of the empire and served as an ideal location for administering that portion of the frontier. The advent of the *doux* expanded this control over the themes of Chaldia, Derzene,<sup>40</sup> Iberia (which was later given its own *doux*), Koloneia, Melte, Soteroupolis/Bourzo, Theodosiupolis (later under the *doux* of Iberia), and Tziliapert.<sup>41</sup> With Trebizond as the main administrative center, the *doux*'s jurisdiction constituted

<sup>39</sup> What is known about the organization of the Ducate of Chaldia is found in Krsmanović, *Byzantine Province in Change*, 123–26.

<sup>40</sup> Fogg 2629 “Michael Saronites, *protospatharios* epi tou Chrysotriklinou, *chartoularios* of the *logothetes tou genikou*, judge of the Velum, and *anagrapheus* of Chaldia and Derzene” (eleventh century); Fogg 3159 “Gerbasios (?) Doukas, *protospatharios* (?) and *chartoularios* (?) of Chaldia and (?) Derzene” (eleventh century); Fogg 400 “Leon (?) Hexakionites, *spatharokandidatos* and judge (?) (or *protonotarios*?) of Chaldia and of Derzene” (eleventh century); DO 55.1.2933 “Leon Areobindos, *spatharokandidatos*, *asekretis*, and judge of Chaldia and Derzene” (eleventh century).

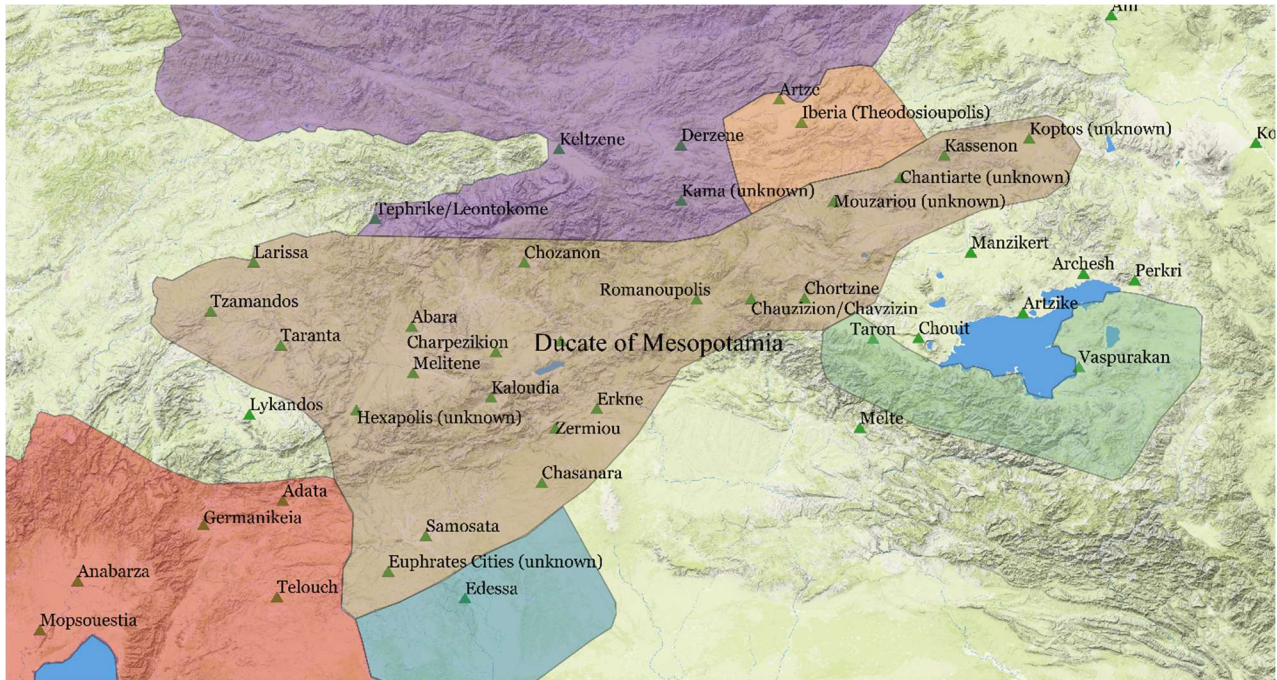
<sup>41</sup> See appendix 1 for attributing these minor themes to the ducate.

the southeastern Black Sea coast, across the Pontic Alps and continued south beyond Keltzene and Derzene/Tercan, bordered to the west by the Armeniakon Theme and the Akampsis Valley (Çoruh Nehri) to the east, encompassing the minor themes of Soteroupolis/Bourzo and Tziliapert.<sup>42</sup> Chaldia oversaw at least seven themes at its height, far fewer than Mesopotamia and Antioch, but it served a vital role in diplomatic relation with the neighboring Armenian kingdoms to the east. This relationship proved fruitful, with the annexation of several territories in the early eleventh century.

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<sup>42</sup> Alexander Beihammer, *Byzantium and the Emergence of Muslim-Turkish Anatolia, ca. 1040–1130* (New York: Routledge, 2017), 54.

## Ducate of Mesopotamia<sup>43</sup>



MAP 3.8. The Ducate of Mesopotamia

The Ducate of Mesopotamia held sway over the central portion of the eastern frontier. It consisted of the Upper Euphrates Valley just north of the Mouzouron Mountains, down to the Anti-Taurus Mountains to the southwest. This included the themes of Abara, Asmosaton, Chantiarte, Charpezikion, Chasanara, Chavzizin, Chortzine, Chozanon, Erkne, Euphrates Cities/Trans-Euphrates Cities, Hexakomia, Kaloudia, Koptos, Larissa, Limnia, Mesopotamia, Melitene, Mouzariou, Romanoupolis, Samosata, Taranta, Tzamandos, and Zermiou.<sup>44</sup> This region was much more militarily active than Chaldia, reflected in the twenty-two recorded minor themes under its jurisdiction.

<sup>43</sup> What is known about the organization of the Ducate of Mesopotamia is found in Krsmanović, *Byzantine Province in Change*, 120–23.

<sup>44</sup> See appendix 1 for attributing these minor themes to the ducate.

## Ducate of Antioch<sup>45</sup>



MAP 3.9. The Ducate of Antioch

Antioch was only captured in 969 but its importance as an urban center and its location along the empire's expanding Levantine front made it the obvious site for a ducate. The *doux's* jurisdiction principally encompassed the Amuq and Kahramanmaraş Plains, along the Mediterranean coast. This covered the Amanos Mountains (modern Nur Mountains) along the Mediterranean Sea, down to Balaneos in the south. It reached as far northwest as Kilikia and as far east as Adata and Hierapolis/Bambyce. At least twenty minor themes fell under its jurisdiction, including: Adata, Anabarza, Antarados, Antioch, Artach, Balaneos, Borze/Barzuya, Germanikeia, Hagios Elias, Hierapolis/Bambyce, Laodicea, Marakeus, Mauron Oros, Mopsouestia, Pagrae, Palatza,

<sup>45</sup> For coverage of the Ducate of Antioch's administrative structure, see Krsmanović, *Byzantine Province in Change*, 97–120.

Podandos, Tarsus, Telouch, Zebel/Gabala, and Zoume/Juma.<sup>46</sup> Geographically, the Duchate of Antioch, at roughly 76,700 km<sup>2</sup>, constituted the most territory of the ducates, with Mesopotamia just behind it at 68,900 km<sup>2</sup>.

### **The Ducates/Katepanates of Edessa, Iberia, and Vaspurakan**

The ducate/katepanate system was expanded in the early eleventh century with the addition of Iberia (1000), Vaspurakan (1021/2), and Edessa (1031).<sup>47</sup> The existence of Iberia and Vaspurakan were contingent upon the annexation of Armenian kingdoms along the eastern frontier. Upon the death of David III, the ruler of Tao-Tayk, Iberia fell under Byzantine control and was quickly turned into a ducate.<sup>48</sup> This constituted the territory east of the Akampsis River (modern Çoruh River) and east of the Duchate of Chaldia.<sup>49</sup> The Katepanate of Vaspurakan consisted of the lands south and east of Lake Van and was formed when Senekerim-Hovhannes Artsruni, the ruler of Vaspurakan, ceded the land to the Byzantines in 1021/2 in return for the position of *strategos* of Kappadokia and the cities of Abara, Larissa, Sebasteia, and other domains.<sup>50</sup>

Unlike Iberia and Vaspurakan, the Duchate of Edessa came into being through military conquest under Romanos III Argyros, in October 1031. This ducate was located south of

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<sup>46</sup> Several of these locations are attested in Anna Komnene, *Alexiad*, 13.12; see appendix 1 for attributing these minor themes to the ducate.

<sup>47</sup> Krsmanović, *Byzantine Province in Change*, 123–26.

<sup>48</sup> Stephen H. Rapp, *Studies in Medieval Georgian Historiography: Early Texts and Eurasian Contexts* (Louvain: Peeters, 2003), 414.

<sup>49</sup> Krsmanović, *Byzantine Province in Change*, 126; Beihammer, *Muslim-Turkish Anatolia*, 55.

<sup>50</sup> Skylitzes, *Synopsis*, 350; Matthew of Edessa, *Chronicle*, 45–46; Tim Greenwood, “Social Change in Eleventh-Century Armenia: The Evidence from Taron,” in *Social Change in Town and Country in Eleventh-Century Byzantium*, ed. James Howard-Johnston (Oxford: Oxford University Press, 2020), 201.

Mesopotamia's jurisdiction, covering the region of the Upper Euphrates. This included the Harran Plain and the Balikh River Valley, extending south to the steppe of Northern Syria.<sup>51</sup> This placed Edessa along the highly contentious frontier with the Marwanids around Diyarbakır. As such it relied heavily on organizing a chain of fortifications along its eastern and southern flank down to Chasanara, as well as cooperation with fortresses north of the Euphrates such as Samosata.<sup>52</sup>

One major difference with the ducates/katepanates established in the early eleventh century is that these did not oversee as many minor themes. For example, the *doux* of Vaspurakan oversaw the themes of Vaspurakan and Taron,<sup>53</sup> while the *doux* of Iberia commanded just Iberia and Artze.<sup>54</sup> Unlike the other ducates along the militarily active frontier, the *doux* of Edessa only held sway over its eponymous theme.<sup>55</sup> This is because the land conquered during this military push proved too limited in scale to create several additional themes. Contrast this with Antioch, which covered twenty themes, and Mesopotamia with twenty-two identified themes.

The positions of *doux* and *katepano* also appear contemporaneously in Europe, with a Duchate of Adrianople (969), Thessaloniki (969), southern Italy (969),<sup>56</sup> Mesopotamia in the West

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<sup>51</sup> Beihammer, *Muslim-Turkish Anatolia*, 55.

<sup>52</sup> Beihammer, *Muslim-Turkish Anatolia*, 55.

<sup>53</sup> DO 55.1.2940 “Gregory Arsakides, *magistros*, *epi tou koitonos*, *doux* of Vaspurakan and Taron” (between 1051(?) and 1058).

<sup>54</sup> McGeer, Nesbitt, and Oikonomides, *Catalogue of Byzantine Seals*, 4:148, 167–68. An eleventh-century seal denoting an “*imperial kourator* of Manzikert and of Inner Iberia” potentially indicates an expanded jurisdiction for Iberia. However, Nikos Oikonomides sees this not as a reference to the theme but more likely a geographical designation for the area north of Lake Van, adjacent to or within the jurisdiction of the preexisting Manzikert Theme.

<sup>55</sup> Krsmanović, *Byzantine Province in Change*, 104; DO 58.106.4763 “Basil Apokapes, (*proto?*) *proedros* and *doux* of Edessa” (between 1077 and 1084); DO 58.106.4919 “Theodore Pegonites, *magistros* and *doux* of Edessa” (1066–67).

<sup>56</sup> *Escorial Taktikon*, 262–63.

(971), Bulgaria by 1018, and one for Sirmium in 1019.<sup>57</sup> This demonstrates that desires for military expansion under an overarching administrative umbrella also existed in the west, albeit on a smaller scale.

There are several reasons for the creation of an overarching command structure in the form of the ducates/katepanates. While the small size of the minor themes afforded a rapid response to external threats, this also hindered their ability to function in large-scale engagements on their own. Unlike the larger Roman Themes, which could field anywhere from 3,000 to 12,000 troops, the average minor theme typically held a garrison of 500 to 1,000.<sup>58</sup> To actually undertake a concerted offensive campaign required supplementation from military units not directly associated with the themes, in the form of the *tagmata*. If a concerted attack did arise, it would be invaluable to be able to coordinate the frontier themes and other military units without having to wait for a response from the central government back in Constantinople (see chapter 9 “Examples of Connectivity and Flexibility within the Network”). For example, the seat of the *doux* at Trebizond, the closest to Constantinople, was 1,044 km distant. This amounted to approximately thirty-five days of foot travel in a single direction. The ducates/katepanates along the extremities of the eastern front could potentially take upwards of two months for a military force from Constantinople to reach their positions, a response incompatible to the fluidity along the frontier.

This willingness to innovate beyond the administrative structure of the original themes created a flexible, multi-tiered system of response along the eastern frontier which afforded both a large degree of autonomy to the individual theme while still affording them a level of coordination more commensurate with the larger Roman Themes.

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<sup>57</sup> Krsmanović, *Byzantine Province in Change*, 192–200.

<sup>58</sup> Haldon, *Warfare, State, and Society*, 103–6.

## The Islamic *thughur* and *'awasim* as a Counterpart to the Minor Themes

The concept of having a more autonomous frontier zone under the broader command of larger administrative units was not unique to the Byzantines. It was mirrored in some aspects by its Islamic counterparts across the frontier. As these administrative systems arose contemporaneous with one another in reaction to the same problem, it is useful to briefly examine the Islamic management of the frontier to see in what respects it aligned with and deviated from the Byzantine Empire's system.<sup>59</sup>

Following the siege of Constantinople in 717–18, which failed to make the Byzantines capitulate, a more ossified frontier zone took shape between the two empires. Acknowledging the new reality of a more fixed frontier, the Umayyad and then Abbasid Caliphates devised a chain of fortified strongholds on the southern side of the Taurus and Anti-Taurus mountains, which ran from Tarsos in Kilikia to around Theodosioupolis (modern Erzurum).<sup>60</sup> The process reached its peak under the caliph Harun al-Rashid (r.786–809).<sup>61</sup> These were known as the *thughur* (“the frontier” or “the cleft/crevice”) and the *'awasim* (“the defenses” or “the protectresses”).<sup>62</sup>

The manner in which the frontier region was managed changed multiple times in response to political and military expedience. The region started out belonging to the Jund Hims after the initial subdivision of Islamic lands into four *ajnad* (administrative divisions). By the late

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<sup>59</sup> For a detailed description of this organization, see Eger, *Islamic-Byzantine Frontier* and Hugh Kennedy and John Haldon, “The Arab-Byzantine Frontier in the Eighth and Ninth Centuries: Military Organization and Society in the Borderlands,” *Zbornik radova Vizantoloskog instituta* 19 (1980): 76–116.

<sup>60</sup> Michael Bonner, “The Naming of the Frontier: ‘Awāšim, Thughūr, and the Arab Geographers,” *Bulletin of the School of Oriental and African Studies, University of London* 57 no. 1 (1994), 17. For a map of the *thughur* and *'awasim* see Eger, *Islamic-Byzantine Frontier*, 7.

<sup>61</sup> Eger, *Islamic-Byzantine Frontier*, 69.

<sup>62</sup> Bonner, “Naming of the Frontier,” 17–24; Eger, *Islamic-Byzantine Frontier*, 9, 69.



seventh century, jurisdiction of the frontier moved to the new Jund Qinnasrin when the system was expanded to five *ajnad*.<sup>63</sup> In 786, conquests and territorial expansions under al-Mansur led to Harun al-Rashid further dividing Qinnasrin, creating the *'awasim*.<sup>64</sup> This administrative system of the Abbasid Caliphate was in place by the end of the eighth century.

Ultimately, defense of the frontier was divided into two layers. The internal, and therefore more protected area constituted the *'awasim* which was administered out of Antioch.<sup>65</sup>

The actual administrative area abutting the Byzantine frontier was the *thughur*. The *thughur* itself was initially split into two sections:

- 1) al-Thughur al-Sha'miya to the west, which constituted Kilikia and Northern Syria, centered around the largest settlement of Tarsos.
- 2) And al-Thughur al-Jaziriya, which covered the remainder of Upper Mesopotamia and had Adana as its key center. Marash served as the delineation between these two administrative units.<sup>66</sup>

Akin to the Byzantine portion of the frontier, the actual area of operation maintained flexibility, but the Amanos Mountains served as a rough way to delineate the sections.<sup>67</sup> In the early tenth century, a third division was added around Diyarbakır after Byzantine encroachments into Armenia warranted further defenses, known as the *thughur al-bakriya*.<sup>68</sup>

Why the *'awasim* and *thughur* are mentioned together is due to their entangled administrative structure. For much of its existence, governance of the *thughur* remained nebulous

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<sup>63</sup> Eger, *Islamic-Byzantine Frontier*, 19.

<sup>64</sup> Eger, *Islamic-Byzantine Frontier*, 69.

<sup>65</sup> Eger, *Islamic-Byzantine Frontier*, 7.

<sup>66</sup> Ohta Keiko, "Migration and Islamization in the Early Islamic Period: The Arab-Byzantine Border Area," in *The Concept of Territory in Islamic Law and Thought: A Comparative Study*, ed. Yanagihashi Hiroyuki (London: Routledge, 2000), 90.

<sup>67</sup> Eger, *Islamic-Byzantine Frontier*, 34.

<sup>68</sup> Eger, *Islamic-Byzantine Frontier*, 106.

and ill-defined.<sup>69</sup> There was no equivalent to a *doux* or *strategos* to govern the region, nor was there a defined administrative center, akin to Byzantine Antioch after 969, despite the importance of the cities such as Tarsos and Malatya. In fact, these frontier settlements eschewed many concepts of Islamic urbanism, with the extant evidence indicating they were not modelled on the traditional *amsar* (“garrison towns”) of the early Muslim conquests of the seventh century.<sup>70</sup> While the *amsar* started out as military fortifications or garrisons, they frequently developed into urban and administrative centers, most notably in the cases of Basra, Fustat, Kairouan, and Kufa.<sup>71</sup> Yet the settlements of the *thughur* resisted any such sophisticated organizational structure, operating quite differently from more secure areas of the Caliphate. At times the *thughur* functioned autonomously while at others it was administered through the *‘awasim*. There is no surviving administrative plan that firmly clarifies these ad hoc decisions, with contemporary Islamic geographers unable to come to a consensus as to precisely where settlements fell within each jurisdiction.<sup>72</sup> These two layers of defense were so interdependent that the terms *thughur* and *‘awasim* became frequently interchangeable by the tenth century.<sup>73</sup>

Ultimately, the level of centralized involvement with the frontier vacillated with the fortunes of the Abbasids. The eighth century saw earnest investments by the Umayyad and early

<sup>69</sup> Eger, *Islamic-Byzantine Frontier*, 9–10.

<sup>70</sup> Eger, *Islamic-Byzantine Frontier*, 18–19. Only four settlements within the *thughur* have been extensively surveyed (‘Ayn Zarba, Haruniyya, Hisn al-Tinat, and Tarsos), so it is possible that this perspective may change with future archaeological investigations.

<sup>71</sup> Fred Donner, *The Early Islamic Conquests* (Princeton: Princeton University Press, 1981), 137–38; Ira Lapidus, “The Evolution of Muslim Urban Society,” *Comparative Studies in Society and History* 15 (1973): 24–28; Hichem Djait, *Al-Kufa, naissance de la ville islamique* (Paris: G.P. Maisonneuve et Larose, 1986), 118–32; Donald Whitcomb, “The Misr of Ayla: New Evidence for the Early Islamic City,” in *Studies in the History and Archaeology of Jordan V*, ed. A. Hadidi (Amman: Department of Antiquities, 1995), 283, 287–88.

<sup>72</sup> Contemporary descriptions and definitions of the *thughur* and *‘awasim* are found in: al-Baladhuri, *The Conquest of the Lands [Futuh al-Buldan]*, 179–204; Qudama b. Ja’far, *Book of the Land Tax [Kitab al-Kharaj]*, VI, 253–55; Ibn al-Faqih al-Hamadani, *Concise Book of Lands [Mukhtasar Kitab al-Buldan]*, V, 111–14; Ibn al-Shihna, *The History of Aleppo [al-Durr al-Muntakhab fi Ta’rikh Halab]*, 159–225; Ibn Hawqal, *The Face of the Earth [Surat al-Ard]*, II, 179–89; Ibn Rustah, *The Book of Precious Pearls [Kitab al-A’laq al-Nafisa]*, VII, 106–7; Ibn al-‘Adim, *Everything Desirable about the History of Aleppo [Bughyat al-Talab fi Ta’rikh Halab]*, I, 188–281.

<sup>73</sup> Paul Wheatley, *The Places Where Men Pray Together: Cities in Islamic Lands, Seventh Through the Tenth Centuries* (Chicago: University of Chicago Press, 2000), 116, 260.

Abbasids to firmly secure the frontier area and establish it as a base from which annual raids could be conducted into Byzantine territory. Cities such as Adana (in 758–60) and Tarsos (in 787/88) were garrisoned with several thousand troops, while key fortifications and mountain strongholds were reconstituted.<sup>74</sup> Repopulation of the frontier by soldiers and colonists was also incentivized through lower taxes, higher pay, and land grants (known as *qata'i*).<sup>75</sup>

These measures were effective in solidifying a presence along the border but came with large expenditures. For example, one statistic from Qudama b. Ja'far suggests that the revenues from the Thughur al-Jaziriya in Upper Mesopotamia annually amounted to approximately 70,000 dinars.<sup>76</sup> Most of these funds were reinvested into the region, with an additional 120,000 to 170,000 dinars sent in from Baghdad to maintain fortifications and pay troop salaries. This is also not accounting for the annual raids into Byzantine-controlled Anatolia which ran from 200,000 to 300,000 dinars.

By the mid-ninth century, struggles at the Abbasid court and a general decline in centralized authority, exemplified in the likes of the Anarchy at Samarra (861–70) and broader Fifth Fitna, resulted in greater autonomy along the Caliphate's frontiers.<sup>77</sup> The *thughur* was no exception, with settlements such as Malatya, Qaliqala, and Tarsos forming into somewhat independent administrative entities that functioned largely without a coordinated structure.

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<sup>74</sup> Wheatley, *Places Where Men Pray*, 260–61; Hugh Kennedy, *The Armies of the Caliphs: Military and Society in the Early Islamic State* (London: Routledge, 2001), 82, 98.

<sup>75</sup> Keiko, "Migration and Islamization in the Early Islamic Period," 87–100.

<sup>76</sup> Qudama b. Ja'far, *The Book of Taxation [Kitāb al-Kharāj]*, 253–54.

<sup>77</sup> El-Hibri, *The Abbasid Caliphate*, 143, 292; Gordon, *The Breaking of a Thousand Swords*; Kennedy, *When Baghdad Ruled the Muslim World*, 261–96.

## **Byzantine vs. Islamic Administration along the Frontier**

The parallel developments of these administrative systems disprove the idea of the Byzantine response to organizing the frontier as completely *sui generis*, but instead reflects the necessity of these large empires to formulate a rapid response to contested areas despite the obstacle of geographical distance.

Both empires fundamentally understood that autonomy was a vital element along the frontier.

Where the Byzantine system differed was in its administrative subdivisions. While both the Abbasid and Byzantine systems had only a handful of major administrative subdivisions along the frontier, the Byzantine model supplemented their ducates/katepanates with an array of at least seventy minor themes. Such an arrangement made the Byzantine system more capable of pivoting to defense with the smaller administrative units, and consolidating new acquisitions by only taking small incremental steps. This made it more difficult to make large advances but also mitigated the loss of territory. It was a strategy that helped to ensure a regional Byzantine presence.

Even in the late tenth century when expansion into the region was at its height, the Byzantines did not have the fiscal and military resources at hand that were available to the Abbasids in the late eighth and early ninth century. They consequently could not throw substantial sums of money and large numbers of troops towards managing the frontier. Instead, they had to think more strategically, adopting policies that achieved success without overtaxing imperial coffers. Therefore, despite outward similarities derived from attempting to resolve a

similar problem, the system of ducates/katepanates supplemented by small themes presents itself as a quintessentially Byzantine approach to the frontier issue.

### **The Arrival of the Seljuks and the End of the Ducates/Katepanates and Minor Themes**

While the period of the ducates/katepanates and minor themes proved to be a significant administrative development, it also was the most short-lived. Thematic growth went hand-in-hand with military expansion, so when substantive conquests declined after Basil II (r.976–1025), the rapid creation of new themes in the east also slowed substantially. Georgios Maniakes's conquered Edessa in 1032<sup>78</sup> and the Euphrates Cities were formed around the same time.<sup>79</sup> From there, new themes were added in a piecemeal fashion. Artzike and Kogovit, both near Lake Van, were formed around 1050.<sup>80</sup> The Byzantines added Ani and Kars in 1045<sup>81</sup> and 1064,<sup>82</sup> respectively, not by straight out conquest but through diplomatic means.<sup>83</sup> Hierapolis was the final addition to the eastern portion of the theme system. This occurred when Romanos IV Diogenes captured the city in 1069 during the only successful portion of his campaign to drive the Seljuks out of Anatolia.<sup>84</sup>

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<sup>78</sup> Skylitzes, *Synopsis*, 365; DO 58.106.4763 “Basil Apokapes, (*proto?*) *proedros* and *doux* of Edessa” (between 1077 and 1084); DO 58.106.4919 “Theodore Pegonites, *magistros* and *doux* of Edessa” (1066–67); BZS.1951.31.5.175 “Nikephoros Botaneiates, *magistros*, *vestes*, *vestarches*, and *doux* of Edessa and Antioch” (before 1062).

<sup>79</sup> Skylitzes, *Synopsis*, 365.

<sup>80</sup> Haldon, *Warfare, State, and Society*, 88; Kühn, *Die byzantinische Armee*, 64.

<sup>81</sup> Attaleiates, *History*, 14.2.

<sup>82</sup> Osman Aziz Başan, *The Great Seljuqs: A History* (New York: Routledge, 2010), 73.

<sup>83</sup> No. 119 “Basilakes Phloros, *katepano* of Kars and Iberia” (eleventh century), in Jean-Claude Cheynet, Spink Auction 132 (May 25, 1999); McGeer, Nesbitt, and Oikonomides, *Catalogue of Byzantine Seals*, 4:166–68; Haldon, *Warfare, State, and Society*, 85; Başan, *The Great Seljuqs*, 73.

<sup>84</sup> *Skylitzes Continuatus*, 91–93.

This stability was broken with the advent of the Seljuk Turks. Originating from the Kazakh Steppes, north of the Caspian Sea, the Seljuks arrived in Armenia in the 1040s.<sup>85</sup> By 1045, Qutlumush may have conducted the first large scale raid into Vaspurakan, capturing the Byzantine commander Stephanos Leichoudes.<sup>86</sup> These incursions continued apace, with raids led by Hasan the Deaf and Ibrahim Inal following not long after.<sup>87</sup> In 1055 the Seljuks acquired Baghdad, establishing them as the dominant power along Byzantium's eastern frontier.<sup>88</sup> During the 1060s, the frequency and intensity of attacks on the Byzantine Empire increased, with an assault on Kaisareia in 1067 and Ikonion in 1069.<sup>89</sup>

In addition to these more officially sanctioned raids, the expansion of the Seljuks into Anatolia was accompanied by the migration of numerous Turkish tribes who frequently acted independently from the Seljuk court, launching several of their own attacks on Byzantine-held territory in search of spoils and the acquisition of pastureland.<sup>90</sup>

This pressure on the eastern frontier came to a head with the defeat of Romanos IV Diogenes at Manzikert in 1071.<sup>91</sup> Alp Arslan's defeat of the Byzantine army and capture of the emperor led to disarray in Constantinople, leaving large swaths of Anatolia vulnerable to the Seljuk army. Subsequent Turkish advances were swift and decisive. Themes along the far eastern front such as Mesopotamia, Iberia, Vaspurakan, and Chaldia fell almost immediately after Manzikert.<sup>92</sup> Suleiman b. Qutlumush captured Nikaia in 1075 and Antioch fell in 1084.<sup>93</sup>

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<sup>85</sup> Beihammer, *Muslim-Turkish Anatolia*, 74–77.

<sup>86</sup> Kaldellis, *Streams of Gold*, 197.

<sup>87</sup> Kaldellis, *Streams of Gold*, 197–98; Beihammer, *Muslim-Turkish Anatolia*, 77.

<sup>88</sup> Kennedy, *The Prophet and the Age of the Caliphates*, 344.

<sup>89</sup> Attaleiates, *History*, 16.3, 18.16.

<sup>90</sup> Kaldellis, *Streams of Gold*, 196–97.

<sup>91</sup> Georgios Theotokis, *The Campaign and Battle of Manzikert, 1071* (Yorkshire: ARC Humanities Press, 2024).

<sup>92</sup> Haldon, *Warfare, State, and Society*, 88.

<sup>93</sup> Nicholas Morton, *Encountering Islam on the First Crusade* (Cambridge: Cambridge University Press, 2016), 71.

These conquests brought an end to the majority of Anatolia's themes, with only vestiges of the Boukellarion, Chaldia, Opsikion, Optimaton, Paphlagonia, Samos, and Thrakesion remaining along the coastline.

### **The Theme System After the Seljuks**

The extensive territorial losses to the Seljuks in the late eleventh century made the central government reactionary in their administration of the themes. They no longer had the relatively stable crucible of Asia Minor with which to expand, revise, and generally experiment upon. Instead, these later themes bear the signs of duress, and the effort to cauterize the wound inflicted by the Turks. Changes made to the theme system during this period serve as a definitive conclusion to Byzantium's thematic experiment in the east.

Alexios I Komnenos, upon his elevation to emperor in 1081, sought to create a new frontier in Anatolia. This was done by garrisoning towns and fortifications along key sections of the coast and coastal plain in an effort to stabilize the empire's eastern holdings and potentially as a base from which to expand.<sup>94</sup> This practice was continued by Alexios's successors Ioannes II Komnenos (r.1118–43) and Manuel Komnenos (r.1143–80) to a degree of success, although the reconstitution of the empire's borders prior to the emergence of the Seljuks was not a feasible reality.<sup>95</sup>

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<sup>94</sup> Marek Meško, *Alexios I Komnenos in the Balkans, 1081–1095* (Cham, Switzerland: Palgrave Macmillan, 2023), 8; Haldon, *Warfare, State, and Society*, 96.

<sup>95</sup> For a map of administrative holding in Asia Minor in the twelfth century see Haldon, *Warfare, State, and Society*, 98.

As for the themes themselves, those that survived needed to be reconstituted to account for the loss of territory and administrative centers. Most notably, Ioannes II Komnenos reestablished the Thrakesion Theme in a smaller and more manageable fashion and created the themes of Mylasa and Melanoudion in 1143. These were carved out of land reconquered from the Seljuks in the region of Karia in Southwest Anatolia, in what were part of the old Kibyrraiotai and Thrakesion Themes.<sup>96</sup>

Sometime between 1162–73, according to Niketas Choniates, Manuel Komnenos formed the theme of Neokastra.<sup>97</sup> This was located in Northwest Anatolia near Adramyttion, Chilara, and Pergamon,<sup>98</sup> as a means to defend against Turkish raids.<sup>99</sup> This theme was likely under the authority of a *doux*, not a *strategos*.<sup>100</sup>

A final theme of Maeander is mentioned in the *Partitio terrarum Imperii Romanie* in 1204, which was later subsumed by the Thrakesion Theme.<sup>101</sup>

These examples show that vestiges of the theme system limped along during the twelfth century, but that they demonstrated none of their original utility and organization. In fact, by the end of Manuel Komnenos's reign in 1180, the concept of the theme no longer held its initial function as a military district. The *strategos* was replaced by *doux*, a position lacking the combined civil and military authority that was fundamental to thematic success.<sup>102</sup> Instead of having the theme system's dispersed and autonomous method of defense, military authority was

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<sup>96</sup> Maximillian Lau, *Emperor John II Komnenos: Rebuilding New Rome: 1118–1143* (Oxford: Oxford University Press, 2023), 290–91.

<sup>97</sup> Niketas Choniates, *O City of Byzantium*, 85.

<sup>98</sup> George Akropolites, *History*, 149, 152n15; *Partitio terrarum Imperii Romanie*, 218.20–21.

<sup>99</sup> Niketas Choniates, *O City of Byzantium*, 85; Lau, *Emperor John II Komnenos*, 297.

<sup>100</sup> Mark Bartusis, *The Late Byzantine Army: Arms and Society, 1204–1453* (Philadelphia: University of Pennsylvania Press, 1997), 30.

<sup>101</sup> *Partitio terrarum Imperii Romanie*, 160; Dimitri Korobeinikov, *Byzantium and the Turks in the Thirteenth Century* (Oxford: Oxford University Press, 2014), 129.

<sup>102</sup> Haldon, *Warfare, State, and Society*, 97; Kühn, *Die byzantinische Armee*, 168–69.



concentrated in a single imperial field army. Defense along the frontier was vested to local lords with certain military obligations to the state, but this was no longer the dynamic and responsive system seen under the minor themes in the late tenth century.

### **Efficacy of the Ducates/Katepanates and Minor Themes**

In light of this dramatic collapse in Anatolia, the question arises: how effective were the ducates/katepanates and minor themes as administrative and military entities? This question is assessed by looking at both the short term and long-term objectives that the empire had for these administrative units.

In the short term, the minor themes were an ad hoc but well-coordinated creation that functioned extremely well at satisfying the conditions of the late tenth and early eleventh centuries; namely an active and competent Byzantine military expansion. The diminutive size and large number of these themes served well at facilitating the desires of military commanders by leaving them great leeway to maneuver along the frontier, unencumbered by a slow-to-react centralized leadership.

As Catherine Holmes observes, in this period the Byzantines exercised an ad personam approach to governance along the extremities of the frontier.<sup>103</sup> This led to the appointment of able figures such as Eustathios Maleinos and Michael Bourtzes in Antioch, Bardas Phokas in Chaldia, and Mumahhid al-Dawla b. Marwan in the central borderlands.<sup>104</sup> Because these

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<sup>103</sup> Catherine Holmes, *Basil II and the Governance of Empire (976–1025)* (Oxford: Oxford University Press, 2005), 315, 321, 333–35, 339.

<sup>104</sup> Beihammer, *Muslim-Turkish Anatolia*, 56.

assignments relied heavily on the abilities of these individuals, both as military commanders and in their entrenchment in the local power structure, they were able to enjoy a high degree of success. Byzantium's territorial expansion in the late tenth century would not have been possible without a series of militarily adept emperors and a concurrent vacuum of centralized organization within the Islamic world, but the flexible nature of the ducates/katepanates and minor themes permitted the conquests to unfold in an organized and, consequently, successful manner.

The highly specific nature of the minor themes worked well at addressing highly specific problems, but in the long term it made the empire vulnerable to unforeseen challenges.

Alexander Beihammer attributes this structure to making the Byzantine Empire incapable of dealing with a large, simultaneous series of attacks along the frontier.<sup>105</sup> He notes that one particular downside of the late tenth/eleventh century theme system was the dissolution of local defensive institutions along the far eastern periphery. For instance, the annexation of Armenian kingdoms such as Ani, Iberia, Kars, and Vaspurakan reconfigured or removed the indigenous power structure, leaving the newly formed themes in less competent hands. This coupled with local demographic changes, such as migrations, made the territories abutting the eastern frontier more at risk to a concerted assault and incapable of providing a cohesive first line of defense. It was a reality that manifested with the arrival of the Seljuks in the mid-eleventh century.<sup>106</sup>

Even with the creation of ducates/katepanates spanning multiple themes and the ability to rapidly deploy forces, this could not dissuade a powerful and persistent enemy. Only a large, centrally organized army could assume this role. However, this level of organization was lacking due to administrative upheavals that were frequently occurring by the mid-eleventh century.

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<sup>105</sup> Beihammer, *Muslim-Turkish Anatolia*, 56.

<sup>106</sup> Beihammer, *Muslim-Turkish Anatolia*, 56.

The inefficacy of the minor themes to forestall a concerted invasion on their own was compounded by the military hollowing out of the larger Roman Themes. With the creation of frontier themes such as Chaldia, Mesopotamia, and Sebasteia, and then the even more forward minor themes, the themes away from the front had a reprieve from the annual raids that plagued them during the early centuries of the system. As long as the empire was on the offensive, it was difficult to justify having large standing armies within internal themes such as the Anatolikon, Opsikion, or Thrakesion. This also provided Constantinople with an excuse to further strip such themes of their ability to foment a rebellion. Therefore, the role these internal themes played in the prior centuries as a way to dissuade Umayyad and Abbasid raids and efforts at expansion was no longer a viable defensive system by the mid-eleventh century. Once the Seljuks were able to breach the frontier defenses and rout the emperor's army at Manzikert, the themes were not capable of mounting an effective defense with the resources at hand.

One factor that likely did not play a role in the inability to stave off Seljuk advances was a conflict between Constantinople's centralized civil bureaucracy and the military commanders of the frontier ducates/katepanates and themes. This argument, advocated by Speros Vryonis, among others, frames the administrative latitude granted to the minor themes as a detriment to fostering an effective military response.<sup>107</sup> However, Jean-Claude Cheynet has since largely disproven this view of a collective undermining between the centralized government and administrators along the frontiers resulting in an unprepared empire.<sup>108</sup>

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<sup>107</sup> Speros Vryonis, *The Decline of Medieval Hellenism in Asia Minor and the Process of Islamization from the Eleventh through the Fifteenth Century* (Los Angeles: University of California Press, 1971), 70–80.

<sup>108</sup> Jean-Claude Cheynet, *Pouvoir et contestations à Byzance (963–1210)* (Paris: Publications de la Sorbonne, 1990), 207–29, 261–301, 337–57.

Ultimately, the Byzantine Empire of the mid-eleventh century lacked the capacity for a better administrative method capable of forestalling the Seljuks.<sup>109</sup> In the late tenth and early eleventh centuries, limited resources were aptly put to use to affect a series of military conquests. However, what made the minor themes successful—their ability to facilitate and consolidate military advances—evaporated when conquests waned after Basil II. The stagnation along the frontier in the mid-eleventh century coupled with internal disarray meant that no reevaluation of the theme system was undertaken to prepare against the emergence of a new threat. When this manifested with the Seljuks, the theme system was ill-equipped to pivot and collapsed as a result.

This should not necessarily be seen as a failure of the theme system in general, but rather as a failure of the central government to adequately update the system. Administration within Anatolia was not intended to be static, as demonstrated numerous times: from the inception of the strategides in the mid-seventh century as a way to halt the emerging Islamic threat, to their rearrangement in the mid-eighth century to forestall rebellious *strategoi*, to the formation of the themes by the early ninth century to better organize military and civil administration, and finally as a way to facilitate military expansion in the tenth century through the model of a series of flexible minor themes organized under ducates/katepanates. Several factors contributed to the Byzantine Empire's decline in the late eleventh century, with one of them being the unwillingness to adapt the theme system to the prevailing challenges.

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<sup>109</sup> Beihammer, *Muslim-Turkish Anatolia*, 56.

## PART II—GEOGRAPHY OF THE STRATEGIDES AND THEMES

### Introduction

Part I of this study demonstrated that it is possible to discern with confidence many of the larger reasons why the Byzantine Empire configured the themes in such a manner. This focused on broader political and demographic factors such as the relative strength of the neighboring Islamic powers as well as the influence exerted by the *strategoï*.

Such a historical overview is useful for obtaining a general understanding of certain macro trends, but on its own it is incapable of explaining the Byzantine Empire's conception of the themes as discrete geographical entities on a more granular scale. The empire did not simply follow broader historical trends and operate the themes in a passive or naïve manner. There was ample room within these larger constraints upon which decisions about the structure and operation of the themes could still be made. However, on this account, the historical record falls short.

It is certain that officials on the imperial and thematic levels documented the reasons for geographical organization and the maintenance of the themes as spatial entities, as the system was too large and vital to the longevity of the empire to not take these matters into consideration. Konstantinos VII Porphyrogenetos's *De Thematribus* is the notable surviving insight devoted to the themes, and while it serves as an invaluable guide, it is meant to be a general geographical overview and lacks the bureaucratic specificity to address such questions.

However, while there exists a general understanding about when the themes took shape and were reapportioned, the extant sources provide almost no direct rationale for arranging the themes in the fashion that arose. This leaves a significant gap as to how the empire's approach to thematic geography functioned structurally.

This is the gap that part II of the study seeks to fill—understanding more about Byzantine thematic administrative decision-making and, in turn, how administrators perceived the empire as a spatial entity. This portion of the study is methodologically centered around the use of GIS and quantitative spatial analysis. These methods permit the interrogation of questions outside of the ways that the themes have been considered up to this point.

This part of the study is organized into two distinct sections:

**(I) Ascertain Thematic Shapes.** Before any detailed analysis can be conducted, it is first necessary to determine the spatial configuration of the Anatolian themes. This section ascertains, to the best degree that the extant evidence allows, the borders of every theme located in the eastern portion of the empire and plots their shapes on a basemap. This is necessary because all scholarly maps of the theme system are relatively undetailed. Forms of GIS-aided quantitative methods have only recently gained purchase in the study of the Byzantine Empire, with none implemented on the theme system. This section rectifies such an omission by creating a detailed basemap upon which secondary values can be added and manipulated to discern spatial trends within the system, facilitating a more nuanced understanding of the themes.

**(II): Quantitative Analysis.** With the shapes of the themes established, the next section analyzes qualities of the themes utilizing a variety of quantitative techniques. Elements for analysis include the size and shapes of the themes, their land usage, the spatial distribution of cities within the themes, the road network with attendant aspects of connectivity, and the methodology behind the location of thematic capitals. These quantitative metrics are also applied to the strategides, minor themes, and their overarching ducates/katepanates, as a means of comparing the empire's administrative approaches during different phases.

These results are then synthesized to provide a new perspective into the Byzantine's spatial conceptualization of their territorial holdings. This work reveals that the empire held a nuanced understanding of its own geographical fortunes, utilizing the organization of the themes to strategically facilitate political and military objectives.

## CHAPTER 4—ASCERTAINING THEMATIC BOUNDARIES

### Introduction

Before any quantitative analysis can be conducted, it is first necessary to define the spatial extent of the themes. This chapter ascertains the borders of the Anatolian themes and converts the information into a basemap that will be used in the subsequent chapters. All maps, unless otherwise noted, are my own creation.

### Timeframe

Over the course of its existence, the theme system assumed numerous permutations. For the purposes of this study, the shapes of the themes are based on their appearances circa the year 950, a timeframe in which the theme system reached the height of its size and complexity and is roughly contemporaneous with the completion of the *De Thematibus*. Therefore, a description of each theme at this historical juncture accounts for virtually every eastern theme that existed.



## Sources on Thematic Geography

The most important source for the shapes of the themes is Konstantinos VII Porphyrogennetos's *De Thematribus*.<sup>1</sup> This text systematically goes through seventeen of Anatolia's themes, describing their attendant geographical features such as cities, mountain ranges, and bodies of water. Because there is no extant suggestion that the Roman Themes changed much after Leon VI's realignments, Konstantinos VII's description remains the most accurate portrayal of the themes for the tenth century.

Much of the *De Thematribus*'s information is derived from earlier sources. It takes geographical information from classical works including those written by Aelius Herodianus, Artemidoros, Herodotos, Polybios, Strabo, Thucydides, and Xenophon.<sup>2</sup> It also utilizes Byzantine geographical treatises such as Hierokles's *Synekdemos*, George of Cyprus's *Descriptio orbis Romani*, and Stephanos of Byzantium's *Ethnika*.<sup>3</sup> This is not to suggest that the *De Thematribus* is entirely derivative of these works. When the borders of a contemporary theme deviated greatly from Roman provincial precedence, such as in the case of the Opsikion<sup>4</sup> and Thrakesion Themes,<sup>5</sup> a new geographical survey was conducted and added in the text, thus making it a work reflective of contemporary political geography.

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<sup>1</sup> The most recent translation into English is by John Haldon; *De Thematribus*, ed. John Haldon (Liverpool: Liverpool University Press, 2021). Agostino Pertusi's Italian translation also remains useful due to its discernment and clarification of multiple geographical features in relation to the themes; *De Thematribus*, ed. Agostino Pertusi (Vatican City: Biblioteca Apostolica Vaticana, 1952). Unless otherwise noted, subsequent citations relating to the *De Thematribus* refer to Haldon's pagination.

<sup>2</sup> *De Thematribus*, 12.

<sup>3</sup> *De Thematribus*, 10–12.

<sup>4</sup> *De Thematribus*, 117.

<sup>5</sup> *De Thematribus*, 112; Thomas Pratsch, "Untersuchungen zu De thematribus Kaiser Konstantins VII. Porphyrogennetos," in *Varia V. Ποικίλα βυζαντινά 13*, ed. P. Speck (Bonn: Rudolf Habelt, 1994), 107–10; Clive Foss, "Archaeology and the 'Twenty Cities' of Byzantine Asia," *American Journal of Archaeology* 81 (1977): 471–72.

Before relying heavily on the *De Thematribus* as the scaffolding for subsequent geospatial arguments, it is important to properly assess its utility and reliability as a source. The text does bear some inaccuracies and anachronistic portrayals of the theme system; however this is almost entirely relegated to the empire's European territories and does not affect a discussion of Anatolia's themes.<sup>6</sup> As John Haldon points out, despite a few minor errors, Konstantinos VII's description of Asia Minor in the *De Thematribus* is very accurate.<sup>7</sup> For instance, one of the rare errors is the inclusion of Sinope in the Paphlagonia Theme instead of the Armeniakon Theme which was slightly further to the east.<sup>8</sup> A miscalculation, but not an egregious misunderstanding of how the themes were spatially arrayed. The overall tenor and level of detail contained within the text demonstrates that the empire had a firm grasp of its own geographical extent. The work therefore stands as a useful geographical reference tool for the spatial extent of the themes.

### **Uncertainty in Thematic Boundaries**

The lack of extant governmental records regarding imperial geography makes it impossible to obtain an absolutely precise account of the boundaries for every theme. The *De Thematribus* was not meant to be a technical geographical survey for specific practical use in matters of land ownership or taxation. Instead, it is reminiscent of other encyclopedic works produced in Konstantinos VII's orbit, serving as a more generalized reference manual for an audience more

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<sup>6</sup> *De Thematribus*, ed. Haldon, 64. These inconsistencies within the European sections of the *De Thematribus* largely concern the placement of cities in the themes of Makedonia, Strymon, and Thrake; specifically for cities in Thrake, 170–76; Makedonia, 180–82; and Strymon, 182–83.

<sup>7</sup> *De Thematribus*, ed. Haldon, 64.

<sup>8</sup> A comprehensive list of errors is compiled by Pertusi in *De Thematribus*, ed. Pertusi, 37.

in line with the imperial court and its intellectual circle.<sup>9</sup> Descriptions from the *De Thematribus* concentrate on broader geographical attributes to delineate thematic landholdings such as cities, mountains, and waterways. Nevertheless, the geographical information that is depicted for Anatolia is very reliable, and therefore remains useful for this study's purposes.<sup>10</sup>

In this study, if the location of a specific border remains unknown or hazy, a range of potential placements is given. If a natural feature such as a river or known trade route is situated near this area of potentiality, then this study defaults to that as the most likely location of the boundary.

## **Maritime Themes**

A final word on categorization concerns the treatment of Byzantium's maritime themes. As this study deals with the eastern portion of the empire, it does not include any themes exclusively situated in Europe. However, it does include maritime themes such as the Aegean Sea and Samos that center around islands in the Aegean and Mediterranean Seas but have a portion of their holdings on mainland Asia Minor. It is this influence on the mainland that is the focus of the subsequent analysis and, therefore, only the portions of the themes physically on the mainland of Asia Minor are included in subsequent calculations.

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<sup>9</sup> For a general discussion of Konstantinos VII's encyclopedism, see Paul Magdalino, "Byzantine Encyclopaedism of the Ninth and Tenth Centuries," in *Encyclopaedism from Antiquity to the Renaissance*, eds. Jason König and Greg Woolf (Cambridge: Cambridge University Press, 2013), 219–31.

<sup>10</sup> Otis Duncan, Raymond Cuzzort, and Beverley Duncan, *Statistical Geography: Problems in Analyzing Areal Data* (Westport, CT: Greenwood Press, 1977). Despite such vagaries, these levels of uncertainty fall into a statistically acceptable range for analysis due to the large geographical scale of this project, i.e., all of Anatolia.

## The Roman Themes and Their Borders

As follows is an alphabetical list of every Roman Theme of Anatolia that existed circa 950, with a description of their borders and an accompanying map.

### Aegean Sea Theme



MAP 4.1. The Aegean Sea Theme

The Aegean Sea Theme consisted of the westernmost portion of Anatolia, serving as one of the three naval themes of the east. As the name suggests, it primarily centered around the Aegean

Sea, including the islands of Lesbos, Imbros, Tenedos, Limnos, and the Sporades.<sup>11</sup> Chios and the Kyklades were also included for a time but were likely transferred to the Samos Theme in the late ninth century.<sup>12</sup>

In terms of its presence on the mainland, the theme was carved out of the Opsikion Theme in the first half of the ninth century, which served as its only shared border in Asia Minor.<sup>13</sup> It was centered around the southern coast of the Propontis, inclusive of the port cities of Kyzikos and Abydos; granting the Aegean Sea Theme control over the economically and militarily strategic Dardanelles.<sup>14</sup>

The relationship to the neighboring Opsikion Theme proved to be a symbiotic one, with the Aegean Sea Theme ensuring defense of the coast, while the Opsikion protected the mainland. As such, the division between the two themes should not be viewed as a hard boundary. Rather, the themes should be viewed as having respective spheres of influence, with the Aegean Sea Theme's power primarily relegated to the coast, and the Opsikion Theme controlling the inland portion. For both themes, the emphasis lay not so much on delineating a specific boundary but on ensuring they fulfilled their respective roles in defense. This arrangement is also seen in the other maritime themes of Samos (bordered by the Thrakesion Theme) and the Kibyrraiotai (bordered by the Thrakesion and Anatolikon Themes).

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<sup>11</sup> Ahrweiler, *Byzance et la mer*, 76–79, 132–33; Nesbitt and Oikonomides, *Catalogue of Byzantine Seals*, 2:123, 139, 141.

<sup>12</sup> Ahrweiler, *Byzance et la mer*, 108.

<sup>13</sup> *Taktikon Uspenskij*, 52–53; Oikonomides, *Les listes de préséance byzantines*, 46–47.

<sup>14</sup> *De Thematribus*, 162.

## Anatolikon Theme



MAP 4.2. The Anatolikon Theme

The Anatolikon Theme constituted the ancient regions of Lykaonia, Pisidia, Isauria, much of Phrygia, and Galatia Salutaris.<sup>15</sup> It was bordered to the west by the Thrakesion Theme, the northwest by the Opsikion Theme, the north by the Boukellarion Theme, east by the Kappadokia Theme, southeast by the Seleukeia Theme, and south by the Kibyrraiotai Theme, making the Anatolikon Theme the most centrally located of all the eastern themes.

The western boundary with the Thrakesion Theme remains ill-defined and is denoted only through the presence of certain cities. The border started in the south at some point just north of Sagalassos, which belonged to the Kibyrraiotai Theme.<sup>16</sup> From there it ran north in an

<sup>15</sup> Haldon, *Byzantium in the Seventh Century*, 157; *De Thematis*, 85–86.

<sup>16</sup> *De Thematis*, 150.

indeterminate fashion before terminating around Meros.<sup>17</sup> It is known with certainty that Sozopolis belonged to the Anatolikon Theme and Hierapolis and Kolossai belonged to the Thrakesion Theme,<sup>18</sup> but beyond these delineations, there is great leniency with where the border could potentially be placed.

The actual length of the border with the Opsikion Theme remains unknown; however, it is evident that it was not very extensive. The *De Thematibus* places the terminus at Meros (modern Demirözü), along the main road,<sup>19</sup> potentially making Meros, or the area around it, the location where the Boukellarion, Opsikion, Thrakesion, and Anatolikon Themes converged.

The border continued due east, now along the Boukellarion Theme, until reaching slightly north of the western shore of Lake Tuz. The precise location of this border is also questionable. Amorion was definitely within the Anatolikon Theme's area of control, but aside from a few mountains, there are no definitive geographic features that the border would naturally follow. As Meros and the northern extent of Lake Tuz fall roughly along the same latitude, the border running in a nearly straight line between the two appears to be the simplest solution.

Lake Tuz defined the Anatolikon's border with the Kappadokia Theme. Konstantinos VII describes the Kappadokia Mountains as the division between the two themes, terminating at the Taurus Mountains to the east.<sup>20</sup> The precise route this took remains uncertain, but Heraclea Kybistra,<sup>21</sup> Koron, and Loulon, were definitively within Kappadokia's jurisdiction.<sup>22</sup>

The eastern frontier ran along the northwestern side of the Taurus Mountains, placing it west of the minor themes of Podandos and Tarsos. To the south lay the Seleukeia Theme. As the

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<sup>17</sup> *De Thematibus*, 87.

<sup>18</sup> Warren Treadgold, "Notes on the Numbers and Organization of the Ninth-Century Byzantine Army," *Greek, Roman, and Byzantine Studies* 21 (1980): 281.

<sup>19</sup> *De Thematibus*, 87.

<sup>20</sup> *De Thematibus*, 86.

<sup>21</sup> *De Thematibus*, ed. Pertusi, 121.

<sup>22</sup> *De Thematibus*, 101–2.

Seleukeia Theme's raison d'être was mainly the protection of the neighboring Kibyrraiotai Theme, this meant that the border most likely ran along the northern portion of the Central Taurus Mountains.

Finally, the southern border with the Kibyrraiotai Theme likely continued along the northern side of the Central Taurus Mountains, before ending near Sagalassos.<sup>23</sup>

### Armeniakon Theme



MAP 4.3. The Armeniakon Theme

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<sup>23</sup> *De Thematibus*, 150.



The Armeniakon Theme occupied the northeast portion of Anatolia. Its northern extent ran along the Black Sea coast and was bordered to the east by the Chaldia, Koloneia, and Sebasteia Themes, to the south by the Charsianon Theme, and to the west by the Paphlagonia Theme.

The Armeniakon's eastern border with the Chaldia Theme began at the Black Sea, east of Aminos (Samsun), near the minor theme of Limnia. From there it followed the course of the Iris River (modern Yeşilırmak River), ending to the northwest of Neokaisareia.

The border with the Koloneia Theme remains unknown, but it likely continued south along roughly the same longitude, ending northwest of the city of Sebasteia.

As for the border with the Sebasteia Theme, the boundary turned west, most likely following the course of the Çekerek River, as this is the only defining geographical feature in the area.

The border with the Charsianon Theme remains entirely unknown apart from it beginning near the capital of Charsianon and terminating in the west at the Halys River. As a result, this study traces a path between the two locations that follows the contours of the topography in the simplest and most direct route.

The western boundary with the Paphlagonia Theme followed the Halys River in a northeastern direction.<sup>24</sup> From there it continued north along the line of the Karasu River, ending at the Black Sea west of Sinope.<sup>25</sup>

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<sup>24</sup> *De Thematibus*, 127.

<sup>25</sup> *De Thematibus*, ed. Pertusi, 37.

## Boukellarion Theme



MAP 4.4. The Boukellarion Theme

The Boukellarion Theme was situated in northwestern Asia Minor, constituting parts of the historical region of Paphlagonia, Galatia, and Phrygia.<sup>26</sup> The Black Sea formed the northern border, with the Paphlagonia Theme to the northeast, the Charsianon Theme to the southeast, the Kappadokia and Anatolikon Themes forming the southern frontier, the Opsikion Theme to the southwest, and the Optimaton Theme rounding out the northwestern portion. According to the *De Thematibus*, the theme included the cities of Ankyra (modern Ankara), Klaudiupolis (Bolu), Kratia (Gerede), Basilaion (near Sarıyar Köprüsü), Herakleia, Proucias (Konuralp), Tios (Hisarönü), and Modrene (Mudurnu).<sup>27</sup>

<sup>26</sup> Kountoura-Galake et al., *Μικρά Ασία των θεμάτων*, 246.

<sup>27</sup> *De Thematibus*, 123–25.

The theme included the coastal cities of Herakleia and Tios,<sup>28</sup> stopping in the east before Amastris (Amasra), which belonged to Paphlagonia.<sup>29</sup> This places the Boukellarion Theme's border with the Paphlagonia Theme somewhere between these two cities, with the most logical location being along the Yenice River. The *De Thematibus* lists the bounding river as the Parthenios River, however as Haldon points out, this was an error on the part of Konstantinos VII.<sup>30</sup>

Moving south from the Black Sea, the border traced the Yenice River and then followed the eastern fork, at what is the modern Filyos Stream. This matches the ancient provincial border between Honorias and Paphlagonia.<sup>31</sup> From there the border traveled southeast in an indeterminate manner, until reaching the Halys River just east of the thematic capital of Ankyra, which also served as the southern terminus of its border with Paphlagonia.<sup>32</sup>

The southeast border with the Charsianon Theme was defined by the Halys River between Ankyra to the north and where the river bears east near modern Hirfanlı just north of Lake Tuz. Konstantinos VII lists the southern terminus of the theme as the fortress of Saniana (Verinoupolis).<sup>33</sup> However, this information was already outdated by his attestation, as this was part of Leon VI's detachment to Charsianon.<sup>34</sup> Leon VI detached Myriokephalon, Timios Stavros and Verinoupolis from the Boukellarion Theme, granting them to the newly formed Charsianon Theme, thereby defining this boundary.<sup>35</sup>

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<sup>28</sup> *De Thematibus*, 124.

<sup>29</sup> Kountoura-Galake et al., *Μικρά Ασία των θεμάτων*, 245–46.

<sup>30</sup> *De Thematibus*, ed. Haldon, 124–5n177.

<sup>31</sup> Max Ritter and Chris Lightfoot, “Byzantine Coins from Hadrianoupolis in Paphlagonia,” *Byzantine and Modern Greek Studies* 40 (2016): 188.

<sup>32</sup> *De Thematibus*, 125.

<sup>33</sup> *De Thematibus*, 124.

<sup>34</sup> Kountoura-Galake et al., *Μικρά Ασία των θεμάτων*, 249.

<sup>35</sup> *De Administrando Imperio*, 50.101–10; Belke, *Tabula Imperii Byzantini*, 4:143, 209, 235.

In terms of the boundary with Kappadokia, the four *banda* of Aspona, Akarkous, Balbadona, and Baretta were merged into the *tourma* of Kommata and moved from the Boukellarion Theme to Kappadokia, placing the subsequent border just north of these.<sup>36</sup>

The border with the Anatolikon Theme ran from east to west just north of Lake Tuz, before terminating near Meros.<sup>37</sup> Amorion fell within the Anatolikon's jurisdiction.

From there the precise border with the Opsikion Theme remains somewhat opaque. The cities of Malagina, Dorylaion, and Kotyaion along the main road are firmly attributed to the Opsikion Theme, leaving the border of the two themes to run just east of these settlements.<sup>38</sup>

Finally, the western border with the Optimaton Theme ran along the Sangarios River, with Konstantinos VII firmly attributing Klaudioupolis to the Boukellarion Theme.<sup>39</sup>

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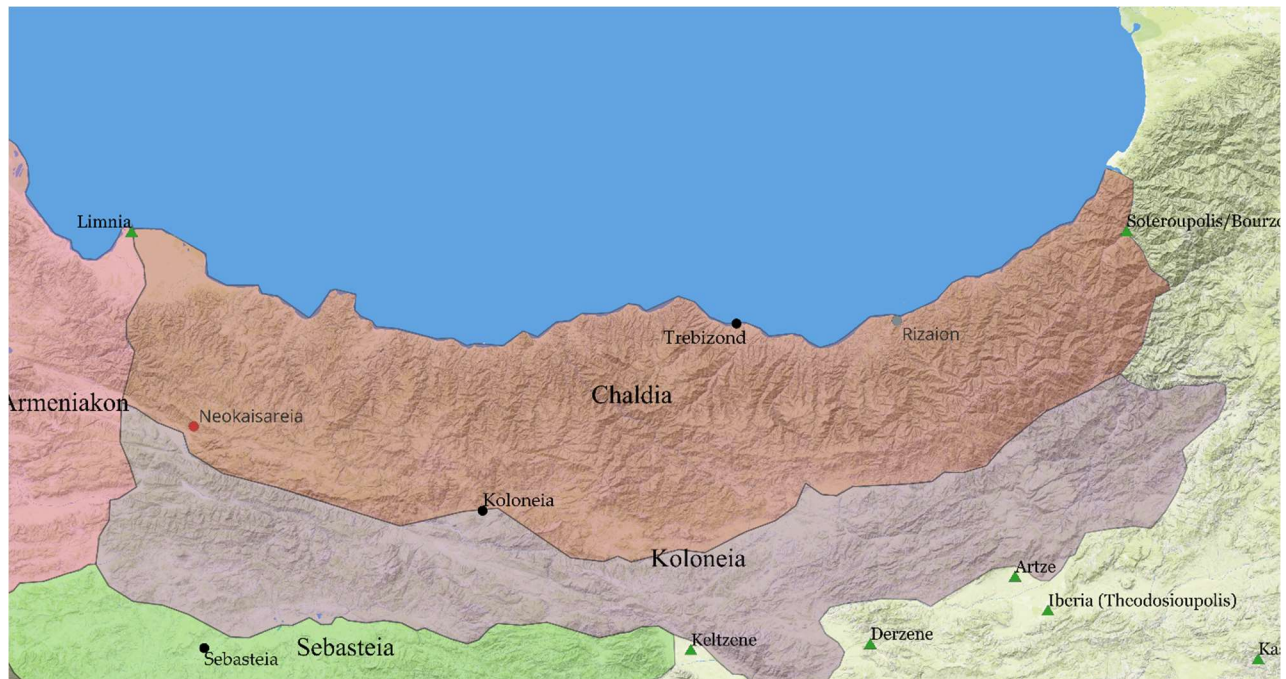
<sup>36</sup> *De Administrando Imperio*, 50.101–10; Belke, *Tabula Imperii Byzantini*, 4:118, 135, 137, 143, 193.

<sup>37</sup> *De Thematribus*, 116.

<sup>38</sup> *De Thematribus*, 116–17.

<sup>39</sup> *De Thematribus*, 124.

## Chaldia Theme



MAP 4.5. The Chaldia Theme

The Chaldia Theme was situated in the historic region of the Pontos along the far northeastern portion of Byzantium's landholdings. It was bordered to the north by the Black Sea, to the east by a selection of minor themes, to the south by the Koloneia Theme, and to the west by the Armeniakon Theme. The theme included the major port of Trebizond (modern Trabzon).<sup>40</sup>

The eastern extent of the theme was defined by the various minor themes that occupied the Armenian highlands, including Tziliapert, Kars, and Ani. As the Akampsis River (modern Chorokh River) likely defined the eastern extent of the theme, this places the minor theme of Soteroupolis/Bourzo directly on its northeastern frontier.

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<sup>40</sup> *De Thematibus*, 128.

The southern border with Koloneia likely ran just north of that theme's namesake city of Koloneia, and ended in the west around Neokaisareia (modern Niksar) and the mountain of Phalakron (likely modern Karaçam Dağı).<sup>41</sup> This confined Chaldia to the southern terminus of the Pontic Mountains. Although it is not recorded, this would make the modern Kelkit Stream the logical location of the southern border.

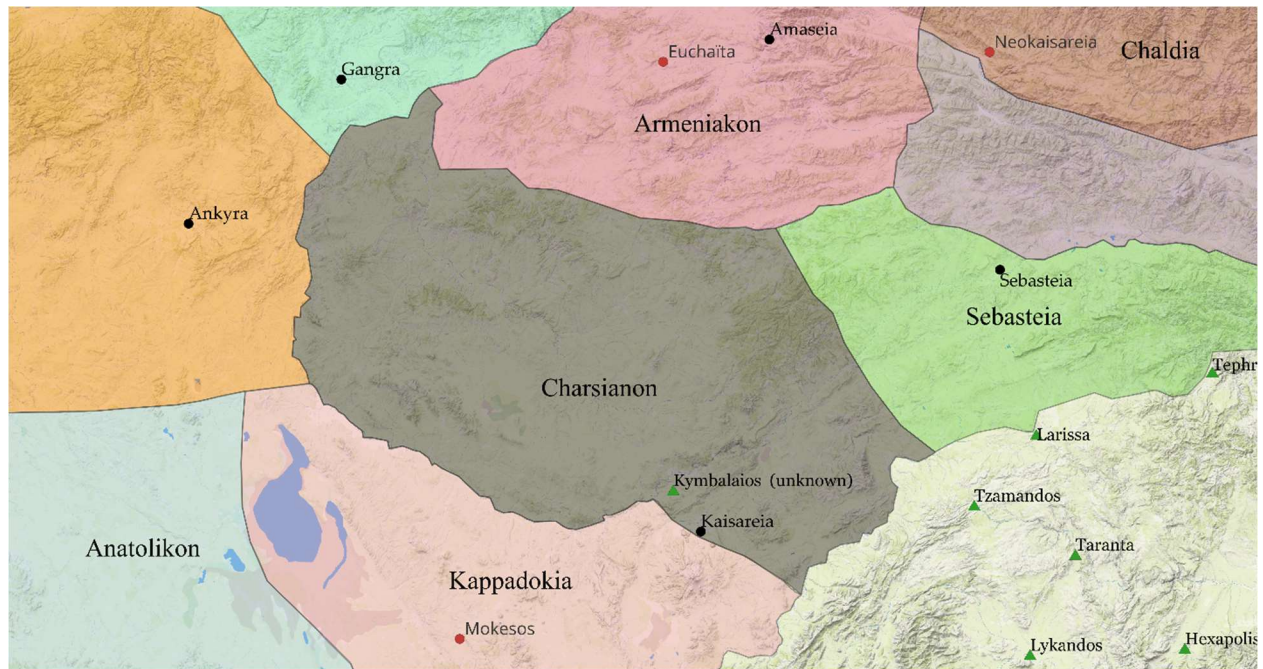
Finally, the western border with the Armeniakon Theme likely started north of Neokaisareia along the Iris River (modern Yeşilirmak River) running north before terminating at the Black Sea, east of Aminos (modern Samsun). The minor theme of Limnia commanded the mouth of the river, serving as a good delineation point between the Armeniakon and Chaldia Themes.<sup>42</sup>

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<sup>41</sup> Bryer and Winfield, *Topography of the Pontus*, 147.

<sup>42</sup> Anthony Bryer, "Greeks and Türkmens: The Pontic Exception," *Dumbarton Oaks Papers* 29 (1975): 128–29; Korobeinikov, *Byzantium and the Turks*, 229.

## Charsianon Theme



MAP 4.6. The Charsianon Theme

The Charsianon Theme was located along what was the empire's eastern frontier until the creation of the minor themes in the late tenth century extended Byzantine control even further east. The theme corresponded roughly to the former Roman province of Kappadokia Prima.<sup>43</sup> It was bounded to the north by the Armeniakon Theme, the northeast by the Sebasteia Theme, to the east by a series of minor themes, to the south by the Kappadokia Theme, by the Boukellarion Theme to the west, and to the northwest by the Paphlagonia Theme.

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<sup>43</sup> *De Thematribus*, 103; *De Thematribus*, ed. Pertusi, 123–24.

The defining geographical feature of the theme was the Halys River. Starting around Kaisareia, this river determined the southern border with most of Kappadokia, the western border with the Boukellarion Theme, and the small northwestern expanse with Paphlagonia.<sup>44</sup>

Charsianon's border with the Armeniakon Theme is perhaps the most controversial of all the themes. The only thing known with certainty is that the city of Charsianon defined the northern extent of the eponymous theme, otherwise, everything else is up for interpretation. This study therefore traces a path along a route that runs between mountains in the most unimpeded and direct fashion, between the confluence of the Halys and Kappadox (modern Delice) Rivers in the west to the city of Charsianon in the east. It is possible that the Armeniakon Theme extended further south along a portion of the Kappadox River, but this would give the Charsianon Theme an unusually long and narrow shape and would not account for the capital much further to the north. Certainly not an impossibility, but also not a very elegant solution.

The border with the Sebasteia Theme is also ill-defined, again with the city of Charsianon the only definitive demarcating feature. No distinctive geographical features exist that could dictate the course of the border. Because Charsianon was created, in part, as a way to defend the east before the advent of the minor themes, it would make sense for it to have a frontier presence somewhat comparable to Kappadokia and Sebasteia. However, without any more definitive evidence, this must remain in the realm of speculation.

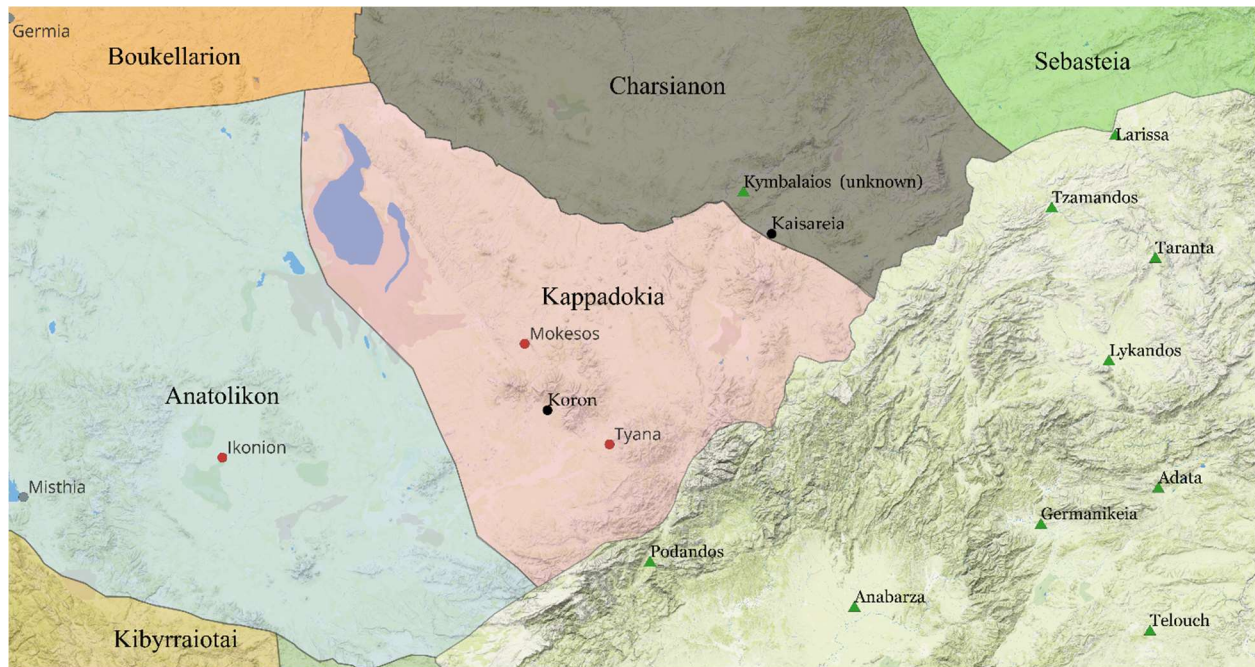
Finally, the eastern front was defined by the Anti-Taurus Mountain range, which included Lykandos and the minor themes of Larissa, Taranta, Tzamandos, and potentially Kymbalaios. Based on the location of these themes, the most probable location for the border was along the Karmalas River (modern Zamanti River).

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<sup>44</sup> *De Thematribus*, 103; *De Thematribus*, ed. Pertusi, 123–24.



## Kappadokia Theme



MAP 4.7. The Kappadokia Theme

The Kappadokia Theme served as a defensive bulwark along the southeastern front until the proliferation of the minor themes in the late tenth century. It constituted the historical region of Kappadokia and closely paralleled the Roman province of Kappadokia Secunda and parts of Kappadokia Prima.<sup>45</sup> This was due to the presence of several defining geographical features including the Halys River, Lake Tuz, and the mountain ranges of the Taurus and Anti-Taurus. It was bounded by the Boukellarion Theme in the far north, the Charsianon Theme to the north and northeast, the minor themes to the east, and the Anatolikon Theme to the west and south.

The short border with the Boukellarion Theme ran from the western coast of Lake Tuz, east to the Halys River.

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<sup>45</sup> *De Thematribus*, 101.

The Halys River defined the border with the Charsianon Theme, before cutting east just south of Kaisareia and the fortress of Rhodenton/Rhodandos (modern Çamlıca), terminating in the east at the Anti-Taurus Mountains.<sup>46</sup>

The eastern portion along the frontier zone in Kilikia was defined by a series of minor themes, including Kymbalaios, Podandos, Anabarza, Tarsos, and Mopsouestia.

The border with the Anatolikon Theme ran northwest, skirting around the cities of Loulon<sup>47</sup> and Heraclea Kybistra,<sup>48</sup> before continuing north in an indeterminate manner around the western bank of Lake Tuz and terminating at the Boukellarion Theme. This border was defined by the *tourma* of Kommata, added to the theme by Leon VI, which derived in part from the four *banda* of Aspona, Akarkous, Balbadona, and Baretta.<sup>49</sup>

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<sup>46</sup> *De Thematibus*, 102.

<sup>47</sup> *De Thematibus*, 102.

<sup>48</sup> *De Thematibus*, ed. Pertusi, 121.

<sup>49</sup> *De Administrando Imperio*, 50.101–10; Belke, *Tabula Imperii Byzantini*, 4:118, 135, 137, 143, 193.

## Kibyrraiotai Theme



MAP 4.8. The Kibyrraiotai Theme

The Kibyrraiotai was the largest of the three Anatolian maritime themes and constituted the southern coast of Asia Minor. This included portions of the regions of Karia, Lykia, Pamphylia, Isauria, and the Dodecanese. It was bordered to the south by the Mediterranean Sea, to the north by the Thrakesion and Anatolikon Themes, with the Seleukeia Theme constituting the far eastern boundary, and the Samos Theme marking the far west.

The *De Thematibus* describes the theme as starting in the west at Miletos and Iasos, near the Gulf of Bargylia, and extending east along the Mediterranean coast.<sup>50</sup> Unlike the Aegean Sea and Samos Themes, whose inland extent was not well-defined, the *De Thematibus* goes to great lengths to delineate the northern boundary with the Thrakesion and Anatolikon Themes. It reads,

<sup>50</sup> *De Thematibus*, 144–46.

“Above, and towards the continental and inland regions, to which the so-called Thrakesion Theme extends, it begins from the city of Miletos itself, then crosses past Stratonikeia, the district called Mogola and the city of Pisye. It runs through the district called Hagia, passes Tauropolis, touches on Tlos and Oinianda, then passes by Phileta and Podaleia. Then it runs through the so-called Wind-wall (Anemoteichos) as far as the city of Sagalassos, then halts in the Tauros regions where the Isaurian people dwell.”<sup>51</sup>

While the *De Thematibus* is silent on any territory beyond Sagalassos, the theme continued further east, abutting the Seleukeia Theme. One complication in discerning the border are the themes of the Dekapolis and Irenoupolis which fall within the territory traditionally considered as part of the Kibyrraiotai Theme’s eastern holdings. While the location of Irenoupolis is known with certainty, the Dekapolis’s precise extent remain unknown.<sup>52</sup> Because of the uncertainty surrounding these minor themes, for the purpose of this study they are treated as small fortifications, having a negligible impact on the Kibyrraiotai Theme’s total area.

The final uncertainty regarding the theme is the northern border with the Anatolikon Theme. The inland city of Sagalassos is labeled in the *De Thematibus* as a part of its holdings, demonstrating that the theme’s authority extended to the northern portion of the Central Taurus Mountains.<sup>53</sup> It therefore will be presumed that the Kibyrraiotai Theme continued east from Sagalassos along the northern edge of the Central Taurus Mountains until reaching the border with the Seleukeia Theme.

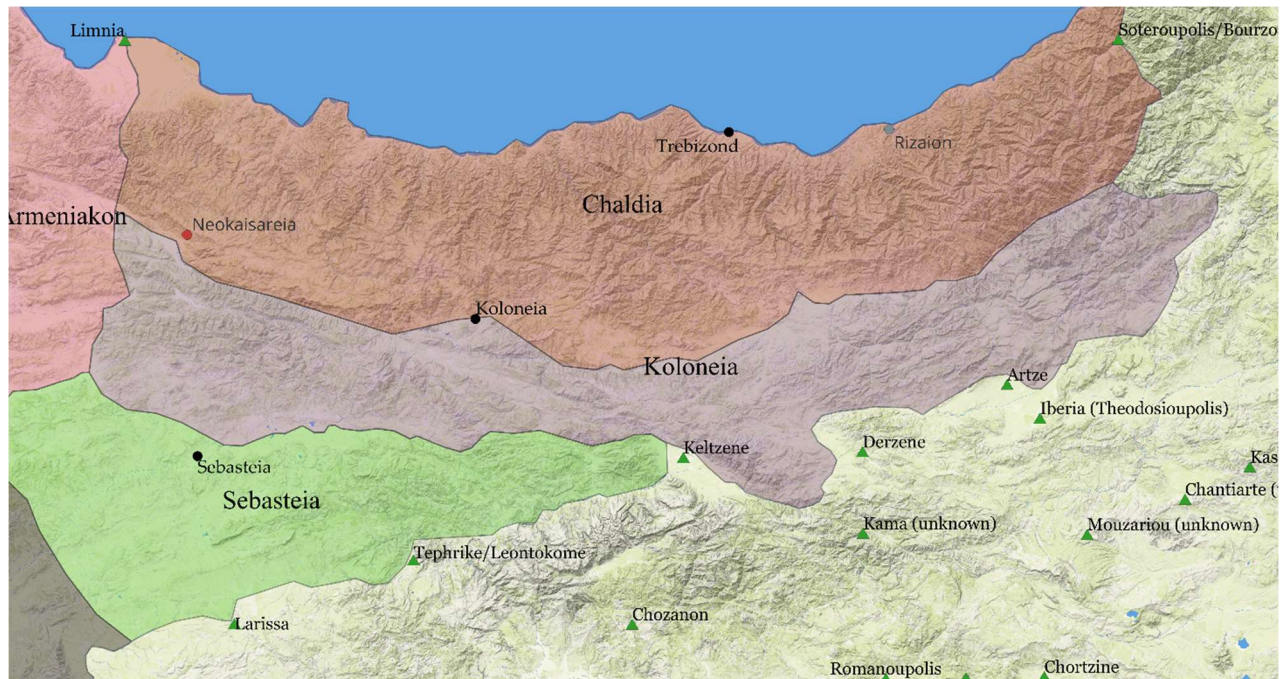
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<sup>51</sup> Translation by John Haldon, *De Thematibus*, 150.

<sup>52</sup> Werner Seibt and Ergun Laflı, “Byzantine Military Governor of the Isaurian Decapolis in Southern Anatolia/ Στρατηγός Δεκαπόλεως,” *Revue des études byzantines* 78 (2020): 75.

<sup>53</sup> *De Thematibus*, 150.

## Koloneia Theme



MAP 4.9. The Koloneia Theme

The Koloneia Theme was located in the northeastern extreme of Asia Minor, occupying the historic regions of northern Kappadokia and the southern Pontos. It was bordered to the north by the Chaldia Theme, to the east by the minor themes, to the south by the Sebasteia Theme, and to the west by the Armeniakon Theme.

As its namesake suggests, this theme was centered around the frontier fortification of Koloneia that was turned into the capital.<sup>54</sup> The *De Thematribus* lists the other cities of the theme as Neokaisareia (modern Niksar), Arabrakanoi (likely modern Ardos), and Nikopolis (Pürk), along with sixteen unnamed fortresses.<sup>55</sup>

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<sup>54</sup> *De Thematribus*, 132.

<sup>55</sup> *De Thematribus*, 133–34; Bryer and Winfield, *Topography of the Pontos*, 147.

With Arabrakenoi included as belonging to the theme, this places its eastern border roughly in line with that of Chaldia and the Akampsis River (modern Chorokh River).

The remainder of the eastern and southeastern border is defined by the cities and fortifications of the minor themes. These include: Kars, Artze, Iberia, Theodosiupolis, Derzene, Kama (whose precise location remains unknown but was situated near Derzene), and Keltzene.

The southern border with the Sebasteia Theme remains entirely undefined. It fell north of the city of Sebasteia, but everything else is unknown. This study argues for the far eastern course of the Halys River (modern Kızılırmak River) as the border's most logical location. The river is the only defining geographical feature within the plausible range for placing the border, given the natural demarcation point formed by the west-to-east course between mountain ranges. Defining the border in this way centers the Koloneia Theme along the spine of the mountains and leaves the Sebasteia Theme a roughly equal amount of space along the eastern front.

The western border with the Armeniakon Theme is also unknown but most likely started around Sebasteia and proceeded north, ending just west of Neokaisareia. This border is certainly up for debate, with the only defining features being that Neokaisareia belonged to Koloneia and Amaseia to the Armeniakon Theme. For aesthetic purposes, this border is aligned in the same longitude as that between the Chaldia and Armeniakon Themes, but such certitude should be taken with a grain of salt.

Finally, the theme's northern border with Chaldia started in the west around Neokaisareia and the mountain of Phalakron (likely modern Karaçam Dağı),<sup>56</sup> making the modern Kelkit Stream the likely border.

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<sup>56</sup> Bryer and Winfield, *Topography of the Pontus*, 147.

## Opsikion Theme



MAP 4.10. The Opsikion Theme

The Opsikion Theme constituted the western portion of Asia Minor, bordered to the north by the Optimaton Theme, to the east by the Boukellarion Theme, the southeast by the Anatolikon Theme, the southwest by the Thrakesion Theme, and to the west by the Aegean Sea Theme. The initial permutation originally included the historical regions of Mysia, Bithynia, and parts of Galatia, Lydia, and Paphlagonia, before its reduction under Konstantinos V in the mid-eighth century.<sup>57</sup>

<sup>57</sup> Kountoura-Galake et al., *Μικρά Ασία των θεμάτων*, 178.

The borders of the Opsikion Theme are well-delineated by the *De Thematibus*.<sup>58</sup> As Haldon points out, this is likely due to the theme's importance and proximity to Constantinople.<sup>59</sup>

The northern portion of the theme was defined by the Sea of Marmara, east of Kyzikos to Cape Daskylion (modern Esenköy) and the Gulf of Astakos (Gulf of Izmit).<sup>60</sup> Nikaia served as the theme's capital and helped to define its northeastern border with the Optimaton Theme.<sup>61</sup>

The eastern portion, which abutted the Boukellarion Theme, was delineated by the presence of cities along a major trunk route. Although the border is not known with precision, the Opsikion Theme included the cities of Nikaia, Kotyaion (Kütahya), Dorylaion, Medaeion, Apameia, and Myrleia.<sup>62</sup> This means the border had to take a southeastern approach along the road from Nikaia in the north, past Dorylaion and Kotyaion, and extending as far as Meros (modern Demirözü) in the south,<sup>63</sup> along the western side of the Phrygian highlands.<sup>64</sup> The southeastern portion of the theme terminated around these highland, just north of the city of Amorion, which belonged to the Anatolikon Theme.<sup>65</sup>

The border between the Opsikion and Boukellarion Themes is interesting because it was largely defined by the presence of human-made settlements and a trade route, not exclusively geographical features. With an important road serving as the main route from Constantinople into the heart of Anatolia and on to the eastern front, it makes sense that this was the most important feature within the eastern portion of the theme.

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<sup>58</sup> *De Thematibus*, 114–17.

<sup>59</sup> *De Thematibus*, 117n145, ed. Haldon.

<sup>60</sup> *De Thematibus*, 114–15.

<sup>61</sup> *De Thematibus*, 117.

<sup>62</sup> *De Thematibus*, 117.

<sup>63</sup> *De Thematibus*, 116.

<sup>64</sup> *De Thematibus*, 85.

<sup>65</sup> *De Thematibus*, 86.



Because the Opsikion Theme did not strictly follow the earlier Diocletianic provincial model, its southern boundary with the Anatolikon and Thrakesion Themes assumed a more artificial approach as well, running in a relatively straight line from east to west, between the cities of Meros and Adramyttion.

Much of the theme's littoral fell under the control of the Aegean Sea Theme, leaving the Opsikion Theme with a narrow coastal segment around Nikaia and its port of Kios, and bereft of its former ports of Kyzikos and Abydos.<sup>66</sup> This border with the Aegean Sea Theme to the west was deliberately ill-defined so as to facilitate military and administrative cooperation between the two themes. Even the *De Thematribus* conflates the respective jurisdictions by listing the same cities under the chapters for both the Opsikion Theme and the Aegean Sea Theme.<sup>67</sup>

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<sup>66</sup> Oikonomides, *Les listes de préséance byzantines*, 46–47.

<sup>67</sup> *De Thematribus*, 114–17, 160–63.

## Optimaton Theme



MAP 4.11. The Optimaton Theme

The Optimaton Theme was created out of Konstantinos V's division of the Opsikion Theme in the mid-eighth century.<sup>68</sup> The theme was bordered to the east by the Boukellarion Theme and to the southeast by the Opsikion Theme. It was the closest eastern theme to Constantinople and principally encompassed the Mesothynia (modern Kocaeli Peninsula). The *De Thematibus* says the theme included the cities of Nikomedeia (the capital), Helenopolis (modern Hersek), Prainetos (near modern Karamürsel), Astakos, and Parthenopolis (location unknown).<sup>69</sup> Its northern border was defined by the Black Sea, with the Bosphorus serving as the western demarcation and the Sea of Marmara lying to the south. The eastern boundary was formed by, or

<sup>68</sup> Lounghis, "Opsikian Domesticates," 29–31; Haldon, *Byzantine Praetorians*, 222–27.

<sup>69</sup> *De Thematibus*, 121.

near, the Sangarios River (modern Sakarya River).<sup>70</sup> These natural features provide an easy way to delineate most of the theme's shape.

The theme's southeast extent is not precisely known. Konstantinos VII says the theme included the Tarsiatai people of the region of Tarsia,<sup>71</sup> east of Nikomedeia along the Sangarios River.<sup>72</sup> The southeastern terminus was likely just south of this at, or around, Malagina.<sup>73</sup>

Malagina served as an *aplekton*, the first staging point for the imperial and thematic armies of Thrake and the Opsikion to meet and provision before marching against a threat to the east.<sup>74</sup> Such a strategic point seems like a logical location for the boundary between themes.

The theme did not include Nikaia, which served as the capital of the Opsikion Theme. Therefore, a sensible southern terminus of the theme is in the east around Malagina along the Sangarios River, cutting northwest just north of Nikaia, and terminating west of Nikomedeia at the Gulf of Astakos (modern Gulf of Izmit).

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<sup>70</sup> *De Thematribus*, 121–22. The *De Thematribus* says the Sangarios “flows through” the theme, but it would make more sense for the river to serve as the actual delineation point.

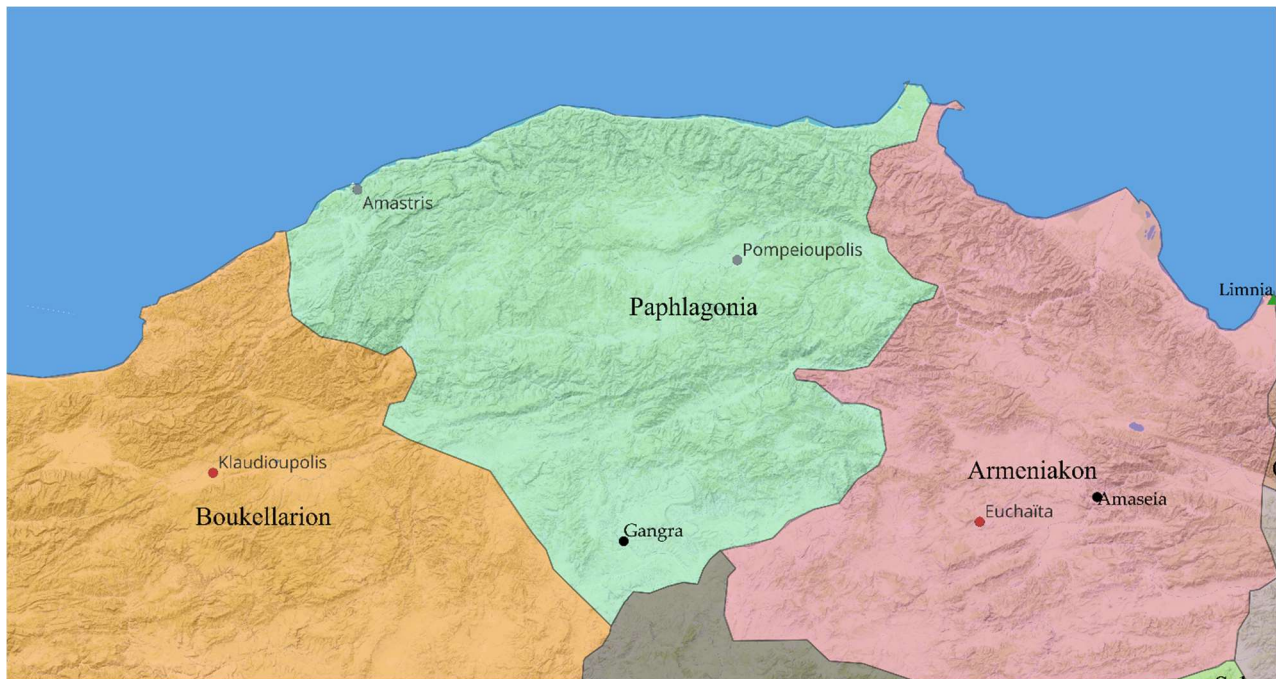
<sup>71</sup> *De Thematribus*, 120.

<sup>72</sup> A reference to Tarsia belonging to the Optimaton Theme is also found in a description of Saint Eustathius, *Vita Eustratii Hegumeni Monasterii Abgari in Monte Olympo*, IV, 369.

<sup>73</sup> Foss, “Byzantine Malagina,” 169; Kountoura-Galake et al., *Μικρά Ασία των θεμάτων*, 244.

<sup>74</sup> George Huxley, “A List of Aplekta,” *Greek, Roman, and Byzantine Studies* 16 (1975): 87–93.

## Paphlagonia Theme



MAP 4.12. The Paphlagonia Theme

The Paphlagonia Theme was situated in the north part of Anatolia and corresponded closely to the historical region and Roman province of Paphlagonia. It was bordered to the west by the Boukellarion Theme, and to the east and south by the Armeniakon Theme. Konstantinos VII describes the theme as including the following cities: Gangra (modern Çankırı), Sora (Akören), Dadybra (Devrek), Ionopolis (Inebolu), and Pompeiupolis (Taşköprü).<sup>75</sup>

This is a theme heavily defined by waterways. The Black Sea served as the north border, and included the important coastal city of Amastris (modern Amasra).<sup>76</sup> The *De Thematibus* also lists the coastal city of Sinope (Sinop) as belonging to the theme, however Pertusi proved that it

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<sup>75</sup> *De Thematibus*, 128.

<sup>76</sup> *De Thematibus*, 127.

actually was part of the Armeniakon Theme.<sup>77</sup> Instead, the Paphlagonia Theme likely ended just west of Sinope, following the line of the Karasu River, which formed the border with the Armeniakon Theme. This boundary continued south until reaching the Halys River, which then defined the southeastern and southern extent.<sup>78</sup> The theme terminated in the south along the Halys near, but not inclusive of, Ankara.<sup>79</sup>

From there the border with the Boukellarion Theme proceeded northwest, connecting to the modern Filyos Stream, then feeding into the Yenice River, which subsequently emptied into the Black Sea just east of Tios.<sup>80</sup> This portion matches the ancient provincial border between Honorias and Paphlagonia.<sup>81</sup>

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<sup>77</sup> *De Thematibus*, ed. Pertusi, 37.

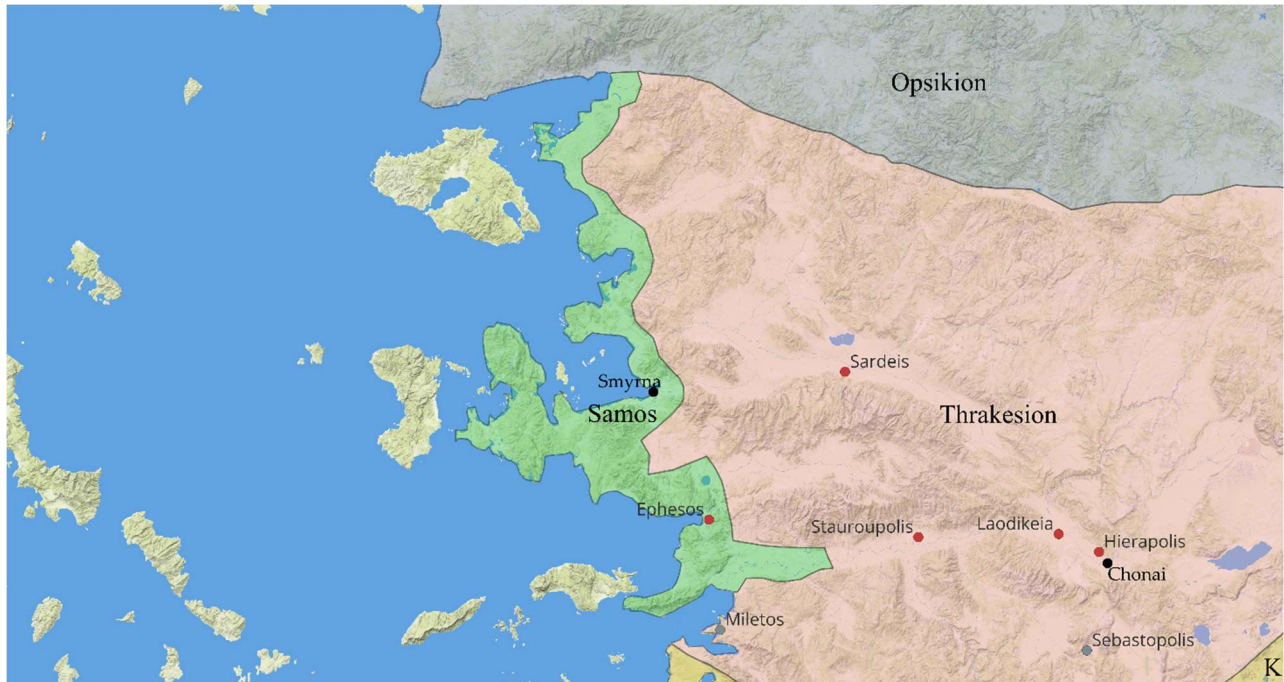
<sup>78</sup> *De Thematibus*, 127.

<sup>79</sup> *De Thematibus*, 125.

<sup>80</sup> *De Thematibus*, 124; Kountoura-Galake et al., *Μικρά Ασία των θεμάτων*, 245–46.

<sup>81</sup> Ritter and Lightfoot, “Byzantine Coins from Hadrianoupolis,” 188.

## Samos Theme



MAP 4.13. The Samos Theme

Samos was one of the three maritime themes of Asia Minor and constituted the western coast between Adramyttion and Ephesos. The *strategos* headquartered at Smyrna (modern Izmir), with two *tourmai* located at Ephesos and Adramyttion.<sup>82</sup> Other cities included Magnesia, Tralleis (Aydın), Myrina, Teos, and Lebedos, indicating that the authority of the Samos Theme constituted the coast as well as areas along navigable portions of rivers such as the Hermos and Pythikos.<sup>83</sup> The theme also controlled the islands of the eastern Aegean Sea that were not under the jurisdiction of the Aegean Sea Theme. This included Samos, Ikaria, and Patmos.

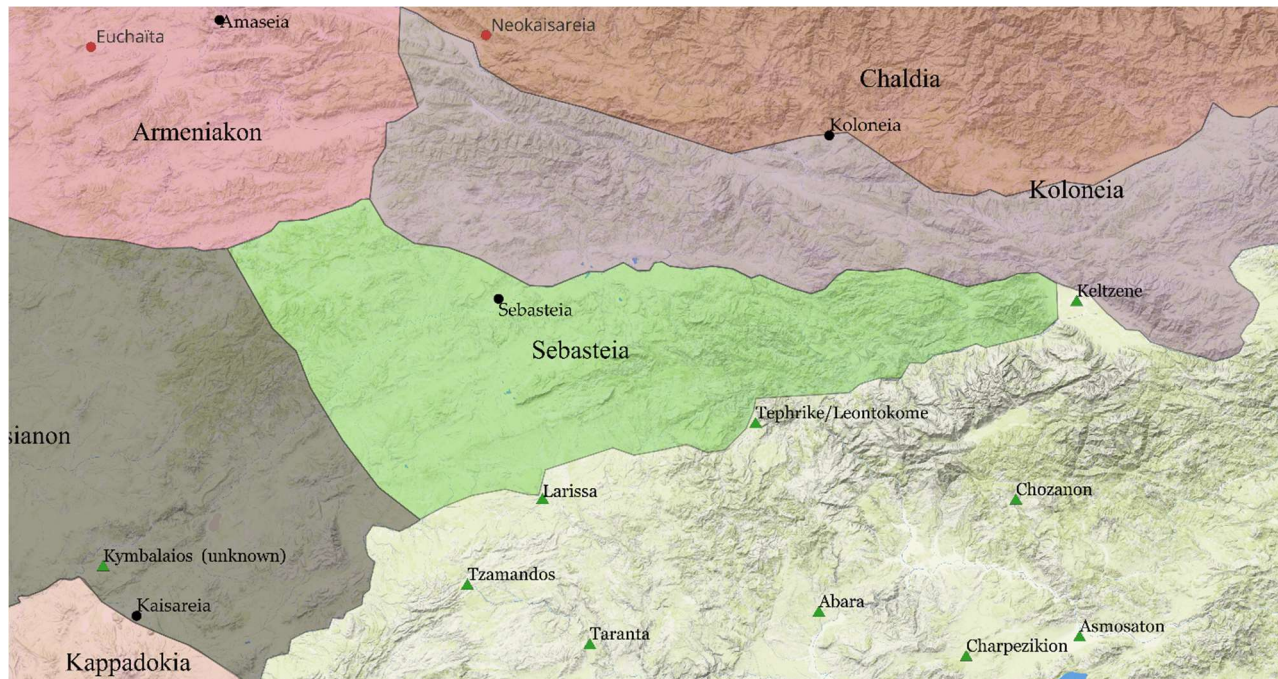
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<sup>82</sup> *De Thematribus*, 160.

<sup>83</sup> *De Thematribus*, 159.

The Thrakesion Theme constituted the entirety of the eastern border, providing shared administrative duties and protection along the landward side.<sup>84</sup>

## Sebasteia Theme



MAP 4.14. The Sebasteia Theme

The Sebasteia Theme constituted the regions of northeast Kappadokia and Armenia Minor along the eastern front of the empire. This included the Roman provinces of Armenia Prima, as well as parts of Armenia Secunda and Syria Euphratesia. The Koloneia Theme defined the northern border, a series of minor themes demarcated the eastern side, to the south was the Charsianon Theme, and the Armeniakon Theme to the west. As its name suggests, it was based around the

<sup>84</sup> *De Thematibus*, 159; Ahrweiler, *Byzance et la mer*, 402.

capital of Sebasteia (modern Sivas). The *De Thematibus* does not describe the geographical extent of the theme, making it difficult to precisely ascertain its borders.<sup>85</sup>

The eastern border with the minor themes is the easiest to define. The Sebasteia Theme was reduced on at least two occasions when Larissa and Amara/Abara were detached to form *kleisourai* in the early tenth century.<sup>86</sup> After that, the frontier was defined by the minor themes of Keltzene, Chozanon, Tephrike/Leontokome, Amara/Abara, Taranta, and Larissa.

The southern border with the Charsianon Theme is entirely unknown other than that the eponymous capital city defines its northwestern extremity. This boundary is therefore constructed in this study so as to give the Charsianon and Sebasteia Themes a similar segment of the eastern frontier. However, there remains significant room to argue for a different location.

The western border with the Armeniakon Theme likely began near the city of Charsianon and ran in a northeastern direction, ending west of the city of Sebasteia. The geographical feature of the Çekerek River aligns closely with potential locations for the border and is therefore used as the demarcation between themes.

From there the border proceeded east, potentially running along the eastern course of the Halys River (modern Kızılırmak River), continued north of the city of Sebasteia, and ended around the minor theme of Keltzene.

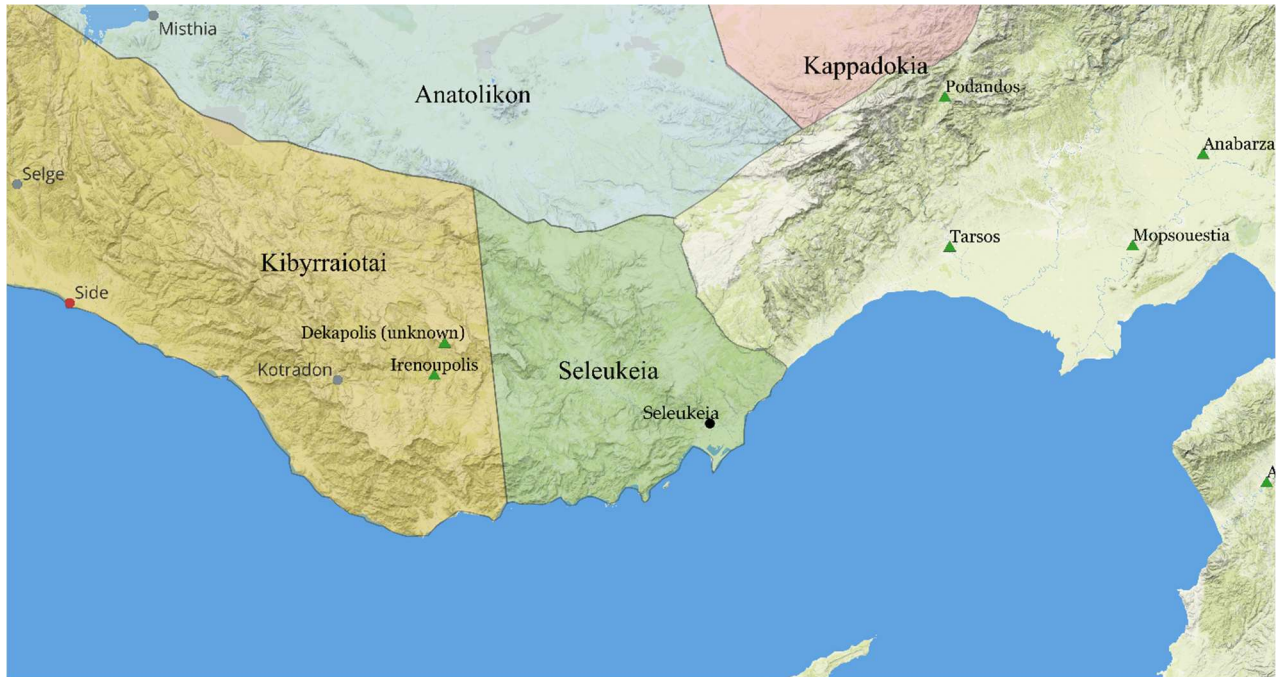
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<sup>85</sup> *De Thematibus*, 134–35.

<sup>86</sup> *De Administrando Imperio*, 50.133–34.



## Seleukeia Theme



MAP 4.15. The Seleukeia Theme

The Seleukeia Theme fell along Anatolia's southeastern frontier. The Kibyrraiotai Theme constituted its western border, with the Anatolikon Theme to the north. The Taurus Mountains and the minor themes ran along the eastern portion, with the Mediterranean Sea defining the theme's southern extent.<sup>87</sup>

The principal city was Seleukeia (modern Silifke). The *De Thematibus* also lists the cities of Korykos, Soloi, Aigaiai, Pompeiupolis, and Aphrodisias.<sup>88</sup> However, at the time of the *De Thematibus*'s writing, only Seleukeia and Korykos firmly belonged to the theme, with the

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<sup>87</sup> *De Thematibus*, 140.

<sup>88</sup> *De Thematibus*, 141–42.

settlements to the east under the emirate of Tarsos.<sup>89</sup> This means that Konstantinos VII was either overinflating the extent of the Seleukeia Theme or simply listing ports along the coast.

Ascertaining the theme's western border is complicated by the existence of the minor themes of the Dekapolis and Irenoupolis. While the location of Irenoupolis is certain, the precise extent of the Dekapolis is unknown.<sup>90</sup> Likewise, the two minor themes' relationship with the Kibyrraiotai Theme are indeterminate. The border should therefore be tenuously placed in the south near the modern Mediterranean city of Bozyazi, running north and terminating around modern Karaman.

The northern border with the Anatolikon Theme is never precisely defined. The Seleukeia Theme served the dual purpose of safeguarding the Mediterranean coast and the adjacent mountains to the north as a buffer to protect the Kibyrraiotai Theme from raids. Therefore, it is logical that the Seleukeia Theme extended to encompass the Central Taurus Mountains, with the Anatolikon Theme in control of the plain beyond.

The theme's eastern border was defined by the Taurus Mountains. This mountain range served as the main defensive bulwark against the various Islamic threats until the advent of the minor themes in the late tenth century. Another, and more exacting, demarcation along the eastern frontier was the Lamos River (modern Limonlu), which entered into the sea west of Tarsos.<sup>91</sup> By the end of the tenth century, this front was occupied by the minor themes of Tarsos to the south and Podandos in the north.

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<sup>89</sup> *De Thematibus*, 141.

<sup>90</sup> Seibt and Lafli, "Isaurian Decapolis," 75.

<sup>91</sup> *De Thematibus*, 142; Hild and Hellenkemper, *Tabula Imperii Byzantini*, 5:330–31.

## Thrakesion Theme



MAP 4.16. The Thrakesion Theme

The Thrakesion Theme was situated in the southwestern portion of Asia Minor. It consisted of the historical regions of Ionia (part of the former Roman province of Asia), Lydia, the northern portion of Karia, and a portion of Phrygia. It was bordered to the north by the Opsikion Theme, the east by the Anatolikon Theme, the south by the Kibyrraiotai Theme, and to the west by the Samos Theme.

Despite its importance and position as one of the original themes, Konstantinos VII barely touched upon the geographical extent of the Thrakesion Theme, only listing the major cities. These included Alabanda, Alinda, Chonai/Kolossai, Hierapolis, Kolophon, Laodikeia,

Miletos, Nyssa, Pergamon, Priene, Sardeis, Stratonikeia, and Thyateira.<sup>92</sup> Pratsch and Haldon suggest that this can be taken as an accurate geographical representation because Konstantinos VII did not just directly lift the list from the *Synekdemos*; instead it was an attempt to ascertain the actual cities within the theme.<sup>93</sup> Because this theme did not carefully follow the precedent of the Roman provincial model, it was not as reliant on geographical features, potentially accounting for their absence from the *De Thematribus*.

The northern border with the Opsikion Theme ran in a roughly straight line from west to east between the cities of Adramyttion and Meros. Moving east, the border with the Anatolikon Theme started in the north near the city of Meros and ran south, terminating just north of the Kibyrraiotai Theme's city of Sagalassos.<sup>94</sup> The precise location of this border is highly uncertain. The only hard factors that restrict its potential location are the sites of Kolossai and Sozopolis, which belonged to the Thrakesion and Anatolikon Themes, respectively.<sup>95</sup> This study places the border to the east of Lake Burdur; it could potentially lie to the west but this choice aligns best with geographical precedence.

The southern and western borders with the Kibyrraiotai and Samos Themes, respectively, followed the idea of shared administrative duties inherent in the maritime themes. This meant that Samos held naval jurisdiction over the coastal cities of Smyrna (modern Izmir), Adramyttion, Ephesos, Magnesia, Tralleis, Myrina, Teos, and Lebedos.<sup>96</sup> Likewise, the

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<sup>92</sup> *De Thematribus*, 112–13.

<sup>93</sup> *De Thematribus*, ed. Haldon, 112n127; Pratsch, “Untersuchungen zu De thematribus,” 107–10; Foss, “‘Twenty Cities’ of Byzantine Asia,” 471–72.

<sup>94</sup> *De Thematribus*, 116, 150.

<sup>95</sup> Treadgold, “Numbers and Organization,” 281.

<sup>96</sup> *De Thematribus*, 160.

Kibyrraiotai Theme controlled the cities of Oinianda, Podaleia, Tlos, Pisye, and Iasos.<sup>97</sup> Beyond that, the Thrakesion Theme had the authority to defend mainland Anatolia.

While the bulk of its littoral was lost to the Kibyrraiotai and Samos Themes, a small strip of land near Miletos remained within the theme's direct control. This is also seen in the Opsikion Theme, indicating the need for sea access despite the shared authority with the maritime themes.

### **The Lykandos and Mesopotamia Themes**

Lykandos and Mesopotamia are included at the end of this list because their location on the far eastern frontier coupled with the lack of solid geographical information makes their specific boundaries impossible to properly ascertain. Therefore, despite their inclusion in the *De Thematibus*, they are treated akin to the minor themes in this survey, denoted only by a dot.

### **The Minor Themes**

The remaining themes, whose borders have not been delineated, constitute the minor themes. A complete list is found in appendix 1.

Unlike the Roman Themes, the minor themes were small and primarily centered on the capital, with their principal goal to serve as a fortification to facilitate military control of the area. As such, their precise borders were not typically articulated in the surviving record beyond the

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<sup>97</sup> *De Thematibus*, 144–50.

specific urban centers they included. The minor themes are therefore designated on the map as a point, denoting the location of the capital.

While this was not how the Byzantines envisioned the jurisdictions of the minor themes,<sup>98</sup> denoting the themes in this way provides context for how they were spaced and what sections of the frontier were more heavily packed with themes.

### **Map of the Eastern Theme System**

Plotting this data provides the following basemap, which depicts the spatial extent of the theme system at the turn of the second millennium. A basemap, in contrast to a normal map, serves as a reference map upon which different geographical layers can be placed to interrogate various spatial phenomena.<sup>99</sup>

For the creation of this basemap, the topographical outline of Asia Minor is derived from mapping tiles created by the Consortium of Ancient World Mappers.<sup>100</sup> Unlike a modern topographical map, this depicts bodies of water as they existed during the Byzantine Empire, without human-made lakes that resulted from damming waterways or reclaimed land that appeared due to the silting of harbors. These mapping tiles are then georeferenced using QGIS software to align geographical coordinates so that all subsequent maps and calculations utilize a consistent foundation.<sup>101</sup>

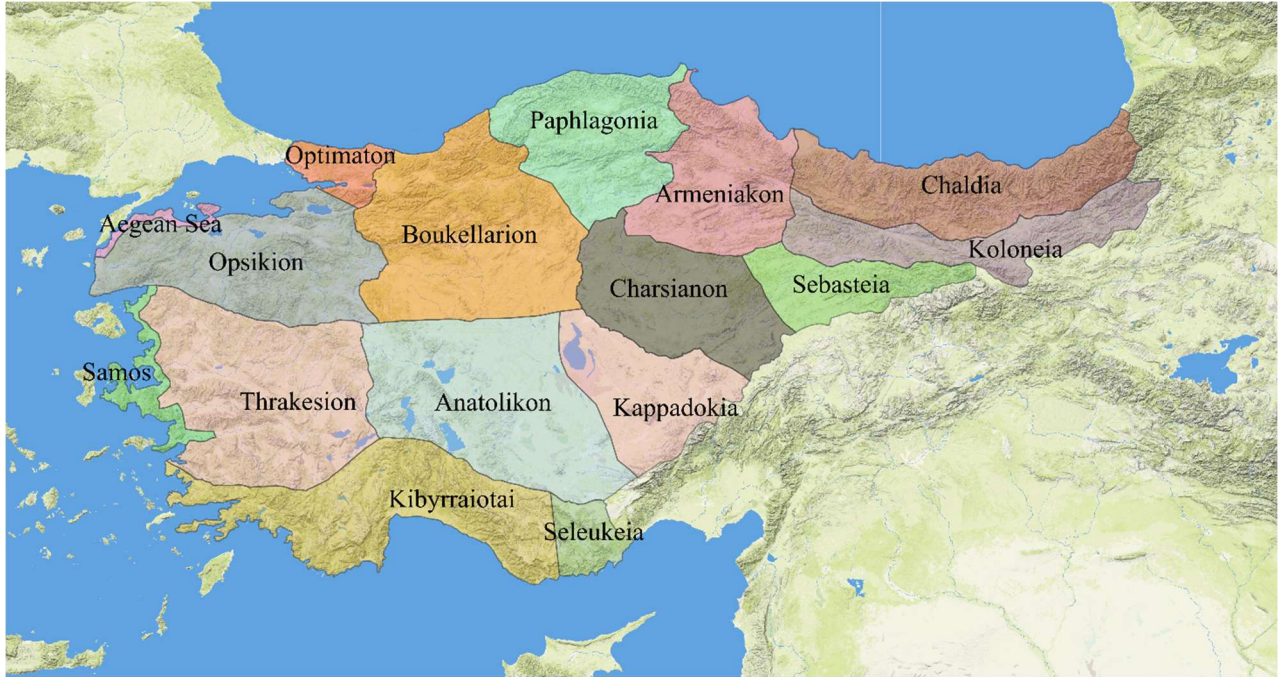
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<sup>98</sup> See chapter 9 “Minor Themes and Territorial Responsibility.”

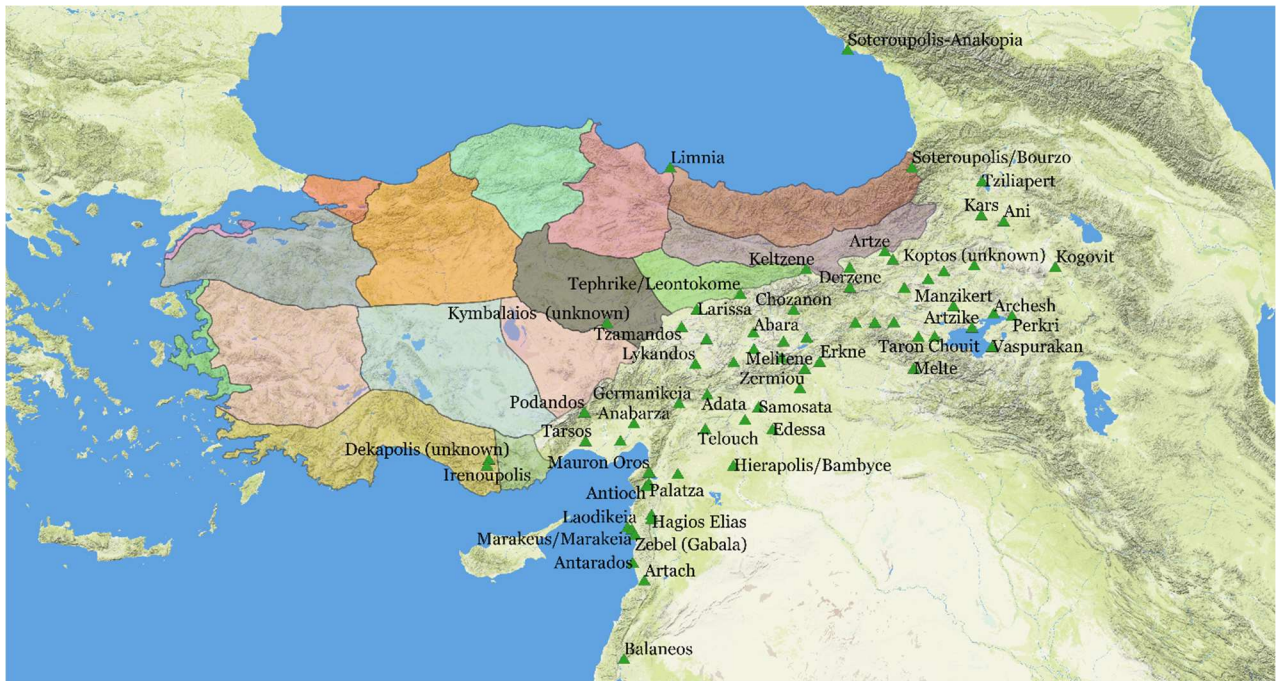
<sup>99</sup> Drew Decker, *GIS Data Sources* (New York: John Wiley and Sons, 2001), 57.

<sup>100</sup> “Consortium of Ancient World Mappers Map Tiles,” accessed February 27, 2024, <http://cawm.lib.uiowa.edu/index.html>.

<sup>101</sup> Markus Neteler and Helena Mitasova, *Open Source GIS: A GRASS GIS Approach* (New York: Springer, 2008), 58.



MAP 4.17. The Roman Themes



MAP 4.18. The Eastern Theme System

The remainder of part II uses these basemaps as the basis from which to understand the themes from a quantitative perspective.



## CHAPTER 5—GEOGRAPHICAL CRITERIA USED TO DIVIDE THE THEMES

Politics drove key strategic decisions to create and divide the themes, but geography also influenced the practical formation of the administrative units. This chapter considers criteria that could have been used when fashioning the themes. This includes natural and humanmade landmarks, thematic size, the distribution of arable land, and demography.

### Natural and Humanmade Landmarks

Natural landmarks such as rivers and bodies of water proved to be the obvious and easiest delineation when determining boundaries. Despite the lack of navigable waterways, there was still a sufficient number of rivers throughout the territory to serve as boundary designations.

Mountain ranges were used to a lesser extent, but came into play while delineating the eastern frontier along the Taurus and Anti-Taurus Mountains, as well as the northern border of the Kibyrraiotai and Seleukeia Themes.

When part of a theme did not correspond to any convenient natural features, as in the case of the Anatolikon's northern section, the border was drawn in a relatively straight line.

In addition to natural features, humanmade ones were used as well. The placement of cities is repeatedly mentioned within the *De Thematibus* as a way to ascertain the extent of a theme. For example, the Thrakesion Theme is given no other geographical details aside from the cities it contained.<sup>1</sup> Likewise, the border between the Opsikion and Boukellarion Themes is

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<sup>1</sup> *De Thematibus*, 112–13.

deliberately explicated in terms of the cities of Dorylaion, Kotyaion, and Meros and the major trunk route running through them.<sup>2</sup> It is therefore probable that the placement of urban settlements, to some degree, factored into the thematic planners' inventory.

The use of natural and humanmade landmarks makes sense from a practicality standpoint. It negated the necessity for having to create precise topographical surveys, and it also made it easy for different parties to agree upon a boundary. For example, the location of a river would be widely known in contrast to a border running through an indiscreet field or forest. This method was practiced by the Roman Empire when they devised the provinces in Asia Minor and continued to be used by the Diocletianic provinces until the early ninth century.<sup>3</sup> While the themes did not try to overlay onto the Diocletianic provincial model, several logical boundaries such as rivers were nonetheless maintained.

### **Sizes of the Themes**

As a preindustrial state, wealth in the empire was predominantly tied to the land, rather than being centered around industrial development, as in eighteenth-century Great Britain, or around intellectual property, as in twenty-first century Silicon Valley.<sup>4</sup> Consequently, there is some correlation between the size of a theme and its perceived level of importance.

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<sup>2</sup> *De Thematribus*, 85–85, 116–17.

<sup>3</sup> Richard Talbert, ed., *Barrington Atlas of the Greek and Roman World: Map-By-Map Directory*, vol. 2 (Princeton: Princeton University Press, 2000), 1373–81 (maps 100–2).

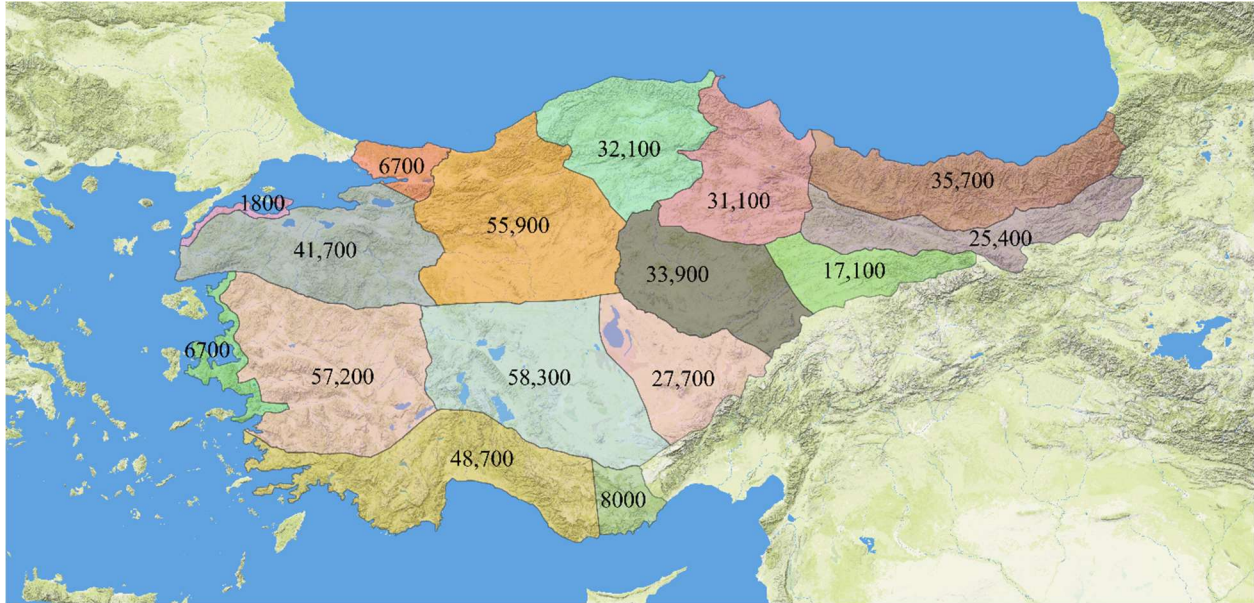
<sup>4</sup> Angeliki Laiou, "The Agrarian Economy, Thirteenth-Fifteenth Centuries," in *The Economic History of Byzantium: From the Seventh through the Fifteenth Century*, vol. 1, ed. Angeliki Laiou (Washington, DC: Dumbarton Oaks, 2007), 311–75.

For this portion of the study, the minor themes will not be included when looking at the question of area. While an important component to the overall functioning of the system at its height, the minor themes were explicitly designed to be small as a way to provide flexibility along the frontier. Their structural difference from the Roman Themes provided no direct one-to-one basis for comparison. If they were included in figures on total area and average area, it would greatly skew the results and obscure any trends present within the larger Roman Themes.

Table 5.1 provides a listing of each of the Roman Themes, excluding the minor themes, and their approximate territorial extent based on their borders circa 950. For a visual understanding, Map 5.1 overlays these table values onto the geography of Asia Minor.

(Table 5.1) Theme Sizes (rounded to the nearest 100 km<sup>2</sup>/mi<sup>2</sup>)

<u>Theme Name</u>	<u>Theme Size (km<sup>2</sup>/mi<sup>2</sup>)</u>	
Aegean Sea	1,800	700
Anatolikon	58,300	22,500
Armeniakon	31,100	12,000
Boukellarion	55,900	21,600
Kappadokia	27,700	10,700
Chaldia	35,700	13,800
Charsianon	33,900	13,100
Kibyrraiotai	48,700	18,800
Koloneia	25,400	9,800
Opsikion	41,700	16,100
Optimaton	6,700	2,600
Paphlagonia	32,100	12,400
Samos	6,700	2,600
Sebasteia	17,100	6,600
Seleukeia	8,000	3,100
Thrakesion	57,200	22,100



MAP 5.1. Theme boundaries with the square kilometers of each theme written within their borders

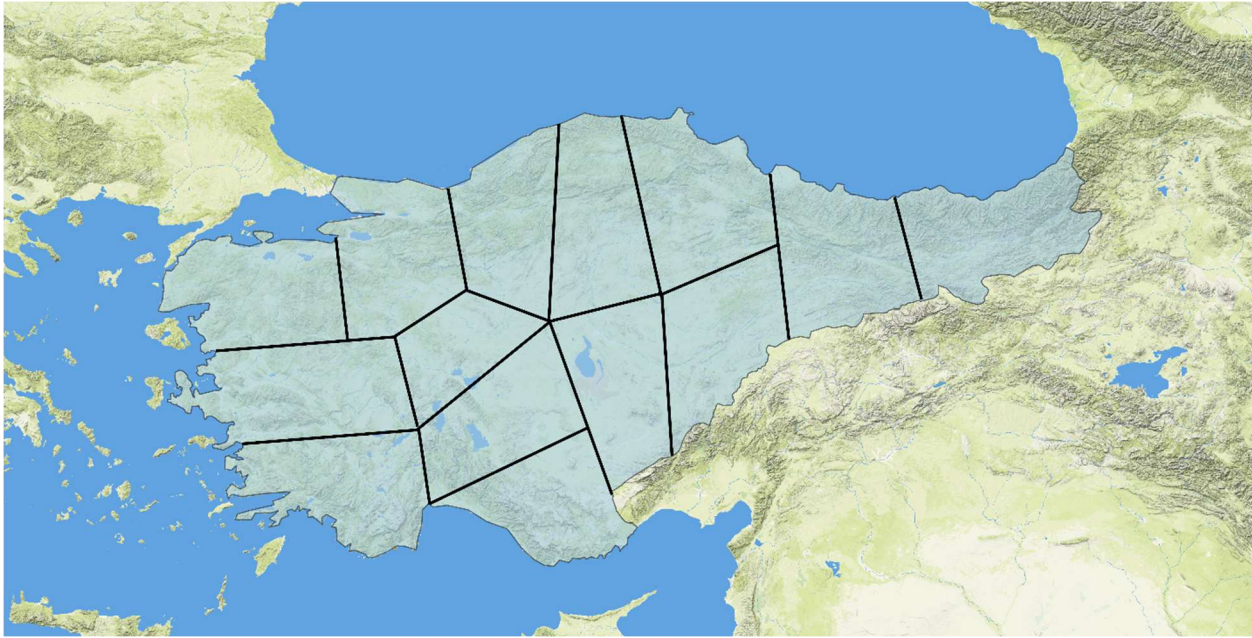
Looking at the list in table 5.1, it is apparent that the Anatolian themes were not intended to be equivalent in terms of area. Subtracting the maritime themes, whose mainland presence was intentionally negligible, this leaves fourteen themes covering approximately 479,000 km<sup>2</sup> (185,000 mi<sup>2</sup>). This would mean that, if the themes were designed to be of a similar size, the average theme should occupy around 34,200 km<sup>2</sup> (13,200 mi<sup>2</sup>). Yet this is not the case, as the themes range in size from 6,700 km<sup>2</sup> (2,600 mi<sup>2</sup>) (Optimaton) to 58,300 km<sup>2</sup> (22,500 mi<sup>2</sup>) (Anatolikon), with values falling within a wide range between the two. This rejection of uniformity is a clear indicator of centralized planning. If each theme was designed with a specific function in mind, this necessitated a certain degree of flexibility in size.

Map 5.2 depicts a hypothetical rendering of thematic boundaries based on an equitable distribution of land. From here, several of the incongruities in land distribution become apparent. The western themes of the Anatolikon, Boukellarion, and Thrakesion are the most affected,

reduced by nearly a half, and almost doubling the number of administrative units across the Anatolian Plateau.

To further illustrate the prioritization of flexibility over uniformity, consider the Optimaton Theme. Its diminutive landholdings were just enough to encompass the Mesothynia (modern Kocaeli Peninsula), which provided an approximately 150 km buffer zone between Constantinople and the Boukellarion and Opsikion Themes. This positioning proved effective and persisted through the entire duration of the theme system.

If land equity had been of paramount concern, the Optimaton would have resembled something akin to what we see in map 5.2. This arrangement would still provide Constantinople with a buffer state, but problems begin to emerge. The Optimaton Theme was heavily reliant on Constantinople for military purposes, which was tenable when it occupied 6,700 km<sup>2</sup> (2,600 mi<sup>2</sup>), but is not when expanded to more than ten times the size. At that expanded size, it would necessitate it to function more akin to a normal theme, thus negating the utility of its original design. These types of deviations from the mean size underlie the importance of organizational flexibility.



MAP 5.2. Hypothetical thematic divisions based on equal area

While the themes did not follow one uniform size, it is still possible to divide these administrative units into four size categories: large, medium, small, and extra-small.

**Large themes.** Three large themes cover around 57,000 km<sup>2</sup> (22,000 mi<sup>2</sup>): the Anatolikon (58,300 km<sup>2</sup>), Boukellarion (56,000 km<sup>2</sup>), and Thrakesion Themes (57,200 km<sup>2</sup>). The Anatolikon and Thrakesion were two of the original administrative units and faced little reduction during the period of division in the eighth and ninth centuries, permitting them to largely retain their sizes. In contrast, the Boukellarion emerged as a large administrative entity after the Opsikion was restructured in the mid-eighth century. The Opsikion was reduced from 106,000 km<sup>2</sup> (41,000 mi<sup>2</sup>) down to 41,700 km<sup>2</sup> (16,100 mi<sup>2</sup>), with the majority of land going to the newly formed Boukellarion.

The main characteristic shared by these largest themes is their location. They all lie away from the frontier, with only the Anatolikon Theme sharing a small border with the Taurus

Mountains. These four westernmost themes also possessed the cities of Ankyra and Amorion, the hinges of the transportation network (see chapter 8), as well as the majority of the urban population, with 54.8 percent of Anatolia's cities under their oversight (see map 5.7). This is a clear indication that, while Byzantine administrators desired to reduce the western themes' influence through subdivisions, the intent was never to fully hamstring their functionality by making them equivalent to the smaller eastern themes. Instead, the administrators recognized how vital it was to maintain the functionality of these assets in light of continued Islamic threats up through the mid-tenth century.

**Medium themes.** The themes that fall within the medium category measure around 31,000 km<sup>2</sup> (12,000 mi<sup>2</sup>) and include the Armeniakon (31,000 km<sup>2</sup>), Kappadokia (27,700 km<sup>2</sup>), Chaldia (35,700 km<sup>2</sup>), Charsianon (33,900 km<sup>2</sup>), Koloneia (25,400 km<sup>2</sup>), Paphlagonia (32,100 km<sup>2</sup>), and Sebasteia (17,000 km<sup>2</sup>). These are concentrated along the eastern frontier, before the advent of the minor themes in the mid-tenth century, and therefore played a substantial role in defense. The average size, about 26,000 km<sup>2</sup> (10,000 mi<sup>2</sup>) smaller than the largest themes, demonstrates premeditation in their design with an eye towards themes capable of fielding sizeable armies but with increased flexibility. This shift in focus on the easternmost themes is reinforced by the Armeniakon Theme. While it was one of the original strategides, and by far the largest of the five, it was deliberately reduced to a smaller size than its counterparts the Anatolikon and Thrakesion. Diminished to 31,000 km<sup>2</sup> (12,000 mi<sup>2</sup>), it fits comfortably within the size range of the eastern themes.

**Small themes.** This category belies their unique position within the system to satisfy a specific political or military goal. The Aegean Sea (1,800 km<sup>2</sup>) and Samos Themes (6,700 km<sup>2</sup>) were designed to have a minimal presence on the mainland. The size of the Optimaton Theme

(6,700 km<sup>2</sup>) reinforces its role as a buffer between Constantinople and the rest of the Anatolian themes. The Seleukeia Theme (8,000 km<sup>2</sup>) was created to specifically address the frontier region near Tarsos and was not intended to be as extensive as the themes of the medium size category.

The themes of Lykandos and Mesopotamia would also fall within this category of small themes, as they were specifically designed for defense along the far eastern frontier. However, it is nearly impossible to ascertain their borders and total landholdings. An extremely rough approximation of Lykandos's holdings, predicated on the locations of the surrounding minor themes, places it at 6,000–7,000 km<sup>2</sup> or around the size of the Optimaton Theme.

**Extra-small themes.** These are the minor themes. While these themes constitute a distinctive fourth category, it is not possible to assign each of them specific numerical values in terms of their territorial extents. These minor themes differed greatly in size predicated on their built purpose, ranging from a few square kilometers (Mauron Oros) to a few thousand square kilometers (Vaspurakan). As explored in detail in chapter 9 (see map 9.5), despite such variances, the average minor theme likely constituted 2,800 km<sup>2</sup> (1,100 mi<sup>2</sup>), making them around a third of the size of the “small” specialty themes and 1/20<sup>th</sup> the size of the largest themes of the Anatolikon, Boukellarion, and Thrakesion. This 180 percent difference in thematic sizes is a clear rejection of uniformity and exemplifies a deliberate propensity for specialization.

Unlike the Roman Themes, whose divisions and sizes reflect efforts to optimize a finite territorial expanse, the minor themes were added to the system based on the acquisition of new land. The minor themes were ultimately brought under the jurisdiction of the ducates and katepanates. These administrative units did not, nor could not, function in the same manner as the Roman Themes. The ducates'/katepanates' sizes ranged from a few thousand square kilometers (Vaspurakan, Iberia, and Edessa) to roughly 68,900 km<sup>2</sup> (26,600 mi<sup>2</sup>) for



Mesopotamia and approximately 76,700 km<sup>2</sup> (29,600 mi<sup>2</sup>) for Antioch. This made the Ducate of Antioch more than 18,000 km<sup>2</sup> larger than the Anatolikon, the largest theme of the tenth century.

### Comparison with the Original Strategides

How did this diversity of size compare to the original permutation of the strategides? As follows are the initial five assemblages and their approximate sizes:

(Table 5.2) Original Strategides Sizes (rounded to the nearest 100 km<sup>2</sup>/mi<sup>2</sup>)

<u>Name</u>	<u>Size (km<sup>2</sup>/mi<sup>2</sup>)</u>	
Anatolikon	86,000	33,200
Armeniakon	175,600	67,800
Kibyrraiotai	56,700	21,900
Opsikion	106,200	41,000
Thrakesion	64,000	24,700

These calculations should be taken as extremely rough since it is impossible to precisely delineate the exact borders for the eastern frontier, which fluctuated in the early days of the system. That being said, it is still possible to ascertain some macro-trends regarding their makeup.

Aside from the Armeniakon, the other four strategides varied in size to a much smaller degree than when the system was revised after the mid-eighth century. There were no themes such as the Optimaton, Aegean Sea, Samos, or Seleukeia designed for a specific purpose, nor were there size tiers predicated on location. Such a focus on finding a proper size predates the necessity for reigning in rebellious *strategoï*. Instead, the Byzantines focused on reconstituting

the various armies into manageable and roughly equivalent sections of Anatolia to forestall the collapse of the empire, resulting in more similarly sized jurisdictions.

As for the outlier Armeniakon, when it was created in the mid-seventh century, its effective authority did not extend as far as the map would suggest, with its actual sphere of influence likely a bit more commensurate with the other strategides. Nevertheless, a decline of roughly 144,500 km<sup>2</sup> (55,800 mi<sup>2</sup>), from 175,600 km<sup>2</sup> (67,800 mi<sup>2</sup>) to 31,000 km<sup>2</sup> (12,000 mi<sup>2</sup>) in its final thematic form, is by far the greatest reduction of a single administrative body. This demonstrates the late eighth/early ninth century strategic shift towards defending the frontier with a series of mid-sized strategides and, later, themes.

### **Land Use within the Themes**

While size is an important metric regarding the theme system, simply looking at the total land area of each theme shows an incomplete picture. Land type and quality should also be considered in evaluating the relative importance of each theme.

The Byzantine Empire, like most ancient societies, derived the bulk of its wealth from revenues on farming.<sup>5</sup> Angeliki Laiou and Cécile Morrisson approximate that the Byzantines

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<sup>5</sup> Alan Harvey, *Economic Expansion in the Byzantine Empire, 900–1200* (Cambridge: Cambridge University Press, 1989), 102–272; Nicolas Oikonomidès, *Fiscalité et exemption fiscale à Byzance (IXe-XIe s.)* (Athens: Fondation nationale de la recherche scientifique, 1996), 42–121; Elena Xoplaki et al., “The Medieval Climate Anomaly and Byzantium: A Review of the Evidence on Climatic Fluctuations, Economic Performance and Societal Change,” *Quaternary Science Reviews* 136 (2016): 234.

derived 67-75 percent of tax revenue from agricultural production.<sup>6</sup> Michael Hendy places this figure at around 80-95 percent, with trade only amounting to 5-20 percent of total revenues.<sup>7</sup> Warren Treadgold agrees with this upper-end figure, placing his estimates for agricultural activity during the eighth and ninth centuries at 90-95 percent.<sup>8</sup>

Therefore, as opposed to just an equitable distribution of total land, an equitable dispersion of *arable* land would help to ensure a more egalitarian level of income for each theme. For instance, if one theme was located on a fertile plain while another largely consisted of mountainous or rocky terrain, their internal sources of revenue would be vastly different even if they encompassed the exact same square mileage.

This is a metric that would be useful to the central government at Constantinople because if a theme had the capacity to amass a significantly larger amount of wealth, this could help to fuel an imbalance of power and lead to the formation of regional powerbases. While complete information is not extant, the Byzantines had a sense of the revenues derived from each region in Anatolia and therefore would have an informed metric upon which to base the division of the themes, if they so chose.<sup>9</sup> The question is whether land type was a metric incorporated into the overall planning of the theme system.

Unfortunately, no evidentiary study on thematic land usage has been conducted. The dearth of research into this field is due in part to the lack of a properly articulated GIS map of the themes, but also due to the lack of firm climate data from the middle Byzantine period. The

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<sup>6</sup> Angeliki Laiou and Cécile Morrisson, *The Byzantine Economy* (Cambridge: Cambridge University Press, 2007); Angeliki Laiou-Thomadakis, *Peasant Society in the Late Byzantine Empire: A Social and Demographic Study* (Princeton: Princeton University Press, 1977).

<sup>7</sup> Michael Hendy, *Studies in the Byzantine Monetary Economy, c.300–1450* (Cambridge: Cambridge University Press, 1985), 157.

<sup>8</sup> Warren Treadgold, *The Byzantine State Finances in the Eighth and Ninth Centuries* (New York: Columbia University Press, 1982), 52–58, 93; Treadgold, *Concise History of Byzantium*, 94.

<sup>9</sup> Laiou and Morrisson, *Byzantine Economy*, 49–51.

distribution of arable land in Anatolia from a millennium ago is not satisfactorily accounted for on a large scale. Historical land-use studies in Anatolia have only recently been conducted in earnest, but their scale remains small. For example, the Euchaïta/Avkat Project analyzed the region of north-central Anatolia centered around the city of Euchaïta (within the Armeniakon Theme).<sup>10</sup> This utilized several methodologies such as remote sensing, geophysical prospection, and heuristic geospatial modelling to paint a picture of the region's geology, geomorphology, and paleoenvironment to a degree never previously attempted.

Archaeobotanical studies also prove incomplete and inconclusive,<sup>11</sup> with only four sites in Anatolia from the middle Byzantine period given a proper investigation (Amorion,<sup>12</sup> Sagalassos,<sup>13</sup> Gritille,<sup>14</sup> and Kilise Tepe).<sup>15</sup>

Palynological studies have also been conducted around Lake Van and Lake Almalou (modern northwest Iran) involving sedimentary drill cores samples, which contain historical strata of pollen and isotopes of oxygen that can elucidate general trends in climactic conditions

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<sup>10</sup> "Euchaïta/Avkat: The Project Methodology and Approach," accessed February 27, 2024, <https://history.princeton.edu/centers-programs/center-collaborative-history/special-projects/past-projects/avkat/project>; Haldon, Elton, and Newhard, *Archaeology and Urban Settlement*.

<sup>11</sup> Anna Elena Reuter, "Food Production and Consumption in the Byzantine Empire in Light of the Archaeobotanical Finds," in *Multidisciplinary Approaches to Food and Foodways in the Medieval Eastern Mediterranean*, ed. Sylvie Yona Waksman (Lyon: MOM Editions, 2020), 354.

<sup>12</sup> J. Giorgi, "The Plant Remains," in *Amorium Reports 3: The Lower City Enclosure, Finds Reports and Technical Studies*, eds. Chris Lightfoot and Eric Ivison (Istanbul: MAS Matbaacılık, 2012), 395–418.

<sup>13</sup> Jan Baeten, Elena Marinova, Veronique De Laet, Patrick Degryse, Dirk De Vos, and Marc Waelkens, "Faecal Biomarker and Archaeobotanical Analyses of Sediments from a Public Latrine Shed New Light on Ruralisation in Sagalassos, Turkey," *Journal of Archaeological Science* 39, no. 4 (2012): 1143–59; Benjamin Fuller, Bea De Cupere, Elena Marinova, Wim Van Neer, Marc Waelkens, and Michael Richards, "Isotopic Reconstruction of Human Diet and Animal Husbandry Practices during the Classical-Hellenistic, Imperial, and Byzantine Periods at Sagalassos, Turkey," *American Journal of Physical Anthropology* 149, no. 2 (2012): 157–71.

<sup>14</sup> Naomi Miller, "Patterns of Agriculture and Land Use at Medieval Gritille," in *The Archaeology of the Frontier in the Medieval Near East: Excavations at Gritille, Turkey*, ed. Scott Redford (Philadelphia: Archaeological Institute of America Monographs, 1998), 211–52.

<sup>15</sup> J. Bending and S. Colledge, "The Archaeobotanical Assemblages," in *Excavations at Kilise Tepe (1994–1998): From Bronze Age to Byzantine in Western Cilicia*, eds. Nicholas Postgate and David Thomas (Cambridge: McDonald Institute Monographs, 2007): 583–95.

in the Armenian highlands.<sup>16</sup> Subsequent palynological studies have been conducted in the regions of Bithynia and Pisidia.<sup>17</sup> These attest to a post-seventh century decline in the growth of fruit trees, vines, and olives, accompanied by a general decline in overall cultivation that would persist for the next several centuries.<sup>18</sup> The samples also showed that these crops were replaced by increases in cereals and cattle. Such studies demonstrate that historic climatic and land usage models are feasible to create but the data to do so effectively on a larger scale is still lacking.<sup>19</sup>

To circumvent this problem, the utilization of a modern land-use map of the region serves as a viable heuristic. Using a map of Turkey accounts for topographical elements, such as mountains, valleys, and water features, that remain unchanged over time and allows for an understanding of what areas were not conducive to agriculture or other natural resource extraction. While the results of this line of inquiry cannot be taken with absolute precision, as changes in climate shift the boundaries of potential croplands, because this is approached on a large and generalized scale and is balanced against the fragmentary historical cultivation patterns, using a modern map makes it possible to test the basics of this land usage proposition.

The following map is taken from the CORINE satellite survey and depicts land usage types in twenty-first century Turkey.

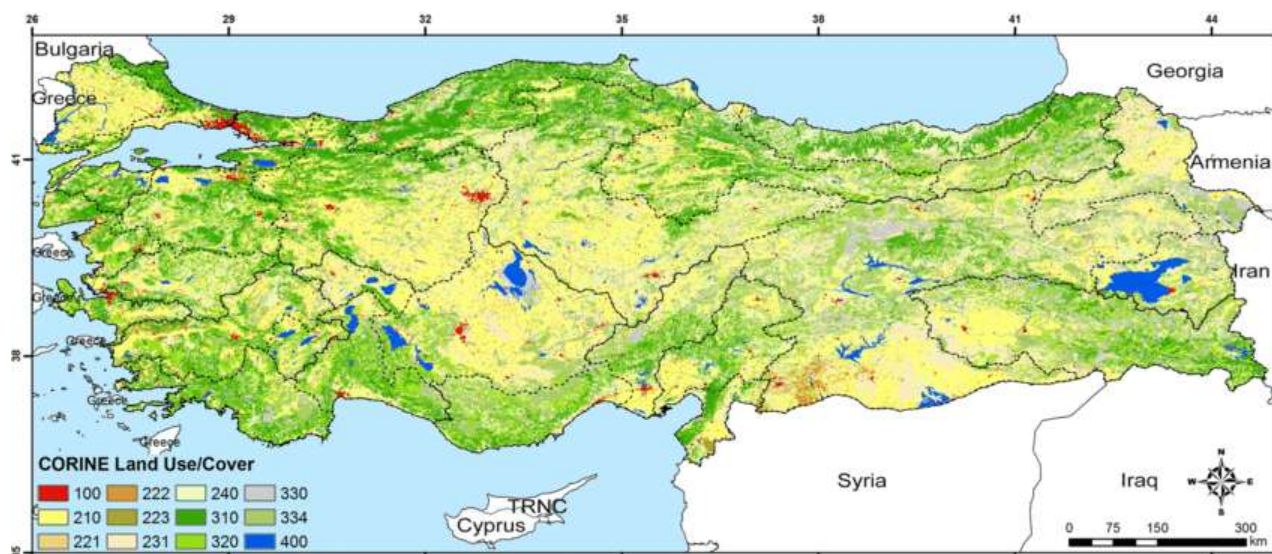
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<sup>16</sup> L. Wick, G. Lemcke, and M. Sturm, "Evidence of Lateglacial and Holocene Climatic Change and Human Impact in Eastern Anatolia: High-Resolution Pollen, Charcoal, Isotopic and Geochemical Records from the Laminated Sediments of Lake Van, Turkey," *Holocene* 13 (2003): 665–75; M. Djamali et al., "A Late Holocene Pollen Record from Lake Almalou in NW Iran: Evidence for Changing Land-Use in Relation to Some Historical Events during the Last 3700 Years," *Journal of Archaeological Science* 36 (2009): 1363–75; M. Djamali et al., "Notes on Arboricultural and Agricultural Practices in Ancient Iran based on New Pollen Evidence," *Paléorient* 36, no. 2 (2010): 175–88; Michael McCormick et al., "Climate Change during and after the Roman Empire: Reconstructing the Past from Scientific and Historical Evidence," *Journal of Interdisciplinary History* 43, no. 2 (2012): 169–220; Adam Izdebski, *A Rural Economy in Transition: Asia Minor from the End of Antiquity into the Early Middle Ages* (Warsaw: Taubenschlag Foundation, 2013); John Haldon et al., "The Climate and Environment of Byzantine Anatolia: Integrating Science, History, and Archaeology," *Journal of Interdisciplinary History* 45, no. 2 (2014): 113–61.

<sup>17</sup> Haldon et al., "Climate and Environment of Byzantine Anatolia," 134.

<sup>18</sup> Haldon et al., "Climate and Environment of Byzantine Anatolia," 139.

<sup>19</sup> See also Matthew Jacobson, Jordan Pickett, Alison Gascoigne, Dominik Fleitmann, and Hugh Elton, "Settlement, Environment, and Climate Change in SW Anatolia: Dynamics of Regional Variation and the End of Antiquity," *PLoS ONE* 17, no. 6 (2022): <https://doi.org/10.1371/journal.pone.0270295>.



MAP 5.3. Land cover in Turkey, 2020<sup>20</sup>

[Color Key: 100: artificial land; 210: arable land; 221: vineyards; 222: fruit trees and berry plantations; 223: olive groves; 231: pastures and grassland; 240: heterogeneous agricultural land; 310: forests; 320: scrubland; 330: bare rocks; 334: degraded forests; 400: water surfaces and wetland]

Akin to the major discrepancies between themes in terms of overall size, so too do important differences emerge in terms of land usage. Current arable land is concentrated on the Anatolian Plateau centered around Lake Tuz (Lake Tatta in the Byzantine period). This region is, at present, responsible for an outsized proportion of Turkey’s crop yields in barley,<sup>21</sup> oats,<sup>22</sup> rye,<sup>23</sup> and wheat.<sup>24</sup> The only other area bearing similar yields, but on a smaller scale, is around

<sup>20</sup> Map taken from Suha Berberoglu, Ahmet Cilek, Mike Kirkby, Brian Irvine, and Cenk Donmez, “Spatial and Temporal Evaluation of Soil Erosion in Turkey under Climate Change Scenarios using the Pan-European Soil Erosion Risk Assessment (PESERA) Model,” *Environmental Monitoring and Assessment* 192, no. 491 (2020): [https://www.researchgate.net/figure/CORINE-land-cover-map-of-Turkey-100-artificial-land-210-arable-land-221-vineyards\\_fig12\\_342735137](https://www.researchgate.net/figure/CORINE-land-cover-map-of-Turkey-100-artificial-land-210-arable-land-221-vineyards_fig12_342735137); “European Environment Agency, Land Cover, Turkey,” accessed February 27, 2024, [www.eea.europa.eu/data-and-maps/figures/corine-land-cover-2000-by-country-3/turkey](http://www.eea.europa.eu/data-and-maps/figures/corine-land-cover-2000-by-country-3/turkey).

<sup>21</sup> “USDA, Turkey: Barley Production,” accessed February 27, 2024, [https://ipad.fas.usda.gov/rssiws/al/crop\\_production\\_maps/metu/Turkey\\_barley.jpg](https://ipad.fas.usda.gov/rssiws/al/crop_production_maps/metu/Turkey_barley.jpg).

<sup>22</sup> “USDA, Turkey: Oats Production,” accessed February 27, 2024, [https://ipad.fas.usda.gov/rssiws/al/crop\\_production\\_maps/metu/Turkey\\_oats.jpg](https://ipad.fas.usda.gov/rssiws/al/crop_production_maps/metu/Turkey_oats.jpg).

<sup>23</sup> “USDA, Turkey: Rye Production,” accessed February 27, 2024, [https://ipad.fas.usda.gov/rssiws/al/crop\\_production\\_maps/metu/Turkey\\_rye.jpg](https://ipad.fas.usda.gov/rssiws/al/crop_production_maps/metu/Turkey_rye.jpg).

the Dardanelles and Sea of Marmara. If compared directly, this would place an outsized portion of the productive land in what was the Anatolikon, Boukellarion, Charsianon, and Kappadokia Themes.

According to the aforementioned palynological studies, modern agricultural harvests bear similarities to the types of crops most predominantly cultivated during the period of the theme system,<sup>25</sup> making these areas potentially more conducive to such yields.<sup>26</sup> Archaeobotanical studies show that barley was the most important cereal grown during the height of the theme system,<sup>27</sup> prominent at the dig sites of Amorion<sup>28</sup> and Sagalassos.<sup>29</sup> This is affirmed by a tenth century letter from Leon of Synnada detailing how the Anatolian Plateau was not conducive to the cultivation of grapes and olives, but barley proved to be a viable crop.<sup>30</sup> The Life of Theodore of Sykeon also speaks to high levels of cereal cultivation along the northern portion of the plateau, during the sixth/seventh centuries.<sup>31</sup> Oxygen isotope records taken from the plateau's Lake Nar Gölü<sup>32</sup> and Lake Tecer<sup>33</sup> suggest increases in regional precipitation between the years

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<sup>24</sup> "USDA, Turkey: Wheat Production," accessed February 27, 2024, [https://ipad.fas.usda.gov/rssiws/al/crop\\_production\\_maps/metu/Turkey\\_wheat.jpg](https://ipad.fas.usda.gov/rssiws/al/crop_production_maps/metu/Turkey_wheat.jpg).

<sup>25</sup> Haldon et al., "Climate and Environment of Byzantine Anatolia," 139.

<sup>26</sup> Michael Kaplan, *Les hommes et la terre à Byzance du VIe au XIe siècle: propriété et exploitation du sol*. (Paris: Publications de la Sorbonne, 1992), 25–32. The importance of cereals to the Byzantine diet cannot be overstated, as they accounted for about 40–50 percent of caloric consumption.

Chryssi Bourbou, Benjamin Fuller, Sandra Garvie-Lok, Michael Richards, "Reconstructing the Diets of Greek Byzantine Populations (6th–15th Centuries AD) using Carbon and Nitrogen Stable Isotope Ratios," *American Journal of Physical Anthropology* 146, no. 4 (2011): 569–81.

<sup>27</sup> Reuter, "Food Production and Consumption," 347. After barley, free-threshing wheat, broomcorn millet, and spelt are the most prominent cereals found at Middle Byzantine dig sites in Anatolia.

<sup>28</sup> Giorgi, "Plant Remains," 395–418.

<sup>29</sup> Fuller, De Cupere, Marinova, Van Neer, Waelkens, and Richards, "Isotopic Reconstruction of Human Diet," 157–71.

<sup>30</sup> Leon of Synnada, letter 43.

<sup>31</sup> Stephen Mitchell, *Anatolia: Land, Men, and Gods in Asia Minor*, vol. 2, *The Rise of the Church* (Oxford: Clarendon Press, 1995), 131.

<sup>32</sup> Matthew Jones, Neil Roberts, Melanie Leng, Murat Türkeş, "A High-Resolution Late Holocene Lake Isotope Record from Turkey and Links to North Atlantic and Monsoon Climate," *Geology* 34, no. 5 (2006): 361–64.

<sup>33</sup> Catherine Kuzucuoğlu, Walter Dörfler, Stéphane Kunesch, and Franck Goupille, "Mid- to late-Holocene Climate Change in Central Turkey: The Tecer Lake Record," *The Holocene* 21 (2011): 173–88.

850–1000,<sup>34</sup> potentially indicating more amenable growing conditions for cereals. Caution does need to be exerted when assessing the productivity of the region. While the Anatolian Plateau was more conducive to the growth of these target crops, modern agricultural methods and improvements in irrigation have also greatly increased overall productivity.<sup>35</sup>

The Anatolian Plateau also boasted the highest levels of cattle rearing. Again, along with cereals, this was one of the two key products during the time of the themes. The historical record abounds with attestations to the region's productivity in rearing livestock. Saint Philaretos in the late eighth century is described as owning large herds of livestock (600 cattle, 100 oxen, 800 horses, 80 mules, and 12,000 sheep) across 48 estates in what would be the Boukellarion Theme.<sup>36</sup> In the eleventh century, Michael Attaleiates describes livestock markets at Ikonion in the Anatolikon Theme.<sup>37</sup> In addition, the ninth century Life of Saint Peter of Atroa mentions a landholder possessing vast herds of animals in the region of Lydia.<sup>38</sup>

The plateau's abundance of livestock is reinforced by the consistency with which raids across the Taurus made the absconding of herds a priority while plundering. The Islamic geographer Qudama b. Ja'far (early tenth century) notes that Byzantine herds pastured in the upper regions of the Anatolian Plateau during the summer but were brought south during the winter. He then advised that this made the animals a target for raiding parties that was worth

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<sup>34</sup> Xoplaki et al., "Medieval Climate Anomaly," 240.

<sup>35</sup> Oweis Theib, Abdulbari Salkini, Heping Zhang, Adam Ilbeyi, Haluk Ustum, Zeynep Dernek, and Gulsun Erdem, *Supplemental Irrigation Potential for Wheat in the Central Anatolian Plateau of Turkey: A Report on Collaborative Research between the Ministry of Agriculture of Turkey and the International Center for Agricultural Research in the Dry Areas (ICARDA)* (Aleppo, Syria: ICARDA, 2001), 29–30.

<sup>36</sup> Philaretos, *The Life of Saint Philaretos*, 113.

<sup>37</sup> Attaleiates, *The History*, 18.16.

<sup>38</sup> Peter of Atroa, *La vita retractata et les miracles posthumes de Saint Pierre d'Atroa*, 159.



venturing out during the coldest time of the year.<sup>39</sup> Ibn al-Athir reveals the potential of such raids, with 8,000 head of cattle and 20,000 sheep taken at one time in 923/4.<sup>40</sup>

Meanwhile, themes such as the Armeniakon, Opsikion, Paphlagonia, and Thrakesion remained more forested and with less total land for farming. That said, the Marmara region, in the Opsikion and Aegean Sea Themes, yielded the highest levels of free-threshing wheat in Anatolia during the time of the themes.<sup>41</sup> Returning to the CORINE satellite image of Turkey, the distribution of arable land suggests that modern grain cultivation patterns are very consistent with those of the middle Byzantine period. Likewise, the coastal regions and riverine valleys of these themes historically produced robust yields of olives, figs, vineyards, and a variety of fruit bearing trees.<sup>42</sup> In the tenth century, Ibn Hawqal commented on the fertility and productivity of Attaleia and its hinterland along the Mediterranean coast.<sup>43</sup> Leon of Synnada also discussed the wine and olives that were grown in the western parts of the Thrakesion Theme and around Attaleia in the Kibyrraiotai Theme, indicating that these crops were still cultivated to a degree into the tenth century.<sup>44</sup> Historically, these were the most productive regions of Anatolia, but the precipitous decline in these crops in the latter half of the millennium, as evidenced by palynological studies,<sup>45</sup> leaves an open question as to their comparative productivity during the height of the themes. Studies from 2021 by John Haldon and Neil Roberts suggest that tree crops

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<sup>39</sup> Qudama b. Ja'far, *Kitab al-Kharaj [Book of the Land Tax]*, VI, 199–200.

<sup>40</sup> Ibn al-Athir, *al-Kāmil fit-Tārīkh [The Complete History]*, II, 148–53.

<sup>41</sup> John Marston and Lorenzo Castellano, “Crop Introductions and Agricultural Change in Anatolia during the Long First Millennium CE,” *Vegetation History and Archaeobotany* (May 2023): <https://doi.org/10.1007/s00334-023-00919-z>.

<sup>42</sup> Michael Decker, *Tilling the Hateful Earth: Agricultural Production and Trade in the Late Antique East* (Oxford: Oxford University Press, 2009); Laiou and Morrisson, *Byzantine Economy*, 8–10; Kristina Terpoy, “Questioning Late Antique Prosperity: The Case of Lycia (Southwest Turkey),” *Byzantine and Modern Greek Studies* 43, no. 1 (2019): 1–23; Jacobson, Pickett, Gascoigne, Fleitmann, and Hugh Elton, “Climate Change in SW Anatolia,” Kaplan, *Les hommes et la terre*, 69–73.

<sup>43</sup> Ibn Hawqal, *The Face of the Earth [Surat al-Ard]*, 196.

<sup>44</sup> Leon of Synnada, letter 43.

<sup>45</sup> Haldon et al., “Climate and Environment of Byzantine Anatolia,” 139.

in southwest and southcentral Anatolia never recovered after stark drops in the seventh century, but within northwest Anatolia they were able to rebound in the mid-ninth century to about half the productivity rate experienced in the mid-third century.<sup>46</sup> This would indicate strong recovery in the northwest (Aegean Sea, Opsikion, Optimaton, and parts of the Boukellarion and Thrakesion) during the height of the theme system, but not during the period of thematic divisions when this agricultural distribution would be more important to spatial administrative decisions. The number of datapoints for this survey remains low, and caution needs to be exercised when considering these values as this is not statistically significant for drawing sweeping conclusions.

Inequalities in land productivity are most evident in the far eastern themes of Chaldia, Koloneia, and Sebasteia that lie in heavily mountainous terrain. This is not to suggest that certain themes lacked the capacity for subsistence, as each had at least some land suitable for farming.<sup>47</sup> For instance, the Chaldia Theme is largely mountainous, but narrow areas along the Black Sea coast proved fertile for agricultural purposes that facilitated the growth of large cities such as Trebizond.<sup>48</sup> However, this still proved to be significantly less than the other Black Sea themes of Paphlagonia, Boukellarion, and Armeniakon. The *De Administrando Imperio* describes these themes exporting much needed grain and crops to Cherson, but explicitly omits the Pontos

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<sup>46</sup> John Haldon and Neil Roberts, “The Grain Supply of the Byzantine Empire Revisited: History, Archaeology, Palynology” (Nature and the Environment: The 53<sup>rd</sup> Spring Symposium of Byzantine Studies, March 27–29, 2021, virtual).

<sup>47</sup> Joanita Vroom, “Ceramics, Agricultural Resources, and Food,” in *Archaeology and Urban Settlement in Late Roman and Byzantine Anatolia: Euchaita-Avkat-Beyözü and its Environment*, eds. John Haldon, Hugh Elton, and James Newhard (Cambridge: Cambridge University Press, 2018), 158, 173. Joanita Vroom argued that the average household of central Anatolia was largely self-sufficient with a relatively well-balanced diet.

<sup>48</sup> Koray Durak, “The Commercial History of Trebizond and the Region of Pontus from the Seventh to the Eleventh Centuries: An International Emporium,” *Mediterranean Historical Review* 36, no. 1 (2021): 12.

region from the list, indicating its lack of a surplus.<sup>49</sup> This is attested by Cardinal Bessarion in the late fourteenth/early fifteenth century when he indicated that the eastern Pontic region had to import grain.<sup>50</sup> Sergei Karpov's examination of the thirteenth to fifteenth century grain trade agrees with these assessments, arguing that the eastern Pontic region yielded far less grain than the remainder of the Anatolian Black Sea coast.<sup>51</sup>

While the eastern Pontic region was not abundant in grain, the *De Administrando Imperio* does describe a preponderance of wine from the region.<sup>52</sup> Cherries, hazelnuts, olives, and walnuts also thrived in the soils of the coast and interior valleys.<sup>53</sup> In addition, the *Book of the Eparch* notes that spices and linen were important exports from the Pontic region that were traded in Constantinople.<sup>54</sup> Although outside of the chronology of this study, Edward I Longshanks's late-thirteenth century ambassadors to Tabriz visited Trebizond and documented their ability to procure a variety of spices, linen, hemp, wax, oil, as well as wine, meat, and grains.<sup>55</sup> The thriving flow of commerce from the Caucasus and Silk Road ensured the vitality of the city.<sup>56</sup>

Likewise, certain themes lacking in arable land were able to compensate through alternative means. This is seen in the mountainous region of Kappadokia, which was renowned for its ability to produce horses.<sup>57</sup> Iron mining flourished in Chalybria to the west of Trebizond,

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<sup>49</sup> *De Administrando Imperio*, 53.512–35.

<sup>50</sup> Bessarion, *Encomium on Trebizond*, 93, 120.

<sup>51</sup> Sergei Karpov, "The Grain Trade in the Southern Black Sea Region: The Thirteenth to the Fifteenth Century," *Mediterranean Historical Review* 8, no. 1 (1993): 55–57.

<sup>52</sup> *De Administrando Imperio*, 53.525.

<sup>53</sup> Durak, "Commercial History of Trebizond," 12.

<sup>54</sup> *The Book of the Eparch*, 106.

<sup>55</sup> Buscarello de Ghizolfi, *I conti dell'ambasciata al chan di Persia nel 1292*, 590–96; Anthony Bryer, "The Estates of the Empire of Trebizond: Evidence for their Resources, Products, Agriculture, Ownership and Location," *Archeion Pontou* 35 (1979): 375–78; Bryer and Winfield, *Topography of the Pontus*, 5–7.

<sup>56</sup> Durak, "Commercial History of Trebizond," 3.

<sup>57</sup> Filiz Tütüncü Çağlar, "Tracing the Hoof-Prints of Byzantine History: Horses and Horse Breeding in the Middle Byzantine Period," in *Questions, Dialogues, and Approaches in Eastern Mediterranean Archaeology: Studies in*

situated within the Chaldia Theme, as well as potentially in northern Koloneia.<sup>58</sup> These are articulated by Strabo,<sup>59</sup> attested again in the tenth century by Niketas Magistros,<sup>60</sup> as well as by Clavijo in 1404.<sup>61</sup> Silver mines were known to exist in the areas of Chaldia, Koloneia, and Sebasteia during antiquity and the Ottoman period,<sup>62</sup> but no firm attribution indicates their continued usage during the theme system.

Alum, a colorless astringent useful in medical application, as a pigment, and for tanning, was found in Koloneia and Sebasteia.<sup>63</sup> The first reference pinpointing its origin comes from the 1236 Marseilles-Cyprus Treaty,<sup>64</sup> with Vincent of Beauvais later that century indicating it was drawn from Sebasteia.<sup>65</sup> The Florentine merchant Francesco Balducci Pegolotti described Koloneian alum as the best in the world.<sup>66</sup> Despite this utility, it was not likely used in large quantities.<sup>67</sup>

Finally, mummy, a mineral used as a substitute for purple, was also mined in the region.<sup>68</sup> These resources were important economic sources for the eastern mountainous themes, but not on a scale remotely comparable to revenues extracted from western Anatolia.

Despite the various resources available throughout Asia Minor, even a cursory examination reveals that there was no concerted effort to distribute arable land and resources in

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*Honour of Marie-Henriette and Charles Gates*, eds. Ekin Kozal, Murat Akar, and Tefik Emre (Münster: Ugarit-Verlag, 2017), 699–717.

<sup>58</sup> Anthony Bryer, “The Question of Byzantine Mines in the Pontos: Chalybian Iron, Chaldian Silver, Koloneian Alum and the Mummy of Cheria,” *Anatolian Studies* 32 (1982): 136.

<sup>59</sup> Strabo, *Geography*, 12.3.19.

<sup>60</sup> Niketas Magistros, *Lettres d'un exilé*, 65.

<sup>61</sup> Ruy Gonzales Clavijo, *His Embassy from Henry III of Castille to Tamburlaine the Great at Samarkand, 1403–1406*, 108.

<sup>62</sup> Bryer, “Byzantine Mines,” 141–42.

<sup>63</sup> Bryer, “Byzantine Mines,” 146–48.

<sup>64</sup> Marseilles-Cyprus Treaty in *Regesta Regni Hierosolymitani*, 280 no. 1071.

<sup>65</sup> Vincent of Beauvais, *Speculum quadruplex sive Speculum maius: naturale, doctrinale, morale, historiale*, 69.

<sup>66</sup> Francesco Balducci Pegolotti, *La Pratica della Mercatura: Book of Descriptions of Countries and of Measures of Merchandise*, 43, 293, 306.

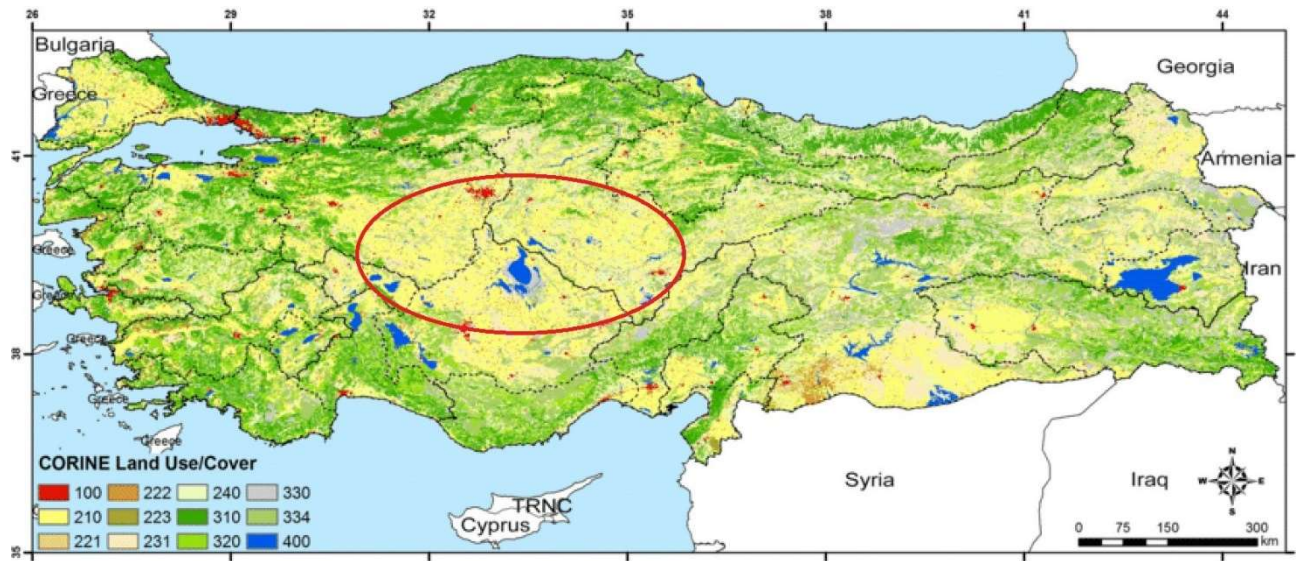
<sup>67</sup> Bryer, “Byzantine Mines,” 146–48.

<sup>68</sup> Bryer, “Byzantine Mines,” 149.

an equitable fashion. The westernmost themes (Anatolikon, Armeniakon, Opsikion, and Thrakesion) were larger than their eastern counterparts by 15,000 km<sup>2</sup> (6,000 mi<sup>2</sup>) on average and also likely had higher rates of arable land. If similar levels of arable land were desired, the opposite model would be witnessed. The eastern themes would have to be significantly larger to account for their mountainous terrain, with the western themes greatly reduced in size. The potential range of agricultural productivity due to fluctuations in Medieval climactic patterns, nor changes to land usage evidenced by recent studies are enough to account for such discrepancies between the themes. The fact that land usage was not accounted for during the period of divisions in the eighth and ninth centuries demonstrates that this was not a metric valued by the central government.

### **Land Use within the Strategides**

Turning to the eighth-century configuration of the strategides, the Anatolian Plateau's central region showed a more equitable distribution of arable land. On the following maps (5.4 and 5.5), the circled portions reflect the area where arable land conducive to cereals was most concentrated.



MAP 5.4. The modern arable land in the Anatolian Plateau—concentration indicated by the red circle<sup>69</sup>



MAP 5.5. The concentration of arable land overlaid on the original configuration of the strategides—the red circle denotes the same area marked in map 5.4

<sup>69</sup> Map adapted from Berberoglu, Cilek, Kirkby, Irvine, and Donmez, “Spatial and Temporal Evaluation of Soil Erosion,” [https://www.researchgate.net/figure/CORINE-land-cover-map-of-Turkey-100-artificial-land-210-arable-land-221-vineyards\\_fig12\\_342735137](https://www.researchgate.net/figure/CORINE-land-cover-map-of-Turkey-100-artificial-land-210-arable-land-221-vineyards_fig12_342735137).

Just as the original strategides were more similar in size to one another compared to the themes, so too was arable land more equitably distributed. Anatolia's central region of cereal and cattle production was roughly divided evenly between the Anatolikon, Armeniakon, and Opsikion. Likewise, olive, fig, and vineyard lands were equally accessible to all of the strategides, as each of the administrative divisions abutted a coastal region. Such an equitable division of land among the strategides is evidence of intent and not a random distribution.

This equitable division permitted each of the strategides to have a strong base of agricultural revenue and also compensate for differences in terrain. For example, the original Armeniakon was around 65,000 km<sup>2</sup> (25,000 mi<sup>2</sup>) larger than its neighbors, which allowed it to offset its eastern mountainous portion that was less conducive to agricultural productivity. This further reinforces the idea that, while organized under duress, the initial seventh-century strategides were purposefully designed to provide each *strategos* and army with somewhat similar land resources. Only when the objective shifted from ensuring the longevity of the empire to reigning in rebellious *strategoï*, did an equitable division of arable land no longer seem to be of primary concern.

These figures provide enough certitude to support two broad claims:

- 1) The themes were not divided to have equitable amounts of arable land and resources.
- 2) The initial strategides exhibited more equitable access to different forms of crops.

Greater inquiry is required to come to more precise conclusions on the allocation of arable land, with these results to be taken as a tenuous first step in regards to thematic organization. Historical accounts, while useful to see where certain crops were grown and livestock raised, cannot provide sweeping conclusions on total crop yields. Likewise,

palynological studies, while increasing in their utility, only provide a snapshot of a single location. Taken together, these can articulate general trends in agricultural production unimaginable fifty years ago, but again, do not provide enough granularity as to the actual precise distribution of croplands. More definitive answers to such an inquiry are reliant on the expansion of paleoclimatic studies, a field that is increasing in sophistication but has yet to produce a comprehensive survey of Medieval Anatolia.

### **Number of Cities within Each Theme**

Population contributed to the power of a theme. The more inhabitants, the more taxable revenue, which meant increased resources that could be potentially used to pay for and support the thematic army. Additionally, major cities and large conurbation centers had the ability to attract an agglomeration of intellectuals and skilled craftspeople.<sup>70</sup> This could lead to an outsized influence over trade and encourage the formation of regional centers of power.

For these reasons, it is possible that imperial administrators could have considered population figures when organizing the themes. If avoidable, it could potentially be beneficial to the central government to prevent a singular theme from accruing too many large urban centers that could coalesce into a strong powerbase. Constantinople desired the reduction of powerbases,

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<sup>70</sup> Michael Grünbart, “Paideia Connects: The Interaction between Teachers and Pupils in Twelfth Century Byzantium,” in *Networks of Learning: Perspectives on Scholars in Byzantine East and Latin West, c. 1000–1200*, eds. Sita Steckel, Niels Gaul, and Michael Grünbart (Vienna: Lit Verlag, 2014), 23–24; Claudia Rapp and Johannes Preiser-Kapeller, eds., *Mobility and Migration in Byzantium: A Sourcebook* (Vienna: Vienna University Press, 2023), 171–84.



as evidenced by the series of administrative divisions during the eighth and ninth centuries to curtail overly ambitious *strategoï*, but did such a consideration extend to the distribution of cities amongst these reconstituted themes?

As with the previous section on land usage, a complete answer is impossible to come by due to the lack of comprehensive data, necessitating the use of heuristics. Ascertaining population figures from pre-modern times is fraught with complications and is not a viable metric to analyze in isolation. While documentation for some fourteenth century Macedonian settlements attests to demographic surveys, no comprehensive census survives from the Byzantine Empire.<sup>71</sup> Estimates on the population of the empire during this period have been attempted, but the wide range of values put forth signify no consensus other than general demographic fluctuations due to the expansion and contraction of territory, the occurrence of climactic change, and natural disasters such as the plague.<sup>72</sup> Any attempt to apply these statistics to the themes would run into similar levels of vagueness that could not produce any firm conclusions.

A more viable metric would be the number of settlements. Unlike population figures, which fluctuated over time and required costly outlays of money and labor to assess, a count of

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<sup>71</sup> Laiou-Thomadakis, *Peasant Society*; Johannes Koder, *Der Lebensraum der Byzantiner. Historisch-geographischer Abriss ihres mittelalterlichen Staates im östlichen Mittelmeerraum* (Vienna: Fassbaender, 2001), 150.

<sup>72</sup> Warren Treadgold, *A History of the Byzantine State and Society* (Stanford: Stanford University Press, 1997), 137, 278, 570, 700, 841; Treadgold, *Concise History of Byzantium*, 236; Koder, *Der Lebensraum der Byzantiner*, 152–54; J.W. Hanson, and S.G. Ortman, “A Systematic Method for Estimating the Populations of Greek and Roman Settlements,” *Journal of Roman Archaeology* 30 (2017): 301–24; Peter Charanis, *Studies on the Demography of the Byzantine Empire: Collected Studies* (London: Variorum, 1972). For an example of demographic fluctuations interpreted through cliometrics to approximate GDP per capita is found in Thomas Lambert, “Byzantine Empire Economic Growth: Did Past Climate Change Play a Role?” *Human Ecology* 50 (2022): 803–16; for the role of climate on Byzantine demography utilizing climactic simulations, see Elena Xoplaki, Jürg Luterbacher, Sebastian Wagner et al. “Modelling Climate and Societal Resilience in the Eastern Mediterranean in the Last Millennium,” *Human Ecology* 46 (2018): 363–79; and for a summary of demographic methodologies and controversies as applied to the Roman Empire, see Walter Scheidel, ed., *Debating Roman Demography* (Boston: Brill, 2001).

urban centers within Anatolia would be a stable and well-known metric available to thematic planners. Along with natural landmarks such as rivers or mountains, the inclusion/exclusion of cities was an easy data point to consider when determining the boundaries of a theme. Indeed, in the *De Thematribus*, one of the main descriptors of each theme was the cities lying within its territorial extent. In fact, in an extreme case, the description of the Thrakesion Theme's geography only consists of a list of its main urban centers.<sup>73</sup>

Not only was the number of urban centers known to the Byzantines, but there remains enough extant evidence in this area to draw some general conclusions about the cities' relationship to the themes. The *Notitia Episcopatum* serves as the best route to calculate the number of urban settlements within Anatolia.<sup>74</sup> The role of the *Notitia Episcopatum* was to ascertain the hierarchical organization of the metropolitans, archbishoprics, and suffragans of the Orthodox Church.<sup>75</sup> This took the form of a list that outlined the settlements in which the church held a presence. As this document was intended for practical usage in visualizing and understanding the wider organization of the church, it holds a much higher degree of reliability than something like a work of geographical curiosity. As Haldon broadly explains, the ideological influence of the church proved to be more extensive than that achievable by any secular administration after the period of the Islamic conquests,<sup>76</sup> making this the most useful and systematic survey method.

Keeping in mind Benoit Mandelbrot's paradox, where if one measures a coastline with a finer and finer scale, the total length of the coast increases exponentially, there needs to be a baseline when defining what size of habitations should be included in the analysis of Byzantine

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<sup>73</sup> *De Thematribus*, 112–13.

<sup>74</sup> *Notitiae episcopatum Ecclesiae Constantinopolitanae*, ed. Jean Darrouzès, (Paris: 1981).

<sup>75</sup> *Notitiae episcopatum Ecclesiae Constantinopolitanae*, 7–8.

<sup>76</sup> John Haldon, *The Empire that Would Not Die: The Paradox of Eastern Roman Survival, 640–740* (Cambridge: Harvard University Press, 2016), 110–19.

settlements.<sup>77</sup> Otherwise, there is no limit to how long the list could extend—is what constitutes an urban center 10,000 individuals? 1,000? 100? This study uses the *Notitia Episcopatum* to define a baseline for an urban center. The 639 cities included in the *Notitia Episcopatum* were only those with a sufficient ecclesiastical presence to be deemed important enough for inclusion. This list approaches the issue of settlement patterns in a systematic and granular fashion that can substantively engage with questions on demographic distribution.

Several different *Notitiae* survive that span the chronological breadth of the empire, with the most relevant ones for this study compiled under Leon VI the Wise (ca.901–07)<sup>78</sup> and Konstantinos VII Porphyrogenetos (ca.940).<sup>79</sup> While both temporally align with the focus of this study, the Leon VI version bears greater utility. This register (*Notitia 7*) exhibits evidence of truly revising the previous rolls, expanding the number of cities in Kappadokia by ten and Armenia by nine.<sup>80</sup> Konstantinos VII's edition (*Notitia 8*) makes only slight modifications to *Notitia 7*, indicating a desire to reproduce the register but not enact a complete overhaul by performing a full land survey.<sup>81</sup> Therefore, for the purpose of this study, the register of Leon VI is used as the basis for analysis. This provides the most accurate snapshot of the settlements that existed in the Anatolian portion of the empire during the early tenth century.

Out of the 639 total entries provided by the *Notitia Episcopatum*, 386 satisfy the criteria of falling within territory held by the themes. This excludes every city mentioned in Europe, outlying islands, and an additional twenty-two habitations that fell within the ducates and minor themes.

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<sup>77</sup> Benoit Mandelbrot, “How Long is the Coast of Britain? Statistical Self-Similarity and Fractional Dimension,” *Science* 156 (1967): 636–38.

<sup>78</sup> *Notitiae episcopatum Ecclesiae Constantinopolitanae*, 53–78.

<sup>79</sup> *Notitiae episcopatum Ecclesiae Constantinopolitanae*, 79–87.

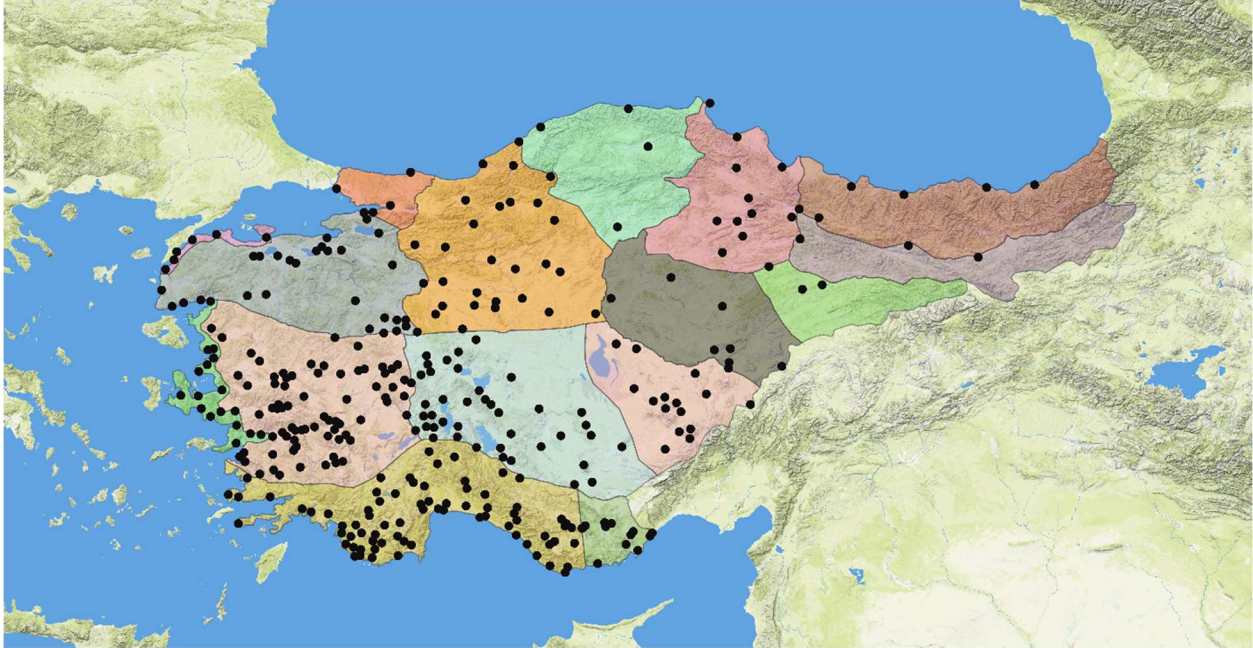
<sup>80</sup> *Notitia Episcopatum (Notitia 7)*, lines 103–18, 660–69.

<sup>81</sup> *Notitiae episcopatum Ecclesiae Constantinopolitanae*, 66, 79–87.

From this list, a map can be created that shows each settlement and its corresponding theme. The most useful resource for plotting these locations is the *Tabula Imperii Byzantini*. This project has done the best job of systematically cataloging the urban landscape of Anatolia, listing every known settlement in the region.<sup>82</sup> It compiles information from the principal types of sources available: archaeology, written records, and sigillographic evidence. No other singular source affords such a robust dataset of urban habitations, and so using the *Tabula Imperii Byzantini* provides the most useful way to ascertain the locations and quantify the total number of settlements. This data is spatially represented on map 5.6, with the locations of cities overlaid on each theme.

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<sup>82</sup> Friedrich Hild and Marcell Restle, *Tabula Imperii Byzantini*, vol. 2, *Kappadokien (Kappadokia, Charsianon, Sebasteia und Lykandos)* (Vienna: Verlag der Österreichischen Akademie der Wissenschaften, 1984); Klaus Belke, *Tabula Imperii Byzantini*, vol. 4, *Galatien und Lykaonien* (Vienna: Verlag der Österreichischen Akademie der Wissenschaften, 1984); Friedrich Hild and Hansgerd Hellenkemper, *Tabula Imperii Byzantini*, vol. 5, *Kilikien und Isaurien* (Vienna: Verlag der Österreichischen Akademie der Wissenschaften, 1990); Klaus Belke and Norbert Mersich, *Tabula Imperii Byzantini*, vol. 7, *Phrygien und Pisidien* (Vienna: Verlag der Österreichischen Akademie der Wissenschaften, 1990); Friedrich Hild and Hansgerd Hellenkemper, *Tabula Imperii Byzantini*, vol. 8, *Lykien und Pamphylien* (Vienna: Verlag der Österreichischen Akademie der Wissenschaften, 2004); Klaus Belke, *Tabula Imperii Byzantini*, vol. 9, *Paphlagonia and Honorias* (Vienna: Verlag der Österreichischen Akademie der Wissenschaften, 1996); Johannes Koder, Peter Soustal, and Alice Koder, *Tabula Imperii Byzantini*, vol. 10, *Aigaion Pelagos (Die nördliche Ägäis)* (Vienna: Verlag der Österreichischen Akademie der Wissenschaften, 1998); Klaus Belke, *Tabula Imperii Byzantini*, vol. 13, *Bithynien und Hellespont* (Vienna: Verlag der Österreichischen Akademie der Wissenschaften, 2020); Klaus-Peter Todt and Bernd Andreas Vest, *Tabula Imperii Byzantini*, vol. 15, *Syria (Syria Prote, Syria Deutera, Syria Euphrastesia)* (Vienna: Verlag der Österreichischen Akademie der Wissenschaften, 2014).



MAP 5.6. All thematic cities listed in the *Notitia Episcopatum*

Appendix 2, located at the end of the dissertation, provides a full table that serves as the first list of the settlements mentioned in the *Notitia Episcopatum* that ties them to their respective theme. Table 5.3 provides a condensed version of appendix 2 while table 5.4 indicates the number of settlements per theme as a percentage of the total.

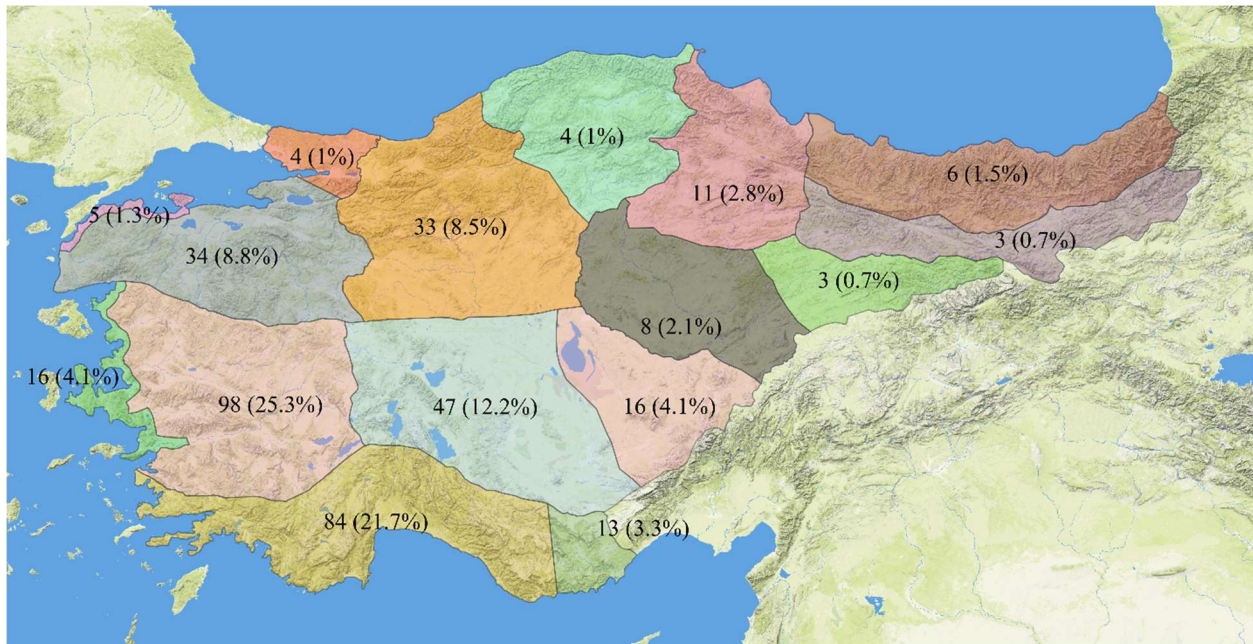
(Table 5.3) Number of Settlements per Theme

<u>Theme</u>	<u>Metropolitans</u>	<u>Archbishoprics</u>	<u>Suffragans</u>	<u>Total Settlements</u>
Aegean Sea	1	1	4	6
Anatolikon	4	1	42	47
Armeniakon	2	0	9	11
Boukellarion	3	2	28	33
Kappadokia	2	0	14	16
Chaldia	2	1	3	6
Charsianon	1	0	7	8
Kibyrraiotai	3	2	79	84
Koloneia	0	1	2	3
Opsikion	2	1	31	34
Optimaton	2	0	2	4
Paphlagonia	1	2	1	4
Samos	2	0	14	16
Sebasteia	1	0	2	3
Seleukeia	1	0	12	13
Thrakesion	4	3	91	98
				386 = total cities

(Table 5.4) Number of Settlements per Theme (expressed as a percentage)

<u>Theme</u>	<u>Percentage of Total Settlements</u>
Aegean Sea	1.3%
Anatolikon	12.2%
Armeniakon	2.8%
Boukellarion	8.5%
Kappadokia	4.1%
Chaldia	1.5%
Charsianon	2.1%
Kibyrraiotai	21.7%
Koloneia	0.7%
Opsikion	8.8%
Optimaton	1%
Paphlagonia	1%
Samos	4.1%
Sebasteia	0.7%
Seleukeia	3.3%
Thrakesion	25.3%

Finally, the number of settlements per theme and their percentage of the total is realized in map 5.7.

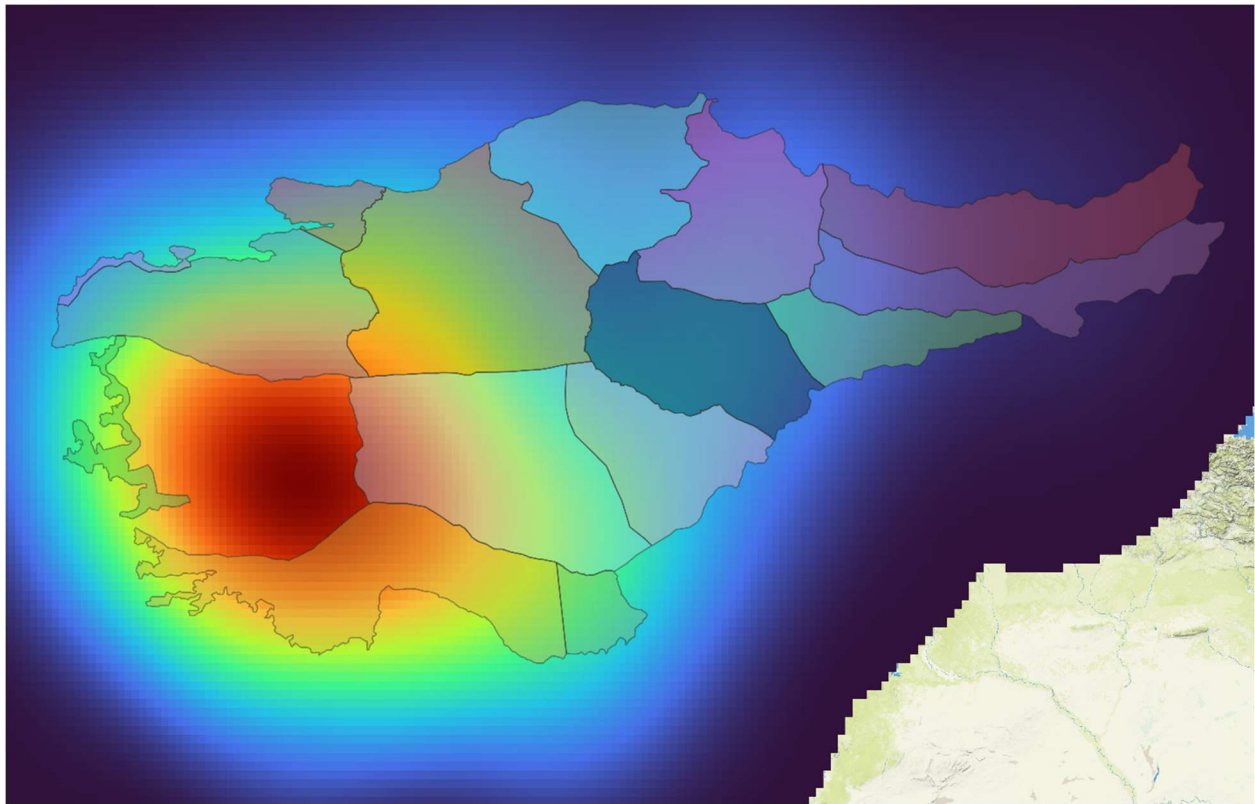


MAP 5.7. The Anatolian themes overlaid with the number of settlements and their percentage of the total

As the maps and tables demonstrate, urbanization was heavily concentrated in the western portion of Asia Minor and decreased precipitously moving east out towards the Anatolian Plateau, with the portions furthest east exhibiting sparse levels of massed settlement. This is realized on the heatmap in map 5.8 that shows the density of settlements (higher density = redder, lower density = bluer).<sup>83</sup> It reveals that the highest concentration of settlements lay in the

<sup>83</sup> David Abernathy, *Using Geodata and Geolocation in the Social Sciences: Mapping our Connected World* (Los Angeles: Sage, 2017), 201, 205. The heatmap is calculated using a kernel density estimation in which density is based on the number of points in a location. For this visualization, the radius of comparison for each city was set to three kilometers.

eastern part of the Thrakesion Theme, with the central portion of the Kibyrraiotai also boasting a substantial number of cities.



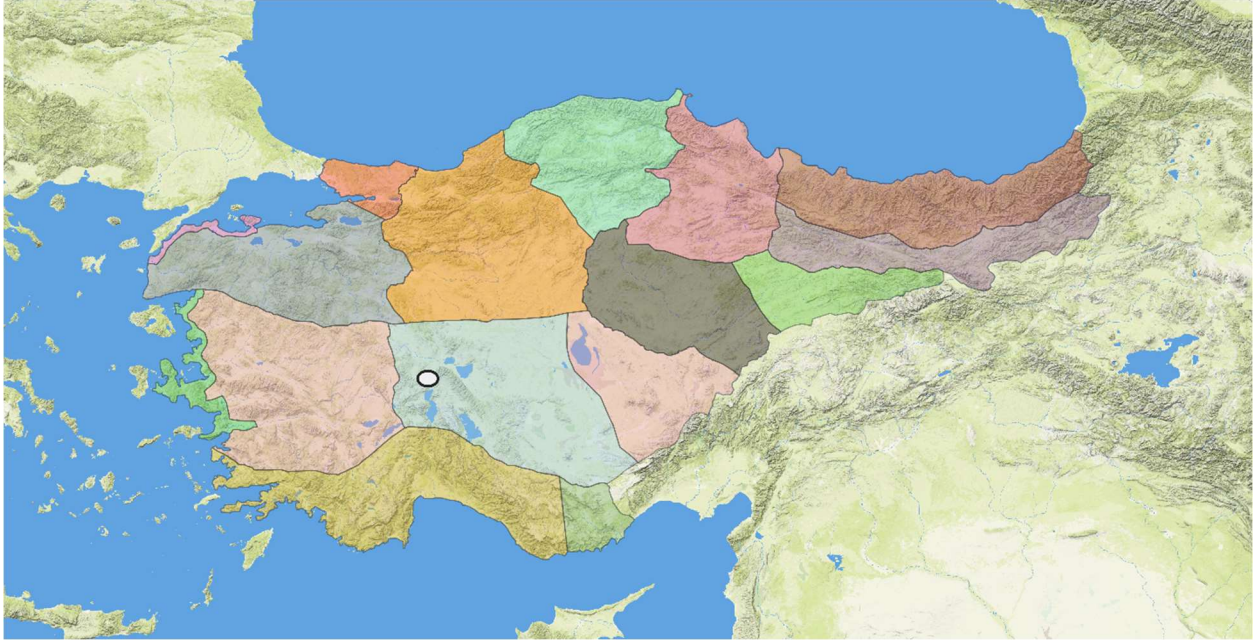
MAP 5.8. Heatmap of Anatolian settlements

This pattern is corroborated when looking at the weighted midpoint of all the settlements.<sup>84</sup> Essentially, when all of the cities are totaled, the weighted midpoint is their central location. Not taking into account population levels, the following map shows that the geographical midpoint of Anatolia's urban centers lay in the mid-western portion of the Anatolikon Theme, not far from the highest-density area of the Thrakesion Theme.

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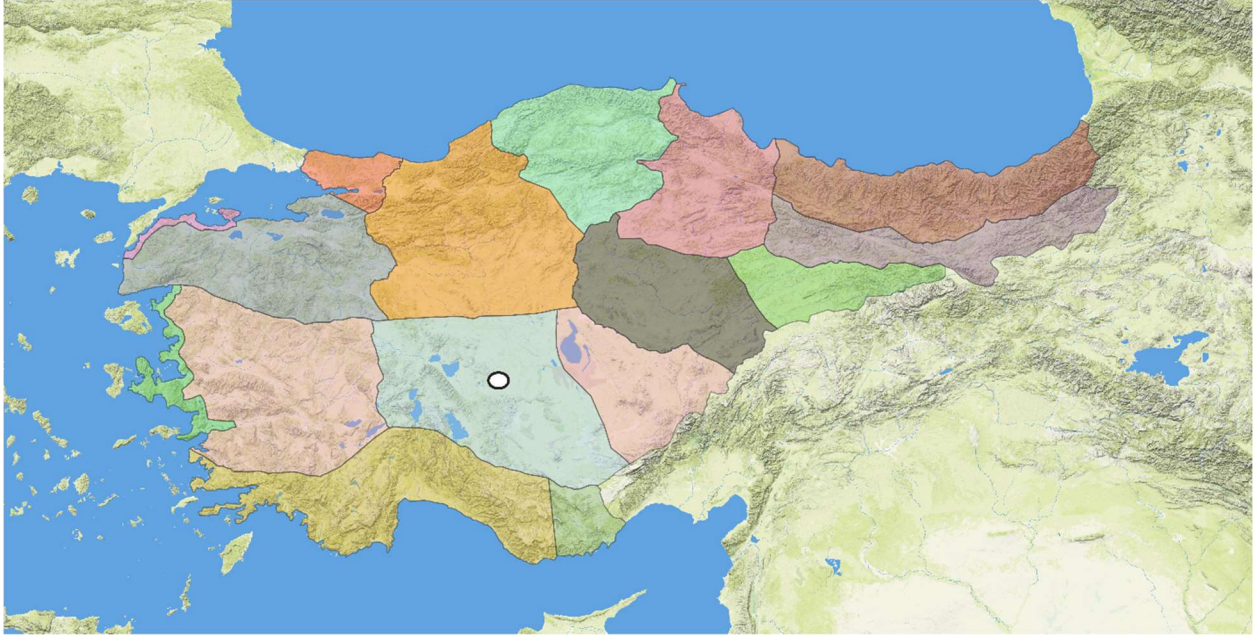
<sup>84</sup> De Smith, Goodchild, and Longley, *Geospatial Analysis*, 79–80.





MAP 5.9. The weighted midpoint of all settlements (white circle)

Even when all settlements from the minor themes are added (numbers derived from appendix 1), the midpoint of habitation shifts only slightly to the east, still residing in the Anatolikon Theme now just east of the Sultan Mountains. This exemplifies the true urban disparity between the western and eastern portions of Anatolia.

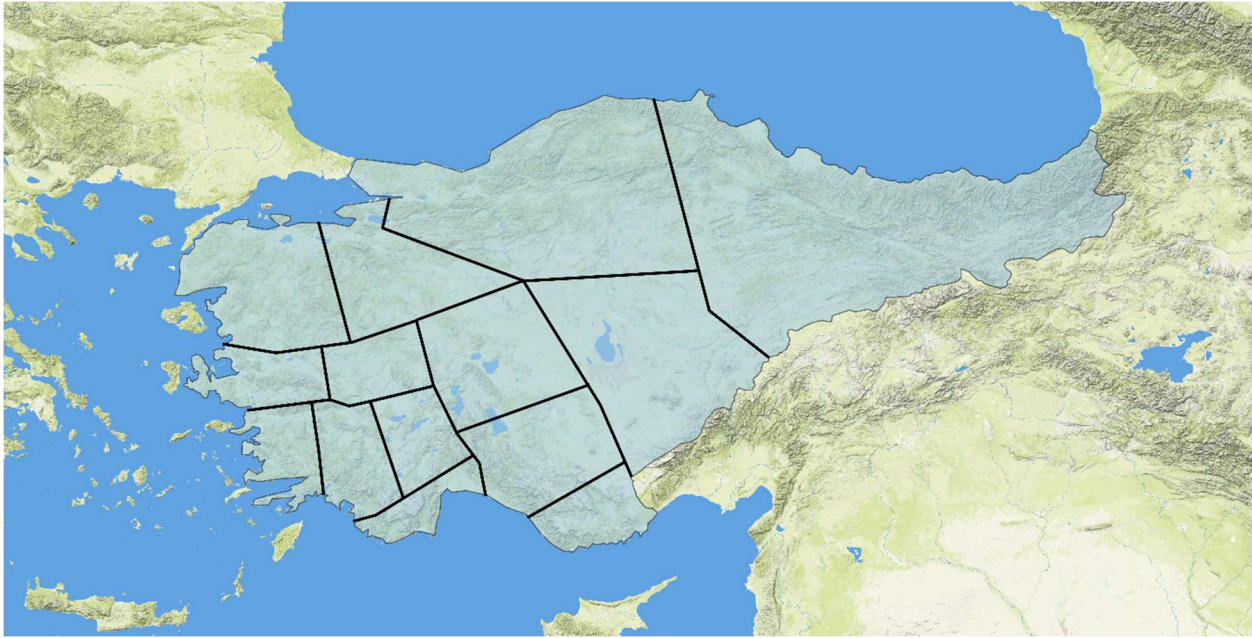


MAP 5.10. The weighted midpoint of all settlements when taking the minor themes into account

These findings accord with the known demographics of Anatolia,<sup>85</sup> but this study is the first to frame the data in a quantitative fashion that produces a clear-cut conclusion in relation to the themes: overall population parity was not a factor in devising the arrangement of the theme system. For this to be true, the eastern themes would need to be significantly expanded, and those in the west greatly truncated. Map 5.11 displays a hypothetical arrangement of the themes if the empire desired an equitable number of cities per theme.

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<sup>85</sup> Costas Tsiamis, *Plague in Byzantine Times: A Medico-historical Study* (Berlin: Walter de Gruyter, 2023), 44–47; Haldon, Elton, and Newhard, *Archaeology and Urban Settlement*; Charanis, *Studies on the Demography of the Byzantine Empire*; Laiou-Thomadakis, *Peasant Society*; Koder, *Der Lebensraum der Byzantiner*; Diane Mishkova, *Rival Byzantiums: Empire and Identity in Southeastern Europe* (Cambridge: Cambridge University Press, 2022), 296.



MAP 5.11. Thematic borders if an even settlement distribution was desired (hypothetical)

This hypothetical arrangement, shows an even more pronounced disparity than that witnessed when looking at discrepancies in thematic area (map 5.1). The sparsely populated east has one theoretical division that accounts for the near entirety of the five themes of the Armeniakon, Chaldia, Charsianon, Koloneia, and Sebasteia. Meanwhile, the high concentration of settlements in the Thrakesion and Kibyrraiotai Themes results in their small size on this map.

Such a model provides a potential explanation for why the Byzantines did not strive for population parity amongst the themes. Such a size incongruity would make the eastern themes much too large, encompassing a geographically disparate number of cities, potentially straining communication and the resources available to the *strategos* and administrators. Meanwhile, the western themes would have to be smaller than viability allowed, potentially over-restricting their size and inhibiting their military efficacy.

This hypothetical model also negates the strategic initiative presented along the eastern front. It was by design that the eastern border was divided between seven different themes, each

affording support to a small portion of the whole. This division of duties reduced the military onus from being placed on a single theme, instead having an array of themes aid one another. If only one or two themes encompassed the entire frontier, as in the hypothetical example, this advantage would be negated and leave the borderlands potentially more vulnerable to deep enemy incursions. Such geographical advantages outweighed the untenable nature of trying to acquire a sense of demographic equity.

### **Original Strategides and Cities**

How do these demographic trends apply to the original permutation of the strategides?

Table 5.5 provides the number of cities per the original five strategides:

(Table 5.5) Number of Cities (strategides)

<u>Theme</u>	<u>Number of Cities</u>	<u>Percentage of Total</u>
Anatolikon	76	19.6%
Armeniakon	35	9%
Kibyrraiotai	84	21.7%
Opsikion	76	19.6%
Thrakesion	114	29.5%

Just as was evidenced when considering the allocation of total area, the original strategides also had a significantly higher degree of equity regarding the number of settlements. The Platonic ideal of an even distribution would be 20 percent per spatial unit. In practice, three of them closely approach this value (Anatolikon, Kibyrraiotai, and Opsikion). The Thrakesion

still bears an outsized influence at almost 30 percent, with the Armeniakon in the east sparsely populated. An outlier in terms of total land, the Armeniakon once again serves as a catchall for the eastern portion of the system, accounting for a sizeable and sparsely populated area.

Nevertheless, this administrative arrangement still held a high degree of uniformity. When taken in concert with the values of land area and arable land, the early strategides exhibited strong hallmarks of premeditation in terms of more equitable distribution. This signifies the empire's desire to allocate more equivalent resources to the field armies that coalesced in Anatolia in the mid-seventh century.

Further support for the disinclination of having the themes comprise equivalent numbers of settlements occurred during the subdivision of the strategides. During the period of realignments in the eighth and ninth centuries, the Thrakesion and Kibyrraiotai were negligibly subdivided, leaving the two most populated strategides relatively unaffected and exacerbating the population inequalities further with every new subdivision.

### **Accounting for City Size**

A final demographic element to consider is the distribution of the largest urban centers around Anatolia. Table 5.6 lists the themes and their corresponding metropolitans and/or archbishoprics, as represented in the *Notitia Episcopatum* (*Notitia 7*).

Table (5.6) Metropolitans and Archbishoprics within each Theme

<u>Theme</u>	<u>Metropolitans</u>
Aegean Sea	Kyzikos
Anatolikon	Amorion, Antiocheia, Ikonion, Synnada
Armeniakon	Amasia, Euchaïta
Boukellarion	Ankyra, Klaudioupolis, Pessinous
Chaldia	Neokaisareia, Trebizond
Charsianon	Kaisareia
Kappadokia	Mokesos, Tyana
Kibyrraiotai	Myra, Perge, Side
Opsikion	Kotyaion, Nikaia
Optimaton	Chalkedon, Nikomedeia
Paphlagonia	Gangra
Samos	Ephesos, Smyrna
Sebasteia	Sebasteia
Seleukeia	Seleukeia
Thrakesion	Hierapolis, Laodikeia, Sardeis, Stauroupolis
Minor Themes	Kamacha

<u>Theme</u>	<u>Archbishops</u>
Aegean Sea	Parion
Anatolikon	Misthia
Boukellarion	Germia, Nakoleia
Chaldia	Rizaion
Kibyrraiotai	Kotradon, Selge
Koloneia	Koloneia
Opsikion	Apameia
Paphlagonia	Amastris, Pompeiupolis
Thrakesion	Chonai, Miletos, Sebastopolis
Minor Themes	Soteriupolis

An assessment of the metropolitans and archbishoprics needs to be pursued with a degree of caution. The metropolitans were not established to precisely correspond with the size of urban

centers, as the *Notitia Episcopatum* was interested in ecclesiastical matters, not demographics.<sup>86</sup>

That said, the metropolitans on this list do correspond to many of the most important cities within Anatolia and so they are applicable for the purpose of this analysis.



MAP 5.12. Metropolitans (red), archbishoprics (grey), and thematic capitals (black)

<sup>86</sup> Rapp and Preiser-Kapeller, *Mobility and Migration in Byzantium*, 253.

In terms of distribution, nearly every theme contained at least one metropolitan, with two being the average. The themes not represented—Koloneia and Paphlagonia—were instead privileged with an archbishopric apiece. When the list of metropolitans and archbishoprics are combined, the number of seats per theme are as follows:

- Thrakesion (7)
- Anatolikon (5)
- Boukellarion (5)
- Kibyrraiotai (5)
- Chaldia (3)
- Opsikion (3)
- Paphlagonia (3)
- Aegean Sea (2)
- Armeniakon (2)
- Kappadokia (2)
- Optimaton (2)
- Samos (2)
- Charsianon (1)
- Koloneia (1)
- Sebasteia (1)
- Seleukeia (1)

The total number of ecclesiastical centers now becomes more reflective of the general population trend witnessed in the previous figures on the total number of settlements. The eastern themes bear fewer prominent centers, with only about one apiece. Only Chaldia deviates from this trend thanks to its placement along the Black Sea. Meanwhile, the western themes account for five to seven apiece. Once again, these results discount the notion that the themes were created to accommodate an equitable population or a similar number of important cities.

Even the presence of some larger urban areas in the east—Trebizond for instance—does not change the overall population trend. The discrepancy between the sheer number of settlements in the west is too great to alter this demographic imbalance, and is likely exacerbated with a greater number of sizeable cities in the west. As evidenced earlier (maps 5.9–5.10), even



the addition of the minor themes does little to substantively move the center of settlement distribution much further east.

The power law for city distributions is largely understood through Gibrat's law.<sup>87</sup> This demonstrates that cities arising in a natural fashion exhibit a log-normal population distribution pattern.<sup>88</sup> Applying this law to cities in the themes proves the virtual impossibility of cities in the east being home to an outsized population sufficient enough to substantively shift any demographic trends.

Nevertheless, while there is no equal division in terms of demographics, there is a noticeable distribution of important cities accorded to each theme. This shows the potential of the less demographically dense eastern themes still possessing several large cities to serve as strategic centers. The idea of assigning sizeable posts for the *strategoï* to serve as operational hubs is considered in chapter 7.

With it determined that the theme system of the tenth century was not designed with an equitable distribution of land, arable land, or demographics in mind, what other aspects were considered by the Byzantines in arranging the themes? The next chapters turn to considerations of Anatolia's road network as a viable metric of analysis and examines how the themes

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<sup>87</sup> Robert Gibrat, *Les Inégalité Économiques* (Paris: Librairie du Recueil Sirey, 1931).

<sup>88</sup> Tomoya Mori, Tony Smith, and Wen-Tai Hsu, "Common Power Laws for Cities and Spatial Fractal Structures," *Proceedings of the National Academy of Sciences* 117, no. 12 (2020): 6469–75; Jan Eeckhout, "Gibrat's Law for (All) Cities," *The American Economic Review* 94, no. 5 (2004): 1429–51; Yannick Malevergne, Vladilen Pisarenko, and Didier Sornette, "Testing the Pareto against the Lognormal Distributions with the Uniformly Most Powerful Unbiased Test Applied to the Distribution of Cities," *Physical Review E* 83, (2011): <https://doi.org/10.1103/PhysRevE.83.036111>; Esteban Rossi-Hansberg and Mark Wright, "Urban Structure and Growth," *Review of Economic Studies* 74 (2007): 597–624; Xavier Gabaix, "Zipf's Law for Cities: An Explanation," *The Quarterly Journal of Economics* 114, no. 3 (1999): 738–67; Gilles Duranton, "Some Foundations for Zipf's Law: Product Proliferation and Local Spillovers," *Regional Science and Urban Economics* 36, no. 4 (2006): 542–63. A log-normal distribution graph shows an initial large spike with the probability declining towards the right in a long tail.

organized and interacted with one another as part of a connected network based around these routes.

## **CHAPTER 6—THE BYZANTINE ROAD NETWORK OF ANATOLIA**

Now that the major land and demographic trends across the theme system have been interrogated, the remainder of the study turns to the spatial arrangement of the themes and how Byzantine administrators utilized geography to facilitate interactions and relationships.

The goal of this chapter is twofold:

- 1) To explain why network connectivity is a viable metric in relation to the overall organization of the tenth century themes.
- 2) To create an interactive map depicting the road network of Anatolia as it existed during the time of the themes. This map is then utilized in chapters 7 and 8 to conduct analysis on the layout of the themes, their capitals, and other geographical features.

### **Terms**

Before beginning, it is useful to define key terms used in network analysis. A network describes the way in which geographical features attach and relate to one another spatially. This can apply to individual points, such as a city or natural feature, or to large entities such as the themes themselves.

A connected system is composed of nodes and lines.<sup>1</sup> A node is a one-dimensional object that is akin to a dot on a map. A line is a two-dimensional object that traverses a set distance across a map. Nodes serve as fixed points that can connect lines and bring together a disparate number of geographical features into a single spatial unit. For the purpose of this study, the nodes are the cities and capitals of Anatolia, and the lines are the roads that physically connect them to one another. As such, a network analysis interrogates the locations and interactions amongst the themes and their constituent components, allowing us to draw forth connections not readily evident from a static map.

Such a connectivity study is useful because it helps to describe how seemingly disparate geographical elements relate to one another. How did cities relate in terms of distance and interactions? What routes were individuals and armies most likely to take? How could concepts of autonomy and organization be balanced before the advent of modern communications? How could the road system be incorporated into the process of determining the shapes and sizes of the themes? These important aspects impacted the Byzantine Empire's relationship to geography— aspects that a purely textual analysis of the themes is incapable of assessing.

### **Applicability of a Network Study on Anatolia's Themes**

Network analysis is an approach that takes advantage of available data from an empire with otherwise scarce records on geographical administration. This form of analysis is a viable way to interrogate the makeup of the themes because the information relating to nodes (cities) and lines

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<sup>1</sup> Arnold Johnson, ed., *Geographic Information Systems (GIS) and Mapping: Practices and Standards* (Ann Arbor: ASTM, 1992), 12.

(roads) within Anatolia is well-understood. Chapter 5 demonstrated that a representative portion of the cities of the region are known and can be located with precision (map 5.6). Chapter 6 will likewise explain that the road network can also be reconstructed with a degree of accuracy. For an empire whose records relating to geographical administration are almost non-existent, the ability to discern the factors important to network analysis are critical to attaining insight in this area.

The other components that make a network study applicable to Anatolia in the ninth and tenth centuries are constancy within the region's geography and the empire's stable control over this territory. This chapter demonstrates that such factors are highly conducive to quantitative analysis.

### **Constancy and Simplicity of Travel Routes**

From a transportation perspective, Anatolia's travel routes are relatively easy to ascertain. Most travel in the region was conducted overland and along well-delineated routes.

Anatolia is surrounded by the Black Sea to the north, Aegean Sea to the west and Mediterranean Sea to the south. These bodies of water privileged maritime access to coastal cities such as Trebizond and Attaleia but they were insufficient for facilitating internal travel throughout Anatolia. Influential cities such as Amorion, Amaseia, Ankyra, and Chonai lied away from coastal areas, necessitating the development of strong overland networks to interact with one another and with Constantinople. Couple this with the lack of navigable rivers to serve as

vital connective arteries, such as the Rhine or Danube in Europe,<sup>2</sup> and it becomes evident that ship transportation served little use for the majority of Asia Minor beyond the immediate coastal areas.

Unlike other parts of the empire, navigable river routes were limited in their capacity to serve the entire landmass. The Halys River (modern Kızılırmak) at 1,355 kilometers serves as Anatolia's longest internal waterway, but the shallow riverbed and variations in the channel precluded it from being navigable.<sup>3</sup> The Sangarios (modern Sakarya), Anatolia's third longest river at 824 kilometers,<sup>4</sup> was also lauded in antiquity as one of the principal rivers of the region.<sup>5</sup> It took a winding course through Phrygia that negated much of the utility of using a waterway for transportation, and was really only navigable for the portion that runs through Bithynia (the Optimaton Theme).<sup>6</sup> Most other rivers not directly adjacent to the coast fell into a similar situation, where navigation was either impossible or impractical for commerce or military actions. Thus, while a cursory view of Asia Minor shows some waterways, their main benefit was as a source of agriculture and fishing.

The only real use of waterways for transportation purposes was at the northern points of the Tigris and Euphrates Rivers.<sup>7</sup> The principal utility for this was in conducting a military invasion of Mesopotamia, as seen with Julian in 363 when he constructed ships at Samosata to

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<sup>2</sup> Julius Caesar, *Gallic War*, 4.17; Strabo, *Geography*, 4.2.1, 4.3, 7.1.3; Peter Mako and Andrea Galieriková, "Inland Navigation on the Danube and the Rhine Waterways," *Transportation Research Procedia* 55 (2021): 10–17; Kenneth Olson and Edward Krug, "The Danube, an Empire Boundary River: Settlements, Invasions, Navigation, and Trade Pathway," *Journal of Water Resource and Protection* 12, no. 10 (2020): 884–97.

<sup>3</sup> Hafzullah Aksoy, "Surface Water," in *Water Resources of Turkey*, eds. Nilgun Harmancioglu and Dogan Altinbilek (Cham, Switzerland: Springer, 2020), 134–35; Turkish Statistical Institute, *Turkey's Statistical Yearbook 2011* (Ankara: Turkish Statistical Institute, 2012), 6; Herodotos, *Histories*, 5.52–54; Strabo, *Geography*, 6.4.2.

<sup>4</sup> Turkish Statistical Institute, *Turkey's Statistical Yearbook 2011*, 6.

<sup>5</sup> Strabo, *Geography*, 12.3.7; Pliny, *Natural History*, 6.1.4; Pausanias, *Description of Greece*, 1.5.1; Ammianus Marcellinus, *Rerum Gestarum*, 22.8.14.

<sup>6</sup> Aksoy, "Surface Water," 134.

<sup>7</sup> Herodotos, *Histories*, 5.52–54.

sail to the Sasanian capital of Ctesiphon.<sup>8</sup> Even then, the ships were only used to navigate downstream, with the fleet subsequently burned and the army later retiring home on foot.<sup>9</sup> Otherwise, river systems held little bearing on the transportation network of Anatolia proper. Such access to waterways is starkly contrasted with places such as the Italian and Greek peninsulas where commercial and transportation networks relied heavily on shipping and facilitated the rise of maritime powers such as Venice<sup>10</sup> and Genoa.<sup>11</sup>

This lack of a reliance on water for transportation and communication is also evidenced in the formation of the Anatolian themes. The Aegean Sea, Kibyrraiotai, and Samos Themes were specifically crafted for coastal defense, but were not designed to engage with the internal operations of the landmass. There was also no equivalent to the *kommerkiarioi* officials to monitor the flow of maritime commerce along the rivers, a key indicator of their inutility as a viable commercial route.<sup>12</sup> Outside of this, the remaining Anatolian themes had a distinct focus on overland communication and governance.

Not having navigable rivers makes a study of network analysis significantly less complicated.<sup>13</sup> Travel by water is meaningfully faster than on foot, with a contemporary

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<sup>8</sup> Ammianus Marcellinus, *Rerum Gestarum*, 23.2–23.3; Ioannes Malalas, *Chronicle*, 13.329; Florian Himmler, Heinrich Konen, and Josef Löffl, *Exploratio Danubiae: ein rekonstruiertes spätantikes Flusskriegsschiff auf den Spuren Kaiser Julian Apostatas* (Berlin: Frank and Timme, 2009).

<sup>9</sup> Ammianus Marcellinus, *Rerum Gestarum*, 24.7.4.

<sup>10</sup> Magdalena Skoblar, ed. *Byzantium, Venice and the Medieval Adriatic: Spheres of Maritime Power and Influence, c. 700–1453* (Cambridge: Cambridge University Press, 2021); Renard Gluzman, *Venetian Shipping from the Days of Glory to Decline, 1453–1571* (Boston: Brill, 2021).

<sup>11</sup> Thomas Kirk, “The Republic of Genoa and its Maritime Empire,” in *Empires of the Sea: Maritime Power Networks in World History*, eds. Rolf Strootman, Floris van den Eijnde, and Roy van Wijk (Leiden: Brill, 2020), 153–78.

<sup>12</sup> DO 47.2.93 “Sergios, imperial *vestetor* and *kommerkiarios* of Pontos” (eighth/ninth century); Fogg 108 “Ioannes, (imperial?) *spatharokandidatos* and *kommerkiarios* of Hieron and Pontos” (tenth/eleventh century). For comparison, *kommerkiarioi* resided at locations like Pontos and Hieron which served as important maritime chokepoints at the northern entry to the Bosphorus from the Black Sea.

<sup>13</sup> Justin Leidwanger and Carl Knappett, *Maritime Networks in the Ancient Mediterranean World* (New York: Cambridge University Press, 2018); Justin Leidwanger, Carl Knappett et al., “A Manifesto for the Study of Ancient Mediterranean Maritime Networks,” *Antiquity* 342, no. 88 (2014): <http://journal.antiquity.ac.uk/projgall/leidwanger342>; Preiser-Kapeller, *Harbours and Maritime Networks*.

Byzantine vessel capable of traveling 2 to 4 knots based on the direction of the wind.<sup>14</sup> This amounts to about 3.7 to 7.4 kilometers (2.3 to 4.6 miles) per hour and can be maintained on a continuous basis, resulting in 88 to 177 kilometers (55 to 110 miles) covered in a twenty-four-hour period. In comparison, Walter Scheidel places the average distance covered by foot in a day at 30 kilometers (18 miles).<sup>15</sup> In addition, a ship is capable of transporting much heavier loads for the effort involved when compared to a beast of burden such as a horse, donkey, or ox.<sup>16</sup> A region with navigable waterways highly skews transportation along them due to these advantages and would add in too many variables to a connectivity analysis. Compare this to the contemporary Song Dynasty in China where the Yangtze and Yellow Rivers coupled with the Grand Canal held an outsized influence on the shape of urbanization and transportation.<sup>17</sup>

An important consequence of the absence of waterways is that overland travel routes were simplified and selected based primarily on distance and time. Precluding pilgrimage or leisure, travelers typically wish to conserve resources. Added time on the road means a larger expenditure on supplies such as food and lodging. This dictum holds true whether for the solo trader or an army of 10,000. Therefore, the shortest distance is preferable when road access remains constant.<sup>18</sup> By no means does Anatolia fit the Platonic ideal of the perfectly

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<sup>14</sup> J.H. Pryor, "Types of Ships and their Performance Capabilities," in *Travel in the Byzantine World: Papers from the Thirty-Fourth Spring Symposium of Byzantine Studies, Birmingham, April 2000*, ed. Ruth Macrides, (New York: Routledge, 2017), 48–51; A. L. Udovitch, "Time, the Sea and Society: Duration of Commercial Voyages on the Southern Shores of the Mediterranean during the High Middle Ages," in *La Navigazione Mediterranea Nell'alto Medioevo: 14–20 Aprile, 1977* (Spoleto: Presso la sede del Centro, 1978), 503–63.

<sup>15</sup> "Orbis: Building," accessed February 27, 2024, <https://orbis.stanford.edu/#cite18>.

<sup>16</sup> Paul James, *Food Provisions for Ancient Rome: A Supply Chain Approach* (New York: Routledge, 2021), 28–57; John Clark, ed., *The Medieval Horse and its Equipment: c.1150–c.1450* (London: The Boydell Press, 2004), 27–28. An individual could convey more with a caravan of camels, but they were not widely incorporated in Anatolia and are therefore not relevant to the issue.

<sup>17</sup> Yi-Fu Tuan, *A Historical Geography of China* (London: Routledge, 2017); Robert Marks, *China: An Environmental History* (London: Rowman and Littlefield, 2017).

<sup>18</sup> Shawn Graham, Ian Milligan, Scott Weingart, and Kim Martin, *Exploring Big Historical Data: The Historian's Macroscope* (Singapore: World Scientific Publishing, 2022), 211.



unencumbered topography, but the prevailing geographical conditions permit assumptions on road travel and communications to a degree not seen in any other part of the empire.

### **Constancy of Access to the Road Network**

It is difficult to make substantive comparisons if the geographical area in question undergoes frequent territorial losses or fluctuations, as this would alter the way people and the government interacted with their surroundings. Therefore, analyzing constancy of road access is another important consideration when assessing the utility and viability of the roads as a connected network. This section demonstrates that, while overall road quality declined from the sixth century, accessibility remained constant during the duration of the theme system until the mid-eleventh century.

### ***Road Quality***

The first consideration regarding the road network concerns changes to its quality. This section asserts there were few substantive changes to Anatolia's road system during the ninth and tenth centuries.

Anatolia's road quality reached its apogee in the second century CE when the Roman Empire attained the height of its expansion, but quality declined appreciatively over the

subsequent centuries.<sup>19</sup> The last true commitment to maintaining and improving the infrastructure of the Anatolian road system came under Justinian in the sixth century. Prokopios in *The Buildings* expounded upon these developments, citing several critical bridges constructed during this period. The Sangarios Bridge (aka Bridge of Justinian), with a 10 m height and a 365 m span, was a stone bridge that replaced a wooden pontoon one over the Sakarya River in Bithynia.<sup>20</sup> This was Justinian's largest bridge in Anatolia and it served as a vital link to the east. Other infrastructure endeavors were the construction of the Baç Bridge, which served as a 60 m span over the Berdan River in Tarsos,<sup>21</sup> and the restoration and expansion of Constantius II's Misis Bridge over the Ceyhan River (in modern Adana Province) to facilitate travel to Mopsouestia.<sup>22</sup>

Prokopios also commented on Justinian's contributions to the roads themselves, outlining the construction of multiple stretches of new and improved routes suitable for vehicular travel.<sup>23</sup> This investment in roads, bridges, and an array of fortifications along the frontier demonstrates that the logistical ability to move troops and defend the empire was of paramount concern. These findings suggest that the road network in Anatolia was maintained into the sixth century, but without the major development projects witnessed at the height of the Roman Empire.

After Justinian, imperial support for the maintenance of Anatolian roads declined precipitously and was unable to recover from the seventh century Sasanian and early Muslim

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<sup>19</sup> French, *Roman Roads and Milestones of Asia Minor*. David French systematically charted the Roman roads, milestones, bridges, and waystations throughout Anatolia to demonstrate the reach and sophistication of the system. These volumes cover the relevant provinces of Asia, Galatia, Isauria et Lykaonia, Kappadokia, Kilikia, Lykia et Pamphylia, and Pontus et Bithynia.

<sup>20</sup> Prokopios, *Buildings*, 5.3.8–11; Michael Whitby, "Justinian's Bridge over the Sangarius and the Date of Procopius' de Aedificiis," *The Journal of Hellenic Studies* 105 (1985): 129–48.

<sup>21</sup> Prokopios, *Buildings*, 5.5.12.

<sup>22</sup> Prokopios, *Buildings*, 5.5.5. Several other bridges were constructed by Justinian; across the Orontes (Prokopios, *Buildings*, 2.10.6), at Myrmex (Prokopios, *Buildings*, 4.8.15), two additional bridges in Bithynia (Prokopios, *Buildings*, 5.2.3), and he strengthened bridges across the Cydnus (Prokopios, *Buildings*, 5.5.18).

<sup>23</sup> Prokopios, *Buildings*, 4.8.4–9; 5.2.6–8; 5.2.12–14; 5.5.1–3.

conquests. By the advent of the themes, road conditions were not comparable to the second or even sixth centuries.

These are significant developments when regarding transportation changes over the course of the empire's history, but they do not affect the results of this study. What is important for this study are the changes to the network during the existence of the themes. In this respect, the road system remained relatively constant in terms of maintenance and accessibility, principally in that important roads were maintained at a bare minimum level to permit the continual flow of commerce. As shall be seen in chapter 8, in the discussion of betweenness centralities, long-distance and non-local traffic monopolized only a few routes. The maintenance of roads of such outsized importance would be understood and could still be performed by an empire lacking the resources of the second or sixth century. However, this period would not witness any concerted efforts by the central government to overhaul the roads due to fiscal restrictions. After Justinian, there are only scant direct mentions of road and bridge constructions. For instance, between 769 to 775 repairs were performed on a bridge near Kırklareli-Vize in Thrake near the Black Sea.<sup>24</sup> Another project concerned Basil I's reconstruction of the bridge at Rhegion (Myrmex) in the late ninth century.<sup>25</sup> The excavation of roads at Arta<sup>26</sup> and Kitros<sup>27</sup> attested to new infrastructure projects during the tenth century. The presence of an extensive network of hydraulic systems within Kappadokia predating the arrival of the Seljuks also attests to the ability to undertake some large infrastructure works within the

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<sup>24</sup> Peter Soustal, *Tabula Imperii Byzantini*, vol. 6, *Thrakien (Thrake, Rodope und Haimimontos)* (Vienna: Verlag der Österreichischen Akademie der Wissenschaften, 1991), 421.

<sup>25</sup> *De Administrando Imperio*, 51.7–9.

<sup>26</sup> Myrto Veikou, *Byzantine Epirus: A Topography of Transformation: Settlements of the Seventh-Twelfth Centuries in Southern Epirus and Aetoloacarnania, Greece* (Leiden: Brill, 2012), 102–3.

<sup>27</sup> Efterpi Marki, “Πρωτοχριστιανές και βυζαντινές οχυρώσεις στη Β. Πιερία. Οι περιπτώσεις των Λουλουδιών και της Πύδνας,” in *Περίληψεις 19ου Συμποσίου Βυζαντινής και Μεταβυζαντινής Αρχαιολογίας και Τέχνης* (Athens: ChaE, 1999), 40.

eastern themes.<sup>28</sup> Despite the dearth of major projects, infrastructure germane to the operation of the army and administration were maintained to at least a minimal degree of functionality.

Documentation from Mount Athos shows that local roads were maintained consistently from the middle Byzantine period well after the arrival of the Ottomans.<sup>29</sup> This is a regionally specific example, but it demonstrates that the Byzantines retained the capacity to keep important arteries functioning. All this suggests that overland travelers in Anatolia during the period of the theme system in the ninth and tenth centuries experienced road conditions that remained generally consistent. It is under these conditions that the themes were devised, arranged, and functioned during the height of their existence.

Likewise, the economic decline of the sixth and seventh centuries is a well-established phenomenon that dramatically reduced the level of intra-city trade,<sup>30</sup> but the trade network across Anatolia persisted in structure during the period of thematic development due to the stability of the empire's borders. This study is not concerned with the level of trade conducted, but rather with the ability to conduct trade, and the ability to move about unencumbered, two things that stayed relatively constant throughout the theme system.

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<sup>28</sup> Roberto Bixio, "Underground Hydraulic Systems and Anthropogenic Cavities in Cappadocia," in *Güllüdere and Kızılçukur: the Rose Valley and the Red Valley in Cappadocia*, eds. Patrizia Boschiero and Luigi Latini (Treviso, Italy: Fondazione Benetton Studi Ricerche Antiga, 2020), 130–41.

<sup>29</sup> Klaus Belke, "Roads and Travel in Macedonia and Thrace in the Middle and Late Byzantine Period," in *Travel in the Byzantine World: Papers from the Thirty-Fourth Spring Symposium of Byzantine Studies, Birmingham, April 2000*, ed. Ruth Macrides (New York: Routledge, 2017), 86–90.

<sup>30</sup> Laiou and Morriison, *Byzantine Economy*, 23–42; Johannes Koder, "Regional Networks in Asia Minor during the Middle Byzantine Period (Seventh-Eleventh Centuries): An Approach," in *Trade and Markets in Byzantium*, ed. Cécile Morriison (Washington, DC: Dumbarton Oaks, 2012): 147–76; Michael Decker, *The Byzantine Dark Ages* (London: Bloomsbury, 2016), 155–86.

## *Road Access*

The second consideration regarding Anatolia's roads is whether access to the road network changed substantively during the time of the strategides and themes. If the territory of Anatolia was contested or changed hands frequently, this road network model would not work. The connectivity of the road network would be changing constantly, with major cities and routes becoming inaccessible to trade and communication at a rate impossible to reconcile from the limited information available on the period. Likewise, such instability would force a continuous redrawing of thematic borders, rendering it impossible to understand the central government's decisions beyond just being reactionary to the present threat. While this kind of instability was witnessed in several parts of the Byzantine Empire where multiple parties simultaneously contested the territory, notably in Italy and the Balkans, it is not present in Anatolia during this period.

As Asia Minor remained solidly within Byzantine control, there were no major obstructions to internal movement along the roads. The Taurus and Anti-Taurus Mountain ranges served as a porous but steadfast demarcation between Byzantine and Umayyad/Abbasid territorial holdings. This could temporarily be disturbed by Arab raiding incursions, but their desire for material gains over the establishment of long-term colonies beyond the frontier permitted a relatively quick resumption of internal movement.<sup>31</sup> This is exemplified by the Sack of Amorion in 838, which demonstrated the Abbasid Empire's ability to conduct deep raids into the Anatolian heartland and inflict significant damage.<sup>32</sup> The caliph al-Mu'tasim personally led

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<sup>31</sup> Eger, *Islamic-Byzantine Frontier*.

<sup>32</sup> For an overview of the campaign see Juan Signes Codoñer, *The Emperor Theophilos and the East, 829–842: Court and Frontier in Byzantium during the Last Phase of Iconoclasm* (Burlington, VT: Ashgate, 2014), 279–312.

the expedition and was able to besiege the city of Amorion while the emperor Theophilos was indisposed. Cut off, the city was captured and razed, with prominent officials sent to Samarra as prisoners.<sup>33</sup> Even with this victory, the Abbasids made no effort to settle the interior of Anatolia. Al-Mu'tasim achieved the balance of inflicting material damage on the Byzantines while mitigating his own losses. Any efforts to solidify landholdings would invite conflict with the larger army of Theophilos and the unified themes, potentially resulting in heavy troop losses for minimal gain.

Despite this being one of the most severe incursions into the Anatolian heartland, no substantial shifts in the border between the empires was experienced and correspondence along the Byzantine road network could resume after the departure of the raiders.<sup>34</sup> (The capital of Ankyra was also attacked during this raid, with the theme's administrative apparatus reinstated almost immediately after the threat subsided.)<sup>35</sup> If this event was incapable of redrawing the borders, other raids had little chance of making a substantive impact.

It was not until the arrival of the Seljuk Turks in the mid-eleventh century, particularly after the Battle of Manzikert (1071), that Byzantine hegemony in Asia Minor was significantly challenged and irrevocably altered. The Seljuks attained striking military victories and, crucially, established a continuous presence in the conquered lands of eastern Anatolia,<sup>36</sup> forcing the Byzantines to augment their reliance on longstanding travel routes. This study concludes at the start of the eleventh century, before these major changes occurred and the communication network contracted and broke down, so such developments do not factor into the analysis of road

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<sup>33</sup> Skylitzes, *Synopsis*, 75–78; al-Tabari, *History*, III, 111–13; Codoñer, *The Emperor Theophilos and the East*, 279–312.

<sup>34</sup> Michael the Syrian, *Chronicle*, III, 101. Michael the Syrian asserted that only minor portions of Amorion's city walls were demolished.

<sup>35</sup> Chris Lightfoot, "The Survival of Cities in Byzantine Anatolia: The Case of Amorium," *Byzantion* 68, no. 1 (1998): 66.

<sup>36</sup> Beihammer, *Muslim-Turkish Anatolia*.

system stability from the ninth through late tenth centuries. Consequently, by network standards, this is a very stable and reliable system to draw comparisons with over the period in question.

### **Speed and Constancy of Travel around Anatolia**

The final considerations when assessing the applicability of constructing a GIS model and making calculations concern the rapidity of travel and how consistent travel time was throughout Anatolia. Without major geographical obstacles, calculating travel times is fairly straightforward and can be performed by GIS software.<sup>37</sup> For this use, Walter Scheidel's *Orbis* is the most sophisticated computational program to determine travel distances between locations in the ancient Mediterranean world.<sup>38</sup> Scheidel designed the program to cover the major significant roads within the Roman world, some of which were still in use in Anatolia during the ninth and tenth centuries. The software allows for the ability to calculate the distance between locations and travel times over land, river, and sea, as well as assessing travel times based on various modes of transportation such as foot travel, horse, ox, quick messengers, and military marches.<sup>39</sup> This is all to say that *Orbis*'s travel estimates are rigorous and account for most scenarios regarding travel. These figures are accepted and applied by numerous academics of premodern transportation.<sup>40</sup>

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<sup>37</sup> Andy Mitchell, *The ESRI Guide to GIS Analysis: Geographic Patterns and Relationships* (New York: Environmental Systems Research Institute, 1999), 136.

<sup>38</sup> "Orbis," accessed February 27, 2024, <http://orbis.stanford.edu>.

<sup>39</sup> "Orbis: Building," accessed February 27, 2024, <https://orbis.stanford.edu/#cite18>.

<sup>40</sup> Key works on Roman and Medieval transportation speeds include Colin Adams, *Land Transport in Roman Egypt: A Study of Economics and Administration in a Roman Province*, (Oxford: Oxford University Press, 2007); Colin Adams and Ray Laurence, eds., *Travel and Geography in the Roman Empire* (London: Routledge, 2001); C.W.J. Eliot, "New Evidence for the Speed of the Roman Imperial Post," *Phoenix* 9, no. 2 (1955): 76–80; John Haldon, ed.,

*Orbis* provides the following estimated travel times based on the average distance of travel per day predicated on travel over flat and easily traversable terrain:<sup>41</sup>

Walking—30 km  
Soldiers marching—30 km  
An ox cart—12 km  
Porters/heavily loaded mules—20 km  
Mule cart—30 km  
Moderately loaded pack animals—30 km  
Private vehicular travel—36 km  
Rapid vehicular travel—50 km  
Horse—56 km  
Quick military march, no baggage, not long term—60 km  
Rapid carriage travel—67 km  
Continuous horse relay (using several horses)—250 km

Scheidel's *Orbis* approaches the notion of travel within the Roman Empire as being of a uniform nature.<sup>42</sup> His assumption is that a foot journey of 20 kilometers in Bithynia will take approximately the same amount of time to complete as an equally distanced foot journey in Lydia or Paphlagonia. While this is not entirely reflective of real-world conditions, this simplification does bear utility.<sup>43</sup> It is understood that not every single road had identical upkeep.

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*General Issues in the Study of Medieval Logistics* (Leiden: Brill, 2006); Anne Kolb, *Transport und Nachrichtentransfer im Römischen Reich* (Berlin: Akademie Verlag, 2001), 308–32; Ray Laurence, “Land Transportation in Roman Italy: Cost, Practice, and the Economy,” in *Trade, Traders, and the Ancient City*, eds. Helen Parkins and Christopher Smith (London: Routledge, 1998), 129–48; Albert Leighton, *Transport and Communication in Early Medieval Europe AD 500–1100* (New York: David and Charles, 1972); Friedrich Ludwig, *Untersuchungen über die Reise- und Marschgeschwindigkeit im XII. und XIII. Jahrhundert* (Berlin: Mittler and Sons, 1897); Michael McCormick, *Origins of the European Economy: Communications and Commerce, A.D. 300–900* (Cambridge: Cambridge University Press, 2001), 474–81; Michel Polfer, “Der Transport über den Landweg – ein Hemmschuh für die Wirtschaft der römischen Kaiserzeit?,” *Helinium* 31, no. 2 (1991): 273–95; A.M. Ramsay, “The Speed of the Roman Imperial Post,” *The Journal of Roman Studies* 15 (1925): 60–74; Adam Silverstein, *Postal Systems in the Pre-Modern Islamic World* (Cambridge: Cambridge University Press, 2007); and D. V. Sippel, “Some Observations on the Means and Cost of the Transport of Bulk Commodities in the Late Republic and Early Empire,” *Ancient World* 16 (1987): 35–45.

<sup>41</sup> “Orbis: Building,” accessed February 27, 2024, <https://orbis.stanford.edu/#cite18>.

<sup>42</sup> “Orbis: Understanding,” accessed February 27, 2024, <https://orbis.stanford.edu>.

<sup>43</sup> For an argument supporting the creation of static models predicated on the long-term stability of a network, as seen within Anatolia, see Claire Lemerrier, “Formale Methoden der Netzwerkanalyse in den Geschichtswissenschaften: Warum und Wie?,” *Österreichische Zeitschrift für Geschichtswissenschaften* 23, no. 1



Individual routes could fall out of favor due to the loss of critical infrastructure, such as a bridge collapsing, or demographic decline resulting in the abandonment of nearby villages. All models are inherently heuristics of the real world, and this compromise of simplification for practical utility is acceptable when it does not strain credibility.<sup>44</sup>

The size of the dataset also impacts the reliability of creating a heuristic model.<sup>45</sup> If only a small segment of land (something like 10 km<sup>2</sup>) was considered, then the status of local roads would be germane to the analysis. This model created for the present study covers 34,035 km (21,148 mi) of roads and so irregularities in accessibility become evened out on such a scale.

Because the present project focuses on the macro trends that affected the entirety of Asia Minor, it follows Scheidel's model and proceeds with the base assumption of constancy of travel times around western Anatolia, but contends that additional nuance is required when considering the eastern mountainous region.

Despite the accuracy of the *Orbis* software, it cannot be directly implemented into the present study. Scheidel's coverage of Asia Minor is very underdeveloped, showing only a handful of routes in the region. This makes it incapable of considering the topic of the thematic road system in a nuanced manner. The present study includes the creation of a fully new model that incorporates the entirety of the known road network of Anatolia and then implements Scheidel's travel speeds for subsequent calculations.

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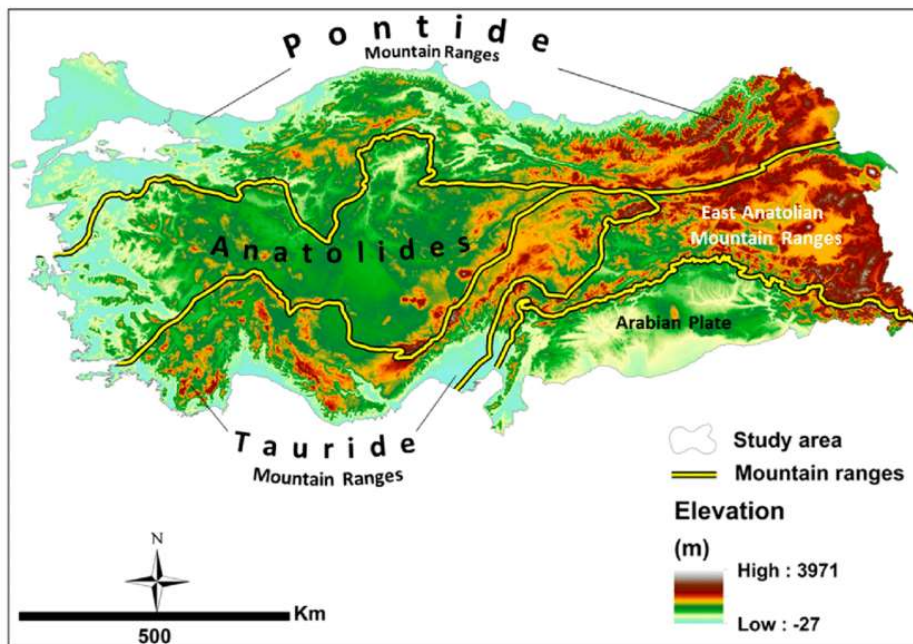
(2012): 28–29; Wouter de Nooy, Andrej Mrvar, and Vladimir Batagelj, *Exploratory Social Network Analysis with Pajek* (Cambridge: Cambridge University Press, 2018), 92–95; and Vladimir Batagelj, Patrich Doreian, Anuska Ferligoj, and Natasa Kezjar, *Understanding Large Temporal Networks and Spatial Networks: Exploration, Pattern Searching, Visualization and Network Evolution* (Hoboken, NJ: Wiley, 2014).

<sup>44</sup> For a general discussion on the applicability and creation of heuristic models, see Saïd Salhi, *Heuristic Search: The Emerging Science of Problem Solving* (Cham, Switzerland: Palgrave Macmillan, 2017).

<sup>45</sup> Amar Sahay, *Essentials of Data Science and Analytics: Statistical Tools, Machine Learning, and R-Statistical Software Overview* (New York: Business Expert Press, 2021), 21–22.

## Geographical Overview of Anatolia

As parts of the discussion of thematic connectivity are contingent on the speed of travel, it is important to consider the region's geography to demonstrate why these assumptions on travel are neither arbitrary or capricious.<sup>46</sup>



MAP 6.1. Anatolia's elevation ranges and mountainous regions<sup>47</sup>

<sup>46</sup> There have been only six studies conducted that consider the totality of Asia Minor's geomorphology. Catherine Kuzucuoğlu, Attila Çiner, and Nizamettin Kazancı's *Landscapes and Landforms of Turkey* is the most up-to-date and only survey from the past four decades, making it the basis for this section; Catherine Kuzucuoğlu, Attila Çiner, and Nizamettin Kazancı, eds., *Landscapes and Landforms of Turkey* (Cham, Switzerland: Springer, 2019). Others include Petr Tchiatcheff, *Asie Mineure: Description physique de cette contrée* (Paris: Librairie Théodore Morgand, 1866); Nuri von Güldalı, *Geomorphologie der Türkei-Erläuterungen zur Geomorphologischen Übersichtskarte der Türkei 1:2,000,000* (Wiesbaden: Dr. Ludwig Reichert Verlag, 1979); Ajun Kurter, *Türkiyenin Morfoklimatik Bölgeleri* (İstanbul: Edebiyat Fakültesi Matbaası, 1979); İbrahim Atalay, *Türkiye Jeomorfolojisine Giriş* (İzmir: Ege Üniversitesi Sosyal Bilimler Fakültesi Yayınları, 1982); and Oğuz Erol, *Die naturräumliche Gliederung der Türkei* (Wiesbaden: Dr. Ludwig Reichert Verlag, 1983).

<sup>47</sup> Map taken from Gamze Koç, Theresia Petrow, and Annegret Thielen, "Analysis of the Most Severe Flood Events in Turkey (1960–2014): Which Triggering Mechanisms and Aggravating Pathways Can be Identified?" *Water* 12, no. 6 (2020): [https://www.researchgate.net/figure/Elevation-map-and-mountain-ranges-of-Turkey-based-on-Shuttle-Radar-Topographic-Mission\\_fig3\\_341767490](https://www.researchgate.net/figure/Elevation-map-and-mountain-ranges-of-Turkey-based-on-Shuttle-Radar-Topographic-Mission_fig3_341767490); Osman Candan, Cüneyt Akal, Ersin Koralay, Aral Okay, Roland

Starting with the western coastal region of Asia Minor, most of this geographical area is comprised of temperate and low-lying terrain.<sup>48</sup> This area constituted the entirety of the themes of the Aegean Sea and Samos, as well as large portions of the Thrakesion and Opsikion. The coastline is characterized by rectilinear river valleys that facilitated access to the Aegean Sea but precluded navigation into the interior of the landmass.<sup>49</sup> This resulted in a plurality of river deltas rich in alluvial deposits that proved conducive to agriculture and urbanization.<sup>50</sup> These coastal regions held few natural barriers to continuous travel, both by land and sea, allowing them to adhere closely to Scheidel’s transportation model.

Moving east, the first major geographical feature encountered is the Anatolian Plateau. This constituted the largest portion of the region, accounting for most of the area north and west of the Tauride mountain ranges. This plateau centered on the Anatolikon and Boukellarion Themes, inclusive of their capitals of Amorion and Ankyra that were critical to the structure of overland transportation. Populous parts of the Opsikion and Thrakesion Themes stretched along the western extent of the plateau, with sections of Kappadokia, Kaisareia and Paphlagonia forming the eastern boundary. Climactically, the region is characterized by extremely cold winters and warm summers.<sup>51</sup> It features an elevation averaging between 600–1,200 m. Topographical diversity consists mainly of minor hills and dispersed shallow lakes.<sup>52</sup> While

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Oberhänsli, Dejan Prelević, and Regina Mertz-Kraus, “Carboniferous Granites on the Northern Margin of Gondwana, Anatolide-Tauride Block, Turkey—Evidence for Southward Subduction of Paleotethys,” *Tectonophysics* 683 (2016): 349–66.

<sup>48</sup> Kuzucuoğlu, Çiner, and Kazancı, *Landscapes and Landforms of Turkey*, 55.

<sup>49</sup> Kuzucuoğlu, Çiner, and Kazancı, *Landscapes and Landforms of Turkey*, 53.

<sup>50</sup> Kuzucuoğlu, Çiner, and Kazancı, *Landscapes and Landforms of Turkey*, 54.

<sup>51</sup> Kuzucuoğlu, Çiner, and Kazancı, *Landscapes and Landforms of Turkey*, 96.

<sup>52</sup> Kuzucuoğlu, Çiner, and Kazancı, *Landscapes and Landforms of Turkey*, 90, 96–100.

having some geographical variety, the Anatolian Plateau is homogenous enough to not appreciably affect the rate of overland travel and communication. Therefore, for the purpose of this study, travel within western Anatolia, up to the Tauride Range is taken as constant. This is important because this and the western coastal areas constituted the majority of the Roman Themes including the Aegean Sea, Anatolikon, Boukellarion, Opsikion, Optimaton, Paphlagonia, Samos, and Thrakesion with western portions of the Armeniakon, Charsianon, and Kappadokia also lying within the plateau. This accounts for approximately 75–80 percent of the territory held by the Roman Themes.

Upon exiting the plateau to the east, the terrain undergoes changes that did affect the speed of travel. To the southeast lie the Taurus and Anti-Taurus Mountain ranges. These mountains run in a largely unbroken stretch for more than 1,000 km, with mountain peaks attaining heights of around 3,500 m.<sup>53</sup> What is more important than the absolute elevations is the elevation differential. While the Anatolian Plateau is relatively flat and homogenous, the Taurus range witnesses plains and passes ranging between 1,000–2,000 m lower than the adjacent mountains.<sup>54</sup> Referred to as the “Anatolian Diagonal,” the geographical prominence of this region served as a clear delineation between Anatolia and the Near Middle East in terms of the ecological divide between flora and fauna on either side.<sup>55</sup> So too was this a key delineation in the formation and organization of the themes. This geographical feature was pivotal to the survival of the Byzantine Empire during the eighth to tenth centuries because it served as a

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<sup>53</sup> Kuzucuoğlu, Çiner, and Kazancı, *Landscapes and Landforms of Turkey*, 66.

<sup>54</sup> Kuzucuoğlu, Çiner, and Kazancı, *Landscapes and Landforms of Turkey*, 66–67.

<sup>55</sup> Kuzucuoğlu, Çiner, and Kazancı, *Landscapes and Landforms of Turkey*, 90.

relatively stable frontier zone with the Islamic empires to the south.<sup>56</sup> With the military advances of the mid- and late-tenth century, the region was incorporated into the empire as an agglomeration of minor themes under the control of ducates/katepanates.

Such an elevation differential makes it impractical to uniformly apply Scheidel's transportation speeds across the region. However, this geographical hinderance largely falls outside the main scope of this assessment, as it only affected parts of Kappadokia, Charsianon, and Sebasteia. As shall be seen in chapter 7, the placement of these thematic capitals fell to the west of the range, rendering the mountainous portions of the themes easily accessible to the local *stratego*i and governing officials. However, these geographical features do bear consideration in inquiries regarding the ducates/katepanates and minor themes.

The Pontic Mountains constituted the northeast region of Anatolia, centered on the themes of Chaldia and Koloneia. This range runs east to west and parallels the Black Sea coast.<sup>57</sup> Chaldia's coastline was dominated by steep cliffs with few viable locations for harbors.<sup>58</sup> Beyond the lowlands of the coast lies 100–200 km of mountainous landscapes characterized by steep and densely forested slopes of around 2,000 m in elevation.<sup>59</sup> This high alpine ecosystem varies substantially from the Anatolian Plateau's semi-arid climate.<sup>60</sup> Within the larger Roman Themes, the Pontic Mountains held the greatest impact in elongating travel time and must be taken into account during an assessment of Chaldia and Koloneia.

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<sup>56</sup> Eger, *Islamic-Byzantine Frontier*.

<sup>57</sup> Kuzucuoğlu, Çiner, and Kazancı, *Landscapes and Landforms of Turkey*, 43.

<sup>58</sup> Kuzucuoğlu, Çiner, and Kazancı, *Landscapes and Landforms of Turkey*, 44.

<sup>59</sup> Kuzucuoğlu, Çiner, and Kazancı, *Landscapes and Landforms of Turkey*, 44–45.

<sup>60</sup> Kuzucuoğlu, Çiner, and Kazancı, *Landscapes and Landforms of Turkey*, 47.

The final important geographical feature to take into consideration is the Armenian highlands or the Armenian Plateau. It served as a buffer to the Armenian kingdoms to the east and Islamic powers to the southeast. With the military expansion into the region during the late tenth and early eleventh centuries, most of this region just beyond Lake Van was incorporated into the empire as a series of minor themes under the jurisdiction of the ducates/katepanates. This region was far beyond the purview of the Roman Themes, with the furthest landholdings over 1,350 km from Constantinople as the crow flies, or about 1,600 km along the road network. This temporal distance resulted in increased administrative autonomy for the far east themes such as Van and Vaspurakan, permitting them to augment their administrative structure by more closely adhering to local practices.

Stark elevation differences punctuate the plateau, with high mountain peaks alongside deep riverine canyons.<sup>61</sup> The mountains are substantively taller than those found within the Taurides, with thirty-four peaks over 3,000 m and Greater Ararat topping out at 5,042 m.<sup>62</sup> Akin to the Taurides and Pontic ranges, average travel times were longer than those experienced in the western portion of Asia Minor. Terrain not being conducive to uniform travel bears the most weight for this area and must be incorporated into any analysis of the ducates/katepanates and far eastern minor themes.

The furthest southeastern extent of Byzantium's landholdings fell within the geographical region of Upper Mesopotamia, characterized by hills and volcanic massifs that lie beyond the stark elevations of the Taurides and Armenian Plateau.<sup>63</sup> While travel speeds within this region

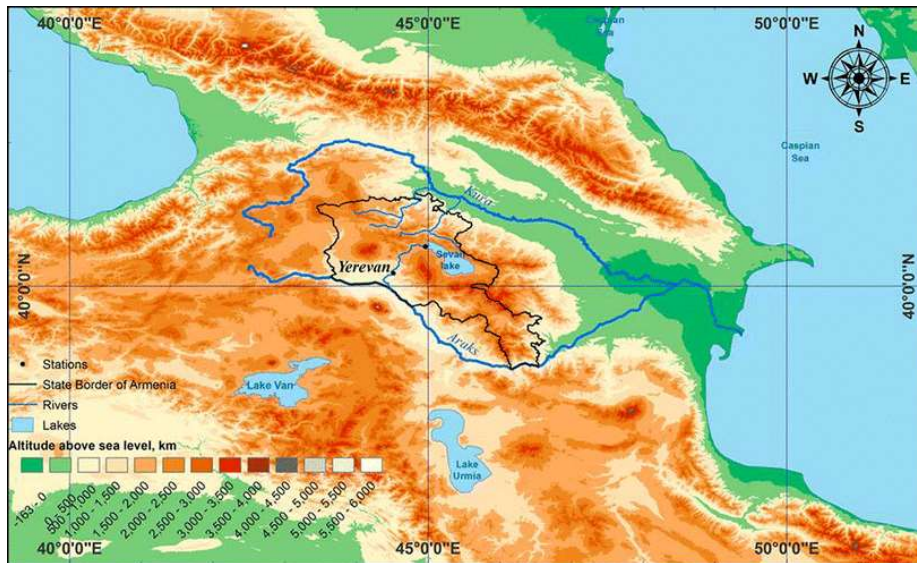
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<sup>61</sup> Kuzucuoğlu, Çiner, and Kazancı, *Landscapes and Landforms of Turkey*, 107–9.

<sup>62</sup> Kuzucuoğlu, Çiner, and Kazancı, *Landscapes and Landforms of Turkey*, 110.

<sup>63</sup> Kuzucuoğlu, Çiner, and Kazancı, *Landscapes and Landforms of Turkey*, 132–33.

would return to the standardized mean, this change in travel time affected few of the minor themes (Chasanara, Edessa, Euphrates Cities, Hierapolis/Bambyce, Samosata, Telouch, Zoume/Juma) and would have played a negligible role in overall spatial organization.



MAP 6.2. The Armenian plateau/highlands with accompanying elevations<sup>64</sup>

It is a fluke of geography that travel within Anatolia progressively increases in difficulty the further east one travels from Constantinople, starting with relatively homogenous terrain before encountering mountainous regions. The opposite, high mountain ranges running along the Sea of Marmara gradually descending into a flat plateau to the east, would likely have been inhibitory to Byzantine control over Asia Minor, eradicating any natural border to early Muslim expansion and potentially allowing the Umayyads and Abbasids dominance over Anatolia. Instead, the geographical makeup proved ideal for providing a protective frontier zone that

<sup>64</sup> Map taken from Artur Gevorgyan, “Summertime Wind Climate in Yerevan: Valley Wind Systems,” *Climate Dynamics* 48, no. 5–6 (2017): [https://www.researchgate.net/figure/The-topography-map-of-the-study-region-Armenian-Highland-and-Southern-Caucasus\\_fig1\\_303411984](https://www.researchgate.net/figure/The-topography-map-of-the-study-region-Armenian-Highland-and-Southern-Caucasus_fig1_303411984).

facilitated the creation of the Anatolian theme system and its accompanying transportation network.

It is beyond the scope of this study to create a specific travel time model that best reflects this geographical reality. This would necessitate a comprehensive survey of elevation changes within each section of the road network, assigning a weight for how much additional travel time is necessary per segment.<sup>65</sup> For part of this study, analysis of the road network will concentrate on how locations connect to one another in terms of distance, making many of these irregularities in travel time either irrelevant or less consequential. Sections explicitly incorporating time will begin with the figures for standard travel times, but will bear in mind the caveat of time burdens and implement heuristic weights when drawing general conclusions relating to the eastern mountainous region. This is most consequential for chapter 9's analysis of the ducates and the network of minor themes.

### **The Location of the Road System**

Now that it is determined that the geography of Anatolia permits this form of analysis and that established overland routes were the most important form of transportation in Anatolia, it is possible to discern the locations of the roads and construct an overall model of the transportation network.

The location of roads across Anatolia was dictated by two overriding principles:

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<sup>65</sup> Yupo Chan, *Location, Transport, and Land-Use: Modelling Spatial-Temporal Information* (New York: Springer, 2005), 123–24.



1) Restrictive geographical features—Prior to the advent of the train in the nineteenth century, overland travel was relegated to foot or beast of burden. Like the rest of the pre-modern world, this meant that geography largely dictated the overland movements of the Byzantines. Travelers generally opted for the fastest and least precarious routes available, which limited the creation of roads around hazards such as mountains or bodies of water.

2) The location of cities—Urban settlements provided the impetus for travel and trade throughout the region. Just as today, towns and cities served as important locations to engage in commerce as well as seats of governmental and ecclesiastical power. It was only natural for cities to become the focal point of travel and road construction. This turned them into nodes where roads emanated out of the city and connected to other nearby nodes, creating a spider web of connectivity based around urban areas. Originally, the connection between settlements arose naturally as desire paths and by the Byzantine period these were codified as well-traversed thoroughfares.

With the principles of geography and settlement locations in mind, it becomes feasible to account for most of the major roads within Anatolia. Much of the groundwork for establishing this road network is found within the *Tabula Imperii Byzantini (TIB)*.<sup>66</sup> This project by the Austrian Academy of Sciences consists of thirteen volumes, with an additional eight in preparation. These aim to provide an encyclopedic geographical account of Byzantine landholdings within Asia Minor and the Balkans, and they include a systematic description of geographical features such as toponyms, cities, and, important to the purpose of this study, travel

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<sup>66</sup> Hild and Restle, *Tabula Imperii Byzantini*, vol. 2, *Kappadokien*; Belke, *Tabula Imperii Byzantini*, vol. 4, *Galatien und Lykaonien*; Hild and Hellenkemper, *Tabula Imperii Byzantini*, vol. 5, *Kilikien und Isaurien*; Belke and Mersich, *Tabula Imperii Byzantini*, vol. 7, *Phrygien und Pisidien*; Hild and Hellenkemper, *Tabula Imperii Byzantini*, vol. 8, *Lykien und Pamphylien*; Belke, *Tabula Imperii Byzantini*, vol. 9, *Paphlagonia and Honorias*; Belke, *Tabula Imperii Byzantini*, vol. 13, *Bithynien und Hellespont*; Todt and Vest, *Tabula Imperii Byzantini*, vol. 15, *Syria*.

routes. Each entry about a specific route consists of a road segment and a corresponding list of every significant settlement and geographical feature.<sup>67</sup> Such a detailed study permits the transference of these descriptions into a graphical representation.

The Anatolian portion of the *Tabula Imperii Byzantini* contains omissions for the regions of Pontos, Lydia, and Karia which are not expected to be completed until the mid-2020s.<sup>68</sup> To fill in these gaps, the remaining road network is drawn from the *Barrington Atlas of the Greek and Roman World*.<sup>69</sup> These roads are reproduced and then cross referenced with the list of cities taken from the *Notitia Episcopatum* (*Notitia 7*) (chapter 5, map 5.6, and appendix 2). Only routes that correspond to the urban environment of the tenth century are retained, allowing this information to reflect the model in use during the time of the themes. This is not a precise rendering for the far western portion of Anatolia's road network, but it provides a complete enough picture to express the functionality of the system and to be of use in subsequent calculations.

While Walter Scheidel's *Orbis* is the most important tool for understanding the functionality of roads within the Roman Empire, his project focuses on reconstructing the road system from ca.200 CE and puts outsized emphasis on the European portion of the empire.<sup>70</sup> The roads drawn through Asia Minor depict only the major trunk routes and are redundant to the information covered in the *Tabula Imperii Byzantini*, rendering it impractical for this portion of the study.

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<sup>67</sup> Hild and Restle, *Tabula Imperii Byzantini*, 2:124–27; Belke, *Tabula Imperii Byzantini*, 4:93–110; Hild and Hellenkemper, *Tabula Imperii Byzantini*, 5:128–42; Belke and Mersich, *Tabula Imperii Byzantini*, 7:139–60; Hild and Hellenkemper, *Tabula Imperii Byzantini*, 8:244–94; Belke, *Tabula Imperii Byzantini*, 9:117–37; Belke, *Tabula Imperii Byzantini*, 13:263–304; Todt and Vest, *Tabula Imperii Byzantini*, 15:522–36.

<sup>68</sup> “Tabula Imperii Byzantini: Volumes in Progress,” accessed February 27, 2024, <https://tib.oeaw.ac.at/current-status>.

<sup>69</sup> Richard Talbert, ed., *Barrington Atlas of the Greek and Roman World* (Princeton: Princeton University Press, 2001); digitized version available as a CD-ROM and app.

<sup>70</sup> “Orbis,” accessed February 27, 2024, <https://orbis.stanford.edu>.

Finally, *The Anatolian Roads Project* also provides some guidance to the organization of the road network.<sup>71</sup> This online project, conducted by Glen Thompson at Wisconsin Lutheran College, aims to reconstruct the Roman road system of Anatolia through a comprehensive cataloging of roads, mileposts, bridges, and other surviving fragments. This provides some corroboration to the *TIB*, but the survey is still in a nascent state and is currently limited in its utility.

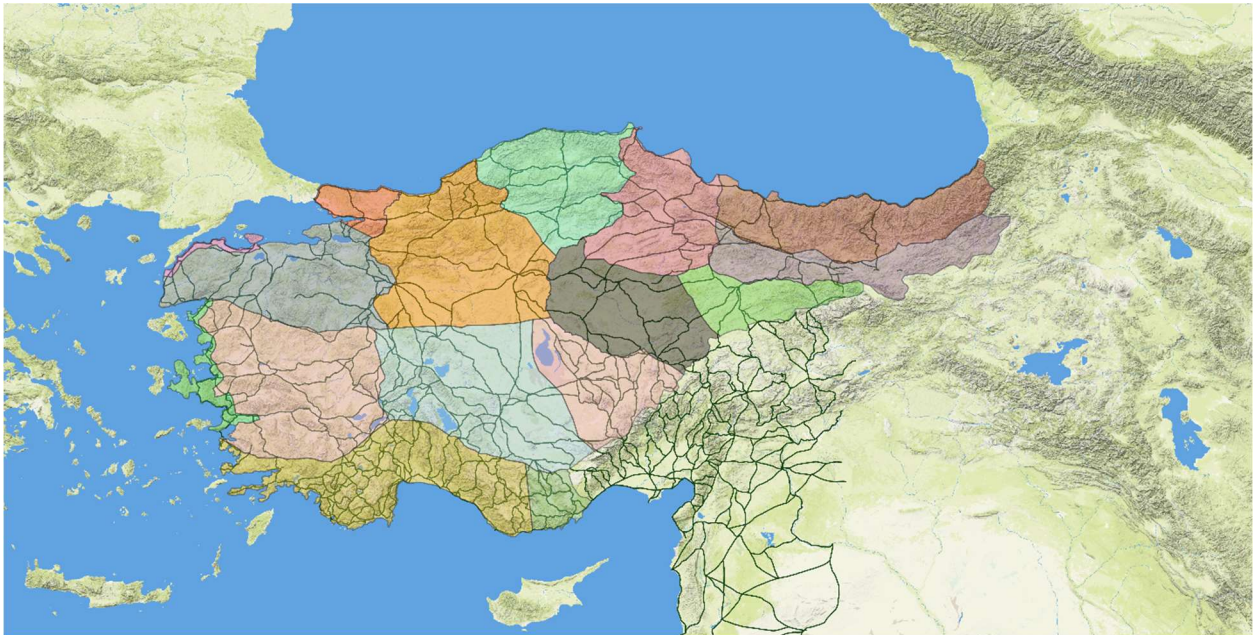
Map 6.3 depicts the road network within Anatolia. Map 6.4 shows the same roads with an overlay of the shapes of the themes. The network amounts to 34,035 km (21,148 mi) of routes and is composed of 1,005 distinct segments that are delineated by their intersection with a city or another section of road. The creation of a route map has utility in several other potential projects and is vital to the understanding of movement within the region. Trade, military movements, social and ecclesiastical networks, and other functions can be expressed through this to more accurately capture the complexities of interactions possible at the time.

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<sup>71</sup> “The Anatolian Roads Project,” accessed February 27, 2024, [anatolianroads.org](http://anatolianroads.org).



MAP 6.3. Anatolia's road network



MAP 6.4. Anatolia's roads overlaid on the boundaries of the Roman Themes

These maps are utilized in the next two chapters (chapters 7 and 8) to engage with questions of connectivity amongst the themes and their cities.

## CHAPTER 7—THEMATIC CAPITALS

### Introduction

When the Rashidun and Umayyad Caliphate set about to divide their Levantine conquests in the seventh century, they chose to split the area into four *ajnad* with four strategically placed capitals. Khalid Blankinship singles out the placement of each *jund* capital as a sign of astute Arab planning.<sup>1</sup> He remarks that the four *ajnad* of Hims, Dimashq, al-Urdunn, Filastin, plus Qinnasrin, a later Umayyad addition, all have their capitals spaced equally apart in order to best serve as administrative and mobilization centers. They are also a good deal inland and not along the Mediterranean coast where, as he claims, they are protected from an attack by sea. Indeed, a cursory glance at the capitals' locations clearly reflects an anthropic organizational pattern despite the inconsistent shapes of the *ajnad* themselves.

The choice and location of these administrative centers is interesting. The selection of cities such as Damascus and Aleppo are natural due to their size and impact in terms of politics and economics. But if size was the only criterium, then the other three capitals, al-Ramla, Tiberias, and Hims, could easily be substituted for sites such as Tripoli, Beirut, or Gaza. It is clear that a sense of wider planning was instituted in the selection of capitals, as evidenced by the considerations put forth by Blankinship and potentially other factors that remain obscured to modern eyes.

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<sup>1</sup> Blankinship, *The End of the Jihad State*, 47–48.

This presents the question: if the nascent Muslim caliphates put such forethought into the placement of their provincial capitals, to what extent did the Byzantine Empire organize their thematic capitals at a roughly contemporaneous moment in time?

This chapter consists of two parts:

- 1) It begins by identifying the names and locations of the thematic capitals based on the extant sources.
- 2) Then it considers their spatial placement within the larger theme system and assesses each capital's impact on the overall functionality of the system.

A cursory glance reveals that an analysis of the thematic capitals is not as straightforward as that of the *ajnad*. In terms of shape, with the slight exception of the irregular plan of Dimashq, the five *ajnad* were laid out with the west border abutting the coast, then extending into the interior to roughly form a rectangle. The northern two *ajnad* of Qinnasrin and Hims were approximately similar in size and the southern *ajnad* of al-Urdunn and Filastin were likewise similar to one another. This regularity of form was clearly planned and permitted a somewhat uniform placement of the capitals.<sup>2</sup>

The themes, on the other hand, do not show such regularity in their shapes and sizes; instead they varied to reflect their utility within the broader system.

Another consideration is the number of capitals. While there were only five *ajnad* considered by Blankinship, there were sixteen Roman Themes and eighty-six with the minor

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<sup>2</sup> Irfan Shahid, "The Jund System in Bilad al-Sham: Its Origin" in *Proceedings of the Symposium on Bilad al-Sham during the Byzantine Period*, eds. Muhammad Bakhit and Muhammad Asfour (Amman: University of Jordan, 1986), 45–52; Alan Walmsley, "The Administrative Structure and Urban Geography of the Jund of Filastin and the Jund of al-Urdunn; The cities and Districts of Palestine and East Jordan during the Early Islamic, Abbasid and Early Fatimid Periods," PhD diss. (University of Sydney, 1987).

themes accounted. This makes their potential interactions with one another exponentially higher and more difficult to sort through.

The *jund* capitals were aligned on a north-south axis, which allows for their interconnectivity to be easily graphed with a straight line that corresponds to the major trunk road that ran through the Levant. Commerce and communication passed from one capital to the next in a regular and predictable fashion. The theme capitals, on the other hand, formed a complicated three-dimensional tapestry of connectivity that is more difficult to properly account for.

This makes the Byzantine system a more interesting case study—while it is not as straightforward to ascertain patterns as in the *jund* system, when patterns do emerge, they are more deliberate. Because no simple organizational solution manifested itself as in the Levantine case, it shows a greater level of forethought was required, revealing more of the mindset that went into thematic planning.



## List of Thematic Capitals

As follows is the first complete list of the known thematic capitals in Asia Minor:

(Table 7.1) Thematic Capitals (Roman Themes bolded)

<u>Theme</u>	<u>Capital</u>
Abara/Amara	Abara <sup>3</sup>
Adata	Adata <sup>4</sup>
Aegean Sea	Chios (capital not in Anatolia) <sup>5</sup>
Anabarza	Anabarza <sup>6</sup>
<b>Anatolikon</b>	<b>Amorion</b> <sup>7</sup> (It is unknown where the capital temporarily moved after its sack by the Abbasids in 838, with Polybotos a potential location.) <sup>8</sup>
Ani	Ani <sup>9</sup>
Antarados	Antarados <sup>10</sup>
Antioch	Antioch <sup>11</sup>
Archesh	Archesh <sup>12</sup>
<b>Armeniakon</b>	<b>Amaseia</b> <sup>13</sup>

<sup>3</sup> BZS.1947.2.390 “Ioannes, *protospatharios* epi tou Chrysotriklinou and *strategos* of Abara” (tenth/eleventh century); *Escorial Taktikon*, 266–67.

<sup>4</sup> Oikonomides, *Les listes de préséance byzantines*, 359.

<sup>5</sup> Koder, *Tabula Imperii Byzantini*, 10:67–68, 116–18.

<sup>6</sup> DO 47.2.38 “Basil Triklinios, *hypatos* and *strategos* of Anabarza” (eleventh century).

<sup>7</sup> DO 55.1.1742 “Alexios, imperial *protospatharios* and *strategos* of the Anatolikon” (tenth century); DO 55.1.1357 “Andrew, imperial *protospatharios* and *strategos* of the Anatolikon” (ninth/tenth century); DO 55.1.1358 “Andrew, imperial *protospatharios* and *strategos* of the Anatolikon” (ninth/tenth century); DO 58.106.3020 “Artavasdos, *strategos* of the Anatolikon” (ninth century); Belke, *Tabula Imperii Byzantini*, 4:122–25. The surviving seals indicate a *strategos* of the theme but do not denote the location of the capital.

<sup>8</sup> Lightfoot, “Survival of Cities in Byzantine Anatolia,” 66.

<sup>9</sup> DO 55.1.2179 “Aaron, *magistros* and *doux* of Ani and Iberia” (eleventh century).

<sup>10</sup> Yahya, *Chronicle*, II, 443.

<sup>11</sup> The list of administrators of Antioch from 969 to the late eleventh century is among the best documented in all of Anatolia. These have been compiled by Laurent, “La chronologie des gouverneurs d'Antioche,” 219–54; Cheynet, Morrisson, and Seibt, *Les sceaux byzantins de la Collection Henri Seyrig*, 114; and Cheynet, *Sceaux de la collection Zacos*, 22–23.

<sup>12</sup> *De Administrando Imperio*, 44.15.

<sup>13</sup> Ibn al-Faqih, *Concise Book of Lands [Mukhtasar Kitab al-Buldan]*, 76; Haldon, Elton, and Newhard, *Archaeology and Urban Settlement*, 226; Christian Marek, *Stadt, Ära und Territorium in Pontus-Bithynia und Nord-Galatia*

Table 7.1 continued

Artach	Artach <sup>14</sup>
Artze	Artze <sup>15</sup>
Artzike	Artzike <sup>16</sup>
Asmosaton	Asmosaton <sup>17</sup>
Balaneos	Balaneos <sup>18</sup>
Borze/Barzuya	Borze <sup>19</sup>
<b>Boukellarion</b>	<b>Ankyra</b> <sup>20</sup>
<b>Chaldia</b>	<b>Trebizond</b> <sup>21</sup>
Chantiarte	Chantiarte <sup>22</sup>
Charpezikion	Charpezikion <sup>23</sup>
<b>Charsianon</b>	<b>Kaisareia</b> <sup>24</sup>
Chasanara	Chasanara <sup>25</sup>
Chauzizion/Chavzizin	Chavzizin <sup>26</sup>
Chortzine	Chortzine <sup>27</sup>

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(Tübingen: Wasmuth, 1993), 60–61; McGeer, Nesbitt, and Oikonomides, *Catalogue of Byzantine Seals*, 4:54. Euchaïta has been proposed as an alternative site but was not as militarily advantageous of a location.

<sup>14</sup> *Escorial Taktikon*, 268–69; Fogg 2093 “Theodorokanos, *protospatharios* epi tou Chrysotriklinou and *strategos* of Artach” (eleventh century).

<sup>15</sup> *Escorial Taktikon*, 268–69; DO 58.106.4959 “Konstantinos, *chartouarios* and imperial *kourator* of Artze” (tenth/eleventh century).

<sup>16</sup> “Christophor Ly[...]ounites, *protospatharios* and *strategos* of Artzike” (tenth-eleventh century) in Vitalien Laurent, “Sceau inédit de Christophore stratège d’Artziké (Arcke)-Arkérabou en Arménie,” *Échos d’Orient* 30 (1931): 452–65.

<sup>17</sup> DO 58.106.359 “Konstantinos, metropolitan of Asmosaton” (eleventh century).”

<sup>18</sup> Fogg 240 “Veken, *protospatharios* and *strategos* of Balaneos” (tenth/eleventh century).

<sup>19</sup> Anna Komnene, *Alexiad*, 13.12.

<sup>20</sup> McGeer, Nesbitt, and Oikonomides, *Catalogue of Byzantine Seals*, 4:14; Belke, *Tabula Imperii Byzantini*, 4:126–28. The site served as the headquarters of the Opsikion military command in the seventh century and retained its administrative importance into the establishment of the Boukellarion Theme.

<sup>21</sup> *De Thematribus*, 128. The *De Thematribus* listed the city as the site of the metropolis, with its size and importance precluding any other viable candidates for the capital’s location.

DO 58.106.2115 “Konstantinos, imperial *protospatharios* and *strategos* of Chaldia” (tenth century).

<sup>22</sup> *Escorial Taktikon*, 268–69.

<sup>23</sup> *Escorial Taktikon*, 266–67.

<sup>24</sup> *De Thematribus*, ed. Pertusi, 126.

<sup>25</sup> Fogg 1904 “N., imperial *protospatharios* and *strategos* of Chasanara (?)...” (tenth century); *Escorial Taktikon*, 268–69.

<sup>26</sup> BZS.1951.31.5.1733 “Basil..., imperial *notarios* and grand *kourator* of Derzene, Rachaba (?) and Chavzizin” (eleventh century).

Table 7.1 continued

Chouit	Chouit <sup>28</sup>
Chozanon	Chozanon <sup>29</sup>
Dekapolis	unknown (potentially Germanikopolis) <sup>30</sup>
Derzene	Derzene <sup>31</sup> (Often administered by officials in neighboring Chaldia with Trebizond as the capital.) <sup>32</sup>
Edessa	Edessa <sup>33</sup>
Erkne	Erkne <sup>34</sup>
Euphrates Cities	unknown <sup>35</sup>
Germanikeia	Germanikeia <sup>36</sup>
Hagios Elias	Hagios Elias <sup>37</sup>
Hexakomia	unknown (identified with Hexapolis) <sup>38</sup>
Hexapolis	unknown (identified with Hexakomia) <sup>39</sup>
Hierapolis/Bambyce	Hierapolis <sup>40</sup>

<sup>27</sup> Zacos no. 1087 “Theophanes, imperial *protospatharios* and *strategos* of Chortzine,” in Zacos, *Byzantine Lead Seals*, vol. 2; *Escorial Taktikon*, 266–67.

<sup>28</sup> *Escorial Taktikon*, 268–69.

<sup>29</sup> Fogg 869 “Nikephoros, imperial *protospatharios* and *strategos* of Chozanon” (tenth/eleventh century).

<sup>30</sup> Museum of Çeşme, no. 2008/3 “Ioan(ne) B(asiliko), (*proto*)*spath(arios)* and *strategos* of the Dekapolis” (late tenth/early eleventh century); Seibt and Laflı, “Isaurian Decapolis,” 75.

<sup>31</sup> *De Administrando Imperio*, 53.1.507.

<sup>32</sup> Fogg 2629 “Michael Saronites, *protospatharios* epi tou Chrysotriklinou, *chartouarios* of the *logothetes tou genikou*, judge of the Velum, and *anagrapheus* of Chaldia and Derzene” (eleventh century); Fogg 3159 “Gerbasios (?) Doukas, *protospatharios* (?) and *chartouarios* (?) of Chaldia and (?) Derzene” (eleventh century); Fogg 400 “Leon (?) Hexakionites, *spatharokandidatos* and judge (?) (or *protonotarios*?) of Chaldia and of Derzene” (eleventh century); DO 55.1.2933 “Leon Areobindos, *spatharokandidatos*, *asekretis*, and judge of Chaldia and Derzene” (eleventh century).

<sup>33</sup> DO 58.106.4763 “Basil Apokapes, (*proto*?) *proedros* and *doux* of Edessa” (between 1077 and 1084); DO 58.106.4919 “Theodore Pegonites, *magistros* and *doux* of Edessa” (1066–1067).

<sup>34</sup> *Escorial Taktikon*, 268–69.

<sup>35</sup> Skylitzes, *Synopsis*, 365; McGeer, Nesbitt, and Oikonomides, *Catalogue of Byzantine Seals*, 4:161.

<sup>36</sup> *Escorial Taktikon*, 266–67.

<sup>37</sup> Anna Komnene, *Alexiad*, 13.12.

<sup>38</sup> DO 58.106.1068 “Koropalates, imperial *protospatharios* and *strategos* of Hexakomia” (tenth/eleventh century), (for the theme, not necessarily the capital).

<sup>39</sup> Fogg 1283 “Leon, imperial *strator* and *dioiketes* of Hexapolis” (tenth century), (for the theme, not necessarily the capital).

<sup>40</sup> *Skylitzes Continuatus*, 91–93.

Table 7.1 continued

Iberia	Theodosiupolis (Governed by a <i>katepano</i> residing there, not a <i>strategos</i> . In 1045, the Armenian capital of Ani was annexed by the Byzantines and administered by Iberia, but the assignment of administrative responsibilities remains tenuous.) <sup>41</sup>
Irenoupolis	Irenoupolis <sup>42</sup>
Kaloudia	Kaloudia <sup>43</sup>
Kama	Kama <sup>44</sup>
<b>Kappadokia</b>	<b>Koron<sup>45</sup> (potentially Tyana)<sup>46</sup></b>
Kars	Kars <sup>47</sup>
Kassenon	Kassenon (tentative theme) <sup>48</sup>
Keltzene	Keltzene <sup>49</sup>
<b>Kibyrraiotai</b>	<b>Attaleia<sup>50</sup></b>
Kogovit	Kogovit <sup>51</sup>
<b>Koloneia</b>	<b>Koloneia<sup>52</sup></b>
Koptos	Koptos <sup>53</sup>

<sup>41</sup> DO 55.1.2179 “Aaron, *magistros* and *doux* of Ani and Iberia” (eleventh century); DO 58.106.5502 “Michael Kataphloron, imperial *kourator* of Manzikert and of Inner Iberia” (early eleventh century).

<sup>42</sup> *De Thematribus*, 143.

<sup>43</sup> *Escorial Taktikon*, 266–67.

<sup>44</sup> *Escorial Taktikon*, 266–67; DO 58.106.827 “Niketas, *patrikios*, *praipositos epi tou koitonos*, *vestarches*, and *strategos* of Kama” (eleventh century).

<sup>45</sup> Ibn al-Faqih, *Concise Book of Lands [Mukhtasar Kitab al-Buldan]*, 75. Ibn al-Faqih indicates that Koron is the location of the *kleisourarches*.

<sup>46</sup> *De Thematribus*, ed. Pertusi, 122. Pertusi suggests that the location of the capital was moved to Tyana, but this is not corroborated in any extant source.

<sup>47</sup> McGeer, Nesbitt, and Oikonomides, *Catalogue of Byzantine Seals*, 4:166; No. 119 “Basilakes Phloros, *katepano* of Kars and Iberia” (eleventh century), in Jean-Claude Cheynet, Spink Auction 132 (May 25, 1999).

<sup>48</sup> Seal no. 802 “Konstantinos, *hypatos* and *strategos* of the Kassenon” (second third of the eleventh century), in Munich, Staatliche Münzsammlung 580, Ex M.-L. Zarnitz private collection (purchased from the auction Münz Zentrum (Rheinland) 78 (September 7–9, 1994)).

<sup>49</sup> BZS.1947.2.51 “Basil, most humble metropolitan of Keltzene” (eleventh century); McGeer, Nesbitt, and Oikonomides, *Catalogue of Byzantine Seals*, 4:156.

<sup>50</sup> Cvetković, “Settlement of the Mardaites,” 65–85. This is not explicitly named as the capital of the theme but its outsized presence makes it the most likely candidate. It served as the center for the Mardaites and Kibyrraiotai prior to its elevation to a theme. Likewise, aside from Tarsos, it was the Byzantine’s most important naval base along the Mediterranean.

<sup>51</sup> Ghewond, *History of Lewond*, 50, 52, 56.

<sup>52</sup> *De Thematribus*, 132.

Table 7.1 continued

Kymbalaios	Kymbalaios <sup>54</sup>
Laodikeia (tes Syrias)	Laodikeia <sup>55</sup>
Larissa	Larissa <sup>56</sup>
Limnia	Limnia <sup>57</sup>
<b>Lykandos</b>	<b>Lykandos</b> <sup>58</sup>
Manzikert	Manzikert <sup>59</sup>
Marakeus/Marakeia	Marakeus <sup>60</sup>
Mauron Oros	Mauron Oros <sup>61</sup>
Melitene	Melitene <sup>62</sup>
Melte	Melte <sup>63</sup>
<b>Mesopotamia</b>	<b>unknown (potentially Kamakha)</b> <sup>64</sup>
Mopsouestia	Mopsouestia <sup>65</sup>
Mouzariou	Mouzariou <sup>66</sup>

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<sup>53</sup> *Escorial Taktikon*, 266–67.

<sup>54</sup> *Escorial Taktikon*, 266–67.

<sup>55</sup> Seal no. 39 in Cheynet, *Sceaux de la collection Zacos*; Yahya, *Chronicle*, II, 416–17, 439; Klaus-Peter Todt, “Antioch in the Middle Byzantine Period (969–1084): The Reconstruction of the City as an Administrative, Economic, Military and Ecclesiastical Center,” *Topoi, Orient-Occident*, supplement 5 (2004): 179.

<sup>56</sup> *Escorial Taktikon*, 266–67; *De Administrando Imperio*, 50.143–44, 50.148–50.

<sup>57</sup> *Escorial Taktikon*, 266–67.

<sup>58</sup> *De Administrando Imperio*, 50.1.157; Hild and Restle, *Tabula Imperii Byzantini*, 2:224–26.

<sup>59</sup> DO 55.1.3445 “Nikephoros S...(?), *protospatharios* and *strategos* of Manzikert” (eleventh century).

<sup>60</sup> Anna Komnene, *Alexiad*, 13.12.

<sup>61</sup> No. 183 “Kemales, *protospatharios* and *strategos* of Mauron Oros” (late eleventh century), in Cheynet, Morrisson, and Seibt, *Les sceaux byzantins de la Collection Henri Seyrig*.

<sup>62</sup> Fogg 2576 “Leon, *protospatharios* and *strategos* of Melitene” (tenth century).

<sup>63</sup> *Escorial Taktikon*, 268–69; Beihammer, *Muslim-Turkish Anatolia*, 54.

<sup>64</sup> *De Thematis*, ed. Haldon, 132n210. This was suggested by John Haldon as a potential location but is not supported by any extant evidence.

<sup>65</sup> DO 47.2.2129 “Leon (?), *protospatharios* and *strategos* of Mamistra (?)” (tenth/eleventh century), (Mamistra is an alternate name for Mopsouestia); *Escorial Taktikon*, 266–67.

<sup>66</sup> *Escorial Taktikon*, 268–69.

Table 7.1 continued

<b>Opsikion</b>	<b>Nikaia</b> <sup>67</sup> (Abydos is mentioned to be repeatedly visited by a <i>strategos</i> and later served as the seat of one in the eleventh century [attestations in 1001, 1025, 1033] but is likely associated with the Aegean Sea Theme. <sup>68</sup> Confusion arises from shared administrative duties between the two themes and the strategic importance at the opening of the Dardanelles.)
<b>Optimaton</b>	<b>Nikomedeia</b> <sup>69</sup>
Pagrae	Pagrae <sup>70</sup>
Palatza	Palatza <sup>71</sup>
<b>Paphlagonia</b>	<b>Gangra</b> <sup>72</sup>
Perkri	Perkri <sup>73</sup>
Podandos	Podandos <sup>74</sup>
Romanoupolis	Romanoupolis <sup>75</sup>
<b>Samos</b>	<b>Smyrna</b> <sup>76</sup> (The <i>strategos</i> held authority over the fleet while the infantry fell under the jurisdiction of the Thrakesion Theme. The seat of the <i>strategos</i> was initially at the island of Samos to direct the fleet of the <i>Karabisianoï</i> . <sup>77</sup> The position of <i>strategos</i> was dissolved but the later incarnation of the seat maintained the name of the island with an

<sup>67</sup> *De Thematibus*, 117; DO 58.106.2929 “Strategios, imperial *spatharios* and *paraphylax* of Nikaia” (ninth century).

<sup>68</sup> Leon the Deacon, *History*, 94; Skylitzes, *Synopsis*, 347, 366; Ahrweiler, *Byzance et la mer*, 78.

<sup>69</sup> *De Thematibus*, 121; DO 55.1.1248 “N., imperial *protospatharios* and *domestikos* of the Optimaton” (eighth century); DO 55.1.1210 “...ros, imperial *spatharios* and *domestikos* of the Optimaton” (ninth century); DO 58.106.1534 “Christophoros, imperial *protospatharios* epi tou Chrysotriklinou and *domestikos* of the Optimaton” (tenth century); DO 58.106.4633 “Nikephoros, *protospatharios* and *ek prosopou* of the *strategos* of the Optimaton” (eleventh century); DO 58.106.2358 “Nicholas, *ek prosopou* of the Optimaton” (ninth/tenth century). The theme’s commander is generally called a *domestikos*, less often a *strategos*. The *ek prosopou* served as an acting *strategos* for a vacant office to be filled. There are three known seals of this, which potentially indicate a higher propensity of acting commanders in this theme.

<sup>70</sup> Anna Komnene, *Alexiad*, 13.12; Leon the Deacon, *History*, 125.

<sup>71</sup> Anna Komnene, *Alexiad*, 13.12; Todt, “Antioch in the Middle Byzantine Period,” 178.

<sup>72</sup> *Notitia Episcopatum* (*Notitia* 7), line 15; Belke, *Tabula Imperii Byzantini*, 9:196–99. While not directly attested as the capital of the theme, it served as site of the Metropolitan and previously served as the capital of the Roman province.

<sup>73</sup> *De Administrando Imperio*, 44.15.

<sup>74</sup> Fogg 683 “Tatou[les?], *strategos* of Podandos” (eleventh century).

<sup>75</sup> *Escorial Taktikon*, 266–67.

<sup>76</sup> *De Thematibus*, 160.

<sup>77</sup> *De Thematibus*, 158.

Table 7.1 continued

	administration split with the neighboring Thrakesion. Seals indicating a “ <i>strategos</i> of Samos” should be taken to reference the theme and not the island capital.) <sup>78</sup>
Samosata	Samosata <sup>79</sup>
<b>Sebasteia</b>	<b>Sebasteia</b> <sup>80</sup>
<b>Seleukeia</b>	<b>Seleukeia</b> <sup>81</sup>
Soteroupolis-Anakopia	Soteroupolis-Anakopia <sup>82</sup>
Soteroupolis/Bourzo	Soteroupolis/Bourzo <sup>83</sup>
Taranta	Taranta <sup>84</sup>
Taron	Taron (Prior to 966/7 it was semi-independent with the local princes granted the title of <i>strategos</i> by Leon VI and Romanos I. It was then properly incorporated into the Byzantine Empire and made a theme. Some administrative duties blended with neighboring themes such as Chaldia, Derzene, and Vaspurakan.) <sup>85</sup>
Tarsos	Tarsos <sup>86</sup>
Telouch	Telouch <sup>87</sup>

<sup>78</sup> DO 47.2.147 “Theognostos, imperial *protospatharios* and *strategos* of Samos” (tenth century); DO 55.1.3050 “Theophylaktos Hagiozacharites, *patrikios* and *strategos* of Samos” (eleventh century); Fogg 274 “Theotimos, imperial *protospatharios* and *strategos* of Samos” (tenth century).

<sup>79</sup> Fogg 1010 “George, *patrikios* and *strategos* of Samosata” (eleventh century); *Escorial Taktikon*, 266–67; Thomas Sinclair, *Eastern Turkey: An Architectural and Archaeological Survey*, vol. 4 (London: Pindar Press, 1990), 144.

<sup>80</sup> *De Thematibus*, 134.

<sup>81</sup> Fogg 1316 “Leon Blangas, *strategos* and *anagrapheus* of Seleukeia” (eleventh century); DO 58.106.3491 “Theodore (?), *spatharokoubikoularios* and *strategos* of Seleukeia” (tenth century); DO 55.1.1716 “N., *anthypatos*, *patrikios*, and *strategos* of Seleukeia” (tenth/eleventh century); *De Thematibus*, 140; Hild and Hellenkemper, *Tabula Imperii Byzantini*, 5:402–3.

<sup>82</sup> “Nicholas, imperial *protospatharios* epi tou Chrysotriklinou and *strategos* of Soteroupolis and Anakopia” (mid-eleventh century), in Werner Seibt, “The Byzantine Thema of Soteroupolis-Anakopia in the 11<sup>th</sup> Century,” *Bulletin of the Georgian National Academy of Sciences* 6, no. 2 (2012): 175.

<sup>83</sup> *Escorial Taktikon*, 268–69.

<sup>84</sup> DO 58.106.1645 “Palatinos, imperial *protospatharios* and *strategos* of Taranta” (tenth century); *Escorial Taktikon*, 266–67.

<sup>85</sup> *De Administrando Imperio*, 43.65.156–67; *Escorial Taktikon*, 264–65; DO 55.1.2066 “Michael, *spatharios* epi tou Chrysotriklinou, *logariastes* of the grand *kouratorikion*, *artoklines*, and *anagrapheus* of Chaldia, Derzene, and Taron” (eleventh century); DO 55.1.2940 “Gregory Arsakides, *magistros*, *epi tou koitonos*, and *doux* of Vaspurakan and Taron” (between 1051(?) and 1058).

<sup>86</sup> *Escorial Taktikon*, 264–65.

Table 7.1 continued

Tephrike	Tephrike (It was renamed Leontokome, “the town of Leon,” after the 878 conquest by Basil I.) <sup>88</sup>
Theodosiupolis	Theodosiupolis <sup>89</sup>
<b>Thrakesion</b>	<b>Chonai</b> <sup>90</sup> (Ibn Khordadbeh listed the capital as Ephesos, but this was firmly within the Samos Theme’s jurisdiction by the ninth century.) <sup>91</sup>
Tzamandos	Administered at Lykandos, the capital of the Lykandos Theme. <sup>92</sup>
Tziliapert	Tziliapert <sup>93</sup>
Vaspurakan	unknown (potentially Van)
Zebel/Gabala	Zebel <sup>94</sup>
Zermiou	Zermiou <sup>95</sup>
Zoume/Juma	Zoume <sup>96</sup>

This list is plotted on map 7.1, which depicts the location of the thematic capitals.

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<sup>87</sup> Skylitzes, *Synopsis*, 360.

<sup>88</sup> Fogg 3694 “David Geiton (?), imperial *spatharokandidatos* and *episkeptites* of Tephrike” (eleventh century); *Escorial Taktikon*, 266–67.

<sup>89</sup> DO 55.1.4227 “Theodosios, *proedros* of Theodosiupolis” (eleventh century); *Escorial Taktikon*, 264–65.

<sup>90</sup> Fogg 1737 “The imperial *kommerkia* of the stratega of the Thrakesion.”

<sup>91</sup> Ibn Khordadbeh, *The Book of Roads and Kingdoms [Kitāb al-Masālik wa l-Mamālik]*, 84; al-Idrisi, *Geography*, 299.

<sup>92</sup> Marius Canard, *Histoire de la dynastie des Hamdanides de Jazira et de Syrie* (Algiers: Publications de la Faculté des Lettres d’Alger, 1951), 780, 954; Holmes, *Basil II*, 335.

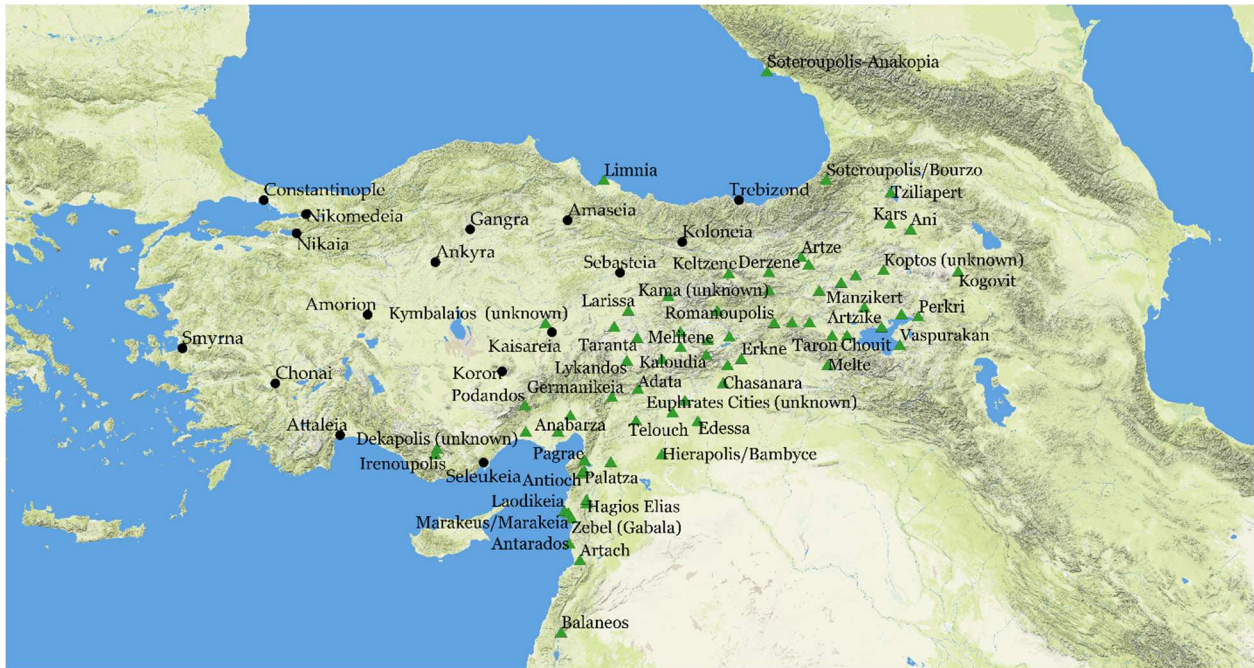
<sup>93</sup> “Konstantinos, *protospatharios* and *strategos* of Tziliapert,” in Jean-Claude Cheynet, “De Tziliapert à Sébastè,” in *Studies in Byzantine Sigillography*, vol. 9, eds. Jean-Claude Cheynet and Claudia Sode (Berlin: B.G. Teubner, 2006), 214; “N., *protospatharios* and *kleisourarches* of Tziliapert,” in Cheynet, “De Tziliapert à Sébastè,” 213.

<sup>94</sup> Yahya, *Chronicle*, 369; Fogg 874 “Eustratios Botaneiates, *patrikios*, *anthypatos*, and *strategos* of Zebel” (eleventh century).

<sup>95</sup> *Escorial Taktikon*, 268–69.

<sup>96</sup> Anna Komnene, *Alexiad*, 13.12.





MAP 7.1. All thematic capitals

Map 7.2 depicts the Roman Themes along with their respective capitals.



MAP 7.2. The Roman Themes and their capitals

### Initial Observations

The list in table 7.1 indicates that most of the thematic capitals are readily identifiable. Of the eighteen Roman Themes considered, the only ones whose capitals remain questionable are the Anatolikon, Thrakesion, Kappadokia, and Mesopotamia Themes.

For the Anatolikon Theme, the seat of the *strategos* was almost certainly at Amorion. No extant evidence directly ties the capital to this city but its outsized presence in the theme gives

this a high degree of certainty.<sup>97</sup> Chris Lightfoot goes as far to say that Amorion was “probably the greatest and most important city in the whole of Anatolia during the 7<sup>th</sup>–9<sup>th</sup> centuries [...]”<sup>98</sup> Al-Tabari called Amorion one of the two great cities within Rum,<sup>99</sup> and Ibn Khordadbeh considered it to be one of only five actual cities in Anatolia, with the remaining urban areas little more than fortresses.<sup>100</sup> It served as a metropolitan<sup>101</sup> and was a major staging point for campaigns along the eastern front,<sup>102</sup> which made a strong local administrative presence critical. It is unknown where the capital moved after its sack by the Abbasids in 838, and for how long, so this in part might account for its odd omission from the list of capitals. Polybotos, a nearby fortress, is the most likely candidate.<sup>103</sup> For the purpose of this analysis, Amorion will be taken as the capital. When the Byzantines devised their overall organization for the themes and their capitals, this was the location that best reflects those principles and lends insight into such choices.

For similar reasons to the Anatolikon’s capital in terms of importance, the Thrakesion’s capital was most likely at Chonai, the demographic and economic hub of the theme. Ibn Khordadbeh lists it as Ephesos, but this was firmly within the Samos Theme’s jurisdiction by the

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<sup>97</sup> DO 55.1.1742 “Alexios, imperial *protospatharios* and *strategos* of the Anatolikon” (tenth century); DO 55.1.1357 “Andrew, imperial *protospatharios* and *strategos* of the Anatolikon” (ninth/tenth century); DO 55.1.1358 “Andrew, imperial *protospatharios* and *strategos* of the Anatolikon” (ninth/tenth century); DO 58.106.3020 “Artavasdos, *strategos* of the Anatolikon” (ninth century). The surviving seals indicate a *strategos* of the theme but do not denote the location of the capital.

<sup>98</sup> Lightfoot, “Survival of Cities in Byzantine Anatolia,” 56.

<sup>99</sup> Al-Mu’tasim was told that Amorion “is the very heart (literally, ‘eye’) and core of Christendom. In the view of the Christians, it is even more exalted in estimation than Constantinople.” (translation by Clifford Bosworth); al-Tabari, *History*, 97.

<sup>100</sup> Ibn Khordadbeh, *The Book of Roads and Kingdoms [Kitāb al-Masālik wa l-Mamālik]*, 84.

<sup>101</sup> *Notitia Episcopatum (Notitia 7)*, line 48.

<sup>102</sup> Lightfoot, “Survival of Cities in Byzantine Anatolia,” 58.

<sup>103</sup> Lightfoot, “Survival of Cities in Byzantine Anatolia,” 66; Warren Treadgold, *The Byzantine Revival, 780–842* (Stanford: Stanford University Press, 1991), 304.

ninth century.<sup>104</sup> This analysis will follow Foss's assertion of Chonai being the most probable location.<sup>105</sup>

The capital of Kappadokia was most likely at Koron. Ibn al-Faqih gives this as the location of the *kleisourarches*, which would have the greatest likelihood of later being elevated to the seat of the *strategos*.<sup>106</sup> However, Pertusi suggests that the capital was moved to Tyana, even though this is not corroborated in any extant source.<sup>107</sup> For this study, Koron is taken as the most likely location. Of all the capitals included in the subsequent analysis, this is the only one whose location truly bears some question. Tyana lies only approximately 40 km southeast of Koron, making the geographical difference between the two locations somewhat negligible for quantitative purposes.

As for Mesopotamia, the ambiguity of its capital is due to its position along the far eastern frontier under a modified version of a theme that incorporated holdovers from the previous Armenian administrators.<sup>108</sup> Despite its peculiar mixed administration, a capital must have existed. It is known that Leon VI appointed one Orestes as *strategos*,<sup>109</sup> the position is listed in the *Taktikon Benesevic*,<sup>110</sup> and *Escorial Taktikon*,<sup>111</sup> and seals attest to the positions of *strategos*<sup>112</sup> and *tourmarches*.<sup>113</sup> John Haldon suggests the possibility of Kamakha, an important

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<sup>104</sup> Ibn Khordadbeh, *The Book of Roads and Kingdoms [Kitāb al-Masālik wa l-Mamālik]*, 84; al-Idrisi, *Geography*, 299.

<sup>105</sup> Foss, *Ephesus after Antiquity*, 195–96.

<sup>106</sup> Ibn al-Faqih, *Concise Book of Lands [Mukhtasar Kitab al-Buldan]*, 75.

<sup>107</sup> *De Thematibus*, ed. Pertusi, 122.

<sup>108</sup> This should not be confused with the generalized region of Iraq and Syria, nor the older Roman province of Mesopotamia. It instead lies between the Arsanias (modern Murat) and Cimisgezek Rivers in what is today's eastern Turkey.

<sup>109</sup> *De Administrando Imperio*, 50.117–32; *De Thematibus*, 131–32.

<sup>110</sup> *Taktikon Benesevic*, 246–47.

<sup>111</sup> *Escorial Taktikon*, 268–69.

<sup>112</sup> DO 55.1.2824 “Nicholas, imperial *protospatharios* epi tou Chrysotriklinou and *strategos* of Mesopotamia” (tenth century); Fogg 1218 “Romanos, imperial *protospatharios* and *strategos* of Mesopotamia” (tenth/eleventh century); Fogg 666 “N., imperial *protospatharios* and *strategos* of Mesopotamia” (tenth/eleventh century).

fortress, as the location,<sup>114</sup> however, this remains unsupported by primary evidence and is highly hypothetical. With no standout city to administratively and commercially center the population around, it is not productive to speculate on the location of a capital for the purposes of this study. As it stands, Mesopotamia's uncertain boundaries already preclude it from further analysis concerning thematic shapes in relationship to their capitals.

### **Changing Capitals**

Map 7.2 provides an accurate overview of the capitals' placement because their locations remained extremely consistent over the span of the theme system's existence. The creation or reassignment of capitals generally only occurred when a theme was divided or was created from newly acquired land. Even when a theme was split to create two new jurisdictions, one of the themes continued administering out of the existing capital while the other theme had to create a new one. For example, the initial incarnation of the Opsikion had its capital at Ankyra. When it was divided in the mid-eighth century, the administrative seat moved to Nikaia while the newly established Boukellarion took over Ankyra. This arrangement continued into the creation of the themes and persisted until their conquest. Likewise, the capitals along the eastern frontier began as the seat of the *kleisourai*, before their elevation to the status of full theme and seat of the *strategos*.

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<sup>113</sup> DO 55.1.1086 "Moussilikēs, imperial *spatharokandidatos* and *tourmarches* of Mesopotamia" (ninth/tenth century).

<sup>114</sup> *De Thematibus*, ed. Haldon, 132n210.

On an individual basis, this display of consistency is difficult to prove from the available evidence. For some themes the capital is only mentioned sparingly during their entire existence, so claiming that it did not temporarily move during that period is impossible to fully assert. However, when all the themes are taken in aggregate, a pattern of constancy emerges that leads to this conclusion.

There are instances where a *strategos* visited another city within his theme for stretches of time but did not assume a permanent residence. For example, the capital of the Opsikion Theme was Nikaia but the coastal city of Abydos is mentioned to be repeatedly visited by the *strategos*.<sup>115</sup> This is likely because the city shared administrative duties between the Opsikion and Aegean Sea Themes, and its strategic importance at the opening of the Dardanelles warranted higher administrative oversight. Abydos ultimately became the seat of its own *strategos* in the eleventh century, with attestations to this in 1001, 1025, and 1033, but this was not in relation to the Opsikion Theme.<sup>116</sup> This blurring of the *strategos*'s administrative duties was witnessed in all the Anatolian themes that bordered the Mediterranean and Aegean Seas, as a way to contend against naval threats.

Unlike under Diocletian's Tetrarchy where the *augusti* and *caesares* established and changed capitals to achieve a strategic advantage,<sup>117</sup> no such actions were permanently undertaken within the themes. The *stratego*i were granted a high degree of autonomy, but this did not include the ability to fundamentally alter the geography of the themes by shifting their borders or moving the capital to a more politically conducive location. Decisions on the spatial

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<sup>115</sup> Leon the Deacon, *History*, 94; Ahrweiler, *Byzance et la mer*, 78.

<sup>116</sup> Skylitzes, *Synopsis*, 347, 366.

<sup>117</sup> Elizabeth Marlowe, "The Multivalence of Memory: The Tetrarchs, the Senate, and the Vicennalia Monument in the Roman Forum," in *Cultural Memories in the Roman Empire*, eds. Karl Galinsky and Kenneth Lapatin (Los Angeles: J. Paul Getty Museum Press, 2015), 250.

composition of the theme system were decidedly a top-down affair and not ad hoc decisions made by the *strategoï*.

## Consolidating Capitals

There are occurrences where a theme was granted a capital but command was consolidated that moved its administrative center to another theme. This is seen exclusively in the far eastern portion of Anatolia among the minor themes. For example, Derzene was at some point administered by officials from the neighboring Chaldia Theme, which had the much larger capital of Trebizond.<sup>118</sup> The *strategos* of Lykandos also held authority over the neighboring Tzamandos Theme.<sup>119</sup> This unusual configuration is likely due to two factors: Melias's involvement in the construction of Tzamandos's fortification and the central government's confidence in his ability to competently manage both themes. This may also have been done as a way to check Konstantinos Doukas's machinations out of the neighboring Charsianon Theme. Finally, the minor theme of Taron had some administrative duties blended with the neighboring themes of Chaldia, Derzene, and Vaspurakan.<sup>120</sup>

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<sup>118</sup> Fogg 2629 “Michael Saronites, *protospatharios* epi tou Chrysotriklinou, *chartouarios* of the *logothetes tou genikou*, judge of the Velum and *anagrapheus* of Chaldia and Derzene” (eleventh century); Fogg 3159 “Gerbasios (?) Doukas, *protospatharios* (?) and *chartouarios* (?) of Chaldia and (?) Derzene” (eleventh century); Fogg 400 “Leon (?) Hexakionites, *spatharokandidatos* and judge (?) (or *protonotarios*?) of Chaldia and of Derzene” (eleventh century); DO 55.1.2933 “Leon Areobindos, *spatharokandidatos*, *asekretis*, and judge of Chaldia and Derzene” (eleventh century).

<sup>119</sup> No. 437, Zacos, *Byzantine Lead Seals*, vol. 2; *De Administrando Imperio*, 50.1.157; Canard, *Histoire de la dynastie des Hamdanides*, 780, 954.

<sup>120</sup> *De Administrando Imperio*, 43.65.156–67; DO 55.1.2066 “Michael, *spatharios* epi tou Chrysotriklinou, *logariastes* of the grand *kouratorikion*, *artoklines*, and *anagrapheus* of Chaldia, Derzene, and Taron” (eleventh century); DO 55.1.2940 “Gregory Arsakides, *magistros*, *epi tou koitonos*, *doux* of Vaspurakan and Taron” (between 1051(?) and 1058).

These consolidations are fundamentally different from moving the capital around within a theme and did not pertain to the longer-established Roman Themes.

## Preexisting Cities

This leads to the next point regarding constancy: the capitals were all preexisting urban areas. No new cities were built to serve as administrative centers, as opposed to projects such as Justiniana Prima in the Balkans<sup>121</sup> or the Abbasid construction of Samarra.<sup>122</sup> This makes sense, as the construction of new cities is the luxury and hallmark of a government willing to invest heavily to demonstrate its wealth and prestige—not of an empire suffering heavy military losses and demographic and economic decline. The abandonment of towns and the contraction of urban centers during the middle Byzantine period is well-documented and reinforces the reticence to commence new construction during this period.<sup>123</sup>

This is important because it made the Byzantines entirely reliant on the constraints of preexisting urban settlements when selecting the locations of the capitals. No master-planned

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<sup>121</sup> Chavdar Kirilov, “The Reduction of the Fortified City Area in Late Antiquity: Some Reflections on the End of the ‘Antique City’ in the Lands of the Eastern Roman Empire,” in *Post-Roman Towns, Trade, and Settlement in Europe and Byzantium*, vol. 2, *Byzantium, Pliska, and the Balkans*, ed. Joachim Henning (Berlin: Walter de Gruyter, 2007): 14–15; Vujadin Ivanišević, “Caričin Grad (Justiniana Prima): A New-Discovered City for a ‘New’ Society,” in *Proceedings of the 23<sup>rd</sup> International Congress of Byzantine Studies, Belgrade, 22–27 August, 2016*, ed. S. Marjanović-Dušanić (Belgrade: The Serbian National Committee of AIEB, 2016): 107–26.

<sup>122</sup> Chase Robinson, ed., *A Medieval Islamic City Reconsidered: An Interdisciplinary Approach to Samarra* (Oxford: Oxford University Press, 2001); Alastair Northedge and Derek Kennet, *Archaeological Atlas of Samarra* (London: British Institute for the Study of Iraq, 2015).

<sup>123</sup> Haldon, *The Empire that Would Not Die*, 26–78; Brubaker and Haldon, *Byzantium in the Iconoclast Era*, 538; Laiou and Morrisson, *Byzantine Economy*, 23–42; Koder, “Regional Networks in Asia Minor,” 147–76; Decker, *Byzantine Dark Ages*, 155–86.



city such as the Roman Timgad<sup>124</sup> could emerge de novo in just the precise location to maximize governmental and economic efficiency. An analysis of the themes must therefore preclude any idea of an entirely optimized system but rather see how the Byzantines designed it around geographical and urban constraints.

### **The Importance of Consistency in Capital Placement**

The temporal consistency of capitals demonstrates the geographical importance retained by certain locations and the satisfaction by the central government as to their placement. Similar to how the development of Constantinople flourished upon confirmation it would be the permanent seat of the emperor and his retinue, so too was it advantageous for the *stratego*i to firmly establish roots in a single capital without worry of it changing.

It was also not in the best interest to overhaul the capitals every time a conspiracy arose. The central government could have easily moved a capital from one side of a theme to the other, installing a new loyal *strategos* and eliminating the powerbase from which the thematic elite operated, but no such action was permanently carried out. The Byzantines certainly were not opposed to physically relocating populations to serve their purposes.<sup>125</sup> If these logistically intensive efforts could be undertaken by a focused government, then certainly the movement of a capital to another preexisting urban center was not out of the question.

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<sup>124</sup> Abdelhalim Assassi and Ammar Mebarki, "Spatial Configuration Analysis Via Digital Tools of the Archaeological Roman Town Timgad, Algeria," *Mediterranean Archaeology and Archaeometry* 21, no. 1 (2021): 71–84.

<sup>125</sup> Multiple examples of the resettlement of populations such as the Sklaviniiai, Armenians, and Rhomaioi are compiled in Rapp and Preiser-Kapeller, *Mobility and Migration in Byzantium*, 55–74, and Peter Charanis, "The Transfer of Population as a Policy in the Byzantine Empire," *Comparative Studies in Society and History* 3, no. 2 (1961): 140–54.

However, the goal with the themes was not to simply crush any resistance but to ensure they were capable of properly addressing localized issues beyond the logistical capabilities of the centralized government once the threat was negated.

This goes along with the treatment of the themes as a whole—they could be subdivided to negate an inordinate accumulation of power, but they were not punished to a degree as to render them incapable of performing their intended duties. Because a capital cannot be subdivided, only moved or placed under the jurisdiction of another capital, the Byzantines deemed it sufficient to get rid of the insubordinate official but retain the capital. This reflects the government's attitude towards the themes as a well-established system meant to create long-term stability beyond temporary changes in regards to localized issues.

### **Cherson Theme**

One aberration to this trend of treating the capitals as permanent and inviolable is found in the Cherson Theme. For this reason, it is useful to understand its treatment and how this could have hypothetically been applied to the remaining thematic capitals if so desired. Although Cherson lies on the north coast of the Black Sea and does not properly fit within the geographical parameters of this study of Anatolia, its treatment of the capital and general administration is revealing of Byzantine attitudes, and serves as a unique case of how the emperor perceived the role of the capital.

Across a sea and geographically detached from the rest of the themes, Cherson always held an irregular relationship to the rest of the empire. After its promotion to theme status by the

810s,<sup>126</sup> the region was afforded the normal administrative trappings, with seals attesting to the presence of a *strategos*,<sup>127</sup> a *tourmarches*,<sup>128</sup> and the *kommerkiarioi* customs officials.<sup>129</sup> The individual cities of the theme retained an unusual level of self-determination, organized under the control of autonomous local officials known as *archontes* or “fathers of the city,” (πατέρων τῆς πόλεως)<sup>130</sup> who fashioned their own seals<sup>131</sup> and held an imperial rank vaunted enough for inclusion in the *Taktikon Uspenskij*.<sup>132</sup> The looseness of this confederation of cities is reflected in the original name for the area’s organization, which were known as *klimata*<sup>133</sup> or “the regions/the districts.”<sup>134</sup> Cherson was also permitted to mint coins from the late ninth century through the late tenth century, a privilege rarely accorded to a provincial city.<sup>135</sup>

This mixed administrative system was tolerated due to the strategic importance of the location to the empire. Cherson was an important center of trade and a toehold into the resource-rich Russian steppe, with the majority of the region’s commerce flowing through the city’s

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<sup>126</sup> *Taktikon Uspenskij*, 49.

<sup>127</sup> DO 58.106.2152 “Nikephoros, imperial *spatharokandidatos* and *strategos* of Cherson” (ninth/tenth century); DO 58.106.2187 “Michael Kataphloros (?), *spatharokandidatos* and *strategos* of Cherson” (tenth century); Fogg 355 “Ioannes, imperial *protospatharios* epi tou Chrysotriklinou and *strategos* of Cherson” (tenth century); DO 58.106.1770 “Gregory, imperial *protospatharios* and *strategos* of Cherson” tenth century).

<sup>128</sup> N.A. Alekséenko, “Un tourmarque de Gothie sur un sceau inédit de Cherson,” *Revue des Études Byzantines* 54 (1996): 271–75.

<sup>129</sup> DO 55.1.2835 “Sergios, imperial *spatharokandidatos* and *kommerkiarios* of Cherson” (ninth/tenth century); Fogg 1943 “Poteinos, imperial *protospatharios* and *kommerkiarios* of Cherson” (tenth century); N.A. Alekséenko, “La douane du thème de Cherson au IXe et au Xe siècle: les sceaux des commerciaux,” in *Kiev – Cherson – Constantinople :Ukrainian Papers at the XXth International Congress of Byzantine Studies (Paris, 19–25 August, 2001)*, eds. Alexander Aibabin and Hlib Ivakin (Kiev: Ukrainian National Committee for Byzantine Studies, 2007): 121–64.

<sup>130</sup> *De Administrando Imperio*, 53.105–23.

<sup>131</sup> DO 55.1.1140 “Sabbas, *hypatos* and *archon* of Cherson” (eighth century); Fogg 2253 “Gregoras, imperial *spatharios* and *archon* of Cherson” (early ninth century); DO 47.2.63 “Eustathios, imperial *spatharios* and *archon* of Cherson” (eighth/ninth century).

<sup>132</sup> *Taktikon Uspenskij*, 56–57.

<sup>133</sup> DO 47.2.1234 “N., ... of the Pente Klimata” (ninth century).

<sup>134</sup> *De Administrando Imperio*, 42.72; *De Thematribus*, 208–9.

<sup>135</sup> Marie Nystazopoulou-Pélékidou, “L’administration locale de Cherson à l’époque byzantine (IVE–XIIIe s.),” in *EYΨYXIA. Mélanges offerts à Hélène Ahrweiler* (Paris: Publications de la Sorbonne, 1998), 577–79.

port.<sup>136</sup> Its position on the far northern frontier also made it an important outlet for diplomacy with groups such as the Rus, Khazars, and Pechenegs.<sup>137</sup> The Rus assault on Constantinople in 860 solidified the use of the theme as a bulwark against their aggression and as a way to spread cultural influence, making it paramount to maintain this position.

In the *De Administrando Imperio*, Konstantinos VII Porphyrogennetos issued a piece of advice for dealing with the theme if its administration becomes unwieldy. He urged that the *strategos* cease payment to the local primates or city fathers, then leave Cherson and reestablish the capital at a more amenable city in the theme.<sup>138</sup> What this alternative capital would be is not indicated, making it likely that the *strategos* would use his own discretion to select a location still under his control.

A rebellion preceded the composition of the *De Administrando Imperio*, when an 896/7 revolt in Cherson led to the death of Symeon the *strategos*.<sup>139</sup> The likelihood of a recurrent event was possibly not far from Konstantinos VII's mind. The theme's distance as an outpost apart from the rest of the empire plus the predominance of an indigenous powerbase run by local officials were reasons to be wary of the potential to lose a tenuous position on the Crimean Peninsula.

While they never acted on this recommendation, it is significant that the option to move the capital was even considered. Nowhere else in the Roman Themes is this willingness to

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<sup>136</sup> Jonathan Shephard, "'Mists and Portals': The Black Sea's North Coast," in *Byzantine Trade, 4<sup>th</sup>–12<sup>th</sup> Centuries: The Archaeology of Local, Regional and International Exchange. Papers of the Thirty-Eighth Spring Symposium of Byzantine Studies, St. John's College, University of Oxford, March 2004*, ed. Marlia Mango (London: Routledge, 2009), 430; *De Administrando Imperio*, 53.493–535.

<sup>137</sup> Alex Papadopoulos, "Rereading the Story of the City of Cherson and the Maiden Gykia in *De administrando imperio* as Arts of Rule Narrative," *Essays in Medieval Studies* 31 (2016): 145.

<sup>138</sup> *De Administrando Imperio*, 53.512–35.

<sup>139</sup> Theophanes, *Chronicle*, ed. De Boor, I, 360, II, 14–16.

readily uproot a capital witnessed. It was also not simply an ad hoc decision by a commander under duress but rather a premeditated strategy conceived at the highest levels of government.

This advice is more striking because the size and location of Cherson made it the obvious selection of a capital, and abandoning it was tantamount to losing the economic prosperity of such an entrepot. However, the continued presence of imperial administrators in the theme was clearly a better alternative to the loss of the peninsula as a whole, so such a sacrifice could be tolerated. The direct Byzantine presence that existed was minimal, with administrative control in the hands of so-called city fathers through at least the reign of Theophilos.<sup>140</sup> If local leaders were responsible for the rebellion, which is implied by Konstantinos VII as the probable origin, then the Byzantine forces would face considerable hurdles in reasserting control. This hypothetical versatility in moving the capital and base of operations could help to ensure that the empire retained a long-term presence in the region.

The fact that this proposition occurred in Cherson does not negate the overall strategy of maintaining constancy in the location of thematic capitals, but reveals how Cherson was such an outlier compared to the Anatolian themes. Alex Papadopoulos argues that the inclusion of Cherson as the final account in the *De Administrando Imperio* was a deliberate decision meant to “focus, organize, and amplify security-related concerns about Byzantium’s Hellenic Black Sea dominion.”<sup>141</sup> Konstantinos VII did not issue similar advice for the themes in Asia Minor because this was not a viable solution to the problem of rebellion. Capitals were an economic and military focal point, worthy of maintaining a level of consistency through turmoil.<sup>142</sup>

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<sup>140</sup> *De Administrando Imperio*, 42.41–47.

<sup>141</sup> Papadopoulos, “City of Cherson,” 147.

<sup>142</sup> Alex Feldman also suggests that the lengthy account of Cherson in the *De Administrando Imperio* is structured to emphasize the idea that the inhabitants of the region could not be trusted. Alex Feldman, “How and Why Vladimir Besieged Cherson: An Inquiry into the Latest Research on the Chronology of the Conversion of Vladimir, 987–989 CE,” *Byzantinoslavica* 73, no. 1–2 (2015): 163.

By the ninth century, the Anatolian themes did not face the same challenges of rebellion from local populations. Except for some of the themes in the far east such as Vaspurakan, Van, and Iberia, there was not a separate indigenous administrative structure that had to be incorporated or appeased which could internally foment rebellion. When cases of internal discord did arise, the Anatolian themes were in a much more advantageous position to handle it. Just as the themes coordinated against an invasion from Islamic powers, their cooperative structure enabled the themes to come to one another's aid. With the general stability of the Roman Themes in place during the ninth and tenth centuries, no permanent loss to the system was experienced, permitting the assurance of administrative and geographical continuity amongst the capitals.

All of this demonstrates that Cherson was an outlier in terms of the administration of the eastern themes. Only the extreme nature of its circumstances warranted the potential of changing the geographical makeup of the theme. Outside of this situation, long-term administrative stability was deemed preferable to an ad hoc short fix of moving capitals around during times of instability.

## Assessing the Thematic Capitals

With the locations of the capitals and their constancy of placement firmly established, it is now possible to assess their relationship to one another and with the larger thematic system.

### Role of the Capitals in Thematic Organization—Voronoi Diagram

The capitals typically corresponded to the largest and most important urban settlement in the theme. This was the logical maneuver in their selection as these cities already had a bureaucratic apparatus in place, a large economic footprint, and also served as natural gathering points for scholars and ecclesiastical figures to lend their administrative capabilities. Eleven of these sites served as the seat of a metropolitan (Amasia, Amorion, Ankyra, Gangra, Kaisareia, Nikaia, Nikomedeia, Sebasteia, Seleukeia, Smyrna, Trebizond) and two as the site of an archbishopric (Chonai and Koloneia).<sup>143</sup>

This leads to the question: Did Byzantine officials just select the sites of the capitals, then divide up the themes based on that criterion alone? From an administrative angle, if the capitals were the only component of the theme deemed of value, this would be the simplest and most logical method of thematic organization.

Such a proposition can be tested through the creation of a Voronoi diagram/Thiessen polygons.

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<sup>143</sup> *Notitia Episcopatum* (*Notitia* 7), lines 1–102.

A Voronoi diagram uses a nearest neighbor algorithm to divide a given area into polygons based on a set of points. Each polygon encompasses all the locations that are closer to its associated point than to any other point in the set.<sup>144</sup> For the themes, this produces a hypothetical best fit model in which every theme is drawn with borders where every area inside is closer to that capital than to any other capital outside the boundary. This approach is useful for understanding proximity in relation to a set of fixed points, in this case the thematic capitals. If the actual organization of the themes resembles the Voronoi diagram, this would imply that the administrative system was partitioned entirely around the capitals with no additional considerations.

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<sup>144</sup> Aurenhammer, Klein, and Lee, *Voronoi Diagrams and Delauney Triangulations*; Okabe, Boots, Sugihara, and Chui, *Spatial Tessellations*; Okabe, Boots, and Sugihara, "Nearest Neighbourhood Operations with Generalized Voronoi Diagrams," 43–71.



The following Voronoi diagram depicts a hypothetical arrangement of the themes predicated on a best fit model for the capitals.



MAP 7.3. Voronoi diagram dividing the themes based on the locations of the capitals

This arrangement can then be superimposed on the actual organization of the themes to make comparisons.



MAP 7.4. Voronoi diagram with actual themes superimposed

This Voronoi diagram rejects the proposition of thematic shapes being predicated entirely on the placement of their capitals. No actual theme bears even a remote resemblance to the theoretical best fit model. These results are not surprising. Part I of this study already demonstrated that several themes were deliberately designed to serve a particular function within the overall system. These functions are manifested in the wide range of theme sizes (table 5.1). The Voronoi diagram doesn't factor in topographical variances, but this is not enough to account for the sizeable differences between the idealized and actual version of the thematic layout. The results of this model reinforce the idea that, while the capitals played an important role in thematic organization, they alone did not determine the structure of the system.

This is not to suggest that the theme system bears no efficiency in its construction—instead, it bears no efficiency in its construction *relating to the placement of the capitals as the sole criterion*. As shall be seen, the capitals play an outsized role within thematic organization, but must be assessed and balanced against several other geographical and political factors. This interplay between the capitals and other features is explored in the remainder of this section by first looking at each theme on an individual basis, then assessing how they functioned as a collective whole.

### **Capital Placement within the Theme**

While we have considered the location of the capitals throughout the theme system as a whole, it is also important to consider the location of each capital within its respective theme.

The first consideration is how centrally located the capitals were in regards to their own themes. This is a useful metric to consider because the more centrally located an administrative center is, the faster it can communicate with all points under its jurisdiction, making governance potentially more efficient. As the Byzantines fashioned the territorial extent of the themes and selected the placement of the capitals, they had great leeway in reconciling these two spatial factors in the manner they found to be most conducive for governance. Therefore, the capital's spatial relationship with the rest of the theme is a viable and telling metric of broader geographical organization.

For comparison, within the Levantine *ajnad* of the Abbasid Caliphate, four of the five capitals fell closely in line with the geographical center of the administrative units.<sup>145</sup> The exception being Qinnasrin whose capital of Halab (Aleppo) was a clear choice as the largest and most important city in the *jund*. There was also not a city optimally located in the geographic center that would be a practical replacement simply for being slightly more centrally located, making this the logical selection. The organization of the capitals adds another layer to the precision and systematic design of this Islamic system, exemplifying a concerted desire for simplicity and uniformity within the layout of the *ajnad*. This case study demonstrates that contemporary empires had the capacity and desire to situate administrative capitals predicated on the concept of centrality.

## Centroids

With the boundaries of each theme identified, this information can be used to ascertain the geographical center of each theme, also known as the “centroid.” Using GIS software, these central points are generated by turning each theme into a polygon shape, then averaging the x and y coordinates of the polygon’s vertices—the points that define the polygon’s corners.<sup>146</sup> The themes did not have perfectly regular square shapes, but this does not complicate determining their centers.

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<sup>145</sup> A description of the administrative borders is found in Shahid, “Jund System in Bilad al-Sham,” 45–52; Walmsley, “Urban Geography of the Jund of Filastin.”

<sup>146</sup> Wang, *Quantitative Methods and Applications in GIS*, 13; De Smith, Goodchild, and Longley, *Geospatial Analysis*, 79; Laurini and Thompson, *Fundamentals of Spatial Information Systems*, 269–70. This analysis uses the more common centroid method instead of the central point method. Due to the irregular shapes of the themes, determining the centroid or center of gravity of an oddly shaped theme can potentially place the center outside of the theme’s boundaries. This is why the themes of the Aegean Sea and Koloneia reflect this inconsistency.

Map 7.5 displays the central point of each theme (in red) along with the locations of the capitals (in black).



MAP 7.5. The geographical central points of the themes (red) and where the capitals fall in relation (black)

Looking at map 7.5, it becomes clear that placing the capitals in the geographical centers of the themes was not the underlying criteria used in their formation. Of the fifteen themes considered, roughly half of them adhere to some principles of centrality, with several breaking entirely from this structure. This suggests an effort to achieve centrality when possible but eschewing it when other needs proved more pressing.

Some of the capitals appear close to this theoretical ideal. Attaleia in the Kibyrraiotai Theme and Smyrna in the Samos Theme arrive at almost the exact midpoint. Their placement likely does reflect building the theme around the major naval center and having it capable of organizing and dispatching forces across its holdings in a timely manner. Structuring these two

themes in a narrow and elongated fashion facilitates this sort of geographical calculation through the ability to chart linear distances along the coastline.<sup>147</sup>

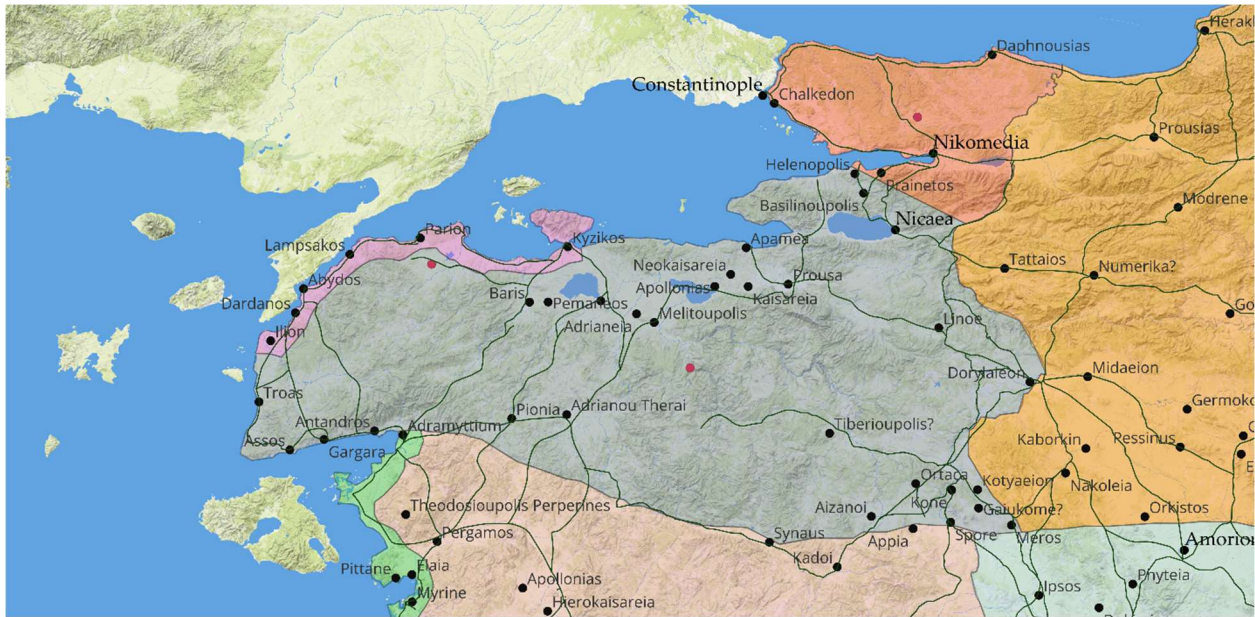
Other themes that have their capital close to the geographical center include Nikomedeia in the Optimaton, Koron in Kappadokia, Amaseia in the Armeniakon, and Sebasteia in Sebasteia. The placement of Koron and Sebasteia accord rather well with connectivity across the theme when factoring in the topographical features of the more mountainous east (this is explored more in the following section).

The true aberrations to centrality lie with Nikaia in the Opsikion Theme, Amorion in the Anatolikon Theme, Gangra in the Paphlagonia Theme, and Kaisareia in the Charsianon Theme. These four defy the concept of centrality by placing their capitals almost along the border, making them geographically distant from the rest of the theme. However, closer inquiry reveals a logic to this organization once the concept of centrality is measured against other factors.

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<sup>147</sup> Sailors used *peripli* (s. *periplus*) to chart distances along the coastlines. These documents listed ports and important navigational landmarks in geographical order and provided the distance between locations. The *peripli* were widely used in the Mediterranean world until at least the second century CE, with the *Periplus of the Euxine Sea* and the *Stadiasmus Maris Magni* serving as the latest unique guides. However, a tenth century Byzantine copy of the first century CE *Periplus of the Erythraean Sea* survives at the University Library of Heidelberg (CPG 398: 40v–54v) as well as in a fourteenth/fifteenth century version in the British Museum (B.M. Add 19391 9r–12r). This indicates continued knowledge of coastal distances throughout the Byzantine period, which could potentially have been incorporated into administrative decisions such as the creation of the maritime themes. *Periplus of the Erythraean Sea*, G.W.B. Huntingford ed. (Glasgow: Hakluyt Society, 1980); *Periplus of the Euxine Sea* in Karl Müller, ed., *Geographi Graeci minores*, vol. 1 (Cambridge: Cambridge University Press, 2013): 370–401; *Stadiasmus Maris Magni* in Karl Müller, ed., *Geographi Graeci minores*, vol. 1 (Cambridge: Cambridge University Press, 2013): 427–514.

## Nikaia and the Opsikion Theme



MAP 7.6. The Opsikion Theme with city and road details (centroid in red)

In terms of accessibility to the entire theme, Nikaia is the worst located capital of those within Anatolia. However, factors of population distribution and connectivity along the road network far outweigh the importance of centrality.

The *Notitia Episcopatum* lists no city near the theme's geographical center, which falls within a mountainous region. So, while centrality worked for other themes, this geographical hinderance immediately precludes it as a means of organization.

Nikaia proves to be a viable location for a capital as it was the Opsikion's most important city and was located along a major road that served as the main military route from Constantinople to the eastern front. This route permitted Nikaia to function as the key conduit through which trade and information flowed before reaching the imperial capital (see chapter 8 on betweenness centrality). It is along this route that several of the theme's cities coalesced,

putting them into proximity of Nikaia. To emphasize the value of this portion of the theme, the *De Thematibus* explicitly delineated the Opsikion's eastern border with the Boukellarion by pointing out the attendant cities along this north-south course that starts at Nikaia, running through Kotyaion (Kütahya), Dorylaion, Medaeion, Apameia, and Myrleia, before ending at Meros.<sup>148</sup>

If centrality was the overriding criteria of capital placement, the archbishopric of Apameia, less than 100 km west of Nikaia, was the theme's only other sizeable population center and could have served as a potential alternative.<sup>149</sup> However, this selection would be ill-conceived, as its location still does little to rectify the outsized distance to the western extremities of the theme, and this shift would remove the capital from the confluence of major roads, weakening its importance.

In addition to the clustering of cities along the eastern border, settlement within the theme also coalesced along the northern coast, with the remainder of the land lightly occupied. This placed the capital at the juncture between an east-west coastal axis along the Sea of Marmara, as well as a north-south axis along the route between Nikaia and Meros.

With the Aegean Sea Theme in control of the western coast, responsible for traffic through the Dardanelles and cities such as Abydos and Kyzikos, the area of importance for the Opsikion gravitates towards the eastern portion of the theme, further placing Nikaia in an advantageous location.

Considering these factors, there is not a more ideal location for the placement of a capital than Nikaia.

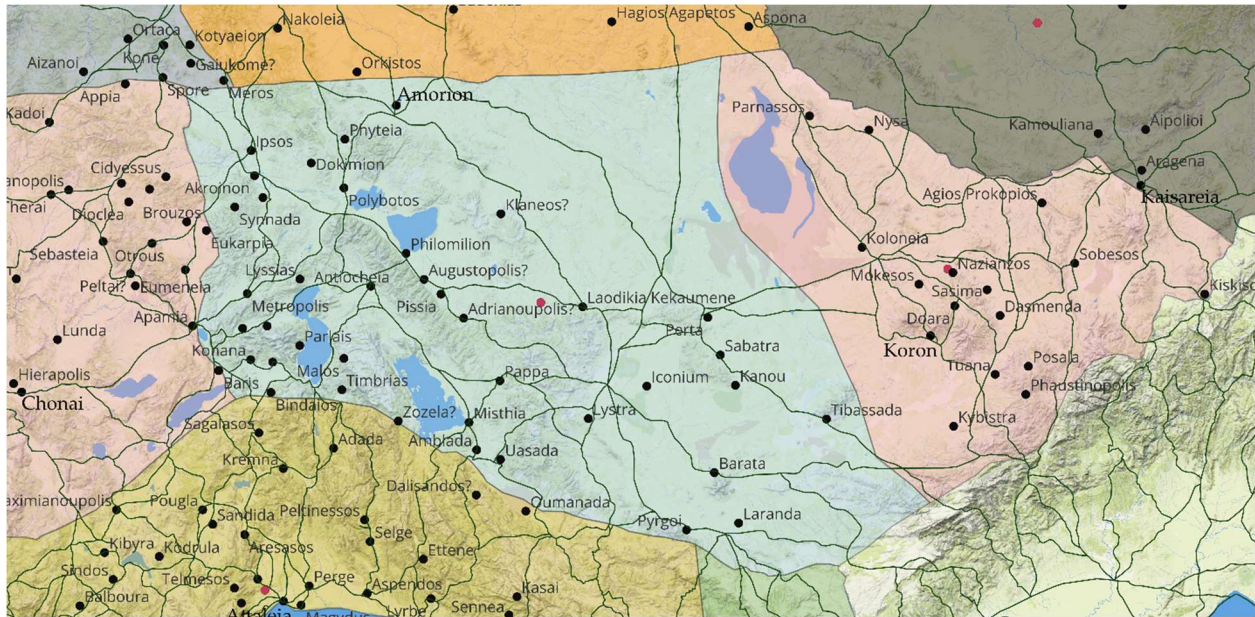
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<sup>148</sup> *De Thematibus*, 85–86, 116–17.

<sup>149</sup> *Notitia Episcopatum* (*Notitia* 7), line 56.



## Amorion and the Anatolikon Theme



MAP 7.7. The Anatolikon Theme with city and road details (centroid in red)

Predicated on centrality alone, Amorion appears to be an ill-conceived location from which to govern the Anatolikon Theme. It was situated in the Anatolikon's upper extremity, almost on the border with the Boukellarion, placing it far from cities in the east. However, both the size of the city and the theme's overall urban distribution made it a logical selection.

The *Notitia Episcopatum* lists three other metropolitans that reside within the boundaries of the Anatolikon Theme—Antiocheia, Ikonion, and Synnada.<sup>150</sup> Antiocheia did occupy a more centralized location, but in terms of population and importance the city was not comparable to Amorion at its height. This is an instance where the outsized pull of a singular city overrode the notion of centralization.

<sup>150</sup> *Notitia Episcopatum* (*Notitia* 7), lines 23–25.

Amorion had two key advantages over a city that would be merely situated in the theme's geographical center. First, it was located close to a major settlement cluster. The region west of the Sultan Mountains contained the highest proportion of settlements within the theme, with the area east of the mountain range much more sparsely occupied. This was evidenced in Anatolia's settlement heatmap (map 5.8) which showed that the highest levels of urbanization were in the Thrakesion Theme, spilling over into the western portion of the Anatolikon. If the Anatolikon's cities are analyzed based only on their locations, the central population point for the theme would fall to the west of the Sultan Mountains. This means that half the theme's cities lay within less than 20 percent of its total landholdings. Amorion's location put the majority of these cities within 100 to 150 km, or a three-to-five-day walk.

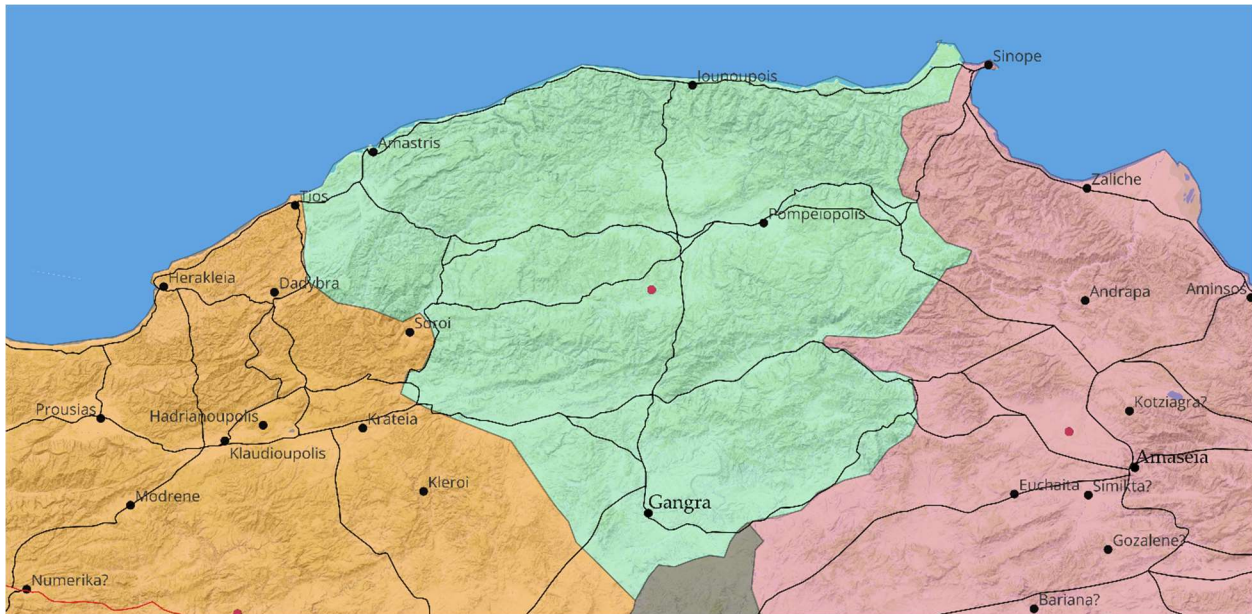
The second advantage was Amorion's accessibility to the rest of the theme. Amorion was located on an important road juncture that afforded it access to the western population center and the route to the east which was frequently utilized on military campaigns across the Taurus Mountains. This proved to be the only location in the theme with such a geographical advantage.

For contrast, if the metropolitan of Antiocheia was the capital, its more geographically centralized position would actually have less access to the eastern portions of the theme due to the necessity of having to travel around the Sultan range for access. Polybotos, a proposed temporary location for the thematic capital after 838,<sup>151</sup> exhibited many of the same geographical advantages as Amorion, residing just north of the Sultan Mountains, maintaining accessibility to both sides of the range, albeit to a lesser degree. This attempt at a general consistency in the placement of the thematic capital exemplifies the geographical advantages of Amorion's location.

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<sup>151</sup> Lightfoot, "Survival of Cities in Byzantine Anatolia," 66; Treadgold, *Byzantine Revival*, 304.

## Gangra and the Paphlagonia Theme



MAP 7.8. The Paphlagonia Theme with city and road details (centroid in red)

Predicated solely on the concept of centrality, the selection of Gangra remains a bit enigmatic. This is due to the paucity of cities listed for the theme, with only four mentioned in Leon VI's version of the *Notitia Episcopatum*.<sup>152</sup> As a result, no geographically ideal location emerges when looking at the theme in isolation.

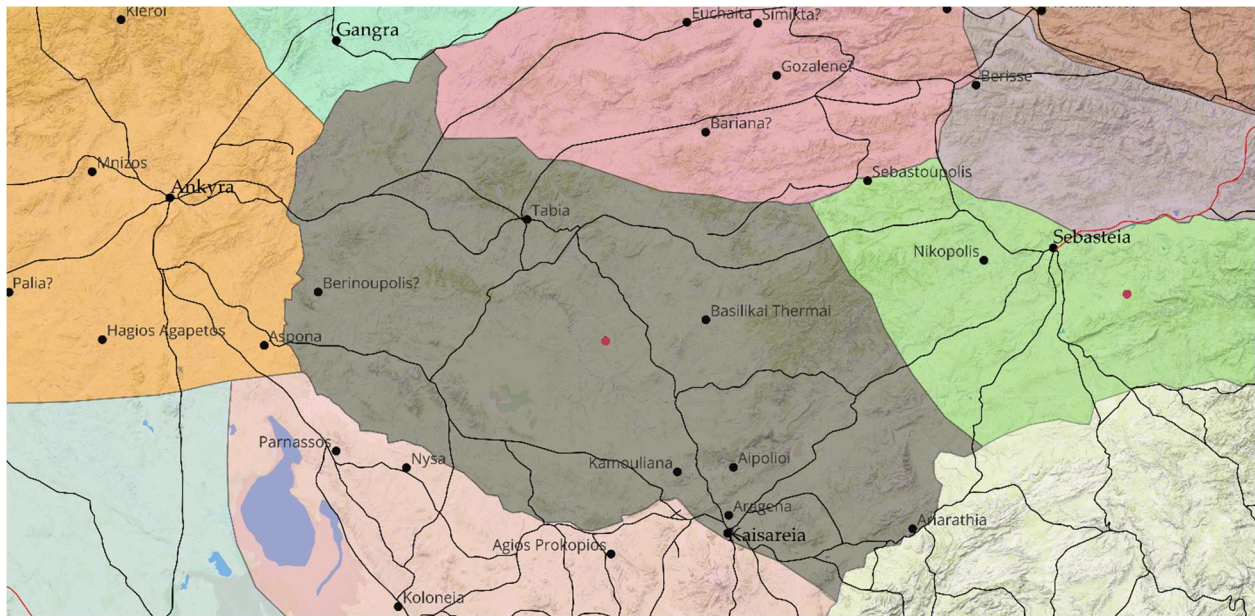
Like Amorion, Gangra was the largest of these listed cities, serving as the theme's only metropolitan. The archbishopric of Amastris would have been the only other viable candidate for the capital, but it also fares poorly when considering centrality, being located in the northwest quadrant along the Black Sea coast. In comparison to the Anatolikon and Opsikion Themes, Paphlagonia was smaller (Anatolikon at 58,300 km<sup>2</sup>, Opsikion at 41,700 km<sup>2</sup>, and Paphlagonia at

<sup>152</sup> *Notitia Episcopatum* (*Notitia* 7), lines 15, 53, 79, 293.

32,100 km<sup>2</sup>) and more compact in shape, making it faster and easier for Gangra to access the entirety of the theme.

The selection of Gangra becomes more understandable once the connectivity between different thematic capitals is taken into account. It lies within proximity of Ankyra and Amaseia along a well-traversed route that connects the capitals of the northern themes. This analysis is conducted in a subsequent section (chapter 8), so further consideration of the capital's placement is reserved for that time.

### Kaisareia and the Charsianon Theme



MAP 7.9. The Charsianon Theme with city and road details (centroid in red)

The final thematic capital to be considered in regards to centrality is Kaisareia. Unlike Amorion, Nikaia, and Gangra, there was no strategic reason for Kaisareia to serve as the capital other than it being the largest city within the theme.

As will be explored further in the next section on isochrone surveys, Kaisareia's location close to the Taurus Mountains did afford it timely access to the difficult-to-traverse terrain of the eastern portion of the theme, while still allowing it ease of access to its western holdings. This also placed it along a singular road connecting the capitals of Koron, Sebasteia, and Koloneia, but this bears no particular advantage in terms of access to key routes or population centers.

Ultimately, it seems that size, the lack of any other important urban centers, and its original utility as an important frontier fortification carried over to its selection as the capital.

## **Conclusion**

These results taken in isolation reveal an empire ambivalent towards using the concept of a geographical center as the sole criterium of spatial organization. While certain themes, such as the Kibyrraiotai and Samos, adhere remarkably close to this principle—to a degree that suggests central optimization in relationship to the coasts—there are enough exceptions to indicate a lack of uniformity. However, further inquiry into the larger aberrations shows that their locations are the logical best fit when geographical impediments and population clusters are taken into account. Arbitrarily placing a capital in a less hospitable and isolated location just to meet a desire for centrality, as would be the case for the Anatolikon and Opsikion Themes, bears no

real-world utility on its own, and Byzantine administrators made decisions on more practical criteria.

As the next section demonstrates, while centrality only came into play when deemed advantageous, the concept of accessible travel around each theme was definitively a factor the Byzantines took into account.

### **Travel Time within Each Theme**

Just because a capital was centrally located does not necessarily imply that all portions of the theme are equally accessible. Travel time between locations cannot be measured as a simple straight line, the approach known as “as the crow flies.” Traffic must proceed along the road network and, while travel generally propagated in terms of the shortest *time* between two points, this was not always the shortest *distance*. Physical features such as mountains and bodies of water necessitated the incorporation of more circuitous routes. As a result, the use of the road network is the best method to interrogate accessibility between the capital and the rest of the theme.

This metric of coverage is displayed in the following isochrone maps (maps 7.10–7.24).<sup>153</sup> These show the distance and time necessary to reach points throughout each theme when starting from the capital and traversing the system of roads. These maps utilize Dijkstra’s

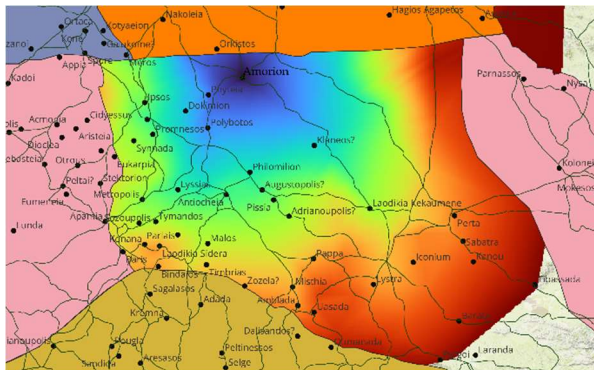
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<sup>153</sup> On isochrone maps, see Dovey, Pafka, and Ristic, eds., *Mapping Urbanities*, 102; Kraak, *Mapping Time*.

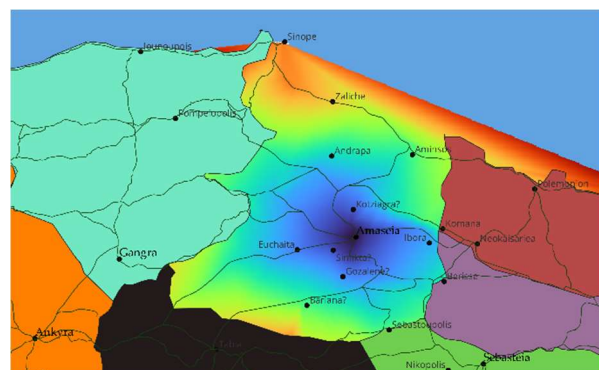
algorithm to find the fastest paths along the road network.<sup>154</sup> This means that all results reflect how long it would take to arrive at various points within the themes based on the assumption that an individual would take the fastest route possible. The isochrones are rendered as a color gradient with dark blue at the capital, turning into green, yellow, orange, and finally red for the furthest extremities. Each map uses the same isochrone scale, permitting cross comparisons (e.g., each blue color scheme amounts to the same amount of travel time on every map).

- The color blue starts at the capital or 0 km.
- Green signals approximately 100 km.
- Orange emerges at approximately 200 km.
- Red denotes distances beyond approximately 250 km.

The total survey area is 300 km, with the isochrone ending at that radius.

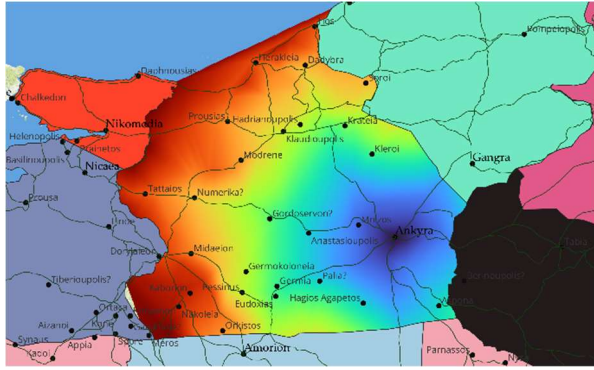


MAP 7.10. Anatolikon isochrone map

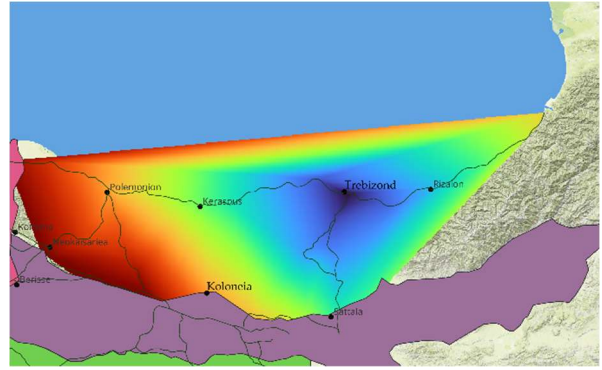


MAP 7.11. Armeniakon isochrone map

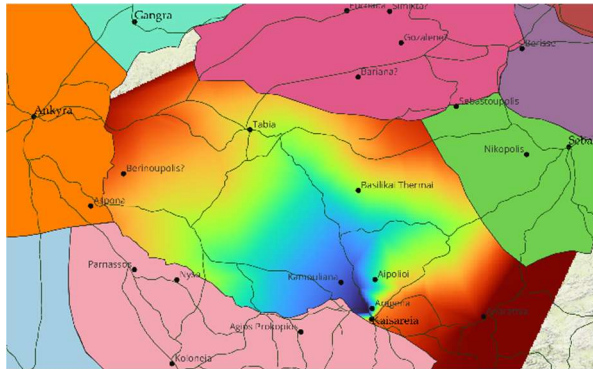
<sup>154</sup> Edsger Dijkstra, “A Note on Two Problems in Connexion with Graphs,” *Numerische Mathematik* 1 (1959): 269–71; Kurt Mehlhorn and Peter Sanders, *Algorithms and Data Structures: The Basic Toolbox* (New York: Springer, 2008), 196–200.



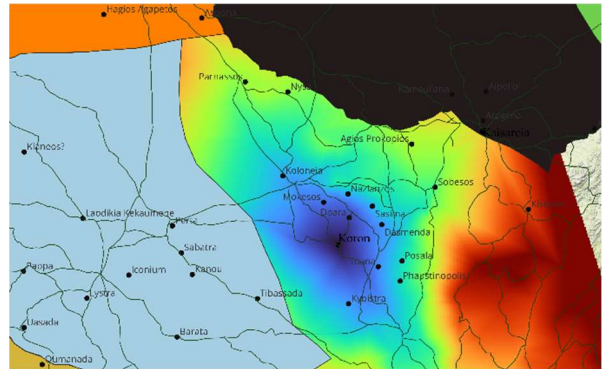
MAP 7.12. Boukellarion isochrone map



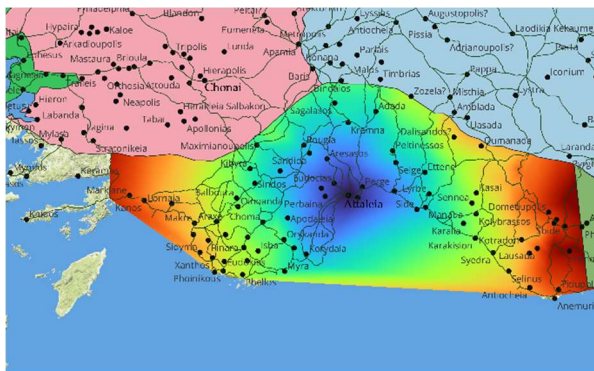
MAP 7.13. Chaldia isochrone map



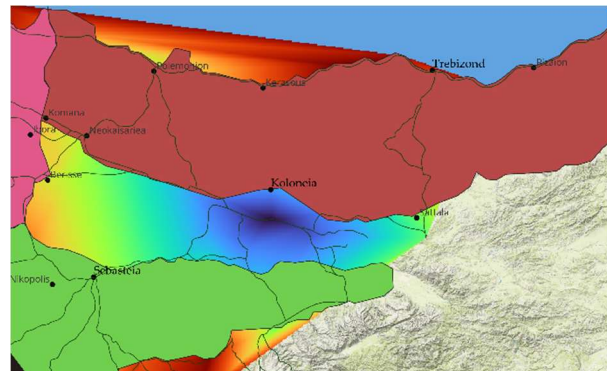
MAP 7.14. Charsianon isochrone map



MAP 7.15. Kappadokia isochrone map

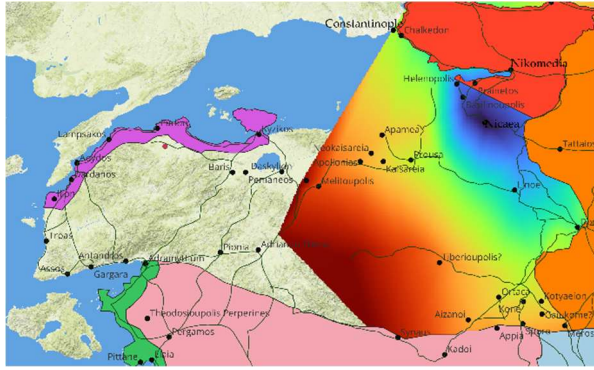


MAP 7.16. Kibyrraiotai isochrone map

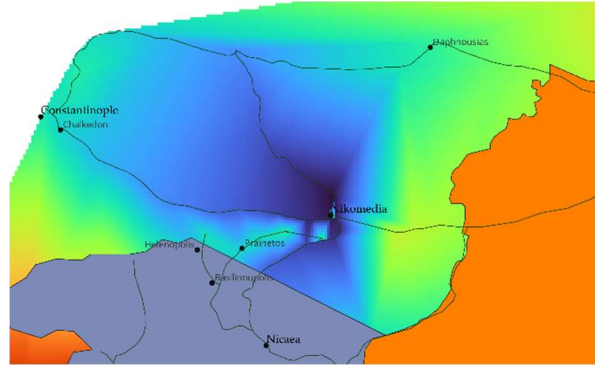


MAP 7.17. Koloneia isochrone map

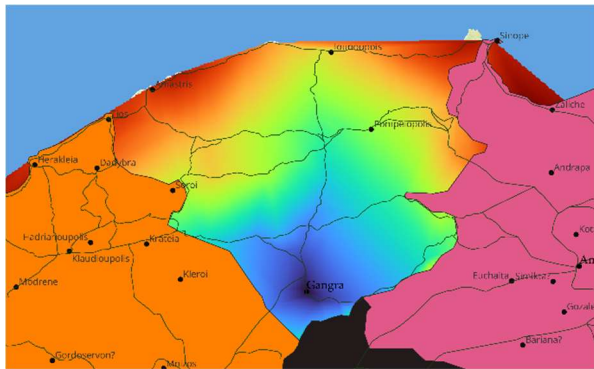




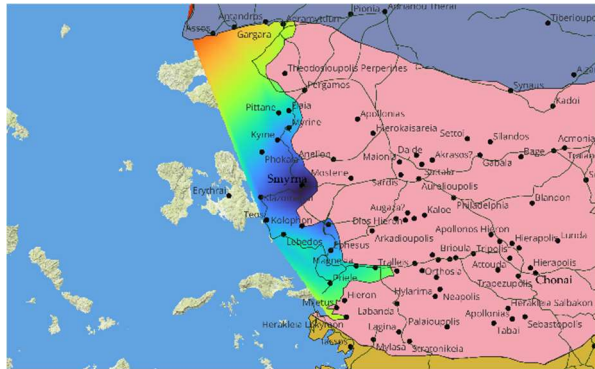
MAP 7.18. Opsikion isochrone map



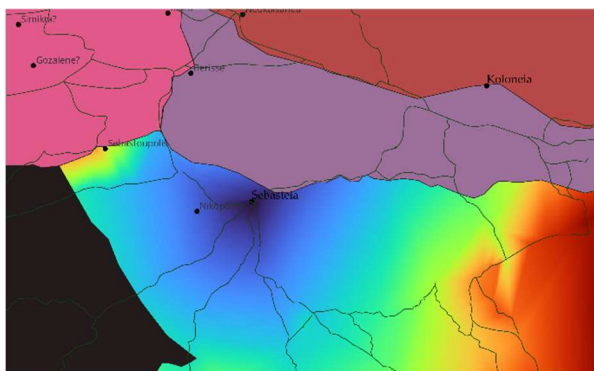
MAP 7.19. Optimaton isochrone map



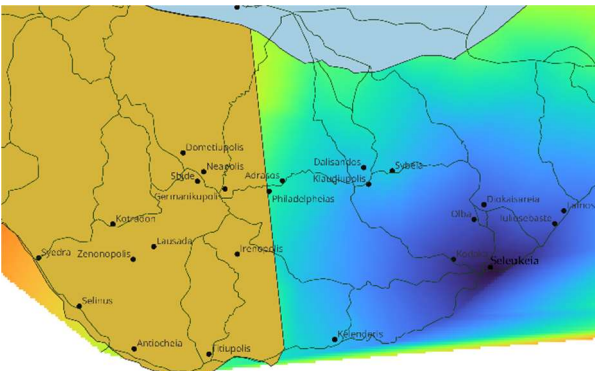
MAP 7.20. Paphlagonia isochrone map



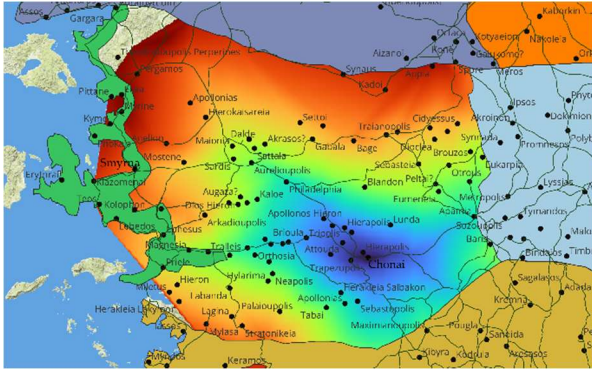
MAP 7.21. Samos isochrone map



MAP 7.22. Sebasteia isochrone map



MAP 7.23. Seleukeia isochrone map



MAP 7.24. Thrakesion isochrone map

Some broad trends emerge when these isochrone maps are assessed collectively.

Virtually every theme adheres to a general threshold of coverage in which the capital has the ability to reach almost any internal point of its theme within 300 km of road travel. This distance threshold is indicated on the maps by the abrupt cessation of artificial coloring after the dark red of the isochrone. Examples of this threshold are found in the Opsikion Theme (map 7.18) and in the northwestern corner of the Thrakesion Theme (map 7.24). This calculus is not altered when accounting for themes with a variety of shapes and sizes. Nor is this affected by the encumbrance of differing terrain.

With the one exception of the Opsikion, the distance threshold accounts for even the largest themes whose capitals rejected an adherence to centralization. The Anatolikon, Charsianon, and Thrakesion Themes boast more than 95 percent coverage when a 300 km buffer is drawn. Outside of the Opsikion, this comprises every single settlement mentioned in the *Notitia Episcopatum* except for Laranda in the Anatolikon and Theodosiupolis Perperines in the furthest northwestern reaches of the Thrakesion Theme. That covers 374 out of 386 settlements or 97 percent of the total (99.5 percent if the Opsikion is discounted). Likewise, the field of coverage for the Boukellarion, Chaldia, and Paphlagonia extend almost precisely to their

furthest borders. The consistency in which this radius of coverage is attained exemplifies that this is not simply a coincidence—it belies a larger organizational principle.

Using Walter Scheidel’s ratio of distance to travel time, an individual can walk approximately 30 km in a single day.<sup>155</sup> This means that almost any point within a theme could be reached from its capital within ten days of travel. According to Scheidel, an army on the march would also require ten days of travel, with a person on horseback attaining this distance in a little under six days, and a rapid messenger service arriving at any point in the theme in under two days.<sup>156</sup>

As discussed in chapter 6, the land encompassed by the themes exhibits enough topographical uniformity to utilize Scheidel’s standardizations. Themes such as the Anatolikon or Thrakesion, where variations in topography would have the greatest impact on the isochrone maps, had transportation networks that exhibit few significant changes in terrain. For the themes of Charsianon, Kappadokia, and Sebasteia where mountainous terrain could impact travel time, they were organized in a manner that accounted for such constraints. Each capital was around 50–60 km from the frontier and sat at the foot of the Taurus range (see topographical map 6.1). These locations granted relatively unencumbered travel to the western portions of the themes while still ensuring expedient coverage of the mountainous east, well within the allotted ten-day threshold.

While an equal distribution of settlements between each theme was not a criterion considered during their formation (demographic map 5.6), accessibility to urban centers appears to be a factor at play. On average, 75 percent of a theme’s urban centers were within a 150 km

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<sup>155</sup> “Orbis,” accessed February 27, 2024, [orbis.stanford.edu](http://orbis.stanford.edu).

<sup>156</sup> “Orbis,” accessed February 27, 2024, [orbis.stanford.edu](http://orbis.stanford.edu). Schiedel places horse travel at 56 km per day and 250 km per day for rapid horse messengers.

radius of the capital, making them reachable along the road network within only five days of steady foot travel. Like the 300 km buffer for coverage of the entire theme, this 150 km radius of settlement coverage remained remarkably consistent when factoring in differences in total area, shape, and settlement clustering/dispersion. Even in themes with an offset capital, such as the Anatolikon and Opsikion, they still boasted strong coverage of the main population centers. This is not to say that Byzantine administrators explicitly made such precise demographic calculations when drawing thematic boundaries, but the concept of accessibility to urban centers very likely factored into such considerations.

Looking at the themes individually helps to explain their organization in relation to the concepts of centrality and internal connectivity.

### **Anatolikon Theme**

At first glance, the placement of the Anatolikon's capital appears arbitrary and ill-conceived. The internal organization of this theme only makes sense once the road network and settlement patterns are taken into account.

Isochrone map 7.10 exemplifies the Anatolikon Theme's ability to retain a high degree of internal connectivity despite the offset location of its capital. The placement of Amorion along a major road juncture drastically cut down on travel time. The route to the southeast extent of its landholdings followed a relatively straight path that overcame problems associated with it being located almost exactly 300 km from the capital. This also served as the main access route to

Tarsos, Kilikia, and upon its conquest in 969, Antioch, meaning that its importance as a military artery to the eastern frontier ensured its upkeep.

Likewise, the high connectivity of roads within the western portion permitted access to 75 percent of the theme's cities within 150–175 km, or a walk of five to six days. This makes the connectivity of the theme more commensurate with the Thrakesion, whose capital was more centrally located and formed a more compact square shape.

### **Charsianon and Paphlagonia**

The isochrone maps also account for the offset locations of Kaisareia in the Charsianon Theme (map 7.14) and Gangra in Paphlagonia (map 7.20). Both of these themes fall within the “middle” size range, 33,900 km<sup>2</sup> (13,100 mi<sup>2</sup>) for Charsianon and 32,100 km<sup>2</sup> (12,400 mi<sup>2</sup>) for Paphlagonia (see chapter 5, table 5.1). This geographical compactness, coupled with the amenable organization of their road networks, permitted both themes to attain the 300 km range of accessibility almost precisely. If the capability to access every portion of a theme within ten days is held as a more important criteria than the centrality of the capital, then these administrative bodies no longer appear as aberrations in want of an explanation but instead functioned exactly as they were designed.

Kaisareia's southeastern location near Charsianon's mountainous region also facilitated connectivity in the eastern portion of the theme where travel experienced a slow down due to the terrain. While this does not rectify the poor centrality of the capital, accounting for geographical features makes the discrepancies in travel time less profound. As a hypothetical, if the capital

was located in the northwest part of the theme, the new location would have been incapable of accessing the entirety of the theme within ten days simply due to topographical factors.

### **Kibyrraiotai Theme**

The Kibyrraiotai Theme serves as an exemplar of a highly centralized administrative seat. The optimal centrality of Attaleia afforded it remarkable accessibility by land, despite the theme's exaggerated length of over 500 km, with 80 percent of urban settlements lying within 175 km of the capital. This placed the theme's internal connectivity on par with the Thrakesion Theme, which was only half its width. For comparison, the Opsikion Theme was only about 75 percent of the width of the Kibyrraiotai, yet it would take over twice as long to traverse the entirety of the theme when departing from the capital.

The Kibyrraiotai also held a connectivity advantage in terms of maritime accessibility. Coastal towns in the far western extent of the theme could be accessed by ship from Attaleia within three to six days of continuous travel, further supplementing the road network.<sup>157</sup> Therefore, while remote sections of the far-western portion of the theme, near the island of Kos, fell just outside of the ten-day foot travel accessibility range, they were easily serviced by sea routes within that timeframe.

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<sup>157</sup> Numbers for this maritime travel rate are taken from Pryor, "Types of Ships and their Performance Capabilities," 48–51.

## Chaldia and Koloneia

Like the Kibyrraiotai, the themes of Chaldia and Koloneia were wide, but the relatively centralized locations of their capitals permitted a high degree of connectivity considering the geographical challenges they faced.

Throughout the Roman Themes, the Pontic Mountains served as the feature most inhibitory to thematic connectivity. This disadvantage was subverted, as best as the circumstances permitted, by having the themes run along an east-west axis. Despite being the most poorly connected regions in terms of the road network, these areas nonetheless received a level of coverage commensurate with the other themes.

While Chaldia had a well-understood coastal route running its entire width, accessibility to the far eastern extent of Koloneia is difficult to properly assess, as the mountainous terrain precluded straightforward road travel. The *Notitia Episcopatum* lists no cities beyond Satala and Rizaion, suggesting that the population in the far east was negligible.<sup>158</sup> This is reinforced by the lack of well-defined roads east of Satala. Travel within this mountainous area was certainly possible, as the minor themes of Artze, Derzene, Kama, and Keltzene necessitated a connection to the Duchy of Chaldia, with which they belonged, but how this relationship was facilitated remains difficult to fully plot.<sup>159</sup> This makes the placement of Koloneia's capital, approximately 50 kilometers west of the true geographical center, more in line with the theme's actual urbanization distribution and a fitting location for administrative purposes. Because the known

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<sup>158</sup> *Notitia Episcopatum* (*Notitia* 7).

<sup>159</sup> Fogg 2629 "Michael Saronites, *protospatharios* epi tou Chrysotriklinou, *chartouarios* of the *logothetes tou genikou*, judge of the Velum and *anagrapheus* of Chaldia and Derzene" (eleventh century); Fogg 3159 "Gerbasios (?) Doukas, *protospatharios* (?) and *chartouarios* (?) of Chaldia and (?) Derzene" (eleventh century); Fogg 400 "Leon (?) Hexakionites, *spatharokandidatos* and judge (?) (or *protonotarios*?) of Chaldia and of Derzene" (eleventh century); DO 55.1.2933 "Leon Areobindos, *spatharokandidatos*, *asekretis*, and judge of Chaldia and Derzene" (eleventh century); Beihammer, *Muslim-Turkish Anatolia*, 54.

roads to the east end at Satala, the isochrone map (map 7.17) ends its coverage at that point, since it is drawn according to the road network.<sup>160</sup> If the routes to Keltzene, Derzene, and Artze, and speculatively to Kars and Tziliapert are extended, the theme's isochrone would resemble something akin to the inverse of Chaldia's map (map 7.14).

### **Opsikion Theme**

The Opsikion was the only exception to the consistent trend of 300 km of coverage from the capital. While some themes such as the Thrakesion and Anatolikon had a narrow strip of land just beyond this threshold, the Opsikion would require an additional 300 km to reach the theme's westernmost extent. This was due to the placement of the capital in the northeast corner of the theme.

The Opsikion Theme lacked the robust road network enjoyed by some of its neighbors. Outside of the coast and trade routes along the eastern border, the remainder of the theme was light on urban centers and exhibited a paucity of roads throughout the interior. This forced travel from Nikaia to the west, along roads paralleling the Sea of Marmara or in a circuitous fashion along its southern border with the Thrakesion Theme. Compare this to Amorion in the Anatolikon Theme, which boasted access to two major thoroughfares and a branching network of routes that connected the majority of cities.

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<sup>160</sup> The Samos Theme also exhibited this type of rendering anomaly (map 7.21). As there were no major roads in the western portions of the theme, the isochrone map displays no coverage for the region. In actuality, the distances within Samos were so small that the entire theme was easily traversable within the allotted timeframe.



The Opsikion's scarcity of roads also reinforced the selection of Nikaia as the capital. Placing the capital in a centralized spot would have reduced its access to a singular main road, making the larger urban centers of the east difficult to access. The theme would have been able to cover most of its landholdings within 300 km or ten days of travel but would not have been able to achieve the average of covering 75 percent of its population centers within 150 km or five days of travel. More importantly, almost none of the major population centers of the east would have fallen within this 150 km radius, making it the least internally connected of the Roman Themes in this hypothetical model.

This exemplifies the deliberate selection of Nikaia as the capital and the importance of its position along a major transportation artery over the ability to be responsive to the entire western half of its landholdings.

### ***Dividing the Opsikion***

Facing limitations on connectivity that existed nowhere else in Anatolia, why did Byzantine administrators not further divide the Opsikion Theme? A potential answer to this lies in the fixed nature of demographics. Outside of the far eastern region, there were no sizeable cities to place a capital. The theme contained no additional metropolitans and only one archbishopric at Apameia, but, as previously mentioned, Apameia lies too close to Nikaia to have much of an impact on rectifying the problem of connectivity with the west. Therefore, a subdivided Opsikion would have amounted to a new western theme absent a strong administrative center overseeing an area of sparse urbanization. With the Aegean Sea Theme responsible for most of the coast, the

theoretical theme would have had little efficacy as an administrative unit and would sit marginalized from the other themes. Ultimately, dealing with poor internal connectivity was a more viable option than the creation of a new theme.

## **Conclusion**

These isochrone maps demonstrate that accessibility considerations played an important role in determining the overall shapes and sizes of the themes. Despite the array of theme sizes as well as the locations of traversable roads and the limitations imposed by geography, virtually every point within every theme could be accessed within a ten-day walk or march. In the cases of nine themes, 60 percent of the isochrones considered, this distance is attained to a degree of + or – 5 percent of the theme’s total size. The remaining themes, except the outlier Opsikion, fall significantly under this limit. Such a threshold of accessibility is too consistent to be a coincidence and displays deliberate intent.

In terms of statistics, a p-value (the level of significance in a statistical hypothesis) can be applied to test the likelihood of this thematic organization occurring by chance.<sup>161</sup> This is done by first establishing a null-hypothesis, which is a hypothesis that defines the anticipated outcome if no relationship exists between the variables under investigation: in this case, that a random permutation of themes would not produce results consistent with the actual 300 km/ten-day

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<sup>161</sup> For a definition and application of a pseudo p-value in statistical models, see George Grekousis, *Spatial Analysis Methods and Practices: Describe – Explore – Explain through GIS* (Cambridge: Cambridge University Press, 2020), 224–26.

coverage along the road network.<sup>162</sup> The null-hypothesis is then tested by generating 1,000 random permutations of the themes to see how many times these criteria are met.<sup>163</sup> This takes the fifteen themes used for the isochrone study and, using a Monte Carlo random permutation procedure, randomly generates them so that their total area of coverage amounts to 480,000 km<sup>2</sup> (185,000 mi<sup>2</sup>) and falls within the geographical borders encompassed by the Roman Themes.

If the criteria are satisfied  $\leq 1$ , that creates a pseudo p-value of 0.001, which is deemed to be statistically significant and indicates that the null-hypothesis is compatible with the dataset.<sup>164</sup> When this test is run on multiple occasions, the resulting pseudo p-value is less than 0.001.<sup>165</sup> This statistically reaffirms the idea that the Byzantines placed importance on the road network and accessibility with regards to the location of the capitals when devising the shapes and sizes of the themes.

These isochrone maps also exemplify the importance of the road network as the principal metric of measuring travel distance and time within the themes.

Despite the breakdown of road upkeep witnessed at the height of the Roman Empire, the Byzantines of the tenth century almost certainly maintained a working knowledge of their roads.

The *Notitia Episcopatum* demonstrates a clear understanding of the location of settlements

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<sup>162</sup> For an example of how to design an empirical research study on spatial phenomena, see Katsuo Kogure and Yoshito Takasaki, "GIS for Empirical Research Design: An Illustration with Georeferenced Point Data," *PLoS ONE* 14, no. 3 (2019): <https://doi.org/10.1371/journal.pone.0212316>.

<sup>163</sup> For general guidelines on setting up a spatial experiment that yields a useful pseudo p-value, see Grekousis, *Spatial Analysis Methods and Practices*, 226. For more on the usage of the Monte Carlo random permutation procedure, see Reuven Rubinstein and Dirk Kroese, *Simulation and the Monte Carlo Method* (Hoboken: Wiley, 2017).

<sup>164</sup> A 0.05 value (or a 1-in-20 chance of error) is frequently used to determine the boundary between a statistically significant and a statistically nonsignificant p-value. This level is lowered to 0.001 (1-in-1,000 chance of error) when testing a computer-generated spatial model. This is called a pseudo p-value and is implemented in this study.

<sup>165</sup> Ronald Wasserstein and Nicole Lazar, "The ASA's Statement on P-Values: Context, Process, and Purpose," *The American Statistician* 70 no. 2 (2016): 129–33. Attaining this p-value does not mean that there is more than a 99.9 percent probability that the null-hypothesis is true, but rather that the dataset and hypothesis exhibit a high degree of compatibility that is statistically unlikely to occur by chance.

throughout the empire. Milestones still stood along roads and remained in use long after their creation.<sup>166</sup> Locals would be well aware of distances between neighboring urban centers, and military routes were planned that crossed the breadth of Anatolia.<sup>167</sup> To suggest that these components of spatial organization could not be combined and organized in a manner that granted administrators knowledge of the road network strains credulity.

While no cartographic *itinerarium* such as the Antonine Itinerary (*Itinerarium Antonini Augusti*), Bordeaux Itinerary (*Itinerarium Burdigalense/Itinerarium Hierosolymitanum*), or Peutinger Map (*Tabula Peutingeriana*) is extant from the ninth or tenth century, knowledge of road locations and distances was not so degraded as to render the Byzantines incapable of utilizing this information if they so desired. As previously mentioned, a tenth-century copy of the *Periplus of the Erythraean Sea* survives, indicating that the *periplus*, a maritime version of the *itinerarium*, persisted in the Byzantine consciousness through the period of the themes.

The organization of the themes reflects an understanding of the road network that is both nuanced and sophisticated. Uniformity in terms of total area, land use, and demographics were not enforced when arranging the themes, but considerations of travel distance and accessibility along the roads were factors that could be determined to a high degree and almost certainly went into their organization. Bearing in mind the pseudo p-value of less than 0.001, the likelihood of the theme system coming together without this sophistication is vanishingly small, and that the lack of direct records attesting to this underlying organizational method should not imply its absence.

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<sup>166</sup> David French, *Roman Roads and Milestones of Asia Minor*, vol. 3, *Milestones, Fasc. 3.9, An Album of Maps* (London: British Institute at Ankara, 2015).

<sup>167</sup> John Haldon, Vince Gaffney, Georgios Theodoropoulos, and Phil Murgatroyd, "Marching across Anatolia: Medieval Logistics and Modeling the Mantzikert Campaign," *Dumbarton Oaks Papers* 65/66 (2011–12): 209–35.

Fernand Braudel famously characterized distance as the “first enemy” of a premodern empire.<sup>168</sup> By this he meant that distance served as a hard restriction that could not be easily circumvented but had to be built into administrative considerations regarding imperial growth and cohesion. For an empire as large as Byzantium to effectively function, it was necessary to place such organizational importance on the limiting factors of distance and communication. Therefore, it is logical that the empire incorporated its knowledge of the road network into decisions regarding the structure of the themes.

Placing such an emphasis on roads as one of the defining features of a premodern civilization is not without precedent. In his depiction of the so-called “Comanche Empire” of the Southern Plains, Pekka Hämäläinen characterizes the Native Americans’ landholdings and conception of its domain as relying “not on sweeping territorial control but on a capacity to connect vital economic and ecological nodes—trade corridors, grassy river valleys, grain-producing peasant villages, tribute-paying colonial capitals—which allowed them to harness resources.”<sup>169</sup>

In recent years, there has been a growing recognition of the concept that ancient empires should not be perceived solely as distinct and solidly defined entities. Instead, they are increasingly viewed as intricate networks composed of interconnected nodes linked through narrow transportation corridors. This is particularly relevant in light of the limitations of communication in the pre-modern world.<sup>170</sup> For example, Claudia Glatz has employed this road network conceptualization on Anatolia during the Late Bronze Age.<sup>171</sup>

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<sup>168</sup> Fernand Braudel, *The Mediterranean and the Mediterranean World in the Age of Philip II*, vol. 1 (Berkeley: University of California Press, 1995), 355.

<sup>169</sup> Hämäläinen, “The Kinetic Empires of Native American Nomads,” 1048; Hämäläinen, “What’s in a Concept? The Kinetic Empire of the Comanches,” 81–90.

<sup>170</sup> Smith, “Networks, Territories, and the Cartography of Ancient States,” 832–49; Smith, “Territories, Corridors, and Networks: A Biological Model for the Premodern State,” 28–35; Ward, *Networks of Empire: Forced Migration*

Mario Liverani, in his assessment of the structure of the Assyrian Empire, characterized its hegemony as, "...not a spread of land but a network of communications over which material goods are carried."<sup>172</sup> This weblike structure of control afforded the Assyrians administrative stability and consolidation, with the ability to address rebellions from Aramean tribes when they arose.<sup>173</sup> Such a view of the Assyrian Empire is in contrast to Nicholas Postgate's model that vividly depicts administrative reach as an "oil stain" consuming and pacifying every inch of territory that it touched.<sup>174</sup> While such a model of absolute hegemony can be appealing by exemplifying an empire's grandeur, it eliminates the nuance of de facto territorial control and overemphasizes the functional reach of premodern empires.

The results of this study suggest that this is also how the Byzantines functionally envisioned their presence within Anatolia—as a series of nodes (urban centers, natural resources) tied together through the system of roads. During the lengthy organization of the theme system, there was sufficient leeway to base the administrative units around other factors such as total area, arable land, or demographics, but these values were largely rejected in favor of conformity around the logistics of communication and transportation. Using the road network as the limiting factor for thematic size and organization suggests the desire to conform to these principles.

Up until now, these organizational models largely relied on the historian's interpretation of textual and archaeological sources. This study provides tangible, quantifiable support for the veracity of such a model.

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*in the Dutch East India Company*; Hendrickson and Leroy, "Sparks and Needles: Seeking Catalysts of State Expansions, A Case Study of Technological Interaction at Angkor, Cambodia (9<sup>th</sup> to 13<sup>th</sup> Centuries CE)," Benton, *A Search for Sovereignty: Law and Geography in European Empires, 1400–1900*.

<sup>171</sup> Glatz, "Empire as Network: Spheres of Material Interaction in Late Bronze Age Anatolia," 127–41.

<sup>172</sup> Liverani, "The Growth of the Assyrian Empire in the Habur/Middle Euphrates Area," 86.

<sup>173</sup> Liverani, "Growth of the Assyrian Empire," 86.

<sup>174</sup> Nicholas Postgate, "The Land of Assur and the Yoke of Assur," *World Archaeology* 23 (1992): 255–56.

## Conceptualizing the Empire's Territorial Extent

These centrality and isochrone models demonstrate the dual reality behind how the Byzantines conceptualized the theme system. One method envisions territorial holdings as clearly defined and continuously and solidly under imperial control, as in Nicholas Postgate's "oil stain" approach to empire.<sup>175</sup> This is akin to Konstantinos VII Porphyrogennetos's depiction of the system in the *De Thematribus*. This model bears utility as an academic pursuit, granting the emperor the ability to survey his lands in one fell swoop as a cohesive and pacified whole. Something that could be disseminated throughout imperial and scholastic circles to trumpet the magnitude of the emperor's reach. This also creates a simplified model of reality that is consistent with the encyclopedic pursuits of categorizing aspects of the known world prevalent within Konstantinos VII's circles.<sup>176</sup>

However, on a practical level, administrators would be more inclined to approach the empire's landholdings in a manner that best facilitated operational functionality. It was simply not feasible to operate on Konstantinos VII's simplified model that all locations within a theme were of equivalent value and concern. Sparsely populated deserts, mountainous terrain, or heavily forested regions held little day-to-day logistical importance when Braudel's "first enemy" imposed hard limits on their accessibility. Instead, these were marginalized in favor of more productive centers connected through narrowly defined corridors, effectively making administrators perceive the themes as a series of links and nodes forming a weblike structure.

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<sup>175</sup> Postgate, "Land of Assur," 255–56.

<sup>176</sup> For a general discussion of Konstantinos VII's encyclopedism, see Magdalino, "Byzantine Encyclopaedism," 219–31.

Both of these models could be simultaneously held in the mind of a contemporary individual depending on how they wished to view the empire—as a grand ideal or as a system in need of practical methods of administration.

It is this practical conception of the themes as a confluence of roads connecting urban and resource centers forming a networked system that is the subject of the next chapter (chapter 8).

### **Strategides and their Coverage**

How did the concepts of centrality and internal connectivity apply to the original configurations of the strategides?

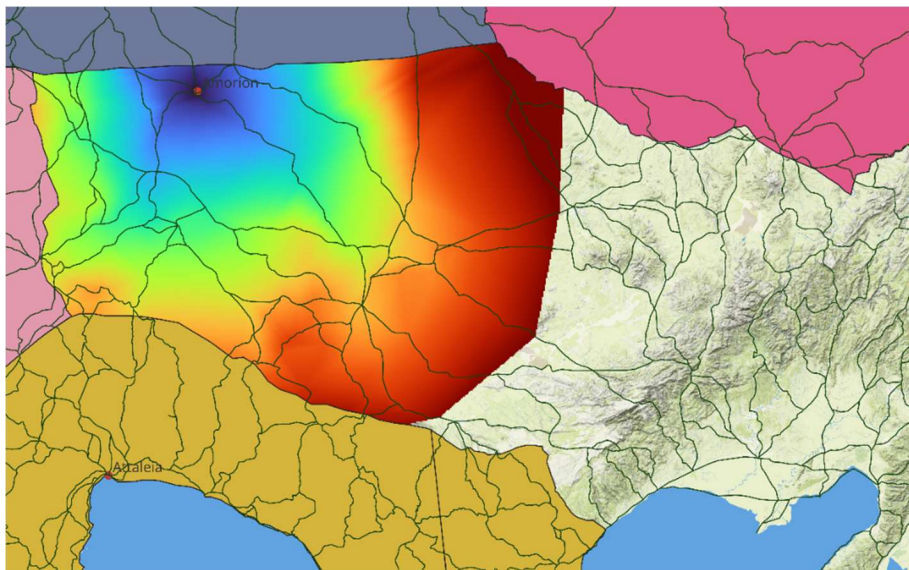
The isochrone maps that follow in this section depict the area of coverage within the Anatolikon, Armeniakon, and Opsikion administrative units. (The eastern extent of the Armeniakon remains difficult to accurately define, and so an isochrone map is the best representation of the capital's placement.) These maps utilize the same scale as the previous isochrones (maps 7.10–7.24), which constitute a 300 km zone of coverage along the road network. The Kibyrraiotai and Thrakesion remain spatially similar to their thematic counterparts and are therefore omitted from this comparative analysis.

The most evident difference regarding the strategides versus the themes in terms of accessibility is the breakdown of the 300 km radius of coverage. The exacerbation of communication distances is an obvious side effect of having five strategides occupy roughly the



same spatial extent as sixteen themes. Capitals that strained the limits of connectivity become even more offset and exaggerated in this earlier incarnation, with coverage between one-third and one-half of the later themes.

## Anatolikon



MAP 7.25. Anatolikon isochrone map

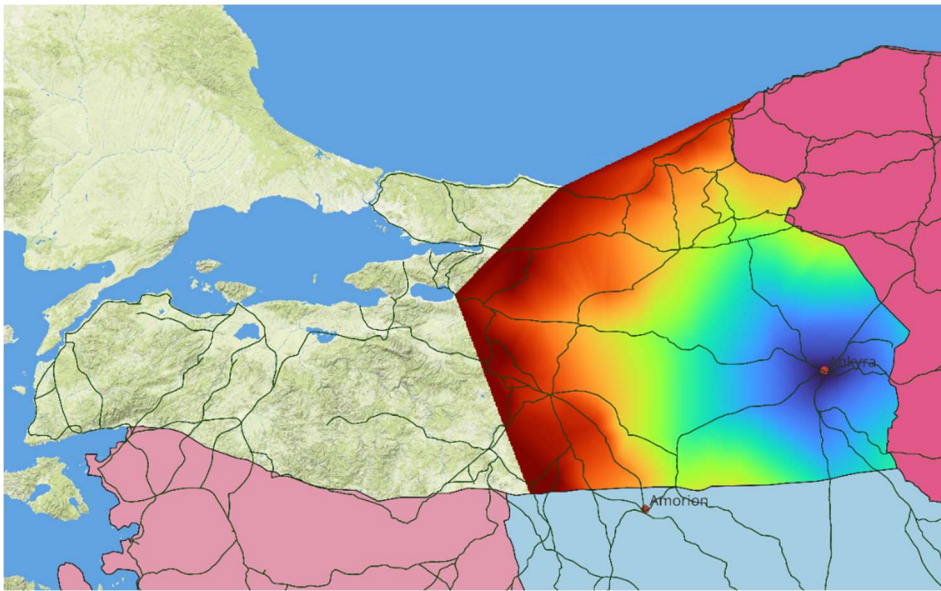
While the location of Amorion worked well within the theme system it exhibited several shortfalls in the context of the strategides. This initial permutation of the Anatolikon held jurisdiction over the region of what would later become the Kappadokia Theme and portions of the Taurus Mountains inclusive of the minor themes of Podandos, Tarsos, and Mopsouestia. While the Anatolikon Theme was capable of balancing the cluster of urban centers west of the Sultan Mountains and the larger territorial extent of the more sparsely populated east, the

strategides model upsets this equilibrium. The distance between Amorion and the eastern holdings in Kappadokia required a more than 600 km trip along established roads. This amounts to a twenty-day march. However, factoring in the terrain around eastern Kappadokia and the Taurus range, this could conceivably have taken more than twenty-five days.

Attendant circumstances surrounding the logistical capabilities of the earliest strategides precluded better coverage. The placement of the capital too close to the contested frontier would have cut down on the rapidity of aid from the other strategides and left it vulnerable to conquest or razing. With this degree of uncertainty and the paucity of ways to arrange the seventh century armies, the obstacle of inhibited communication along the eastern frontier could not have been overcome using the strategides model.

A comparison with the theme system also shows the utility of having even one additional administrative division. The creation of the Kappadokia Theme (ca.830) placed an administrative capital 356 km closer to the eastern frontier, providing access to the Taurus range within two to three days, or 10 percent of the time required under the strategides model. Again, a necessary improvement for projecting coverage in the region, but not a feasible option during the strategides' formation.

## Opsikion



MAP 7.26. Opsikion isochrone map

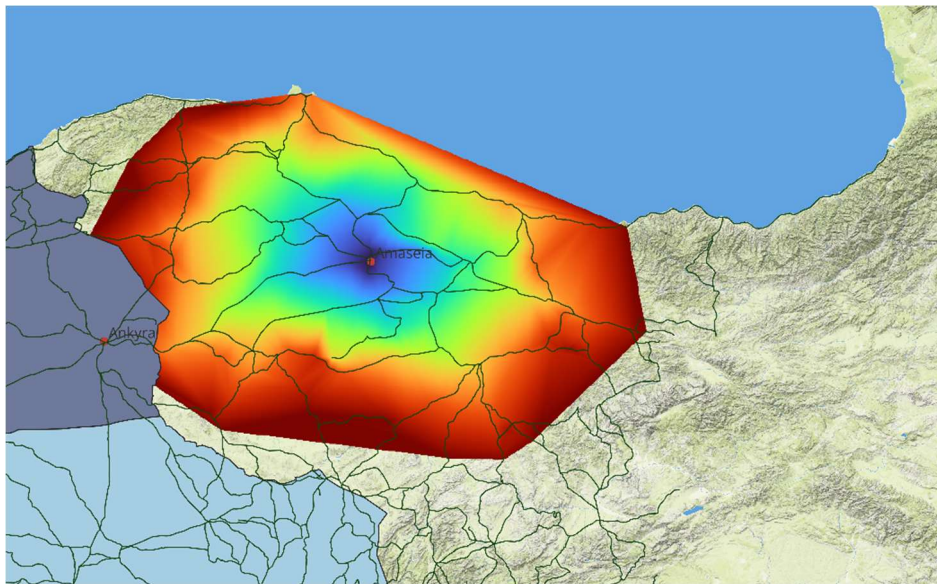
The Opsikion Theme of the tenth century already held poor connectivity over its territorial extent, and this deficit of coverage was further exacerbated under the strategides, with the capital at the even more remote location of Ankyra. This is the most skewed location of any Byzantine capital in relation to its administrative unit, with over 90 percent of its landholdings situated west of the city.

Utilizing the 300 km radius applied to the themes, this would have enabled Ankyra to only be capable of covering almost precisely the borders of the later Boukellarion Theme. The westernmost holdings would have required twenty-seven to twenty-eight days of travel from the capital, putting this on par with the Anatolikon's coverage after accounting for terrain. A round trip would have amounted to nearly two months. Proximity to Constantinople was also not a desired trait, with the seat of the emperor lying 459 km, or a fifteen-day journey from Ankyra.

For comparison, the thematic capitals of Nikomedeia and Nikaia lay only 101 km and 160 km, respectively, from the imperial capital.

Based off of this data alone, it is apparent that this administrative unit was decidedly not devised with any metric of centrality or internal connectivity in mind. If these characteristics were actually desired, Nikaia would have served as the optimal location to place a capital.

### Armeniakon



MAP 7.27. Armeniakon isochrone map

Amaseia, the Armeniakon's capital, fared better in terms of centrality and overall connectivity. The 300 km buffer encompassed what would later be the Armeniakon Theme, as well as 60–70 percent of the Paphlagonia, Sebasteia, and Charsianon Themes, inclusive of two-thirds of the main urban centers under its jurisdiction.

Despite the favorable positioning of the capital, the administrative unit was still much too large to facilitate expedient communication. Kaisareia and Trebizond both sat approximately 390 km from Amaseia, with the furthest eastern holdings an additional 200 km distant, resulting in a minimum of twenty days travel. This was better than the twenty-five to twenty-eight days for the Anatolikon and Opsikion, but still twice the limits permitted by the tenth-century themes.

## **Conclusion**

While the strategides did not bear the same fiscal and administrative responsibilities of the themes, from a military perspective this poor internal connectivity carried important disadvantages. Correspondence across the entire administrative unit could amount to upwards of forty to fifty-five days on foot (600 km each way or 1,200 km for a round trip), encumbering the ability to efficiently organize troops in a timely manner. Likewise, the two strategides along the eastern frontier, the Anatolikon and Armeniakon, held both of their capitals to the far west. This resulted in the areas of highest military activity during the seventh- and early eighth-century being over twenty days distant from the nearest capital.

Contrast this to all of the ninth/tenth century themes along the frontier, which could easily access their eastern extremities within ten days, with most of them theoretically capable of doing so in less than five days, even accounting for deleterious road conditions. This demonstrates the overriding strategic advantage posed along the eastern frontier that accompanied the division of the strategides and the evolution of the theme system.

An important contrast between the strategides and themes are the organizational characteristics that the empire decided to emphasize. While the empire effectively functioned as a connectome of roads linking together disparate population centers, the strategides were not laid out with this function as the primary concern. Coverage and accessibility were less important than regularity—regularity in size, demographics, and arable land. These values were not divided amongst the strategides with absolute precision, an impossibility at the time due to the rapidity of the strategides' foundation and the adherence to several of the preexisting provincial boundaries. But the general trends evidenced in these values shows a desire to equip each administrative unit with sufficient resources to operate effectively and to facilitate the functions of defense and stability. This push towards regularity within the strategides is all the more evident when compared to the theme system that entirely eschewed spatial and demographic consistency in favor of targeted functionality.

## CHAPTER 8—THE THEME SYSEM AS A NETWORK

### Network Connectivity among the Themes

The previous chapter oriented the capitals within their own themes focusing on the concepts of centrality and internal connectivity. This chapter expands on the connectivity analysis by exploring how the themes related to one another and functioned as a collective network.

While the themes were devised with a degree of autonomy, a fundamental goal in their genesis was that the *strategoï* could coordinate in times of need. Likewise, thematic borders were permeable, permitting and facilitating exchanges in commerce, information, and social ties. Therefore, the needs and functions of each theme cannot be taken in isolation but must be viewed in the context of their neighbors and the broader network.

### Structure of this Analysis

The objectives of this chapter are:

- 1) Create a graphical visualization of the thematic network.
- 2) Implement a series of metrics to test the robustness of the overall system to demonstrate how the network functioned.

This will show how the themes could interact with one another predicated on geographical and structural limitations and how the connectivity system privileged or disadvantaged certain regions within Anatolia.

## Why Network Analysis is Viable

Previous studies have demonstrated the viability of network analysis as applied to spatial and social relations within the Byzantine Empire. Most notably are Margaret Mullett’s study of Theophylact of Ochrid, which is the first application of network theory to Byzantium;<sup>1</sup> Giovanni Ruffini’s look at Egyptian social networks in the sixth century;<sup>2</sup> and Johannes Preiser-Kapeller’s inquiry into maritime networks of the Aegean and Mediterranean Seas.<sup>3</sup>

The Austrian Academy of Sciences has even launched a project entitled “Complexities and Networks” with the aim of the project being “the adaptation and development of concepts and tools of network, complexity, and environmental sciences for the analysis of Byzantium and the medieval Mediterranean and Near East.”<sup>4</sup> This project remains in a nascent state and has yet to render more than a handful of publications, but it does signify growing institutional interest in the concept of utilizing networks and quantitative techniques on the Byzantine world.

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<sup>1</sup> Mullett, *Theophylact of Ochrid*.

<sup>2</sup> Ruffini, *Social Networks in Byzantine Egypt*.

<sup>3</sup> Preiser-Kapeller is presently the most active Byzantinist to apply network principles to the empire, mostly in terms of maritime activity, long-distance trade, and the climatological *longue durée*; Preiser-Kapeller, *Harbours and Maritime Networks*; Johannes Preiser-Kapeller, “The Ties That Do Not Bind: Group Formation, Polarization and Conflict within Networks of Political Elites in the Medieval Roman Empire,” *Journal of Historical Network Research* 4 (2020): 298–324; Johannes Preiser-Kapeller, “Calculating the Middle Ages? The Project ‘Complexities and Networks in the Medieval Mediterranean and Near East’ (COMMED),” *Medieval Worlds* 2 (2015): 100–27; Johannes Preiser-Kapeller, “Networks of Border Zones – Multiplex Relations of Power, Religion and Economy in South-Eastern Europe, 1250–1453 CE,” in *Revive the Past: Computer Applications and Quantitative Methods in Archaeology (CAA). Proceedings of the 39th International Conference, Beijing, April 12–16, 2011*, eds. Philip Verhagen, Mingquan Zhou, Iza Romanowska, Zhongke Wu, and Pengfei Xu (Amsterdam: Pallas Publications, 2011), 381–93; Johannes Preiser-Kapeller, *Möglichkeiten Und Grenzen Der Analyse Mittelalterlicher Sozialer Netzwerke Am Beispiel Der Spätbyzantinischen Kirche Und Gesellschaft. Vortrag Oberseminar* (2011 Working Paper); Johannes Preiser-Kapeller, “Peaches to Samarkand: Long Distance Connectivity, Small Worlds and Socio-Cultural Dynamics across Eurasia, 300–800 CE, Draft for the workshop “Linking the Mediterranean: Regional and Trans-Regional Interactions in Times of Fragmentation (300–800 CE),” Vienna, 11<sup>th</sup>–13<sup>th</sup> December 2014.

<sup>4</sup> “Österreichische Akademie der Wissenschaften: Complexities and Networks,” accessed February 27, 2024, <https://www.oeaw.ac.at/en/byzantine-research/byzantium-and-beyond/mobility-and-intercultural-contacts/complexities-and-networks>.



There is better precedence for the construction and use of these types of models outside of Byzantine studies.<sup>5</sup> For example, network analysis has been applied more rigorously by scholars of Western Europe, exemplifying its utility in terms of social and topological issues.<sup>6</sup>

Despite the expanding use of network tools, this methodology has not been applied to the theme system.

### **Why Network Analysis is Useful**

The formation of networks connecting urban centers is a key ingredient of what defines a city, argues Peter Taylor, among others. The context and type of connections ranks alongside population density and cultural factors as the essential way to understand the tenor and function of an urban center.<sup>7</sup>

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<sup>5</sup> The most comprehensive and continually updated bibliography relating to the use of network analysis as a historical discipline is found at “The Historical Network Research Community: HNR Bibliography, Network Analysis in the Historical Sciences,” accessed February 27, 2024, <https://historicalnetworkresearch.org/bibliography>.

<sup>6</sup> Peter Bearman, *Relations into Rhetorics: Local Elite Social Structure in Norfolk, England: 1540–1640* (Piscataway, New Jersey: Rutgers University Press, 1993); Douglas White and Ulla Johansen, *Network Analysis and Ethnographic Problems: Process Models of a Turkish Nomad Clan* (Oxford: Oxford University Press, 2005); Quentin van Doosselaere, *Commercial Agreements and Social Dynamics in Medieval Genoa* (Cambridge: Cambridge University Press, 2009); John Padgett and Christopher Ansell, “Robust Action and the Rise of the Medici, 1400–1434,” *The American Journal of Sociology* 98, no. 6 (1993): 1259–1319; Larry Gorenflo and Thomas Bell, “Network Analysis and the Study of Past Regional Organization,” in *Ancient Road Networks and Settlement Hierarchies in the New World*, ed. Charles Trombold (Cambridge: Cambridge University Press, 1991), 80–98.

<sup>7</sup> Peter Taylor, “Specification of the World City Network,” *Geographical Analysis* 33, no. 2 (2010): 181–94; Jonathan Beaverstock, Richard Smith, and Peter Taylor, “World City Network: A New Metageography?” *Annals of the Association of American Geographers* 90, no. 1 (2000): 123–34; Walter Powell, “Neither Market nor Hierarchy: Network Forms of Organization,” *Research in Organizational Behavior* 12 (1990): 295–336; David Smith and Michael Timberlake, “Cities in Global Matrices: Towards Mapping the World-System's City System,” in *World Cities in a World-System*, eds. Paul Knox and Peter Taylor (Cambridge: Cambridge University Press, 1995), 79–97; Peter Taylor, “Visualizing a New Metageography: Explorations in World-City Space,” in *The Territorial Factor: Political Geography in a Globalising World*, eds. Gertjan Dijkink and Hans Knippenberg (Amsterdam: Vossiuspers, 2001), 113–28.

Network analysis is useful for understanding the structure and function of cities as components of a complex system. This permits the identification of heretofore unknown patterns and trends, such as how relationships naturally arise between component parts and how these relationships drive the behavior of the system as a whole. Network analysis also has the capacity to identify patterns and trends not readily evident from textual or sigillographic sources, nor from studying a map.

Because the themes have never been evaluated in a quantifiable way, it has remained impossible to properly assess how the system functioned as an integrated whole. A network study shows how geographical and systematic constraints fostered or precluded the formation of relationships between the themes. It also helps clarify the organization of the road system between the themes and how movement throughout Anatolia was likely to flow. This can tell us what themes displayed higher integration and connectivity within the network and how this connectivity could grant social, economic, or political advantages to particular themes or regions. The inverse is also important to understand: what areas of Anatolia exhibited low integration and connectivity, marginalizing them from centers of commerce or influence? This would have yielded isolation from the network and created the potential for the formation of regional powerbases divorced from centralized authority.

The focus of this study is to understand the functional structure of the theme system, and these connectivity models can be applied as a way to elucidate the development of social, ecclesiastical, and administrative interactions, illustrate how information and commerce were most likely to disseminate, and reveal potential vulnerabilities that could preclude effective governance or military capabilities. This study serves as an initial foray into a field whose applicability to Byzantine Anatolia is greatly understudied in relation to its potential.

## Metrics for Evaluating a Topographical Network

There are three main metrics implemented to determine the overall robustness of a topographical network and its constituent parts:<sup>8</sup>

1. the path length,
2. the clustering coefficient, and
3. overall connectivity measured by the degree distribution/degree of the network and betweenness centrality.

Each of these metrics is assessed in turn.

### Distance and Path Length

The first metric for consideration is path length. Path length is predicated on the distance between two points (or nodes) within a system.<sup>9</sup> Distance is a viable benchmark to determine how connections between cities most likely manifested under real-world conditions.

A shorter path length generally corresponds to a closer interaction between nodes, with the level of relationships deteriorating as distance increases. This is the network version of Theodore Newcomb's proximity principle, or propinquity, in which relationship strength is

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<sup>8</sup> Dipto Sarkar, Renee Sieber, and Raja Sengupta, "GIScience Considerations in Spatial Social Networks," in *Geographic Information Science: 9<sup>th</sup> International Conference, GIScience 2016, Montreal, QC, Canada, September 27–30, 2016 Proceedings*, eds. Jennifer Miller, Nancy Wiegand, and David O'Sullivan (New York: Springer, 2016), 85–98.

<sup>9</sup> Ajith Abraham, Aboul-Ella Hassanien, and Václav Snášel, *Computational Social Network Analysis: Trends, Tools, and Research Advances* (London: Springer, 2010), 204–5.

forged through the frequency of encounters based on physical nearness.<sup>10</sup> On a localized scale, it is the advantage of proximity that explains why it was necessary for an ambitious individual to either live or frequent Constantinople in order to ingratiate themselves into imperial and academic circles.<sup>11</sup>

For networks across a larger distance, such as the themes, this familiarity manifested through things such as correspondence, commerce, political alliances, and mutual military assistance. Themes adjacent to one another were likely to become closer trading partners and have *strategoï* more inclined to forge localized relationships.

The Thrakesion Theme provides an extreme example to illustrate the benefits and detriments of proximity. With the capitals of Smyrna and Chonai lying only 228 km apart, interactions with the neighboring Samos Theme were frequent and substantive, with several recorded interactions between the *strategoï*. Compare this to the interactions between the Thrakesion and Chaldia Themes. With capitals situated on opposite ends of Anatolia 1,208 km apart, they forged no important or longstanding relationships.

Without modern means of communication, such as phones or the Internet, to negate distance, it is easy to understand this lack of strong connectivity. For the example of the Thrakesion and Chaldia, all trade and correspondence would have needed to travel through at least four additional thematic capitals (Amorion, Ankyra, Gangra, and Amaseia), all of which could have potentially provided better markets or rendered more timely assistance in military matters. There are costs associated with travel, whether for the individual trader or an entire army, and these need to be factored against the desire to forge connections over longer distances.

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<sup>10</sup> Theodore Newcomb, "Varieties of Interpersonal Attraction," in *Group Dynamics: Research and Theory*, eds. Dorwin Cartwright and Alvin Zander (Evanston, IL: Row, Peterson, and Company, 1960), 104–19.

<sup>11</sup> Rapp and Preiser-Kapeller, *Mobility and Migration in Byzantium*, 171–84.

Outside of exceptional cases, it was not worth the expenditure to cultivate far-reaching relationships when closer ones prove satisfactory.

This pattern is witnessed repeatedly in the dispersion of archaeological wares. Unremarkable goods such as pottery exhibit a propensity for a very localized distribution,<sup>12</sup> while only more unique items such as silk outweigh the transportation costs.<sup>13</sup>

Therefore, the creation of a thematic network predicated on distance is a useful method to better understand how the themes interacted with one another.

### **Distance Methodology**

Network distances are measured between the thematic capitals, as they served as the seats of the *strategoï* and, generally, as the economic hub and largest city. Thematic capitals are connected to one another by the most direct distance along the road network, with Dijkstra's algorithm used to ascertain these shortest paths.<sup>14</sup> Distances are taken from the map of the road network produced at the end of chapter 6 (map 6.3).

The actual route between cities frequently assumed a meandering course to accommodate geographical obstructions. Therefore, following the path of the roads provides a much more accurate representation of the network than deriving the values from an as-the-crow-flies

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<sup>12</sup> Alan Walmsley, "Regional Exchange and the Role of the Shop in Byzantine and Early Islamic Syria-Palestine: An Archaeological View," in *Trade and Markets in Byzantium*, ed. Cécile Morrisson (Washington, DC: Dumbarton Oaks, 2012): 311–30. Localized trade is exemplified by Alan Walmsley's tracing of the dispersion of Jerash Bowls, Palestinian Fine Ware, and Jordanian Red Painted Ware in the region of the Dekapolis.

<sup>13</sup> Thelma Thomas, "Perspectives on the Wide World of Luxury in Later Antiquity: Silk and Other Exotic Textiles Found in Syria and Egypt," in *Silk: Trade & Exchange along the Silk Roads between Rome and China in Antiquity*, ed. Berit Hildebrandt (Oxford: Oxbow Books, 2017): 51–81.

<sup>14</sup> Dijkstra, "Note on Two Problems," 269–71; Mehlhorn and Sanders, *Algorithms and Data Structures*, 196–200.

method. For instance, a direct line between Nikaia and Smyrna amounts to 315 km. However, the paucity of roads in the Opsikion Theme necessitates a longer course that requires 530 km, a difference of 205 km and evidence of the inefficacy of the linear method.

If the connection between two cities must first pass through another city, this is considered to be multiple connections. As an example, the shortest route between Nikomedeia and Amorion must first pass through Nikaia. Unless necessitated by extenuating circumstances, this is the route that administrators, traders, and pilgrims would have followed due to ease of travel. While Nikomedeia and Amorion may have held close ties, these were still contingent on the intermediary of Nikaia, which could have shared, cannibalized, or influenced the relationship. Therefore, this amounts to two network connections—Nikomedeia to Nikaia, then Nikaia to Amorion.

Long journeys across Asia Minor are tabulated as a series of lines, with each line segment connecting two nodes. So a journey between Koron and Trebizond constitutes the segments: Koron-Kaisareia, Kaisareia-Sebasteia, Sebasteia-Koloneia, and Koloneia-Trebizond. This ordering of connectivity becomes important when looking at the concepts of general centrality, betweenness centrality, degree of the network, and clustering.

This does not preclude different routes from sharing small road sections so long as they do not pass through additional capitals along the way. Returning to Nikaia as an example: the shortest routes between Nikaia and Smyrna, Nikaia and Amorion, and Nikaia and Ankyra all share a 32 km section of road just southeast of the capital (map 8.3). This does not necessitate any additional segmentations to the network map since this overlap is inconsequential to the forging of connections between the thematic capitals.

Finally, Constantinople was not a thematic capital but is included as part of the network due to its outsized influence on the system.

These stipulations produce table 8.1 and maps 8.1 and 8.2 showing connectivity between the thematic capitals.

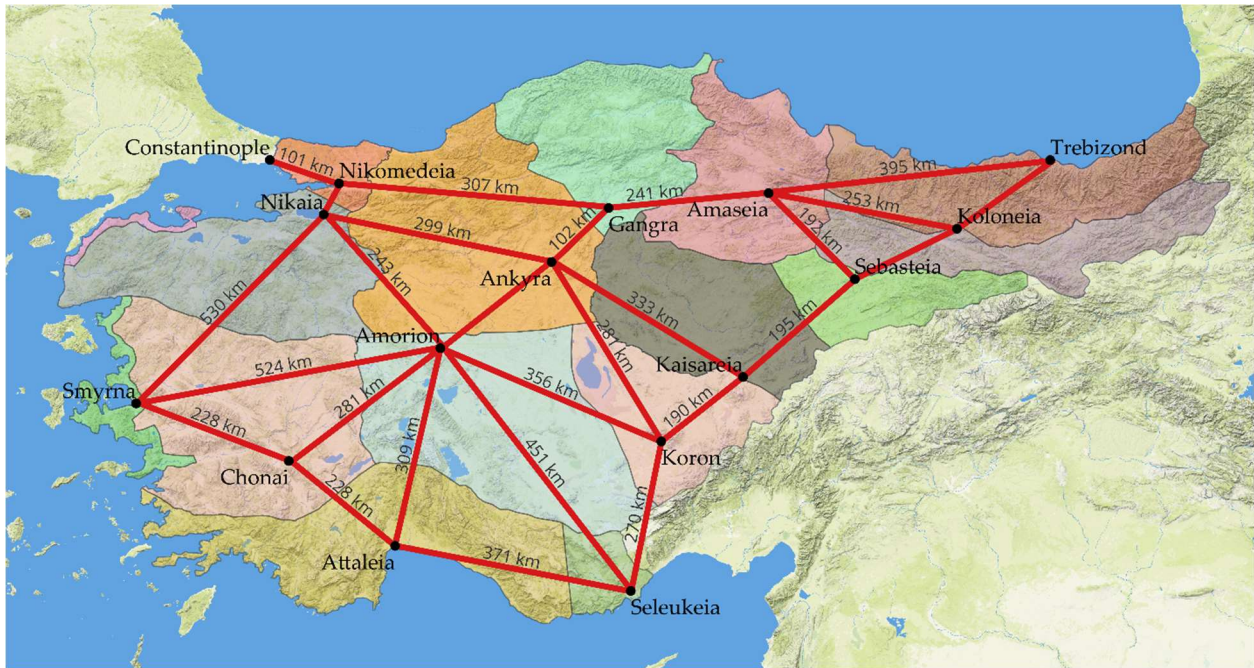
(Table 8.1) Distances between Capitals

<u>Starting City—Ending City</u>	<u>Distance</u>	<u>Days Travel</u>
Constantinople—Nikomedeia	101 km	3
Nikomedeia—Nikaia	59 km	2
Nikomedeia—Gangra	307 km	10
Nikaia—Ankyra	299 km	10
Nikaia—Amorion	243 km	8
Ankyra—Gangra	102 km	3
Ankyra—Amorion	189 km	6
Gangra—Amaseia	241 km	8
Amorion—Chonai	281 km	9
Nikaia—Smyrna	530 km	18
Smyrna—Chonai	228 km	7
Smyrna—Amorion	524 km	18
Amorion—Attaleia	309 km	10
Chonai—Attaleia	228 km	7
Attaleia—Seleukeia	371 km	12
Seleukeia—Koron	270 km	9
Amorion—Koron	356 km	12
Amorion—Seleukeia	451 km	15
Ankyra—Koron	281 km	9
Koron—Kaisareia	190 km	6
Ankyra—Kaisareia	333 km	11
Kaisareia—Sebasteia	195 km	6
Amaseia—Koloneia	253 km	8
Amaseia—Sebasteia	192 km	6
Sebasteia—Koloneia	153 km	5
Amaseia—Trebizond	395 km	13
Koloneia—Trebizond	250 km	8

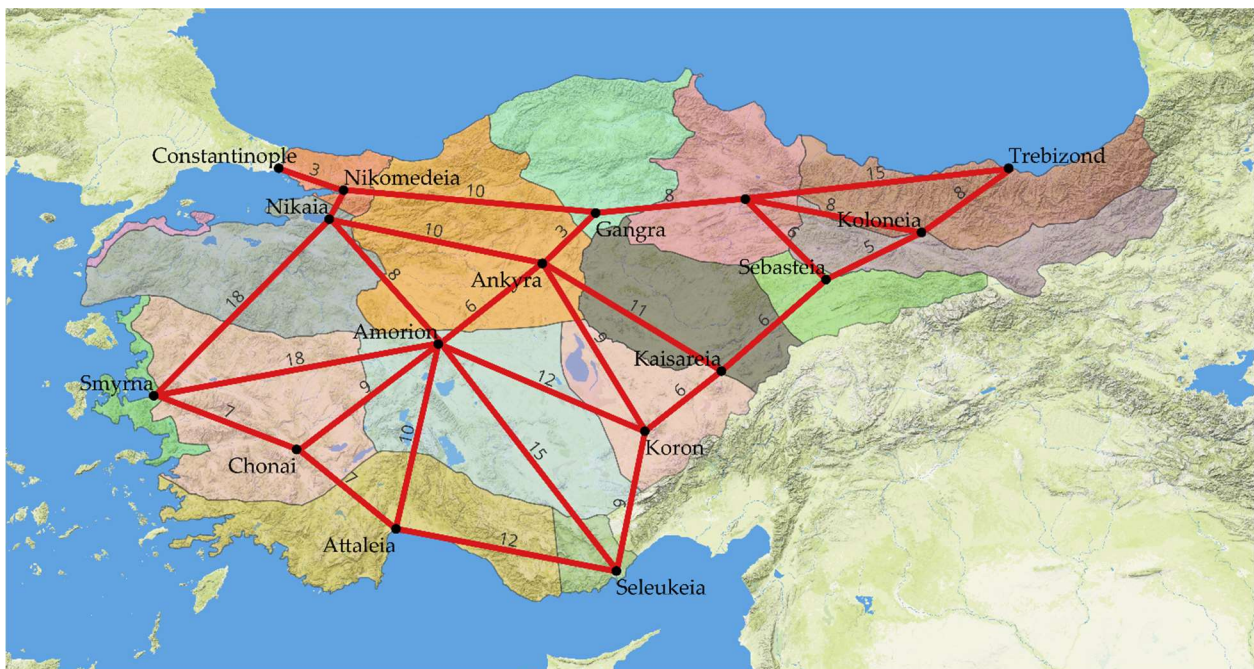
8,392 km total

27 connections

310 km average distance between capitals



MAP 8.1. The connections between thematic capitals, depicting the most direct routes between all capitals and their closest neighbors



MAP 8.2. Distances between capitals in days



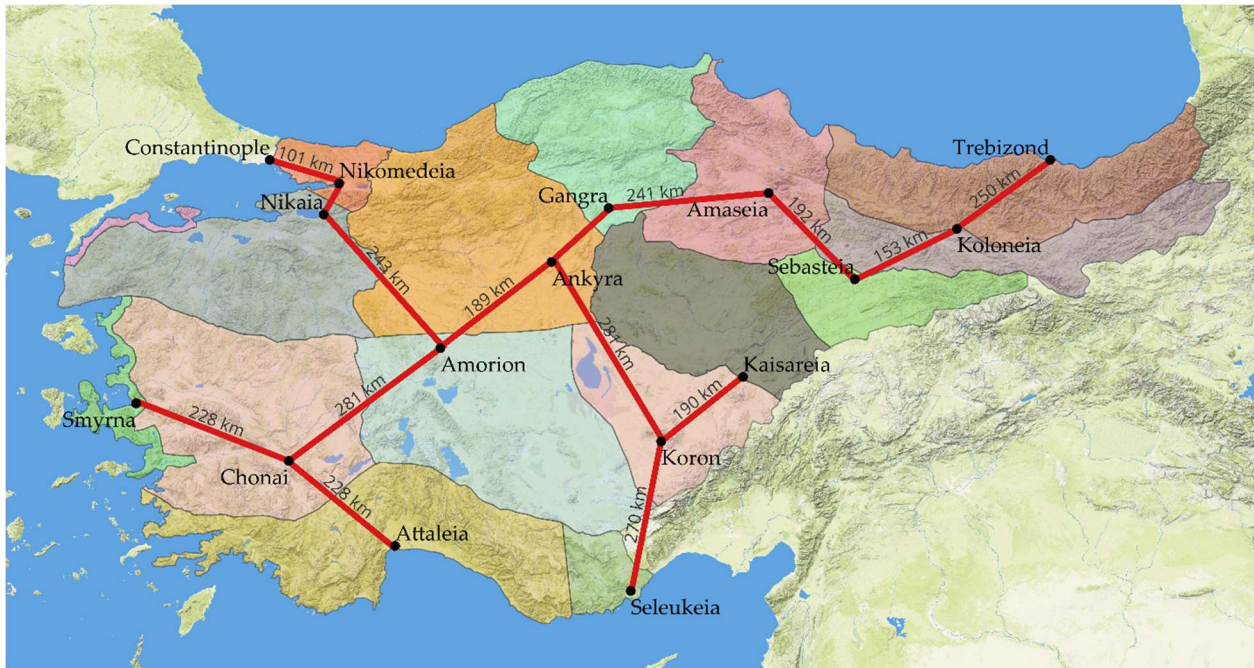
For simplicity in conceptualizing the network model, the links between capitals are drawn as straight lines. Map 8.3 depicts how the road connectivity system actually manifested between thematic capitals.



MAP 8.3. The actual road network of greatest connectivity

These maps provide the general structure of Anatolia's connectivity network and are the reference models used for the remainder of the section.

The first thing of note is that no capital lies more than 300 km from its nearest neighbor. Map 8.4 demonstrates this relationship by showing and the single shortest distance it would take a traveler from each capital to reach its closest neighbor.



MAP 8.4. The connections between thematic capitals, depicting only the single shortest distance

Even cities that appear more isolated from the rest of the network still have a nearest neighbor accessible within 300 km/ten days. For instance, geography and the structure of the road network isolated Smyrna from its neighbors of Amorion (eighteen days travel) and Nikaia (also eighteen days), but the city retained a close link to Chonai at seven days. Likewise, Trebizond was fifteen days from Amaseia but retained a closer relation to Koloneia at only eight days.

This ten-day radius is important because it displays a desire for all capitals within the Roman Themes to function together as part of a collective network and not as a series of isolated, disparate units. Looking at the entirety of the theme system, certain isolates such as Cherson and Soteroupolis-Anakopia across the Black Sea were geographically unavoidable, but a concerted effort still had to be made within Anatolia to ensure the inclusion of more distant capitals despite

their contiguity. For example, without the presence of Koloneia, Trebizond could have easily been isolated from the network, encouraging regionalism and degrading its utility in the system.

In addition to there being no capitals isolated from the network, few capitals were arranged near one another. Of the twenty-seven connections between capitals, only three fell below distances attainable in five to six days of travel. These include: Nikomedeia to Nikaia (59 km), Constantinople to Nikomedeia (101 km), and Ankyra to Gangra (102 km). In terms of distances, this indicates a general aversion for capitals in close proximity and a desire for regularity in their distribution.

### **Desire for Regularity and Central Place Theory**

While few unique relationships predicated on distance emerge, the regularity found within the distribution of the capitals is just as telling about the organization of the system. The combined length of all routes between thematic capitals is 8392 km. With twenty-seven connections across the network, this produces an average distance of 310 km between capitals.

The distribution of thematic capitals can in part be explained by the concept of Central Place Theory. It is therefore useful to introduce this concept, explain how it applies to the thematic capitals, and consider how this is reflected in administrative decisions on their distribution.

Walter Christaller devised Central Place Theory in 1933 as a method to characterize settlement patterns across southern Germany.<sup>15</sup> The theory postulates that the locations of settlements are predicated on their size and importance. Christaller argued that a city served as the center of an area, with the largest cities providing services to the surrounding population.<sup>16</sup> This formed a sphere of influence predicated on the average maximum distance people were willing to travel to procure various goods and services. The sphere of influence extended to the point in which it became economically more feasible to acquire goods from a different urban center, which formed its own sphere. This creates a hexagonal array of central places across a geographical plane that can be further subdivided to show how settlements coalesced into higher and lower centers.<sup>17</sup>

Central Place Theory has been used extensively in geospatial applications since Christaller's inception of the idea, with multiple researchers creating new permutations that updated the model to add complexity and revise errors.<sup>18</sup> Even the definition of "centrality" has been modified and updated since Christaller. For the purposes of this study, the concept of centrality follows David Knitter and Oliver Nakoinz's interpretation of it being "the relative

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<sup>15</sup> Walter Christaller, *Die zentralen Orte in Süddeutschland: Eine ökonomisch-geographische Untersuchung über die Gesetzmäßigkeit der Verbreitung und Entwicklung der Siedlungen mit städtischen Funktionen* (Jena, Germany: Gustav Fischer, 1933).

<sup>16</sup> Christaller, *Die zentralen Orte in Süddeutschland*, 23.

<sup>17</sup> Denise Pumain, "Alternative Explanations of Hierarchical Differentiation in Urban Systems," in *Hierarchy in Natural and Social Sciences*, ed. Denise Pumain (Dordrecht, The Netherlands: Springer, 2006), 188.

<sup>18</sup> Consequential modifications and permutations of Central Place Theory include: August Lösch, *Die Räumliche Ordnung der Wirtschaft: Eine Untersuchung über Standort, Wirtschaftsgebiete und Internationalen Handel* (Jena, Germany: Fischer, 1940); August Lösch, *The Economics of Location* (New Haven, CT: Yale University Press, 1954); John Hudson, "A Location Theory for Rural Settlement," *Annals of the Association of American Geographers* 59, no. 2 (1969): 365–81; Edwin Von Böventer, "Walter Christaller's Central Places and Peripheral Areas: The Central Place Theory in Retrospect," *Journal of Regional Science* 9, no. 1 (1969): 117–24; John Parr, "Models of the Central Place System: A More General Approach," *Urban Studies* 15, no. 1 (1978): 35–49; John Parr, "Frequency Distributions of Central Places in Southern Germany: A Further Analysis," *Economic Geography* 56, no. 2 (1980): 141–54; John Parr, "Alternative Approaches to Market-area Structure in the Urban System," *Urban Studies* 32, no. 8 (1995): 1317–29; Sandra Arlinghaus, "Fractals Take a Central Place," *Geografiska Annaler* 67, no. 2 (1985): 83–88.

concentration of interaction.”<sup>19</sup> Gringmuth-Dalmer has also identified five key facilitators of central places in the pre-modern world: administration, safety, manufacturing, commerce, and religion.<sup>20</sup>

Within Byzantine history, Johannes Koder has applied the theory to Asia Minor and Macedonia, demonstrating the model’s utility.<sup>21</sup> Katerina Ragkou provides an example of the use of Central Place Theory as applied to the cities of the Peloponnese during the eleventh through fourteenth centuries.<sup>22</sup> Athanasios Vionis has also applied this methodology to Byzantine Boeotia to discern settlement patterns.<sup>23</sup>

Why is this model applicable to the themes? Chapter 7 demonstrated that the thematic capitals were selected largely due to their outsized role as political, ecclesiastical, and economic centers. The capitals correspond to Christaller’s “higher-order centers,” which provided the greatest output of goods and specialization.<sup>24</sup> By contrast, “lower-order centers” are distributed at intervals between the higher-order locations, serving as smaller markets that provide goods and services that are used more frequently than higher-order products. These correspond to smaller settlements that are not the focus of this network connectivity study. Therefore, the desire to situate the thematic capitals at the largest and most influential urban centers shaped the network’s distribution roughly around Central Place Theory.

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<sup>19</sup> Knitter and Nakoinz, “The Relative Concentration of Interaction,” 1.

<sup>20</sup> Gringmuth-Dalmer, “Kulturlandschaftsmuster und Siedlungssysteme,” 8.

<sup>21</sup> Koder, “The Urban Character of the Early Byzantine Empire: Some Reflections on a Settlement Geographical Approach to the Topic,” 155–87; Koder, “Παρατηρήσεις στην οικιστική διάρθρωση της κεντρικής Μικράς Ασίας μετά τον 6ο αιώνα,” 248–49, 251–55; Koder, “Για μια εκ νέου τοποθέτηση της εφαρμογής της θεωρίας των κεντρικών τόπων,” 33–49; Johannes Koder, “Land Use and Settlement: Theoretical Approaches,” in *General Issues in the Study of Medieval Logistics: Sources, Problems and Methodologies*, ed. John Haldon (Leiden: Brill, 2006), 178–81.

<sup>22</sup> Ragkou, “The Economic Centrality of Urban Centers in the Medieval Peloponnese,” 292–96.

<sup>23</sup> Vionis, “Understanding Settlements in Byzantine Greece,” 128; Central Place Theory is also used in David Austin, “Central Place Theory and the Middle Ages,” in *Central Places, Archaeology and History*, ed. Eric Grant (Sheffield: Department of Archaeology and Prehistory, University of Sheffield, 1986), 95–103.

<sup>24</sup> Christaller, *Die zentralen Orte in Süddeutschland*, 26, 77–83.

While the model holds utility, there are important caveats that must be considered in its application. It makes assumptions regarding uniformity that do not manifest under naturally occurring conditions. Central Place Theory assumes an isotropic (completely flat) geographical surface, equitable transportation costs, and an even distribution of population and resources.<sup>25</sup> Geographical variabilities preclude this Platonic ideal of a perfectly uniform settlement. Within Anatolia, this is evidenced through variabilities in topography (map 6.1), diversions in land routes that break from perfect linear courses (map 6.3), and uneven settlement patterns (map 5.6). Applying this model to the theme system shows a dispersion of capitals that align with the general principles of Central Place Theory but needs to be modified to account for incongruities that result in the variability of distances between cities.

Even with these caveats, considering the thematic capitals through the lens of Central Place Theory provides the best accounting for their distribution. Structuring the capitals around this model worked to the network's advantage by facilitating distance uniformity across Anatolia, and helped to ensure greater cohesion with no isolated capitals. It also helped to preclude the undue coalescing of *strategoï*, a factor considered in the next section on clustering.

How do we know that the average distance of 310 km between capitals actually reflects a desire for a degree of conformity to Central Place Theory? The distribution of the strategides' capitals provides an answer to this question.

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<sup>25</sup> Michael Pacione, *Urban Geography: A Global Perspective* (London: Routledge, 2009), 125.

## Distances between Capitals (strategides)

The distances between the strategides' capitals are calculated using the same methodologies as for the themes. This produces table 8.2 and maps 8.5–8.7.

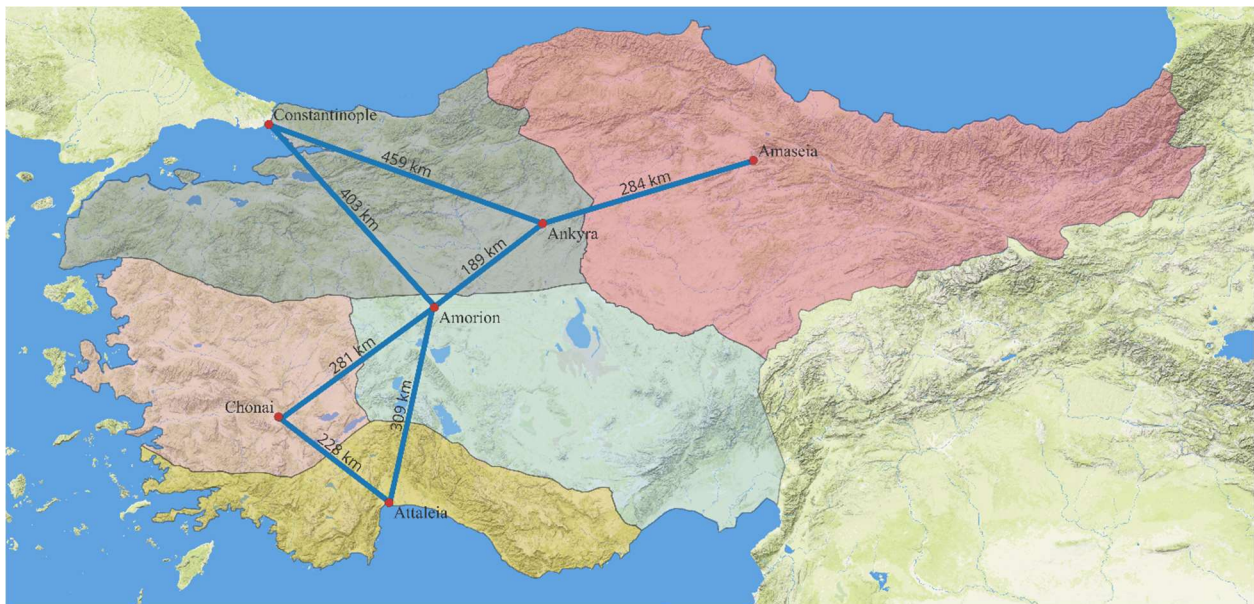
(Table 8.2) Distances between Capitals (strategides)

<u>Starting City—Ending City</u>	<u>Distance</u>	<u>Days Travel</u>
Constantinople—Ankyra	459 km	15
Constantinople—Amorion	403 km	13
Ankyra—Amaseia	284 km	9
Amorion—Ankyra	189 km	6
Amorion—Chonai	281 km	9
Amorion—Attaleia	309 km	10
Chonai—Attaleia	228 km	8

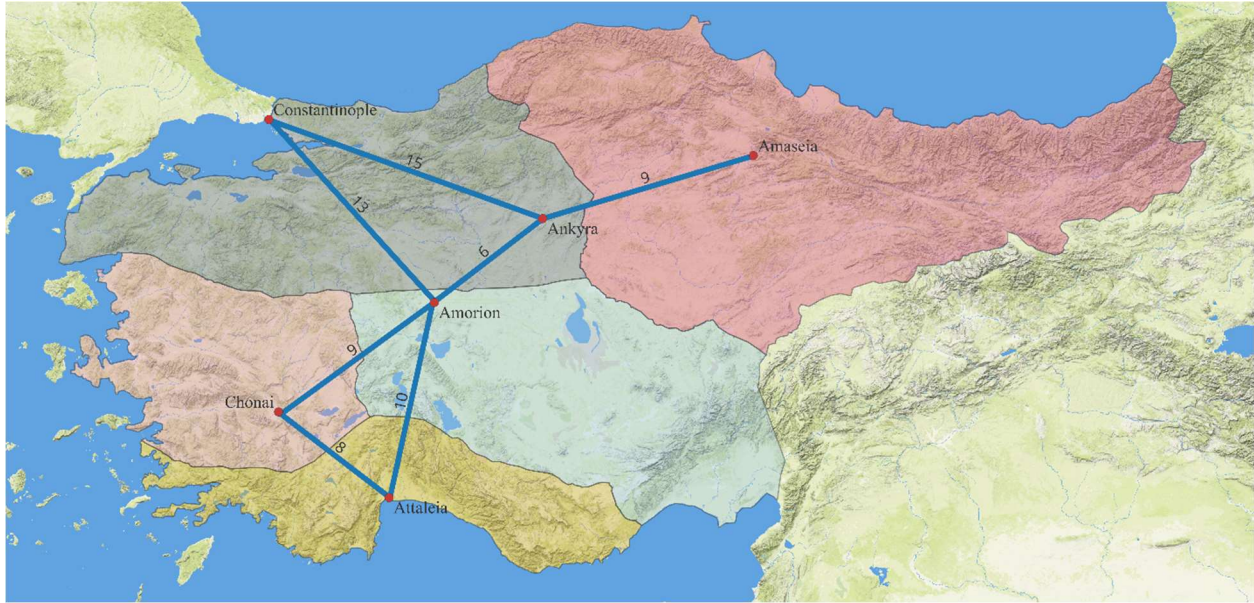
2153 km—total distance

7 links

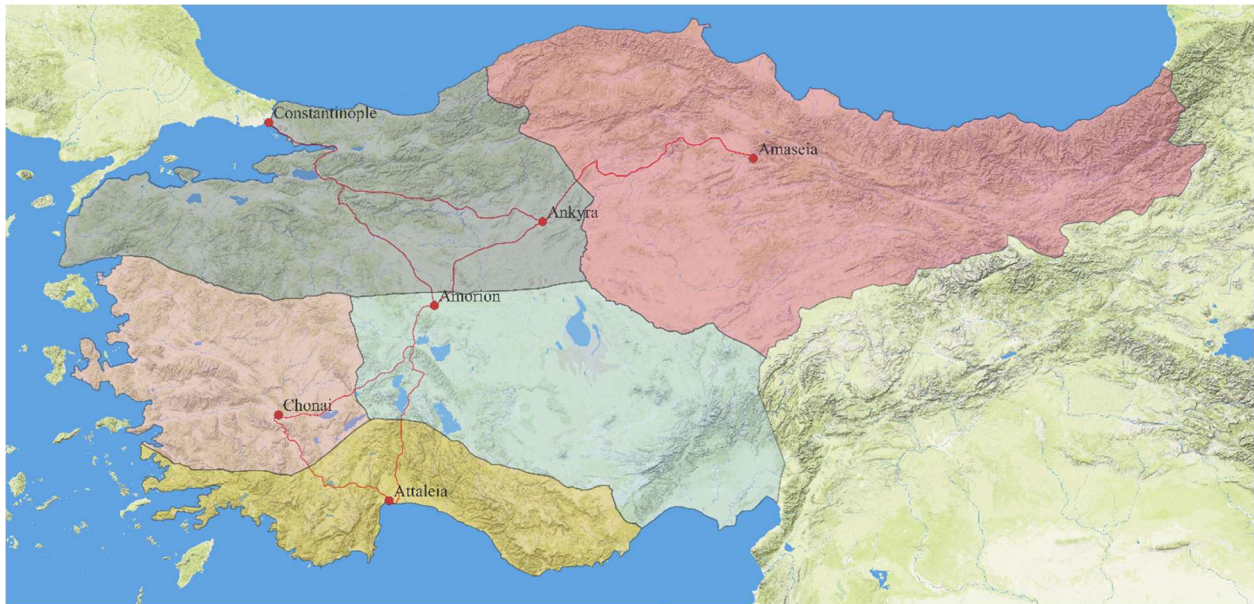
308 km—average distance



MAP 8.5. Connectivity among the strategides



MAP 8.6. Distances between capitals in days



MAP 8.7. The actual road network between capitals



Amongst the strategides, the average distance between capitals was almost identical to that of the themes: 308 km and 310 km, respectively. This consistency in the average distance is remarkable considering the thematic network had ten more locations, twenty more connections, and covered an additional 6239 km of roads.<sup>26</sup> This demonstrates conclusively that similarities in the distance between the average placement of capitals is not a coincidence but instead reflects a deliberate administrative decision to craft a network of connectivity between capitals that accords with Central Place Theory.

With only five strategides and five capitals, there were numerous permutations that their arrangement could have assumed. However, regularity between capitals appears to be the most important organizational factor. This accords most closely with the modern conception of Central Place Theory. That there was absolutely no divergence from this pattern is telling of how important cohesion was for the network.

The strategides reflect no desire for even capital distribution based on geography, otherwise the average distances would be significantly larger; instead, the distances are virtually identical to the themes. If capital placement was tied to the size of the administrative unit, a more equitable distribution of capitals around Anatolia would have led to nearly double the distances (around 600 km) between centers, requiring upwards of twenty days to correspond in a single direction, and forty days for a round trip message, which would have strained the effectiveness of the system. Instead, with only five strategides covering a similar amount of territory as the fifteen themes, large swaths of land in the far western and eastern portions of Anatolia were

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<sup>26</sup> The thematic network consisted of 15 locations, 27 connections, and 8392 km of roads. The strategides network consisted of 5 locations, 7 connections, and 2153 km of roads. The themes displayed a larger range of distance values, but the bigger dataset averages out this variability to converge on the mean of approximately 300 km.

neglected and bereft of representation by a capital. Functionally, this left such regions outside of the connectivity network.

The isochrone maps of chapter 7 (maps 7.25–7.27) illustrate that most of the strategides' territory lacked accessibility. This shows a desire to align the capitals with high-order centers, maximize cohesion between the capitals, and strengthen the overall network, even if this all came at the cost of equity of coverage. This variable was ultimately remedied by the advent of the theme system and the expansion of capitals.

The five strategides capitals were the same as five of the later thematic capitals, but this does not mean that the overall distance averages also stayed the same. The addition of ten more capitals and twenty links to the network left ample room for variability. Rather, the strategides network served as the scaffolding upon which the thematic network was built. Amorion, Ankyra, and Amaseia retained their importance within the thematic network due to their centralized locations, with the other thematic capitals built up around this central core. As chapters 1 and 2 discussed, the early strategides' capitals were carried over into the thematic period due to the desire for constancy, but these locations also proved to already be advantageous.

In summary, the arrangement of thematic capitals demonstrates signs of Central Place Theory due to their consistent allocation of higher-order centers as administrative seats. This produced a regularity of capital dispersion that reinforced connectivity across the network without favoring any centers. More influential capitals could and did form, but this was despite—not because of—geospatial principles that hypothetically contributed to more equity amongst commands. Predicated on the nearly identical averages between the strategides and

themes, Byzantine administrators saw 300 km as a desirable distance between nodes in the network.

## **Clustering and Anticlustering**

This section examines two concepts, clustering and anticlustering, in relation to their application to the network of thematic capitals. While the term *anticlustering* sounds like it is merely the opposite of clustering, this section explains that these are in actuality two different approaches.

## **Clustering**

The connectivity network of thematic capitals can also be assessed by its clustering coefficient. This metric looks at the likelihood that a group of nodes are associated predicated on their degree of grouping.<sup>27</sup> Just as proximity is broadly correlated with the strength of relationships, so too can clusters of nodes (cities/thematic capitals) indicate the presence of centers of high internal connectivity within the larger network.<sup>28</sup> This can elucidate the likelihood of regional relationships forming between *strategoï* or other interest groups.

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<sup>27</sup> Strogatz and Watts, "Collective Dynamics of 'Small-World' Networks," 440–42.

<sup>28</sup> Jackson, *Social and Economic Networks*, 34–37; Rogerson and Yamada, *Statistical Detection and Surveillance of Geographic Clusters*; Kaiser, "Mean Clustering Coefficients."

The local clustering coefficient for an undirected graph, one whose edges indicate a two-way relationship, takes the following formula:<sup>29</sup>

$$C_i = \frac{2|\{e_{jk} : v_j, v_k \in N_i, e_{jk} \in E\}|}{k_i(k_i - 1)}$$

Cluster detection is performed with GIS by the Girvan-Newman algorithm, which determines the presence of groups by progressively and systematically removing edges from the network model until only the clusters remain.<sup>30</sup> Applying these methodologies to the thematic network model reveals that the distribution of administrative centers is very resistant to the formation of clusters.

### ***Two Exceptions to Clustering***

As discussed in the previous section on path length, the thematic capitals are arranged in a manner that suggests an attempt at equitable distribution predicated in part on Central Place Theory. While small clusters could theoretically coalesce under this model, Byzantine

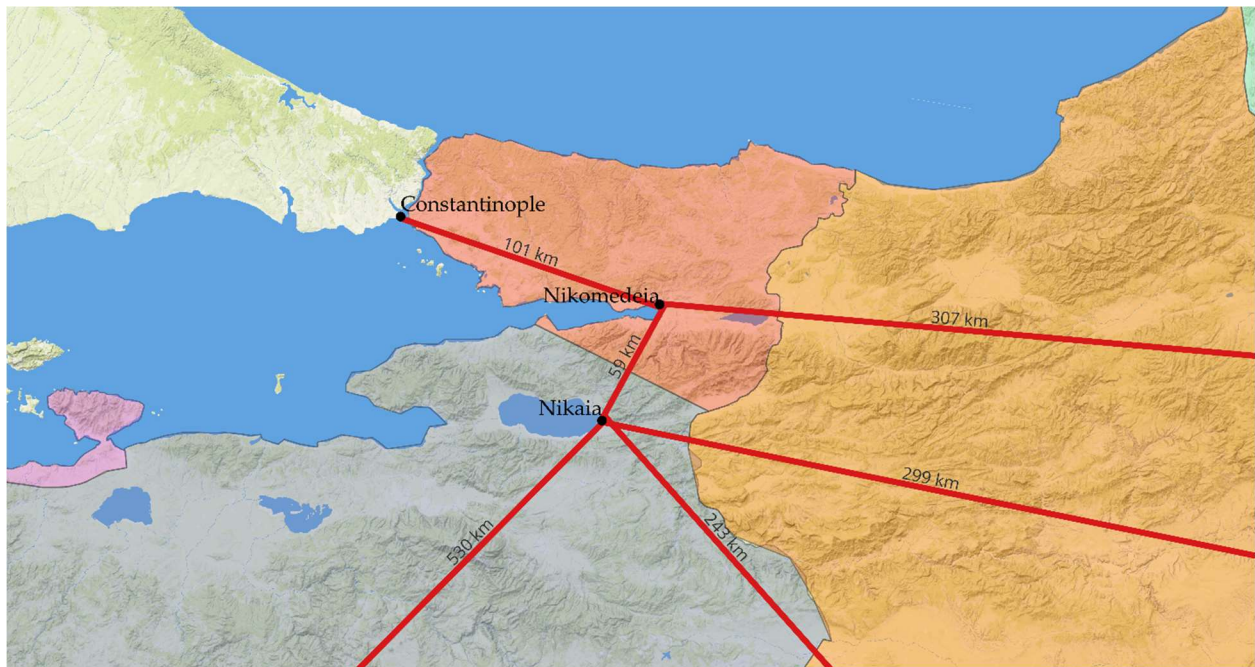
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<sup>29</sup> Yu Wang, Eshwar Ghumare, Rik Vandenberghe, and Patrick Dupont, “Comparison of Different Generalizations of Clustering Coefficient and Local Efficiency for Weighted Undirected Graphs,” *Neural Computation* 29, no. 2 (2017): 313–31.

<sup>30</sup> Girvan and Newman, “Community Structure in Social and Biological Networks,” 7821–26; Jelena Ljucović, Tijana Vujičić, Tripo Matijević, Savo Tomović, and Snežana Šćepanović, “Comparative Analysis of Classic Clustering Algorithms and Girvan-Newman Algorithm for Finding Communities in Social Networks,” IRENET – Society for Advancing Innovation and Research in Economy, Zagreb, (2016): 68–75; Jackson, *Social and Economic Networks*, 448–50.

administrators were clearly resistant to their formation. This dispersion indicates a desire for regularity.

There are two instances where capitals appear in a relatively close proximity, leading to weak clustering. The capitals of Nikaia and Nikomedeia are separated by only 59 km, with Nikomedeia and Constantinople slightly further at 101 km.



MAP 8.8. Minor clustering around Constantinople

Such a concentration is attributable to the peculiar nature of the Optimaton Theme. Konstantinos V's creation of the Optimaton effectively turned the theme into a dependency of Constantinople. (For a full discussion on the Optimaton's creation, see chapter 1 "The Optimaton—Restricting Regional Power.") The central government granted Nikomedeia a

*domestikos* instead of a *strategos* as the highest-ranking administrator.<sup>31</sup> With this action, the theme shifted from a semi-independent offensive body to an auxiliary unit that responded to the demands of the emperor. Nikomedeia's lack of the necessary administrative structure to facilitate autonomy from Constantinople eliminates any significance between these cities in terms of clustering. Removing Nikomedeia, Nikaia is five days distant from Constantinople. This is still somewhat close to the imperial capital, but not to a degree indicative of clustering significance.

The only other instance of capitals displaying proximity to one another is Ankyra and Gangra at 102 km. However, this is more of an artifact of general thematic organization constrained by geography, and not a sign of a special relationship. Movement amongst the northern themes hinged on a west-east route connecting the capitals of Constantinople, Nikomedeia, Ankyra, Amaseia, and Trebizond. This made Gangra well-situated to take advantage of commerce along the road, and the best location for a thematic capital.

The archbishopric of Amastris served as Paphlagonia's only other potential site for a capital.<sup>32</sup> However, its location along the Black Sea, while advantageous to maritime trade, placed it far north of its neighbors Ankyra and Amaseia and more than 200 km away from the northern connectivity route. This divorced it from the main artery of northern Anatolia's overland commerce and communication, a significantly more important route in terms of trade volume and connectivity than the Black Sea coast. Only a strong reason, such as defense, would have warranted detaching a thematic capital from the rest of the network, and this was not present within Paphlagonia. The lack of other standout sites for Paphlagonia's capital made

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<sup>31</sup> DO 55.1.1248 "N., imperial *protospatharios* and *domestikos* of the Optimaton" (eighth century); DO 55.1.1210 "...ros, imperial *spatharios* and *domestikos* of the Optimaton" (ninth century); DO 58.106.1534 "Christophoros, imperial *protospatharios* epi tou Chrysotriklinou and *domestikos* of the Optimaton" (tenth century).

<sup>32</sup> *Notitia Episcopatum* (*Notitia* 7), line 79. Another archbishopric was at Pompeiupolis but this faces the same distance problems as Amastris without the advantage of lying on the Black Sea coast.

Gangra's deviation from geographical consistency the best option, but not an attempt at the formation of a regional cluster.

Outside of these instances, the closest connections between capitals amounted to around a five- to six-day journey, indicating no overarching desire to cluster capitals amongst the themes.

### **Anticlustering**

Instead of the formation of clusters, the regularity of the thematic capitals adheres more closely to the concept of *anticlustering*.<sup>33</sup> In an anticluster, the goal is to partition nodes in a fashion that maximizes between-group similarity and within-group heterogeneity across the system. This contrasts with *clustering*, which attempts to maximize within-group homogeneity and reduce between-group similarity. In practice, this means thematic capitals were positioned to ensure no region was intentionally excluded from having a capital if a logical location for one existed.

Anticlustering is not the same, nor is it a natural byproduct of the avoidance of clustering. If the administrators' goal was to avoid clustering, they would have had to actively discourage the creation of regional thematic relationships. In contrast, the adherence to anticlustering was an approach that made sure that every area within the themes fell under the close jurisdiction of a *strategos*. This type of arrangement is significantly more difficult to design properly than the simple avoidance of clusters, and it shows the lengths that the central government was willing to take to best integrate the totality of Anatolia into the network.

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<sup>33</sup> Papenberg, "K-Plus Anticlustering," <https://doi.org/10.1111/bmsp.12315>; Papenberg and Klau, "Using Anticlustering to Partition Data Sets into Equivalent Parts," 161–74; Brusco, "Combining Diversity and Dispersion Criteria for Anticlustering," 375–96; Späth, "Anticlustering: Maximizing the Variance Criterion," 213–18; Valev, "Set Partition Principles Revisited," 875–81.

It is this anticlustering principle that made virtually every region within the Roman Themes accessible from a capital within ten days (isochrone maps 7.10–7.24) and helped to foster stability through imperial presence.

### *Two Exceptions to Anticlustering*

There are only two regions within the themes that stray from this anticlustering trend.

- The first region is northern Paphlagonia, which has already been addressed in the section on clustering.
- The second region is the western portion of the Opsikion Theme. The outlier nature of this area is discussed at length in chapter 7 on capital centrality (map 7.6) and isochrones (map 7.18).

Both aberrations are accounted for by geographical limitations, and anticlustering further demonstrates that no specific areas were deprived capital representation in order to punish or preclude the formation of a regional powerbase.

By employing the concept of anticlustering and rejecting clustering, Byzantine administrators tried to maximize the central government's footprint across the eastern portion of the empire without granting the *strategoi* the ability to readily coalesce into their own regional alliances. This spatially and quantitatively reasserted the balance of autonomy and utility amongst the themes that Constantinople had to reconcile, while also showing a desire to assert its presence throughout its landholdings. As with the distances between capitals, an equitable dispersion in light of geographical realities proved to be the desired outcome.



## Small-World Networks

Due to their low clustering coefficient and the high average distance between thematic capitals, the themes did not exhibit the characteristics of what is known as a “small-world network.”<sup>34</sup> A small-world network is characterized by a proliferation of highly clustered nodes that foster close and habitual relationships among its components. In this system, nodes exhibit a high degree of connectivity, allowing them to directly or indirectly reach almost any other node, thus maximizing the number of potential interactions.<sup>35</sup> Within Anatolia, a small-world network would manifest by clusters of cities in close proximity engaging in a thriving exchange of commerce and communication and developing tight, localized social networks amongst administrators, social elite, academics, and other groups. This would foster a distinct social ecosystem particular to that clustered region. The presence of this type of network would suggest a concerted effort by the centralized government to promote a particular area of the theme system for defensive, economic, or social reasons.

An example of a small-world network manifesting within the Byzantine Empire is found among the minor themes in the Duchate of Antioch. As part of the effort to acquire the city of Antioch in 969 and turn it into an effective outpost against the neighboring Hamdanids at Aleppo, a tightknit array of minor themes was established in the surrounding area. In addition to Antioch, these included Borze/Barzuya, Hagios Elias, Laodikeia, Marakeus/Marakeia, Mauron Oros, Pagrae, Palatza, and Zebel (Gabala) (map 9.9). The Byzantines established this small-

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<sup>34</sup> Strogatz and Watts, “‘Small-World’ Networks,” 440–42.

<sup>35</sup> Mark Newman, Albert-László Barabási, and Duncan Watts, eds., *The Structure and Dynamics of Networks* (Princeton: Princeton University Press, 2006), 286–334; Nino Boccaro, *Modeling Complex Systems* (New York: Springer, 2010), 335–40; Albert and Barabási, “Statistical Mechanics of Complex Networks,” 47–97; Mark Newman, “The Structure of Scientific Collaboration Networks,” *The Proceedings of the National Academy of Sciences* 98, no. 2 (2001): 404–9; Duncan Watts, *Small Worlds: The Dynamics of Networks between Order and Randomness* (Princeton: Princeton University Press, 2003).

world network with the express intention of a layered defense in which all the minor themes around Antioch could easily collaborate. The implications this clustering had on defense and the organization of the minor themes are discussed further in chapter 9. While such a concentration of urban centers is more feasible to actualize among the smaller minor themes, this does serve as evidence of the ability to do so if desired.

The absence of this type of small-world network among the Roman Themes, taken together with the metric of equitable capital distance covered in the prior section, indicates that administrators desired regularity over the formation of localized centers.

This does not outright preclude the formation of tight regional networks, but rather shows that the organizational structure of the capitals did not actively facilitate their creation between themes. Under Johannes Koder's tier list of commercial interactions, he argues that the distribution of trade on a regional level (tier 2), between 100–300 km, indicates how far goods and ideas were willing to disperse under normal constraints.<sup>36</sup> This produces a regional network of consumers, artisans, and merchants that share cohesive ties of commonality not readily shared with individuals outside of the network. It does not strain credulity to imagine that this small-world network of commerce also overlapped with a regional network of administrators and political elites. So, while the themes did not naturally form small-world networks with their neighboring themes, each theme could potentially establish such a network within its own borders, fostering commonalities in trade, social connections, and administrative ties. In this case, the thematic capital would have served as a hub of activity that facilitated these interactions. This makes the themes, a fundamentally administrative construct, also the potential basis for the natural formation of regional small-world centers.

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<sup>36</sup> Koder, "Regional Networks in Asia Minor," 147.

## Clustering and the Strategides

It is important to establish that an adherence to Central Place Theory and dispersing capitals according to anticlustering are different concepts that can yield different results. Capitals displaying centralization *can* exhibit an anticlustering dispersal, as evidenced in the theme model, but this is not a causal relationship.

An example of this is demonstrated by the arrangement of the strategides' capitals: they adhere to Central Place Theory almost to the same degree as the themes, but they firmly reject any notion of clustering and anticlustering. This means that they provide no proximity benefit consistent with the formation of a small-world network, nor do they effectively cover large swaths of controlled territory. Consequently, locations along the eastern front lie over 600 km from the nearest administrative center, twice the allotment for the distances between capitals. Even if worries about volatility and the risk of raids in the east influenced decisions about capital placement, these concerns alone do not account for the lack of equitable distribution in the west, where, along the Aegean Sea coast, there are points that are more than 500 km from a capital.

Contrasting the strategides with the themes reaffirms the deliberate efforts undertaken during the theme system's formation to prioritize accessibility across all controlled territories. This prioritization is reflected in the theme system's effective application of both Central Place Theory and anticlustering principles.

## Network Connectivity—Degree of the Network and Betweenness Centrality

The final major component for assessing the structure and relationships of the thematic capitals is the network's overall connectivity.

The higher the number of connections a node has, the better its overall connectivity and, ostensibly, the more important a city is to the overall network. In addition, a higher number of total connections across the system indicates a robust network and characterizes its type of network topology.<sup>37</sup>

This builds off the previous analysis on path length. Just as proximity fosters meaningful relationships, so too does connectivity to a larger number of nodes increase the probability of substantive interactions between locations. On average, a node with a singular connection is much less likely to have as many interactions as a node with five connections. Therefore, this metric can help to identify the regions of Anatolia that are the most and least conducive to connectivity.

For this study, connectivity is measured in two ways.

1. **Degree of the network/degree distribution.** This metric tabulates the number of direct line segments that converge on each node to form a vertex.<sup>38</sup> For this study, that translates to the number of connecting roads that converge on a thematic capital.

This metric is useful for showing a node's regional importance. For example, most

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<sup>37</sup> Zhang, Tepedelenlioglu, Spanias, and Banavar, *Distributed Network Structure Estimation Using Consensus Methods*, 29.

<sup>38</sup> Newman, "Structure and Function of Complex Networks," 167–256; Shi, Yeh, Leung, Zhou, *Advances in Spatial Data Handling and GIS*, 132.

trade is conducted over short distances, mainly with directly adjacent neighbors, so this serves as the best model to reflect such interactions.

2. **Betweenness centrality.** This investigates, not how many times a node (capital) directly connects to another, but how frequently paths within the network pass through the target node. This is useful for discerning connectivity patterns over long distances that can span the breadth of the network.<sup>39</sup>

The difference between these two methods is demonstrated using the diagram in figure 8.1.

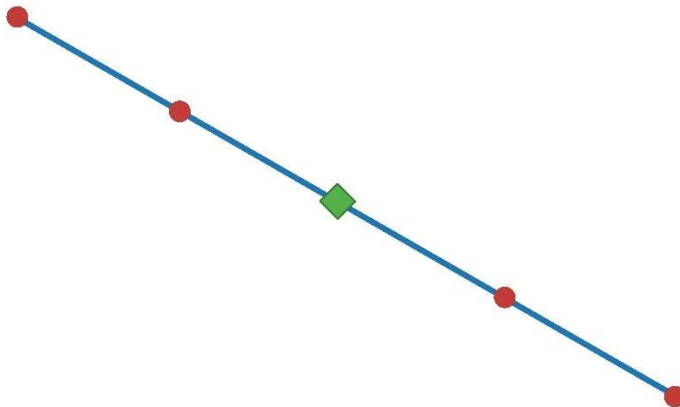


FIGURE 8.1. Example of degree of the network and betweenness centrality

Looking at the diagram in figure 8.1, no point along the line displays a high degree of the network, amounting to one degree for end nodes and two degrees for the internal nodes.

However, the central green diamond has excellent betweenness centrality in relation to the surrounding nodes. This node can be passed through or serve as a terminus twelve times.

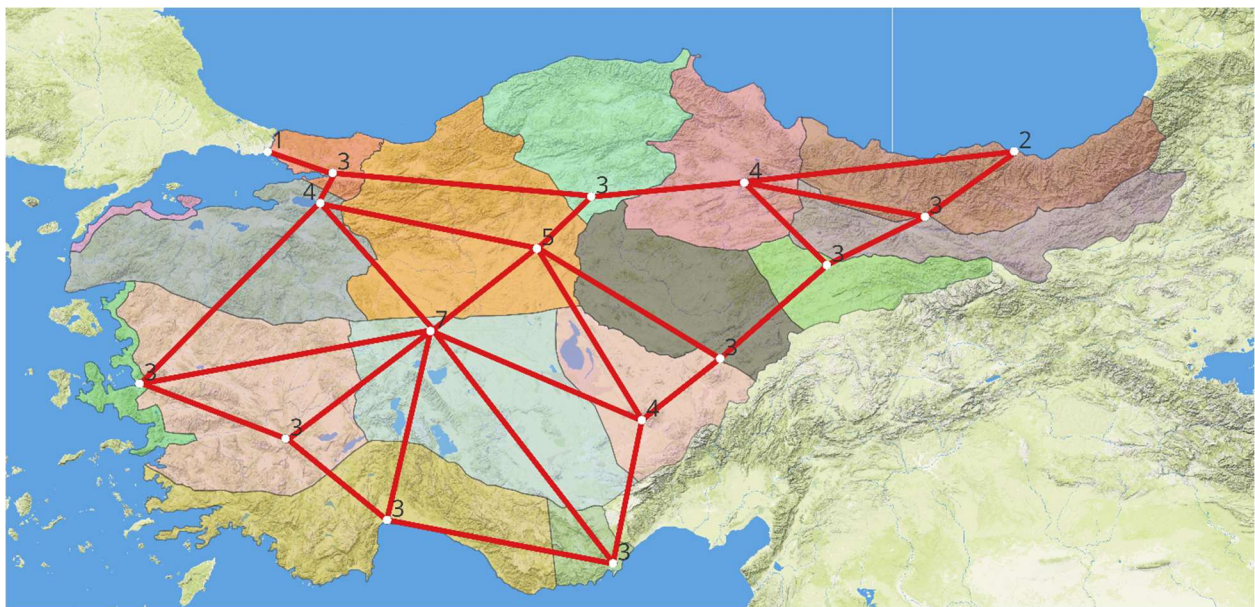
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<sup>39</sup> Devised by Linton Freeman, "A Set of Measures of Centrality Based on Betweenness," *Sociometry* 40, no. 1 (1977): 35–41; Barrat, Barthélemy, Pastor-Satorras, and Vespignani, "The Architecture of Complex Weighted Networks," 3747–52; Newman, *Networks: An Introduction*.

Depending on the type of inquiry, both methods can be illustrative of connectivity within a network.

### Degree of the Network

Degree of the network is depicted on map 8.9 with the names of the capitals replaced with their number of connections. These results are compiled in table 8.3.



MAP 8.9. Degree of the network of the Roman Themes

Table (8.3) Thematic Capitals Degree of the Network

<u>Capital</u>	<u>Degree of the Network</u>
Amorion	7
Ankyra	5
Amaseia	4
Koron	4
Nikaia	4
Attaleia	3
Chonai	3
Gangra	3
Kaisareia	3
Koloneia	3
Nikomedeia	3
Sebasteia	3
Seleukeia	3
Smyrna	3
Trebizond	2
Constantinople	1

The average degree of the network amounts to 3.5 connections per thematic capital. This constancy of a base connectivity is partially an artifact of the anticlustering homogeneity discussed in the last part. With no thematic capitals isolated from the rest of the network, every theme remains accessible to the rest of the system. Even Trebizond, the most difficult capital to incorporate into the network, still has two viable connections to Amaseia and Koloneia. (For an example of a capital poorly integrated into the network, see Amaseia under the strategides model [map 8.7], which has only a single connection.)

Notably, the lowest degree of connection is not a remote city on the edge of the empire, such as Trebizond (two connections), but the imperial capital of Constantinople (one connection). Nikomedeia is the only thematic capital that had a direct connection to the seat of the emperor. Such a low degree of the network was a deliberate result of Constantinople's

placement along a narrow peninsula on the Bosphorus. The implications of this low connectivity are discussed in the subsequent section on Constantinople's betweenness centrality.

Such an equitable overall distribution of connections benefits the entirety of the network. Greater integration of outlying themes into the network helped to maximize communication between *strategoï* so that their commands were better primed to function as a unified whole. This helped to avoid—as much as possible within a premodern empire—obstacles imposed by distance on political or military coordination. In addition, every theme having three or more direct connections reduced their overreliance on a particular neighboring theme. (Trebizond was the only exception with only two connections.) This contributed to the robustness of the network by providing each theme with a plurality of outlets. Such an arrangement that facilitates complexity is a hallmark of a healthy network.<sup>40</sup>

Reality will always hinder an administrator's best intentions. For example, the obstinacy or ignorance of commanders can circumvent the best-laid plans and render a model ineffective. However, this is true within any system, and it further underscores the importance of providing every advantage possible to help ensure success. That is why analysis of functionality of the network is not intended to highlight every real-world failure of the system, but rather to highlight how administrators desired it to function under optimal conditions as a way of exploring their intentions and understanding of spatial organization.

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<sup>40</sup> Meng Cai, Jiaqi Liu, and Ying Cui, "Network Robustness Analysis Based on Maximum Flow," *Frontiers in Physics* 9 (2021): <https://doi.org/10.3389/fphy.2021.792410>.



## Exemplars of Connectivity: Amorion and Ankyra

The locations of Amorion and Ankyra far outweigh the connectivity of every other capital. This is largely due to their excellent geographical centrality. The centroid<sup>41</sup> (middle point) of the collected Roman Themes is situated between the two cities, with Ankyra almost exactly at the halfway point between east and west, and Amorion close to the halfway point between north and south. The red diamond on map 8.10 shows the centroid's location.



MAP 8.10. Centroid of the Roman Themes

<sup>41</sup> Wang, *Quantitative Methods and Applications in GIS*, 13; De Smith, Goodchild, and Longley, *Geospatial Analysis*, 79.

Chapter 5 also demonstrated that the central point of all urban settlements falls approximately 75 km due south of Amorion (map 5.9), granting the capital the highest degree of spatial and demographic centrality within the system.

This centrality is reflected in the degree of the network, with Amorion at 7 connections (twice the average of 3.5) and Ankyra at 5. These two locations serve as the hinge of connectivity for the entirety of the Anatolian themes, with all other capitals arrayed around them along the exterior of the landmass.

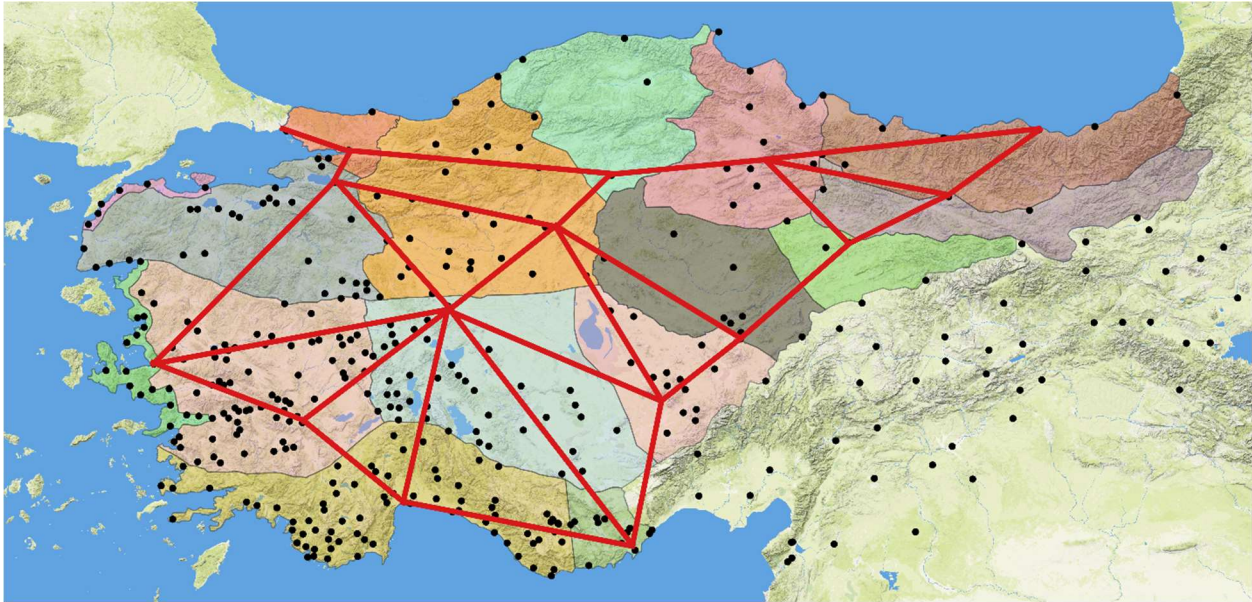
Even though this is the first time that the centrality and connectivity of these locations has been articulated in a quantifiable manner, contemporaries were well aware of their logistical significance. It is for this reason al-Tabari called Amorion one of the two great cities within Rum,<sup>42</sup> and Ibn Khordadbeh considered it to be one of only five actual cities in Anatolia, with the remaining urban areas little more than fortresses.<sup>43</sup>

The importance of Amorion to the network is instantiated when looking at the total distribution of Anatolia's cities.

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<sup>42</sup> al-Tabari, *History*, 97.

<sup>43</sup> Ibn Khordadbeh, *The Book of Roads and Kingdoms [Kitāb al-Masālik wa l-Mamālik]*, 84.



MAP 8.11. All thematic cities in relation to the network

As discussed in chapter 5, urbanization coalesced most heavily around the eastern part of the Thrakesion Theme (heatmap 5.8). This area was also home to a disproportionately higher number of large cities (see map 5.12 on the concentration of metropolitans and archbishoprics). This meant that there was ample room for additional thematic capitals along Anatolia's interior if so desired. However, distributing capitals according to Central Place Theory and anticlustering took precedence over additional interior administrative centers. This equity of distribution and complete disregard of demographics helped to drive the growth of cities such as Amorion and Ankyra because they became the only administrative centers in a much-traveled and sought-after region. This granted Amorion an exceptional spatial advantage unseen in any other part of the network.

This demographic trend also facilitated the growth and importance of Chonai in the Thrakesion Theme. However, due to the capital's location along the southern periphery of the

network, it holds only an average degree of the network and, as shall be seen in the next part, an abysmal betweenness centrality that amounts to only 13 percent that of Amorion. This permitted Chonai to take advantage of strong, localized ties between cities, its own small-world network, but left it sidelined in terms of the larger thematic network. Chonai serves as a good example of how certain factors (demography) contributed to its prosperity but how only a network model can explain broader trends such as why the capital could not attain the level of integration of cities such as Amorion and Ankyra.

Beyond the outliers of Amorion and Ankyra, Amaseia and Koron are next in terms of their level of connectivity and importance within the network. Their impact on the system is best understood through betweenness centrality, with a full discussion of their role reserved for the next part.

## **Conclusion**

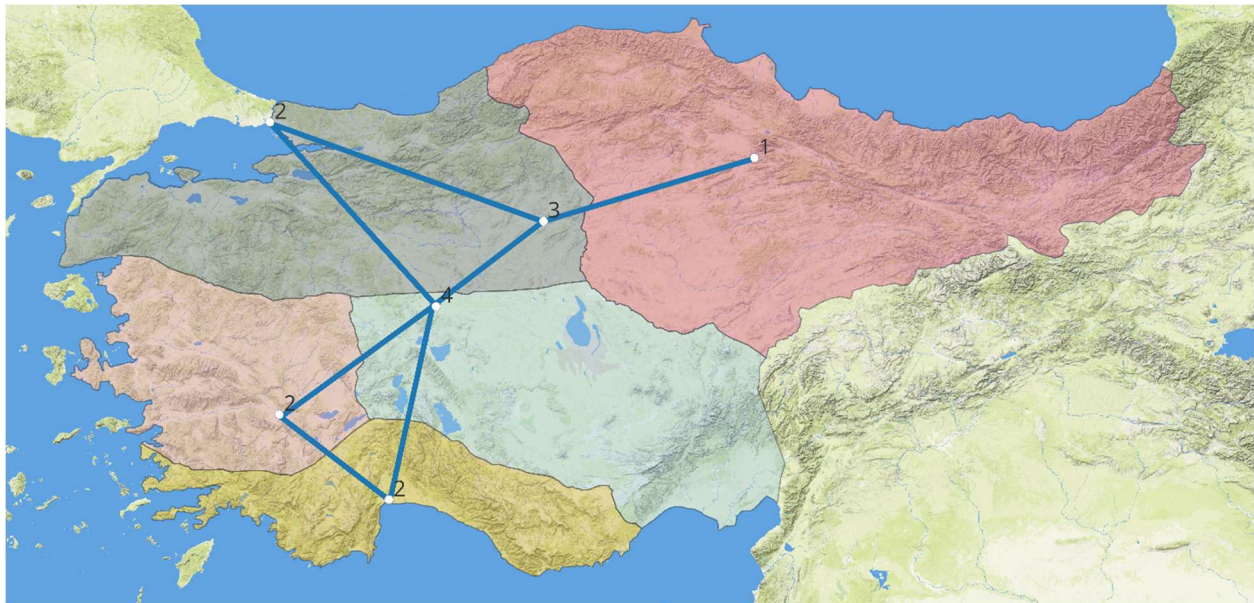
A network of this size and complexity will naturally foster centers of higher integration.<sup>44</sup> This is evidenced in Amorion and Ankyra, which served as the vital links to the entirety of the system, granting them an outsized role in political, economic, and strategic affairs. However, the strong desire for regularity within the system, already evidenced with an adherence to Central Place Theory and anticlustering, seeps into connectivity as measured by the degree of the network. That is why 80 percent of the capitals converge around the average degree of the network,

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<sup>44</sup> Roman Bauer and Marcus Kaiser, "Nonlinear Growth: An Origin of Hub Organization in Complex Networks," *Royal Society Open Science* 4, no. 3 (2017): <https://doi.org/10.1098/rsos.160691>.

facilitating, at least from a networking angle, a higher equity of neighboring connectivity. In turn, this convergence makes the system more flexible and stable.

### Degree of the Network (strategides)



MAP 8.12. Strategides degree of the network

The paucity of nodes and links amongst the strategides makes close inquiry of the network difficult. Nevertheless, some general trends emerge.

The small number of administrative units led to a lack of adaptability within the network. The 27 links within the thematic network permitted greater flexibility of movement when compared to only 7 for the strategides. The average degree distribution amounted to 2.4, markedly lower than the 3.5 for the themes. With Amorion and Ankyra monopolizing

connectivity lines, even this low average masks the scarcity of options for movement amongst the capitals, denoting a poorly networked system.

The paucity of nodes and links, combined with the aversion to place capitals near the eastern frontier and the Aegean Sea to the west, turns the connectivity of the network into a restrictive north-south axis of transit. Unlike the thematic model that reinforced capital connectivity along the main northwest-southeast and west-east trade axes, the line of best fit for the strategides runs in a southwest-northeast direction. This arrangement inverts the natural flow of commerce across Anatolia. This is not to suggest that the predominant trade routes did not exist at the time, but rather that they were disregarded when establishing the capitals, instead of integrated like under the thematic network.

This links the cities of Chonai, Amorion, Ankyra, and Amaseia in a very linear manner that stifles accessibility, creating a network model that heavily favors particular nodes to the functional disadvantage of the overall system.

As within the thematic network, Amorion and Ankyra serve as the critical hinge of accessibility due to their centralized locations. But with the strategides these cities became the main conduit of accessibility throughout the entire system. Not only did these cities exhibit the highest degree of the network, they also were an indispensable intermediary for correspondence across the breadth of the network. Along with the strategides being oversized, constraining the network around the two most influential cities of Anatolia proper afforded Amorion and Ankyra outsized influence and contributed to the spatial incongruity of the system. This is a disadvantage that Byzantine administrators would have intuitively understood, even if they could not articulate the matter in the same way as a modern geographer. The prevalence of rebellions by the

*strategoi* of the Opsikion and Anatolikon (outlined in chapter 2) is reinforced by the critical centrality of these administrative bodies to the functionality of the strategides system.

The advent of the theme system reconfigured this connectivity model so that, while Amorion and Ankyra still retained their predominance of degree distribution and betweenness centrality, a plurality of routes increased the complexity of the network and decreased the reliance on specific nodes. This is an important consequence of the division of the themes. That several of these defects were addressed with the expansion of the theme system demonstrates the capacity of the empire to understand and adapt to such complexities.

### **Betweenness Centrality**

Determining betweenness centrality is not as straightforward as with the degree of the network. First, every pair of nodes in the network must be examined in isolation. It is then necessary to count how many times additional nodes interrupt the shortest path between the originating nodes.

As an example, for the pair of Koron-Koloneia, the shortest path between the nodes travels through Kaisareia and Sebasteia. This grants Kaisareia and Sebasteia a betweenness value of one each.

This count is then repeated for every pair of nodes in the entire network and then totaled to produce values for betweenness centrality. The following formula is used for calculating betweenness centralities:<sup>45</sup>

$$C^b(N_i) = \frac{2 \sum_{j < k} \frac{G_{jk}(N_i)}{G_{jk}}}{(n-1)(n-2)}$$

This methodology produces betweenness centrality values that appear in table 8.4.

Table (8.4) Betweenness Centrality (thematic capitals)

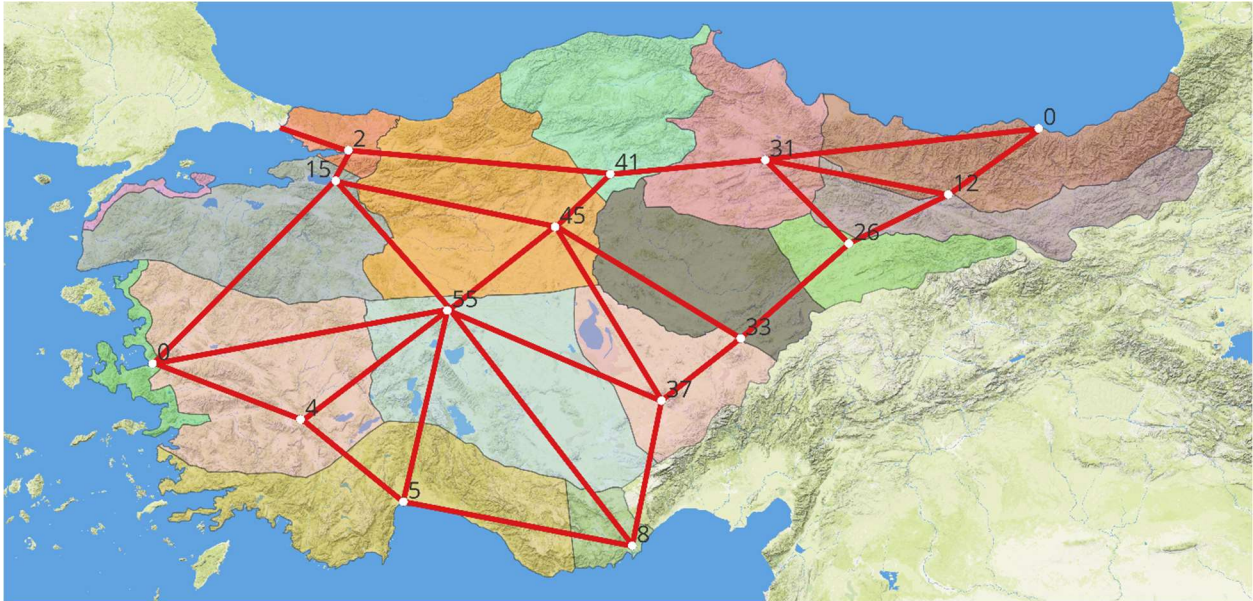
<u>Capital</u>	<u>Betweenness Centrality Value</u>
Amorion	55
Ankyra	45
Gangra	41
Koron	37
Kaisareia	33
Amaseia	31
Sebasteia	26
Nikaia	15
Koloneia	12
Seleukeia	8
Attaleia	5
Chonai	4
Nikomedeia	2
Smyrna	0
Trebizond	0

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<sup>45</sup> For a full explanation of how to calculate directed and undirected betweenness centralities, see Junlong Zhang and Yu Luo, “Degree Centrality, Betweenness Centrality, and Closeness Centrality in Social Network,” *Advances in Intelligent Systems Research* 132 (2017): 300–3 and Douglas White and Stephen Borgatti, “Betweenness Centrality Measures for Directed Graphs,” *Social Networks* 16, no. 4 (1994): 335–46.

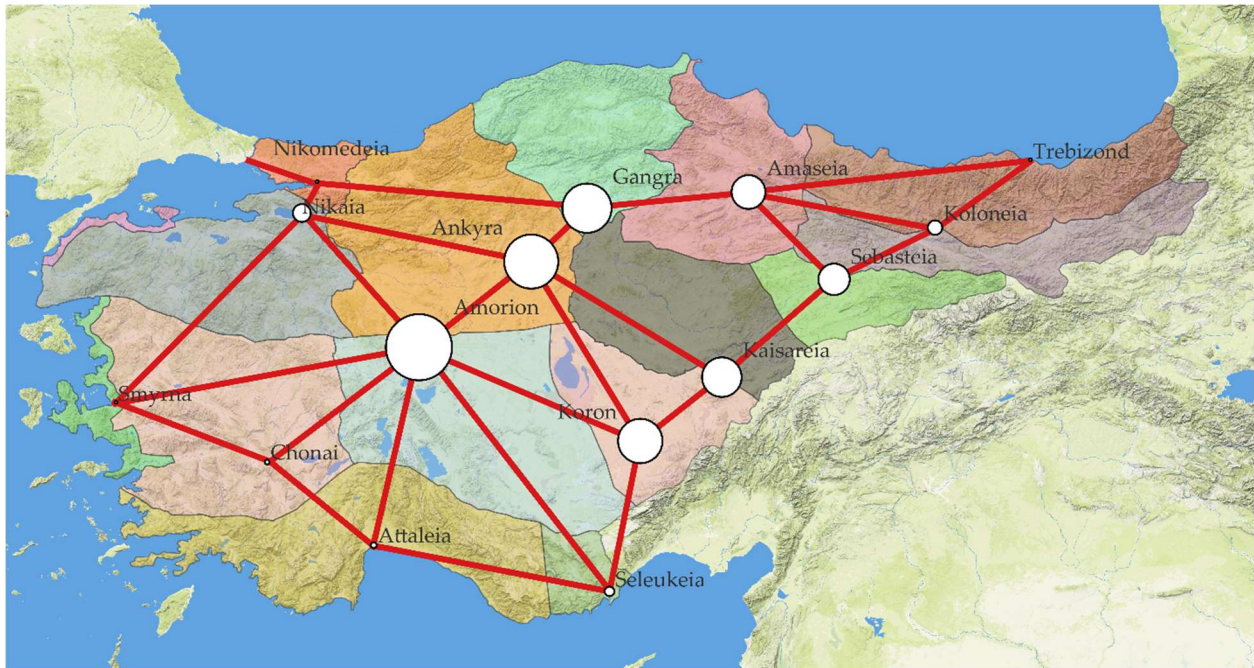


This is visualized on map 8.13.



MAP 8.13. Betweenness centrality values

Map 8.14 scales these values, with the size of the white circles corresponding to their instances of betweenness centrality.



MAP 8.14. Bubble map of betweenness centralities (scaled)

These results correspond to the major findings taken from the degree of the network, and they articulate the key position of several additional capitals to the network.

Amorion and Ankyra retain their position as the critical backbone of the entire system. Their overall geographical centrality is too great of a pull to overcome: nearly one-third of all overland travel between capitals must pass through one of these locations. The only way that these cities would not serve as the key to Anatolia's network is through deliberate governmental actions that purposely structured trade and communication routes in a circuitous fashion around the locations. This is a virtual impossibility within an undirected and natural system predicated on free movement over lowest cost paths.<sup>46</sup>

<sup>46</sup> For the distinction between undirected and directed networks, see Dimitris Sakavalas and Lewis Tseng, *Network Topology and Fault-Tolerant Consensus* (San Rafael, CA: Morgan and Claypool, 2019), 19–25.

Outside of these two cities, there emerge other centers important to maintaining the structure of the network.

Amaseia and Gangra served as the linchpin for connectivity along the northern extent of the system. This corresponded to an important overland road running between Constantinople and Trebizond, guiding commerce and information along this axis. Even though Amaseia did not hold a centralized position within Anatolia akin to Amorion and Ankyra, its betweenness centrality in regards to this major route provided it with a critical role in the overall functioning of the system.

Amaseia's geographical placement between Ankyra and Trebizond also privileged it over neighboring Gangra. Gangra, at 102 km away, was too close to Ankyra for a true higher-ordered center to emerge.<sup>47</sup> So while the city had a slightly better betweenness centrality over Amaseia, this proximity limited its capacity for growth. By contrast, Amaseia was 284 km from Ankyra and 395 km from Trebizond, a consequential position for the formation of a higher-ordered center unencumbered by its nearest neighbors. This is why the original strategides capital was at Amaseia and not Gangra. Nevertheless, Gangra still benefitted from this betweenness centrality placement in ways that a larger but more marginalized city such as Chonai could not.

In terms of centrality, Koron also emerges as an important link.<sup>48</sup> Except for the main northern trunk route built around Ankyra and Amaseia, Koron served as the other vital artery of communication and movement between the west and east portions of the network.

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<sup>47</sup> Christaller, *Die zentralen Orte in Süddeutschland*, 26, 77–83.

<sup>48</sup> *De Thematibus*, ed. Pertusi, 122. As previously discussed, Pertusi suggested that the capital of Kappadokia was at Tyana. There is no corroborating primary evidence to support this conclusion, so it should be treated as speculative. That being said, Tyana is only 25 km from Koron and lies along the exact same segment of the road system. This makes all conclusions pertaining to Koron's position in the network equally applicable to Tyana, making the argument over the capital's location irrelevant for the discussion of network connectivity.

Without a network model, such connectivity importance would pass unnoticed. On the surface, Koron appears indistinguishable from other sites along the periphery of the network such as Chonai, Attaleia, or Nikaia. It holds a degree distribution of 4, which is higher than the average of 3.5, but nothing exceptional like Amorion's value of 7. However, connectivity routes were formulated in such a manner to grant this part of the network outsized importance. This suggests the presence of an important route amongst the capitals of the eastern periphery.

Unlike the degree of the network for thematic capitals, betweenness centralities are not apportioned with any equity. Amorion holds a degree of the network of 7, with Trebizond at 2. By contrast, their betweenness centralities range from 55 for Amorion, to 0 for Trebizond. Likewise, seven of the capitals, nearly half the total, have a betweenness so low that it is barely visible when rendered on a map.

Such incongruities were not necessarily the result of poor planning, but instead arise naturally within most networks.<sup>49</sup> Minor irregularities resulting from an anisotropic geography can easily compound to heavily favor particular routes and lead to unexpected centers such as Koron. Without modern computer modeling, this is exceedingly difficult to render, and could not have been a criterion deliberately accounted for by Byzantine administrators. Therefore, betweenness centrality is useful for discerning the general flow of interactions among the thematic capitals and understanding which centers saw the greatest benefit.

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<sup>49</sup> Bauer and Kaiser, "Nonlinear Growth," <https://doi.org/10.1098/rsos.160691>.

## Axes of Connectivity

Alongside general regions of connectivity, the network also reinforces overland routes that were important to the functionality of the overall system. Just as the betweenness centrality of cities follows a log-normal power law distribution, so too does long-range (non-localized) commerce and communication get pushed to narrowly defined routes.

Studies of modern transportation systems demonstrate that the flow of traffic within a network is monopolized by a small subset of all potential routes.<sup>50</sup> This can be modeled by a log-normal distribution or, to be more precise, the Burr distribution.<sup>51</sup> This means that, while all traffic originates on local roads, longer journeys tend to coalesce along well-defined trunk routes. The flow of traffic remains similar despite changes in topology,<sup>52</sup> so any network of some complexity will gravitate towards a similar distribution of road usage.

For Byzantium, an incongruity of road usage is reflected in the distribution of betweenness centralities within Anatolia and how certain centers such as Amorion and Ankyra

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<sup>50</sup> Chengcheng Wang and Pu Wang, "Data, Methods, and Applications of Traffic Source Prediction," in *Transportation Analytics in the Era of Big Data*, eds. Satish Ukkusuri and Chao Yang (Cham, Switzerland: Springer, 2019), 112–13; Pu Wang, Timothy Hunter, Alexandre Bayen, Katja Schechtner, and Marta González, "Understanding Road Usage Patterns in Urban Areas," *Scientific Reports* 2 (2012): <https://doi.org/10.1038/srep01001>; Junjie Wang, Dong Wei, Kun He, Hang Gong, and Pu Wang, "Encapsulating Urban Traffic Rhythms into Road Networks," *Scientific Reports* 4 (2014): <https://doi.org/10.1038/srep04141>; Marta González, César Hidalgo, and Albert-László Barabási, "Understanding Individual Human Mobility Patterns," *Nature* 453 (2008): 779–82.

<sup>51</sup> Yixiao Lu and Fujian Wang, "Travel Time Reliability Analysis of Arterial Road Based on Burr Distribution," in *Smart Transportation Systems 2021: Proceedings of 4<sup>th</sup> KES-STIS International Symposium*, eds. Xiaobo Qu, Lu Zhen, Robert Howlett, and Lakhmi Jain (Singapore: Springer, 2021), 39–40; Zhen Chen and Wei David Fan, "Analyzing Travel Time Distribution Based on Different Travel Time Reliability Patterns using Probe Vehicle Data," *International Journal of Transportation Science and Technology* 9, no. 1 (2020): 64–75; Susilawati Susilawati, Michael Taylor, and Sekhar Somenahalli, "Distributions of Travel Time Variability on Urban Roads," *Journal of Advanced Transportation* 47 (2013): 720–36; Michael Taylor and Susilawati Susilawati, "Modelling Travel Time Reliability with the Burr Distribution," *Procedia Social and Behavioral Sciences* 54 (2012): 75–83; Steven Chien and Xiaobo Liu, "An Investigation of Measurement for Travel Time Variability," in *Intelligent Transportation Systems*, ed. Ahmed Abdel-Rahim (Rijeka, Croatia: InTech, 2012), 21–40. A.J. Richardson and M.A.P. Taylor, "Travel Time Variability on Commuter Journeys," *High Speed Ground Transportation Journal* 12, no. 1 (1978): 77–99.

<sup>52</sup> Wang and Wang, "Traffic Source Prediction," 112.

predominated as nodes of the network. Consequently, this uneven distribution carried over to the links (roads) connecting the cities, with certain routes given outsized preference.

While this methodology has never been applied to the road network of Byzantine Anatolia, the distribution of travel would remain relatively the same. Studies of modern networks are not contingent on the type of transportation used, only the routes that individuals take along the network. Therefore, whether a person walks, rides a horse, or drives a car makes no substantive difference to the distribution of traffic. As discussed in chapter 6, general uniformity in Anatolia's terrain west of the Taurus and Anti-Taurus Mountains likewise permits this comparison.

## **Two Important Routes**

By employing betweenness centrality, two principal axes of connectivity emerge, which shaped the flow of travel across the network.

1) **Constantinople to Seleukeia.** The most significant route traveled between Constantinople and Seleukeia running in a northwest to southeast direction. This course connected the cities of Constantinople, Nikomedeia, Nikaia, Amorion, and Seleukeia. Expanding the map beyond the Roman Themes, the route continued across the Taurus Mountains to link Antioch and the Levantine coast, as well serving as an axis running east through the Duchate of Mesopotamia and the minor themes. (For the plurality of routes through the minor themes see chapter 9 and map 9.7). Expanding the route west, the road network connected to Constantinople and the European half of the empire.

Because the themes were not a closed system, betweenness centrality can be extended beyond the network model created in this chapter. This centrality provides additional importance to seemingly marginalized cities such as Seleukeia, Nikaia, and Nikomedeia. Seleukeia now appears as an important crossroads across the Taurus Mountain range in a way that other eastern locations such as Kaisareia, Sebasteia, or Koloneia could not match.<sup>53</sup> Likewise, Nikaia and Nikomedeia emerge as the sole access points for Constantinople and Europe. What does not change in the expanded model is the importance of Amorion as the hinge of the network, which only adds to its outsized betweenness centrality by serving as the main overland conduit across Anatolia.

2) **Constantinople to Trebizond.** The other vital axis of connectivity ran in a west to east direction through Anatolia, running along the northern themes and connecting Constantinople, Nikomedeia, Ankyra, Gangra, Amaseia, and Trebizond. The important metropolitan of Euchaïta also fell along this route, about 50 km west of Amaseia. The route continued west into Europe and east towards Trebizond where the heaviest volume of traffic ended. Beyond that, some portions of the route continued into the Caucasus and on to Central Asia.<sup>54</sup>

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<sup>53</sup> Koray Durak, "The Cilician Frontier: A Case Study of Byzantine-Islamic Trade in the Ninth and Tenth Centuries," in *Center, Province and Periphery in the Age of Constantine VII Porphyrogennetos: From De Ceremoniis to De Administrando Imperio*, ed. Niels Gaul and Volker Menze (Mainz: Harrassowitz, 2018), 168–83.

<sup>54</sup> *De Administrando Imperio*, 46.42–48; al-Mas'udi, *Kitab al-Tanbih w'al-Ishraf [The Book of Indication and Revision]*, III, 43–47. The *De Administrando Imperio* described how commerce traveled from Trebizond to Adranoutzi in Georgia, which was a prosperous city, itself commercially connected to Abkhazia, Armenia, and Syria. Al-Mas'udi also described the market fairs held at Trebizond and their ability to attract merchants and visitors from across the Caucasus and Middle East.

<sup>54</sup> Durak, "Commercial History of Trebizond," 3–41.

## **Seleukeia to Trebizond—An Eastern Frontier Connection**

A third route is worth mentioning: while not as critical to overland travel, it provided connectivity along the eastern extent of the Roman Themes. The road ran between Seleukeia and Trebizond, following a southwest to northeast course that paralleled the Taurus and Anti-Taurus Mountains. Connections along the route included the capitals of Seleukeia, Koron, Kaisareia, Sebasteia, Koloneia, and Trebizond.

Betweenness centralities demonstrate that correspondence amongst these eastern themes propagated along this route instead of relying on Amorion, Ankyra, or Amaseia as intermediaries. Even adding a time burden for travel over more mountainous terrain does not enable another route to supersede this as the principal course of connectivity.

The significance of this route lies not in its commercial potential, but its ability to exemplify the consistent coverage and stability afforded to the eastern flank of the Roman Themes at the height of the theme system. Between Koron and Koloneia, the capitals ran in a direct and uninterrupted course that facilitated communication along this portion of the system. While the strategides model eschewed placing a capital closer than about 500 km to the eastern front, by the tenth century internal stability enabled this array of six thematic capitals to abut the eastern mountain ranges. While no longer an active front, this route facilitated communication between the Roman Themes and the ducates and minor themes that lay beyond the mountains.



## **Incorporating the Unknown Variable of Traffic Volume**

Statistically, the two principal routes comprised the majority of long-distance, non-local travel amongst the thematic capitals. However, the model reaches its limits when trying to pin down a precise figure for the percentage of total travel that these routes comprised. That is because the Burr distribution accounts for, as the name implies, the distribution of traffic but not the volume.<sup>55</sup> The volume of traffic is influenced by population size which, as explained in chapter 5, is an unknowable factor.

### ***Could Other Routes Have Seen More Traffic?***

The Burr distribution tells us that, when travelers moved between capitals, they were most likely to choose one of these two principal routes. However, since we do not have exact population numbers, it is not possible to precisely know how many people actually moved along the routes. Given that the volume of traffic could theoretically be lower on the principal routes, this could diminish the importance of these routes.

For example, if the cities of Smyrna and Chonai were of an extraordinary size, The route between them could contain the highest exchange of trade goods, making up for their almost nonexistent betweenness centrality. Likewise, the highest connected cities of Amorion and

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<sup>55</sup> Irving Burr, "Cumulative Frequency Functions," *The Annals of Mathematical Statistics* 13, no. 2 (1942): 215–32; Essam al-Hussaini and Mohammad Ahsanullah, *Exponentiated Distributions* (Dordrecht, Netherlands: Atlantis Press, 2015), 103–21; Pandu Tadikamalla, "A Look at the Burr and Related Distributions," *International Statistical Review* 48, no. 3 (1980): 337–44; Robert Rodriguez, "A Guide to the Burr Type XII Distributions," *Biometrika* 64, no. 1 (1977): 129–34; Essam al-Hussaini, "A Characterization of the Burr Type XII Distribution," *Applied Mathematics Letters* 4, no. 1 (1991): 59–61; Christian Kleiber and Samuel Kotz, *Statistical Size Distributions in Economics and Actuarial Sciences* (Hoboken, N.J.: Wiley, 2003), 51.

Ankyra could, theoretically, be small in size, rendering the volume of trade through such nodes as inferior to the Smyrna-Chonai link. This is almost certainly untrue, but a caveat to bear in mind when the variable of population size remains elusive.

Despite population volume as an unknown variable, the capitals generally correspond to the largest or most important cities within each theme. With city sizes following a log-normal distribution, these capitals would encompass an outsized percentage of the population.<sup>56</sup> This distribution means that the largest city will be, on average, twice the size of the next largest city in the region, which itself will be about twice the size of the next largest city. Such a power law grants the largest capitals a strong asymmetry in population size, even if the specific numbers are unknown. Sites such as Amorion and Ankyra were not randomly chosen outposts but were thriving urban centers that took full advantage of their centralities. This refutes any argument that their traffic distribution did not coincide with a high volume of exchange.

While it is impossible to assign an exact numerical value to the volume of travel, the dominant travel trends along these two routes are unmistakable. Consequently, it is exceedingly unlikely that there were alternative routes which carried higher levels of traffic between thematic capitals.

Therefore, the distribution and volume of links between sites such as Amorion and Ankyra would be exponentially higher than virtually any other urban centers along the periphery of the connectivity network, such as Laodikeia, Ephesos, Sardeis, or Amastris. This is the effect of power laws that drive movement to coalesce around certain locations and routes.

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<sup>56</sup> Gibrat, *Les Inégalités Économiques*; Mori, Smith, and Hsu, “Common Power Laws for Cities,” 6469–75; Eeckhout, “Gibrat’s Law for (All) Cities,” 1429–51; Malevergne, Pisarenko, and Sornette, “Testing the Pareto,” <https://doi.org/10.1103/PhysRevE.83.036111>; Rossi-Hansberg and Wright, “Urban Structure and Growth,” 597–624; Gabaix, “Zipf’s Law for Cities,” 738–67; Duranton, “Some Foundations for Zipf’s Law,” 542–63. A log-normal distribution graph shows an initial large spike with the probability declining towards the right in a long tail.

### *Estimating Traffic Volume Based on Route Distribution*

When accounting for the distribution of routes alone, the two main trunk roads account for roughly 30–40 percent of non-local travel within Anatolia. Predicated on this understanding of population distribution, the actual volume of travel would likely fall within this percentage range or be slightly higher. These routes total 1,899 km. The entire road network amounts to 34,035 km, meaning that these two routes constitute 5.5 percent of the total roads. They therefore enjoyed six to nine times the level of traffic they should if all roads were considered equal. The network model demonstrates the outsized role that these routes held within Anatolia, and why cities and themes along the roads could command outsized influence (notably the Anatolikon, Boukellarion, and Opsikion).

This model therefore serves as a heuristic that, while not holistic, accurately articulates the general flow of transportation around Anatolia.

### *A Model for Non-material Movement among the Themes*

This network model can be utilized to discern how information and other non-tangible resources would generally propagate among the eastern themes. Broad ideas such as religion, politics, the adoption of inventions or techniques, as well as the spread of infections and diseases are all elements that disseminated along the network in a manner that followed general probabilities.

This probabilistic model is effective because the distribution of ideas and trends follows an exponential rather than a linear pattern. An idea is unlikely to spread from a single individual

or interaction. However, as the total volume of interactions increases, so does the probability of the idea initially taking root in a specific location. When applied across the entire lifespan of the theme system, this model provides a realistic depiction of how the network likely anticipated and adapted to the dynamics of travel, commerce, and information flow. Consequently, understanding betweenness centralities and the distribution of traffic along the road network offers a generalized framework for predicting how and where various phenomena spread. Without the benefit of a census, this network model provides the best possible approximation.

### **Attempts to Preclude Favoritism**

Byzantine administrators attempted to preclude the spatial favoritism of particular themes, instead desiring regularity throughout the network. This is seen in the equity of capital dispersion and the rejection of clustering to such a point that principles of anticlustering are in clear effect. This is not simply an artifact of geographical predeterminism, but an active attempt to have close administrative coverage over the entirety of Anatolia without giving undue advantages to any individual theme or set of themes. This had the effect of providing a generally equitable degree of the network, which led to a more robust network of connectivity that could facilitate trade, communication, and cooperation amongst the themes.

Nevertheless, irregularities derived from complexity still arose that favored particular capitals and directionality within the network. Despite efforts, Anatolia's geography presented challenges that could not be superseded by premodern logistics. Distance from Constantinople would always remain an obstacle and facilitated the formation of regional power bases.

Betweenness centrality, while great for Constantinople, placed an emphasis on cities such as Nikomedeia and Nikaia not witnessed in any contemporary empire. Likewise, the internal connectivity network of Anatolia favored Amorion and Ankyra to a degree that facilitated their outsized role in commerce and politics, also leading to disproportionately preferred travel routes. The division of the strategides added much needed complexity to the system, in turn decreasing the role of these cities, but Amorion and Ankyra still served as the critical hinge of communication across the landmass. The Byzantines did not, nor could not, redirect the road network, so these discrepancies were a fixed part of the system.

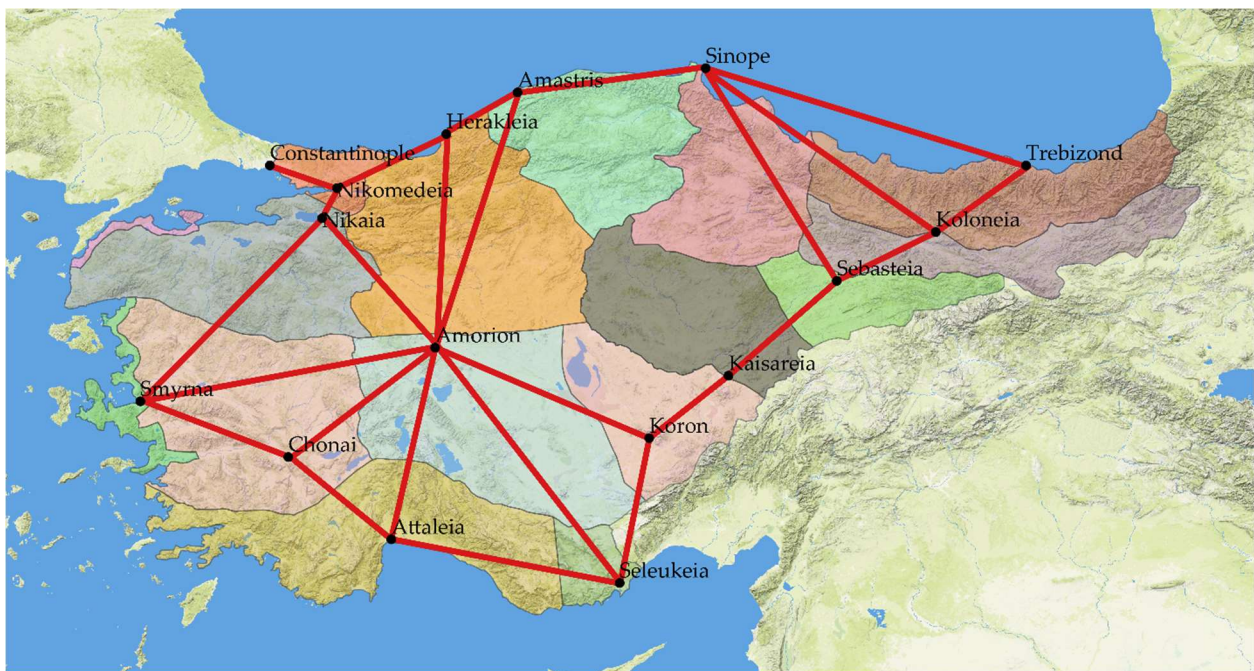
### **Preference for Overland Routes—The Black Sea Hypothetical**

The general structure of the thematic network reinforces the predominance of land routes as the principal means of travel and correspondence in Anatolia. The importance of internal connectivity within Anatolia is contrasted by the lack of connectivity along the Black Sea coast.

Of the five themes that border the sea, only Chaldia had its capital along the coast. This was partly due to the constraints of geography, as discussed earlier—the presence of the Pontic Mountains precluded large settlements beyond the proximity to the sea, making Chaldia much more dependent than other themes on the coastal road and maritime travel. Beyond this, the capitals of the themes along the Black Sea gravitated further south. Coastal cities such as Amastris, Herakleia, or Sinope were avoided entirely as potential sites for a capital and never grew into major urban centers on the level of Ankyra, Amaseia, or Gangra. As a result, the major connectivity routes of Anatolia gravitate towards the center of the landmass and away from the

coast. Black Sea trade, while important in its own right,<sup>57</sup> was viewed as something apart from the connectivity network binding together the rest of Asia Minor.

A hypothetical model demonstrates how the thematic network would be radically different if coastal routes were the main form of trade and correspondence within Anatolia. For this simulation, the capitals of the northern themes are shifted from Ankyra, Gangra, and Amaseia to the Black Sea sites of Herakleia, Amastris, and Sinope, respectively. Restructuring the thematic network around these new locations produces the hypothetical map 8.15.



MAP 8.15. A hypothetical network emphasizing Black Sea connectivity

Such a model completely changes the dynamic of the network and the administration of the eastern half of the empire. With administrative centers pulled to the periphery of the

<sup>57</sup> Shephard, “Mists and Portals,” 421–42; Karpov, “The Grain Trade in the Southern Black Sea Region,” 55–73; Durak, “Commercial History of Trebizond,” 3–41; Bryer, “Estates of the Empire of Trebizond,” 370–422; Bryer and Winfield, *Topography of the Pontus*.

landmass, this leads to a hollowing out of Anatolia's center and leaves Amorion as the sole interior capital. With the sizes of the themes remaining constant, this still permits the 300 km accessibility from the capital to any internal point in the theme. But the lack of anticlustering leaves the entirety of the territory between Amorion and Sebasteia bereft of a proper administrative center. Inter-capital routes are severely diminished, eliminating the plurality of connections accessible to the actual themes. Likewise, the northwest becomes heavily clustered, with Nikaia, Nikomedeia, Herakleia, and Amastris coalescing around Constantinople in a manner that would foster a small-world network and completely reconfigure the dynamic of the system.

This example is obviously somewhat tautological. Moving the capitals to the coast would of course favor maritime activity. The point of this simulation is to show that:

- 1) The difference between the real and hypothetical network model exemplifies a clear preference for overland travel. If Black Sea routes were more substantial, this would be reflected in the composition of the actual network. This reinforces the arguments made in chapter 6 on the predominance of overland travel and the viability of a connectivity model focused on Anatolia's interior.

- 2) Slight changes to the system could irrevocably alter the entire tenor of its composition, reworking concepts of the degree of the network, betweenness centrality, general centrality, Central Place Theory, and anticlustering. The relocation of a single site could redirect the flow of communication and shift emphasis to other parts of the system in substantive and unpredictable ways. Systems of this nature do not organically derive a model as balanced and equitable as the actual thematic network. Stability of the network had to be reinforced through deliberate

planning to achieve its goals, indicating the efforts put into the organization of the theme system. This is why the locations of capitals remained constant and stability was desired.

## **Conclusions and Areas of Further Research**

The most important takeaway of this section is the idea that traffic flows within thematic Anatolia can be ascertained to a degree that permits comparison. While the movements of an individual can prove erratic, the aggregate of all traffic is highly predictable. This mainly just requires a knowledge of the road system and the location of the key urban centers, both factors known to a high degree of certainty.

As a next step beyond the scope of this current study, a more precise model can be constructed that incorporates more urban centers. This iteration would include the metropolitans and archbishoprics tabulated in table 5.6 and depicted on map 8.16, as well as the remaining 386 urban centers from the *Notitia Episcopatum* compiled in appendix 2. While this expanded model would provide more granularity and elucidate routes of secondary importance, it would not substantively alter the results derived in this section, with the two trunk routes of Constantinople-Seleukeia and Constantinople-Trebizond remaining the defining features of overland travel. Nevertheless, this refinement is important for creating more precise models regarding communication, trade, and military movement within Anatolia.





MAP 8.16. The distribution of metropolitans and archbishoprics along the road network connecting thematic capitals

### Connectivity of the Thematic Capitals to Constantinople

This study has so far focused on the interactions between the Anatolian themes as an isolated network. Such an approach is useful to understand the organizational principles that went into the themes' formation and how the system functioned under geographical constraints. However, the Anatolian themes did not function in a vacuum. The presence of Constantinople played an outsized role on all themes. Therefore, it is necessary to understand how the presence of Constantinople, as a spatial entity, impacted the network.

## Quantifying Connections to Constantinople: Distance and Betweenness Centrality

The relationship between Constantinople and the Anatolian themes can be specifically quantified through two metrics: distance and betweenness centrality.

### Distance to Constantinople

Proximity fosters connectivity—the closer two locations are, the increase in the likelihood of them having a meaningful relationship.<sup>58</sup> Prior studies have affirmed this correlation within political, social,<sup>59</sup> and economic<sup>60</sup> spheres. So, this geographical connection would logically manifest between the *strategoï* at the thematic capitals and the emperor at Constantinople.

Therefore, distance is an appropriate way to gauge a theme's potential relationship to Constantinople.

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<sup>58</sup> Abraham, Hassaniien, and Snášel, *Computational Social Network Analysis*, 204–5.

<sup>59</sup> Examples of localization in political and social network communications include Ruffini, *Social Networks in Byzantine Egypt* and Mullett, *Theophylact of Ochrid*. For locality on an aristocratic network in French Cluny, see Isabelle Rosé, “Reconstitution, représentation graphique et analyse des réseaux de pouvoir au haut Moyen Âge. Approche des pratiques sociales de l’aristocratie à partir de l’exemple d’Odon de Cluny († 942),” *Redes. Revista hispana para el análisis de redes sociales* 21 (2011): 199–272. For using sculptural production to reveal localized networks of Hellenistic sculptors, see Katherine A. Larson, “A Network Approach to Hellenistic Sculptural Production,” *Journal of Mediterranean Archaeology* 26, no. 2 (2013): 235–59. For mobility networks of eighteenth-century Viennese artisans, see Josef Ehmer, “Worlds of Mobility: Migration Patterns of Viennese Artisans in the 18th Century,” in *The Artisan and the European Town, 1500–1900*, ed. Geoffrey Crossick (New York: Routledge, 1997), 172–99.

<sup>60</sup> For an example of trade over networks on the localized distribution of the brick industry near Rome, see Shawn Graham, *Ex Figlinis: The Network Dynamics of the Tiber Valley Brick Industry in the Hinterland of Rome* (Oxford: British Archaeological Reports, 2006). For the role of locality on material distribution within the Viking North Sea, see Søren Michael Sindbæk, “The Small World of the Vikings: Networks in Early Medieval Communication and Exchange,” *Norwegian Archaeological Review* 40, no. 1 (2007): 59–74 and Søren Michael Sindbæk, “Broken Links and Black Boxes: Material Affiliations and Contextual Network Synthesis in the Viking World,” in *Network Analysis in Archaeology: New Approaches to Regional Interaction*, ed. Carl Knappett (Oxford: Oxford University Press, 2013), 71–94. For the pull of locality on the Hanseatic League and kontors (trading posts), see Mike Burkhardt, “The German Hanse and Bergen—New Perspectives on an Old Subject,” *Scandinavian Economic History Review* 58, no. 1 (2010): 60–79.

Determining distances between the thematic capitals and Constantinople is straightforward. Distances are calculated using Dijkstra’s algorithm, which ascertains the shortest path utilizing the preexisting road network.<sup>61</sup> In nearly all instances these coalesce around major roads, ensuring these routes had a degree of maintenance and general accessibility. Table 8.5 lists the distances between each thematic capital and Constantinople.

Table (8.5) Thematic Capital Distances to Constantinople

<u>Capital</u>	<u>Distance to Constantinople (along the road network)</u>
Nikomedeia	101 km
Nikaia	160 km
Amorion	403 km
Gangra	408 km
Ankyra	459 km
Chonai	646 km
Amaseia	649 km
Smyrna	690 km
Koron	740 km
Attaleia	741 km
Kaisareia	792 km
Seleukeia	797 km
Sebasteia	841 km
Koloneia	902 km
Trebizond	1,044 km

These distances can be converted to datapoints to create a bubble map (or circle-based graduated-symbol map) for visual comparison. With a bubble map, the size of the bubbles is directly tied to a numerical value.<sup>62</sup> To get this numerical value and the resulting map, the distance values need to be assessed against betweenness centrality values. To do this, the capitals are assigned point values predicated on their distance from Constantinople. Each capital starts

<sup>61</sup> Dijkstra, “Note on Two Problems,” 269–71; Mehlhorn and Sanders, *Algorithms and Data Structures*, 196–200.

<sup>62</sup> Gretchen Peterson, *GIS Cartography: A Guide to Effective Map Design* (New York: CRC Press, 2021), 127.

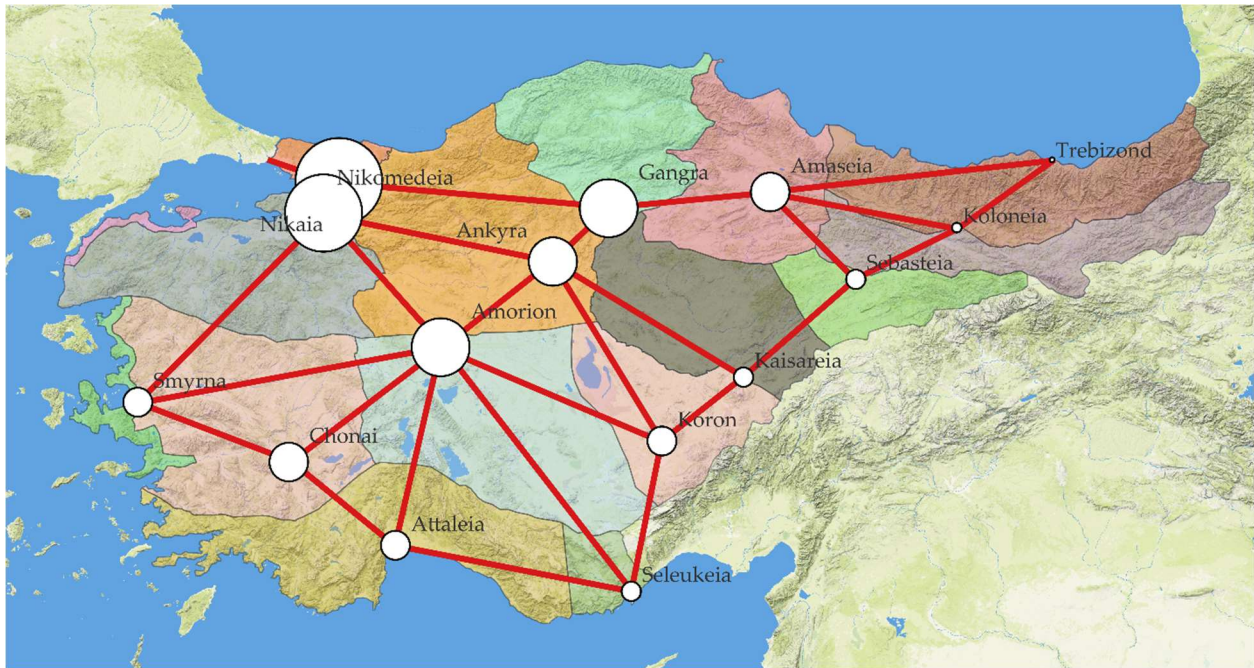
with 10 points, then 1 point is subtracted for every 100 km of distance it has from Constantinople. For example, Nikomedeia is 101 km from Constantinople, so 10 points - 1 point = 9 points.

Table 8.6 shows the results of these calculations.

Table (8.6) Proximity to Constantinople Values

<u>Capital</u>	<u>Distance from Constantinople</u>	<u>Converted Weighted Value (Points)</u>
Nikomedeia	101 km	9
Nikaia	160 km	8
Amorion	403 km	6
Gangra	408 km	6
Ankyra	459 km	5
Chonai	646 km	4
Amaseia	649 km	4
Smyrna	690 km	3
Koron	740 km	3
Attaleia	741 km	3
Kaisareia	792 km	2
Seleukeia	797 km	2
Sebasteia	841 km	2
Koloneia	902 km	1
Trebizond	1,044 km	0

The values in table 8.6 are then graphically rendered on the bubble map shown in map 8.17, in which the size of each capital (white circle) is in inverse proportion to its distance from Constantinople.



MAP 8.17. Constantinople distance values

These results based solely on distance confirm the well-understood trends of proximity between Anatolia and the imperial capital: a greater distance from imperial authority correlates with increased autonomy. However, the effect of betweenness centrality on thematic relations with Constantinople is less obvious and has remained unexplored up until this point.

### Constantinople's Betweenness Centrality

The second way to measure thematic interactions with Constantinople is through long-distance connectivity, also known as “betweenness centrality.”<sup>63</sup> Instead of accounting for nodes with a

<sup>63</sup> Freeman, “Centrality Based on Betweenness,” 35–41; Barrat, Barthélemy, Pastor-Satorras, and Vespignani, “The Architecture of Complex Weighted Networks,” 3747–52; Newman, *Networks: An Introduction*.

direct connection, this looks at the degree to which nodes stand *between* one another. The results show a node's importance within the overall system.

A modern example of betweenness centrality is a telecommunications network. A node with high betweenness centrality indicates that more information passes through that location. This grants the node more control over the overall network by making it an essential conduit for the transference of a high value item, in this case information.

Akin to the flow of information in a modern telecommunications network, those themes that served as thoroughfares to the seat of the emperor could see tangible political and economic benefits from their betweenness centrality. With Anatolia, the importance of betweenness centrality manifests through factors that include the location of long-distance trade routes, the marshalling of large armies, and the need for each theme to have land routes that linked directly to the imperial capital, routes that may have intersected other themes.

Unlike most other empires that had a capital accessible through a multitude of directions, the location of Constantinople precluded easy accessibility from its hinterlands. Constantinople was located on a narrow peninsula resulting in a relatively low degree of cities (nodes) directly connecting to it. Maritime travel to the capital was also highly restricted, with traffic between the Black and Aegean Seas confined to the narrow Bosphorus. This placed Constantinople at the direct confluence of nearly all travel between Europe and Anatolia, granting the city extraordinary betweenness centrality.<sup>64</sup> For comparison, the city of Amorion is by far the best-connected city in all of Anatolia, and yet it could only command less than 20 percent of the betweenness centrality of the network (map 8.14).

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<sup>64</sup> Pinar Emiralioğlu, *Geographical Knowledge and Imperial Culture in the Early Modern Ottoman Empire* (New York: Ashgate, 2014), 57–88. Centrality was a key reason behind Konstantinos's placement of his new capital. The significance of the city was later recognized by the Ottomans upon its conquest in 1453, in which Ottoman geographers and Mehmed II used the concept of Constantinople's centrality to articulate an imperial vision.

This extreme degree of betweenness centrality trickled down to the themes surrounding Constantinople, imbuing certain locations with a level of centrality not typically witnessed in pre-modern empires such as the contemporaneous capitals of Abbasid Baghdad<sup>65</sup> and the Song Dynasty's Kaifeng.<sup>66</sup> For this reason, the concept of betweenness centrality serves as a useful metric for assessing a theme's relationship with Constantinople and its neighbors.

Calculating betweenness centrality is similar to the method performed in the previous section on betweenness centrality (maps 8.13–8.14), but this time is modified to only account for travel to Constantinople instead of travel throughout Anatolia. Given a capital to start from, this centrality measures how many additional thematic capitals would need to be passed through on a direct journey to Constantinople. For example, a trip from Kaisareia to Constantinople would require passing through the capitals of Ankyra, Nikaia, and Nikomedeia. Once again, the routes taken to reach the imperial capital are predicated on Dijkstra's algorithm of greatest efficiency.

The calculation of shortest route means that thematic capitals are only included if they fall along the most direct path. Therefore, for a capital such as Chonai, even though Amorion is its closest connecting city, a more direct route takes a path only through Nikaia and Nikomedeia.

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<sup>65</sup> The ninth century geographer al-Ya'qubi recognized the importance of Baghdad as an easily accessible centralized hub, though he was not visualizing this from a quantitative networking perspective. Al-Ya'qubi remarked, "the merit of (Baghdad) is ... its centrality in the world." He goes on to say, "(Baghdad) is an island between the Tigris and Euphrates ... a thoroughfare for the world. Everything that comes on the Tigris from Wasit, Basra, al-Ubulla, al-Ahwaz, Fars, Oman, al-Yamama, al-Bahrayn and places adjacent to them can come upstream to Baghdad and anchor there; similarly, whatever comes from Mosul, Diyar Rabi'a, Azerbaijan, and Armenia and is carried on boats on the Tigris, or whatever comes from Diyar Mudar, al-Raqqqa, Syria, the districts on the (Byzantine) frontier, Egypt, and the Maghrib and is carried on boats in the Euphrates can be unloaded and stored here. It will be an emporium for the people of al-Jabal, Isfahan, and the districts of Khurasan." (translation by Matthew Gordon, Chase Robinson, Everett Rowson, and Michael Fishbein); al-Ya'qubi, *The Geography [Kitab al-Buldan]*, 69–71.

<sup>66</sup> William Guanglin Liu, *The Chinese Market Economy, 1000–1500* (Albany: State University of New York, 2015), 92.

Table 8.7 lists every thematic capital followed by the capitals necessary to travel through to reach Constantinople by the shortest route. Table 8.8 then ranks the capitals according to the total number of times each city serves as a throughway.

(Table 8.7) Betweenness Centralities in Relation to Constantinople

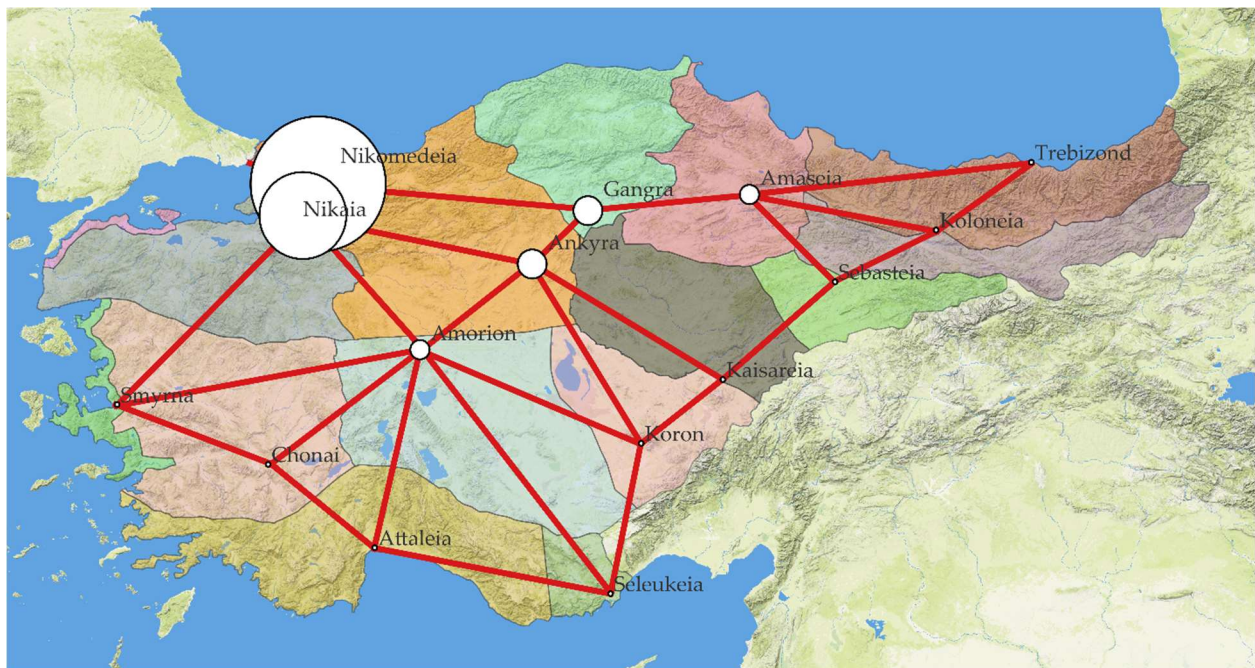
<u>Capital</u>	<u>Cities Passed through on the Way to Constantinople</u>
Trebizond	Amaseia, Gangra, Nikomedeia
Koloneia	Amaseia, Gangra, Nikomedeia
Sebasteia	Ankyra, Nikaia, Nikomedeia
Kaisareia	Ankyra, Nikaia, Nikomedeia
Koron	Ankyra, Nikaia, Nikomedeia
Seleukeia	Amorion, Nikaia, Nikomedeia
Attaleia	Amorion, Nikaia, Nikomedeia
Smyrna	Nikaia, Nikomedeia
Amaseia	Gangra, Nikomedeia
Amorion	Nikaia, Nikomedeia
Chonai	Nikaia, Nikomedeia
Ankyra	Nikaia, Nikomedeia
Gangra	Nikomedeia
Nikaia	Nikomedeia
Nikomedeia	n/a



(Table 8.8) Betweenness Centralities to Constantinople (values)

<u>Capital/Theme</u>	<u>Total Instances of its Use as a Thoroughway</u>
Nikomedeia/Optimaton	14
Nikaia/Opsikion	9
Ankyra/Boukellarion	3
Gangra/Paphlagonia	3
Amorion/Anatolikon	2
Amaseia/Armeniakon	2
Chonai/Thrakesion	0
Smyrna/Samos	0
Attaleia/Kibyrraiotai	0
Seleukeia/Seleukeia	0
Koron/Kappadokia	0
Kaisareia/Charsianon	0
Sebasteia/Sebasteia	0
Koloneia/Koloneia	0
Trebizond/Chaldia	0

These betweenness values are visually depicted on the bubble map 8.18. The size of each capital directly corresponds to the number of instances of its use as a thoroughway.



MAP 8.18. Betweenness centrality values

The most apparent conclusion from this dataset is that betweenness centralities are monopolized by a select few locations. The lack of an even distribution is a general feature of this type of centrality; however, the extreme nature of Constantinople's location exacerbates these figures. A bar graph, shown in figure 8.2, visually represents this incongruity of betweenness centralities.

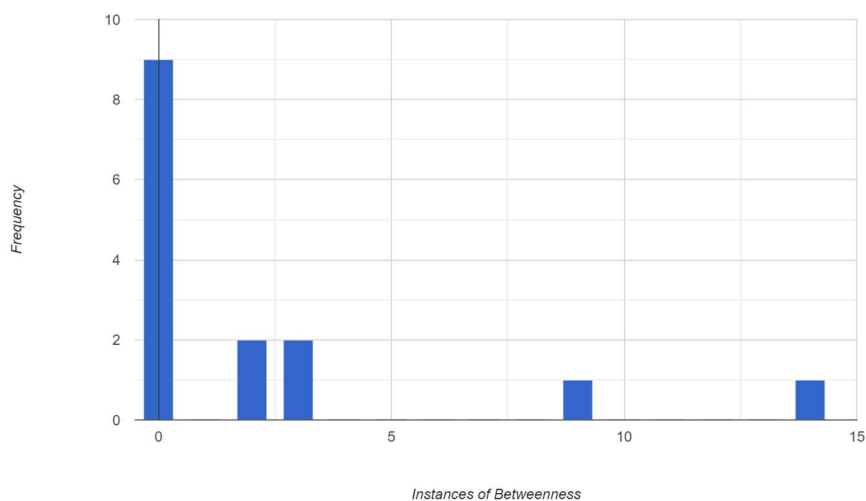


FIGURE 8.2. Bar graph of betweenness centrality in relation to Constantinople

Sixty percent of the themes yielded no betweenness centrality. For the remaining themes that did serve as a thoroughfare, seventy percent of the total instances were experienced by just the two themes of Nikomedeia and Nikaia. This provided the capitals of the Optimaton and Opsikion Themes a virtual monopoly on overland access to Constantinople. A traveler could theoretically circumvent Nikomedeia to get to Constantinople, but this would require an additional 100 km over worse roads for no tangible benefits—a prospect few would be willing to consider.

Betweenness centrality also demonstrates that the placement of several of the capitals fell along the optimal routes of shortest distance in Anatolia. For instance, along the northern route to Constantinople, Gangra and Amaseia naturally fall along the line of best fit for the easternmost themes of Chaldia, Koloneia, and Sebasteia.

### **Cumulative Weight of the Themes in Respect to Constantinople**

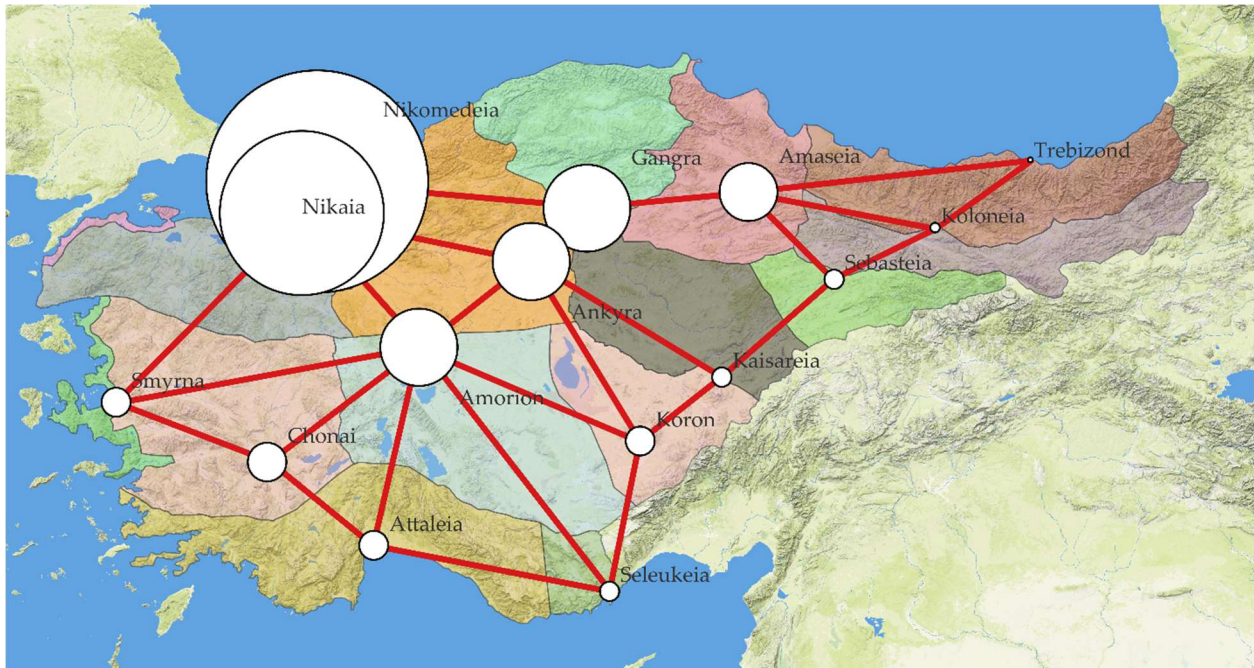
The final assessment regarding the Anatolian themes and Constantinople is the creation of a composite score that combines the values of proximity to the imperial capital and betweenness along the route. The main intention is to visualize the influence Constantinople could exert on an individual theme and the overall network.

Table 8.9 provides scores for each capital that combine distance with instances of betweenness. This table uses the values for distance tabulated in table 8.5 and the betweenness centrality values are taken from table 8.8. There is no precise mathematical method to comparatively weigh these values; the weights selected are at my discretion. Even if alternative weights were used to factor travel distance and betweenness centrality, the same trends would emerge, albeit with different orders of magnitude.

(Table 8.9) Composite Score of Proximity and Betweenness Values

<u>Capital/Theme</u>	<u>Total Score</u>
Nikomedeia/Optimaton	23
Nikaia/Opsikion	17
Gangra/Paphlagonia	9
Ankyra/Boukellarion	8
Amorion/Anatolikon	8
Amaseia/Armeniakon	6
Chonai/Thrakesion	4
Smyrna/Samos	3
Attaleia/Kibyrraiotai	3
Koron/Kappadokia	3
Seleukeia/Seleukeia	2
Kaisareia/Charsianon	2
Sebasteia/Sebasteia	2
Koloneia/Koloneia	1
Trebizond/Chaldia	0

These values are visualized on map 8.19, with the size of the circle around each capital reflective of its importance in relationship to Constantinople, based on the metrics of geography along the network.



MAP 8.19. Weighted distance and betweenness values

Accounting for both variables reveals a massive incongruity in relationships with Constantinople that is monopolized by two locations: Nikomedeia and Nikaia.

The placement of Nikomedeia demonstrates the importance of the Optimaton as a buffer for Constantinople. All thematic travel passed through this point, emphasizing the necessity of a loyal administration. Konstantinos V's divisions of the Opsikion into three constituent parts (the Boukellarion, Optimaton, and Opsikion in a reduced form), forged a level of insulation for an imperial capital rarely seen elsewhere.

The importance of the location of the Opsikion's capital of Nikaia becomes apparent when betweenness centrality is accounted for. Chapter 7 on internal thematic connectivity predicated on travel time (isochrone map 7.18) demonstrated this to be the worst-located capital for internal coverage, but this new metric of betweenness centrality shows its value as a vital throughfare for Constantinople. If the capital was located elsewhere in the theme, this

betweenness centrality would plummet from nine connections to zero. Even the alternate selection of Apameia as the capital, less than 100 km west of Nikaia, would render it marginalized as part of the throughfare to Constantinople, making Nikomedeia the singular site of betweenness centrality. If the road network provided the scaffolding upon which the theme system operated, the location of Nikaia served as one of the most important nodes.

This model also illustrates Gangra's role as an important link to the themes along the Black Sea. This helps to account for the selection of a capital in the southern part of the Paphlagonia Theme instead of along the northern coast; choosing a location such as Amastris would place the capital outside of the main transportation network. In terms of its degree of the network, Gangra held a low degree of connection, however, it proved to be vital in betweenness connectivity matters related to Constantinople and the northeastern themes.

Finally, Amorion and Ankyra, the capitals with the highest local node connectivity, only manifest as marginally important on this scale. However, Amorion's direct connection to the southeastern frontier adds greater overall weight to the city over the neighboring Gangra.

### **European Betweenness Centrality**

Constantinople's location also exerted a strong betweenness centrality on the empire's European holdings. While this study does not include calculations for the European Themes, the results would be similar but would assume an inverse shape. All land traffic to Constantinople had to flow through Thrake, producing a similar bottlenecking pattern that granted Nikomedeia and Nikaia their unparalleled betweenness centrality. The main difference between the two halves of

the empire is that smaller landholdings in Europe limited the betweenness centrality from reaching the same level as the eastern themes. Combine this with Anatolia's larger population,<sup>67</sup> higher levels of commerce, and the greater prominence given to its themes,<sup>68</sup> and Asia's betweenness centrality becomes significantly more important than that encountered in Thrake.

### **Hypothetical Example (Ankyra as the Imperial Capital)**

The true incongruity of the geographical relationship between Constantinople and the Anatolian themes is evident when compared to a more centralized model of governance. Such a model can be hypothetically rendered over the preexisting theme system to demonstrate how centrality manifests in a typical empire.

This is not to suggest that the location of Constantinople was ill-conceived. Its general centrality and betweenness centrality were optimal when considering the entire breadth of the empire and contributed to its longevity. However, this came at the cost of creating a lopsided structure of overall connectivity. This hypothetical centralized model is meant to show how atypical Constantinople's location truly was.

Using the eastern themes as the basis for analysis, this simulation begins with the selection of a centralized imperial capital. The modern capital of Turkey is situated at Ankyra, the same location as the Boukellarion Theme's capital, and exhibits decent centrality in regards

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<sup>67</sup> Of the 639 settlements listed in the *Notitia Episcopatum* (*Notitia* 7), 408 (64 percent) are located in Anatolia. The remaining 231 (36 percent) are divided between holdings in Europe and the Mediterranean. This incongruity becomes more pronounced when considering that the largest urban centers were located in the eastern half of the empire.

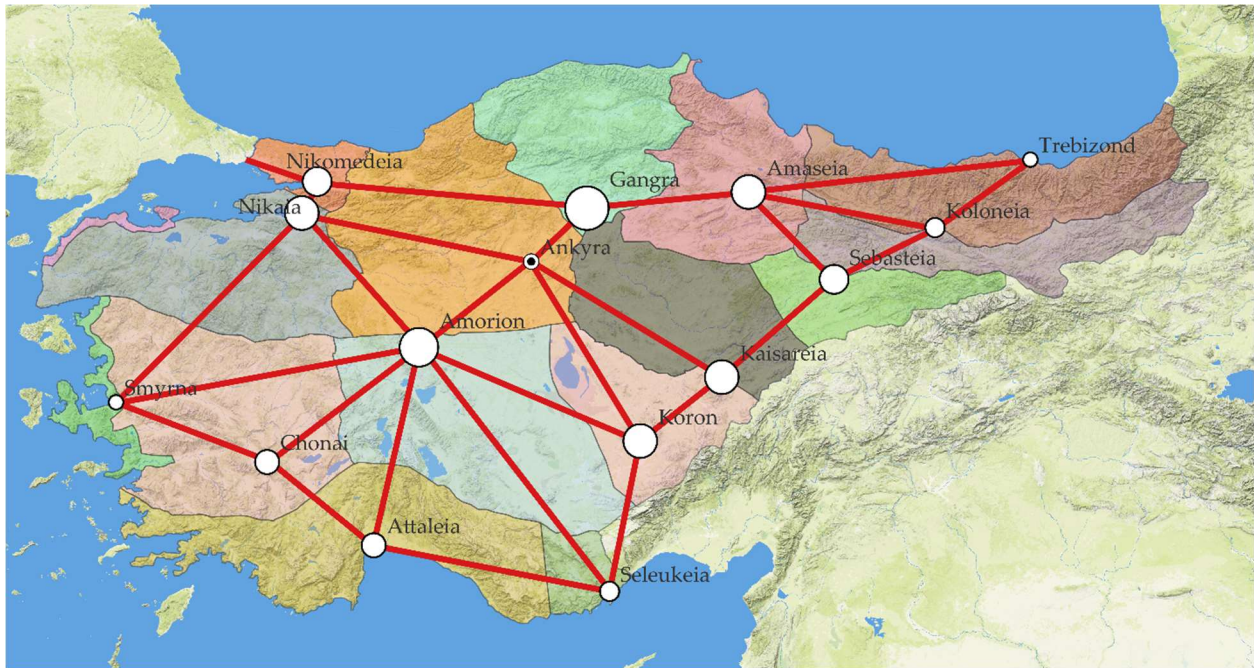
<sup>68</sup> *Kletorologion of Philotheos*, 100–61; *Taktikon Benesevic*, 244–53; *Escorial Taktikon*, 262–73. This is evidenced by the rankings of *stratego*i in imperial court lists.

to the themes. Therefore, in this hypothetical example, the imperial capital is placed at Ankyra to see how this would alter the relationships between the themes and the central government. Under this new arrangement, distance, betweenness, and composite values for the thematic capitals are compiled and depicted in tables 8.10–8.12 and the corresponding maps 8.20–8.22.

Table (8.10) Ankyra Distance Values (hypothetical)

<u>Capital</u>	<u>Distance from Ankyra</u>	<u>Converted Value (Points)</u>
Gangra	102 km	9
Amorion	189 km	8
Koron	281 km	7
Nikaia	299 km	7
Kaisareia	333 km	7
Amaseia	343 km	7
Nikomedeia	358 km	6
Sebasteia	417 km	6
Chonai	470 km	5
Attaleia	498 km	5
Seleukeia	551 km	4
Koloneia	596 km	4
Smyrna	713 km	3
Trebizond	738 km	3

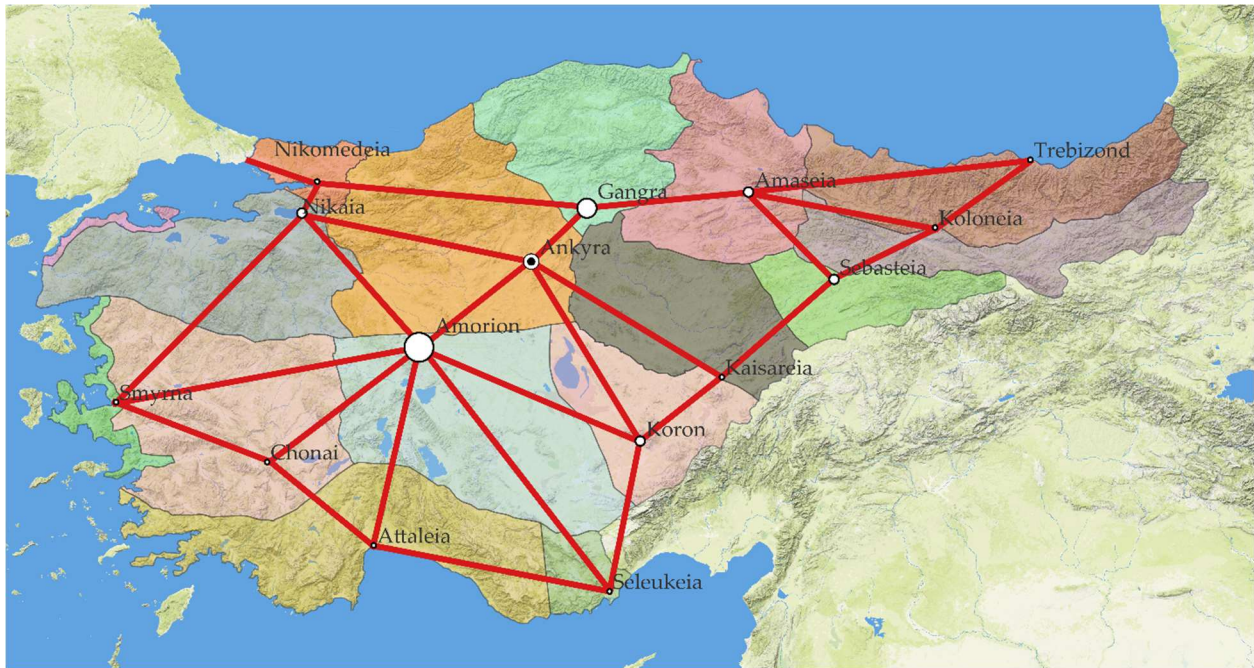




MAP 8.20. Distance values for Ankyra as the imperial capital (hypothetical)

(Table 8.11) Betweenness Centrality in Regards to Ankyra (hypothetical)

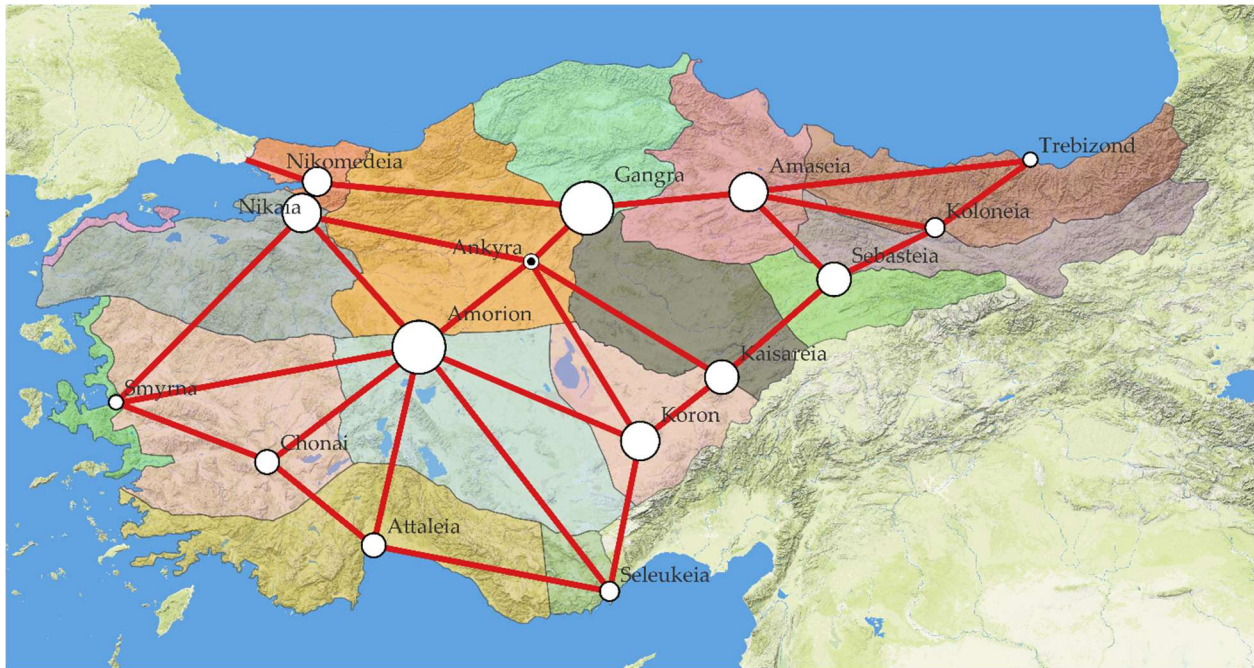
<u>Capital/Theme</u>	<u>Total Instances of its Use as a Throughway</u>
Amorion/Anatolikon	3
Gangra/Paphlagonia	2
Koron/Kappadokia	1
Nikaia/Opsikion	1
Sebasteia/Sebasteia	1
Amaseia/Armeniakon	1
Kaisareia/Charsianon	0
Nikomedeia/Optimatou	0
Chonai/Thrakesion	0
Attaleia/Kibyrraiotai	0
Seleukeia/Seleukeia	0
Koloneia/Koloneia	0
Smyrna/Samos	0
Trebizond/Chaldia	0



MAP 8.21. Betweenness centrality values for Ankyra as the imperial capital (hypothetical)

(Table 8.12) Composite Score for Ankyra (hypothetical)

<u>Capital/Theme</u>	<u>Composite Value</u>
Gangra/Paphlagonia	11
Amosion/Anatolikon	11
Nikaia/Opsikion	8
Amaseia/Armeniakon	8
Koron/Kappadokia	8
Kaisareia/Charsianon	7
Sebasteia/Sebasteia	7
Nikomedeia/Opsikion	6
Chonai/Thraakesion	5
Attaleia/Kibyrraiotai	5
Seleukeia/Seleukeia	4
Koloneia/Koloneia	4
Smyrna/Samos	3
Trebizond/Chaldia	3



MAP 8.22. Composite values for Ankyra as the imperial capital (hypothetical)

With Ankyra as a hypothetical imperial capital, the importance of betweenness centrality virtually disappears. Amorion boasts the highest value by serving as a thoroughfare three times, only 1/5<sup>th</sup> of the traffic that Nikomedeia experienced with Constantinople as the capital.

Both the hypothetical and actual models have six capitals with a degree of betweenness, with every other theme lying on the periphery. It is just that, within the hypothetical model, overall betweenness is reduced to a negligible level. This is precisely what is to be expected in a network with a centrally located imperial capital.

The lack of strong betweenness centrality affords greater weight to distance, values which are also more evenly dispersed in the Ankyra model. This results in a more egalitarian flow of communication and commerce along the network. This helps to explain why the location of Constantinople was optimal for an empire divided between Europe and Asia, but a modern state like Turkey is best served by a location like Ankyra.

In this hypothetical model, there would be no need for a buffer state like the Optimaton Theme. There is no singular chokepoint that can gatekeep access to the imperial capital. Likewise, an emperor desiring to form a buffer theme around the imperial capital would effectively have to annex a broad perimeter around the entirety of his city. If the radius were the same as the Optimaton Theme, around 100 km, this would create a buffer theme of 31,400 km<sup>2</sup>, the equivalent of a medium-sized theme such as the Armeniakon. The geographical effect enjoyed by this theme gatekeeping access to Constantinople could not be effectively reproduced in a centralized Ankyra model.

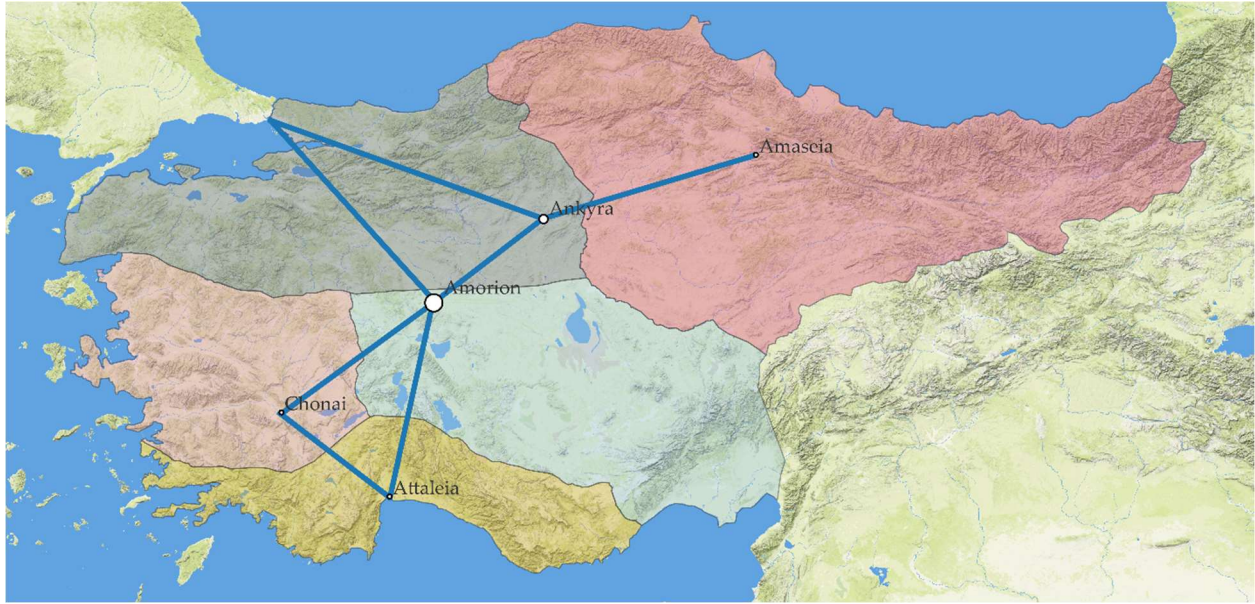
This is all to say that the creation of the Optimaton Theme as an extension of Constantinople's hegemony remains a unique solution to a problem that existed in no other contemporaneous empire. Byzantine administrators could not have simply copied this idea from another government past or present—instead, they arrived at the solution to an imbalanced betweenness centrality through their own understanding of geography.

This hypothetical model also reinforces the positions of Ankyra and Amorion as the integral connectors of the Anatolian thematic network. Taking the eastern themes in isolation, the centrality for these locations naturally funnels an outsized amount of traffic through them, regularly inserting these two themes into the affairs of their neighbors. No matter the desired terminus of a journey in Asia Minor, these cities had the highest probability of serving a betweenness role, even if on a small scale, and retained the highest levels of general centrality. From a purely network model, this helps to account for the high level of political activity and power that Ankyra and Amorion's *strategoi* could command.

Ultimately, this study demonstrates that Constantinople held an incongruity of betweenness centrality strikingly more profound than any of its contemporary neighbors and virtually any other premodern capitals.

### **Strategides and Betweenness Centrality**

Map 8.23 illustrates the strategides' betweenness centrality. Due to the small dataset, analysis of the strategides' capitals in relation to Constantinople yields no significant correlations. Amorion and Ankyra held slightly higher scores in terms of distance and betweenness, but there are no great imbalances like those witnessed in the theme system. For example, the highest incongruity in composite scores amongst the strategides is 3:1, between Amorion and Amaseia. For the theme system this variance balloons to 23:0 for Nikomedeia and Trebizond. This demonstrates how increased complexity within a system can quickly yield disparities in terms of communication and accessibility when the overall network is already primed for high betweenness centrality.



MAP 8.23. Strategides' betweenness centrality

## **CHAPTER 9—THE DUCATES/KATEPANATES AND THE MINOR THEMES**

### **Introduction**

This final chapter leaves behind the Roman Themes and turns to the administrative makeup of the territories held east of the Taurus and Anti-Taurus Mountains. These lands were divided into six administrative entities known as ducates/katepanates that oversaw seventy known minor themes (appendix 1). These landholdings, at their furthest extent, encompassed approximately 350,000 km<sup>2</sup>, roughly 75% of the Roman Themes' total area of 479,000 km<sup>2</sup>. Such a territorial expansion within the span of little more than a century necessitated major adjustments and adaptations to the preexisting administrative system. While chapter 3 considered the historical developments of the region, this chapter will assess Byzantium's capacity to adapt to geospatial principles starkly different from those experienced in the rest of the system.

Part 1 of this chapter produces a map of the ducates/katepanates which is used to interrogate the geospatial principles that governed their organization. Then part 2 turns to the minor themes, creating a network model and applying a series of tests to ascertain the system's robustness.

### **The Ducates/Katepanates as Distinct Spatial Entities**

Before analyzing the ducates/katepanates, it is necessary to understand how the Byzantines envisioned them as distinct spatial entities. Did the ducates/katepanates have well-defined areas

of jurisdiction akin to the Roman Themes or were they more nebulous concepts in which the seat of the *doux* was fixed but authority was temporarily extended when required?

The Treaty of Devol (1108) lends insight into this matter regarding the Duchate of Antioch. Recounted in the *Alexiad*, the treaty articulated an agreement between Emperor Alexios I Komnenos and Bohemund of Antioch. It specifically demarcated the lands within the Duchate of Antioch to be apportioned, namely in Kilikia and Syria.<sup>1</sup> Lands to be removed from the Duchate of Antioch's jurisdiction included, "the theme of Podandos...the *strategos* of the city of Tarsos, the city of Adana, the city of Mopsouestia, and Anabarza—in short, the whole territory of Kilikia which is bounded by the Kudnos and the Hermon."<sup>2</sup>

This text affirms that the ducates/katepanates were understood to control tangible territorial extents constituting cities, minor themes, and geographical features. Although the nature of the ducates had changed between the late tenth century and early twelfth century, when the treaty was penned, the idea that the ducates/katepanates govern a well-delineated territorial extent almost certainly existed since the advent of the system.

### **Defining the Territorial Extent of the Ducates/Katepanates**

No extant records specifically articulated the spatial extent of the six ducates/katepanates, precluding a firm definition of their shapes and sizes. The very nature of the ducates/katepanates along an active military zone meant that their sizes continually increased in relation to new acquisitions. Another caveat for consideration is that, unlike the Roman Themes, which had

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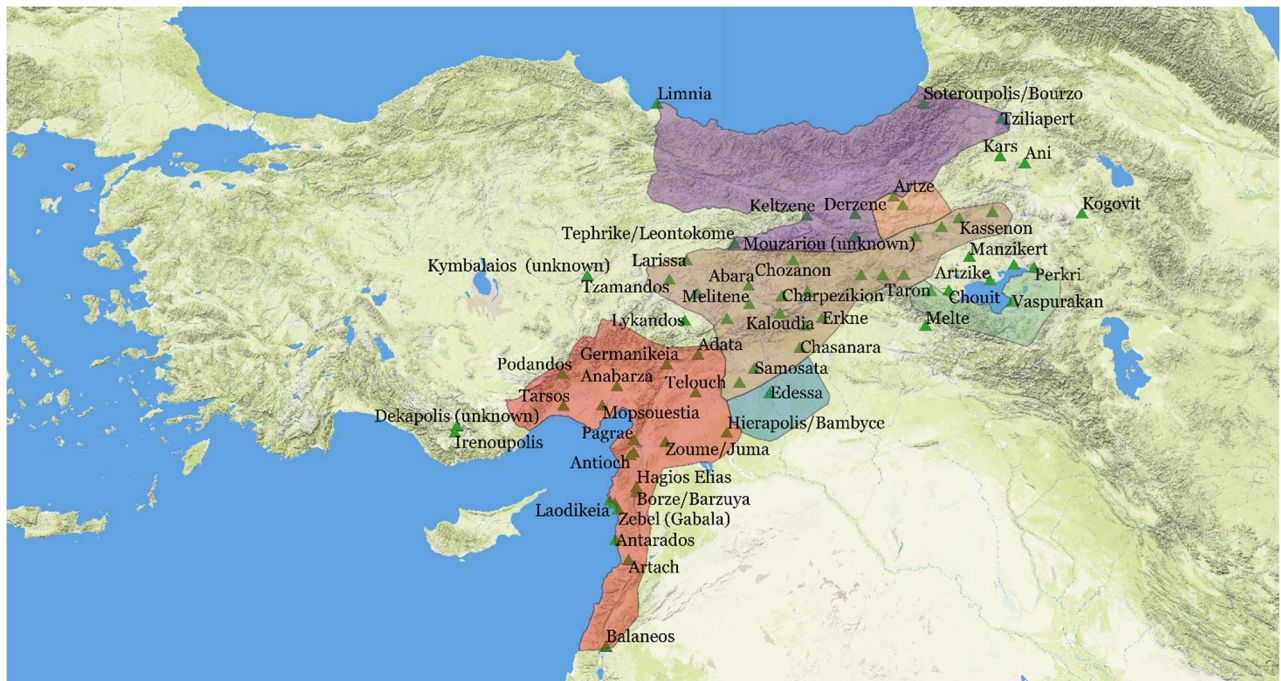
<sup>1</sup> Anna Komnene, *Alexiad*, 13.12.

<sup>2</sup> Anna Komnene, *Alexiad*, 13.12.



fixed boundaries, the variability of the eastern frontier often precluded a firm accounting of the *doux*'s control, which left the territorial extent beyond the presence of the minor themes nebulous in certain areas. For instance, within Syria in the late tenth century, there was no clear delineation between some territories controlled by the *doux* of Antioch and the Hamdanids of Aleppo.<sup>3</sup>

For the purposes of this study, administrative holdings are defined by the minor themes known to be under their jurisdictions. These values are derived from appendix 1. Using this data, we can determine the minimum sizes of the ducates/katepanates to show the scope of responsibility the Byzantines intended for these administrative divisions. This is visualized in map 9.1.



MAP 9.1. The ducates/katepanates along the eastern frontier with the minor themes (ducates/katepanates identified by shaded regions, minor themes denoted by green triangles)

<sup>3</sup> Krsmanović, *Byzantine Province in Change*, 104.

## **Patterns in the Organization of the Ducates/Katepanates**

Having established the general locations of the ducates/katepanates, the analysis now turns to the organization of these spatial entities. To identify patterns in the distribution of the ducates/katepanates, variables from Chapter 5—shape, size, arable land, and demography—are reapplied.

### **Shape**

There was no effort to impose uniformity of shape among the ducates/katepanates, nor to divide them in a manner conducive to governance. While the Roman Themes had variability in their shapes to fulfill particular purposes, they generally gravitated towards a square or rectangular organization. This helped to maximize the square mileage that could be effectively governed from a single location, the 300 km/ten-day threshold of governance explored in chapter 7. No such efforts towards maximizing efficiency are evidenced in the ducates.

For example, the Ducate of Antioch extended along a narrow strip of the Mediterranean coast that gave it by far the most disproportionate length-to-width ratio of any administrative body in the eastern half of the empire. This reflects the ducates expanding in a piecemeal fashion that corresponded with new conquests. However, there was no attempt to subdivide these jurisdictions once they grew too unwieldy, indicating satisfaction—or at least complacency—with their makeup.

## Size

Alongside shape, there were no demonstrable efforts towards uniformity of size. While it is not possible to provide a precise size for the smallest units, the Ducate of Edessa and the Katepanate of Vaspurakan, due to their locations along the front, it is feasible to arrive at an approximation for the Ducate of Iberia. It is known with certitude that the ducate constituted the minor themes of Artze and Iberia (Theodosiupolis) and was bounded by the Koloneia Theme to the north and the minor themes of Derzene, Kama, Mouzariou, Chantiarte, Kars, and Ani in the other directions. This places the territorial extent of Iberia at around 6,000 km<sup>2</sup>. By contrast, the Ducate of Antioch spanned 76,700 km<sup>2</sup>, with the Ducate of Mesopotamia at 68,900 km<sup>2</sup>. This resulted in a 12:1 ratio between the largest and smallest ducates, surpassing the biggest discrepancy in the Roman Themes—which was an 8.5:1 ratio thanks to an agglomeration of deliberately diverse administrative units.

## Arable Land

The challenging terrain in the far eastern parts of the empire complicates the analysis of arable land locations. However, this detailed scrutiny is unnecessary, as the varied sizes of the territories assured that equity was not a factor in their consideration.

## Demographics

Once again, variability in size precluded an even distribution of population. The contested nature of the frontier region had the effect of discouraging the casual settlement of individuals, leading to generally reduced demographic figures when compared to Anatolia west of the Taurus Mountains. Looking at the number of minor themes within each jurisdiction, as shown in table 9.1 provides some grounds for comparison, albeit extremely rough.

(Table 9.1) Minor Themes per Ducate/Katepanate

<u>Ducate/Katepanate</u>	<u>Number of Minor Themes</u>
Mesopotamia	22
Antioch	20
Chaldia	7
Iberia	2
Vaspurakan	2
Edessa	1

Even in the absence of demographic data, the incongruity in settlement patterns is overwhelming. Table 9.1 indicates some equity between Mesopotamia and Antioch, but no larger trends to affirm that population distribution was a priority in the ducates'/katepanates' formation. The elasticity of the ducates' sizes due to conquests precluded this type of equity from even becoming a factor. For instance, after the conquest of Antioch in 969, the initial ducate had around twelve minor themes under its jurisdiction. At the ducate's height, this grew to at least twenty.

Analysis of these variables—size, arable land, and demographics—indicates no discernable regularities within the distribution of the ducates/katepanates. Thus, in all metrics, the ducates/katepanates held a higher degree of variability than the Roman Themes.

### **Temporal Limitations**

The ducates/katepanates also exhibited no attempt at organizing around the temporal and travel limitations imposed on the Roman Themes. This incongruity is readily apparent through a cursory size comparison. The average Roman Theme was around 32,000 km<sup>2</sup>. The average ducate came in at 58,000 km<sup>2</sup>, yet half of these administrative units were smaller than 10,000 km<sup>2</sup>. This means the three biggest ducates were substantially larger than their thematic counterparts. The presence of irregularly shaped territories, spread over highly mountainous terrain and lacking internal connectivity, clearly indicates that there was no attempt to ensure jurisdictional uniformity. Such geospatial incongruities are best demonstrated by looking at the three largest ducates of Antioch, Mesopotamia, and Chaldia.

## Ducate of Antioch



MAP 9.2. The Ducate of Antioch

The Ducate of Antioch, at its height, consisted of approximately 76,700 km<sup>2</sup> (29,600 mi<sup>2</sup>); however, due to variabilities along the eastern border with the Hamdanids, this remains a very rough estimation. This number assumes a conservative approach, only encompassing the area held by well-defined minor themes under the *doux*'s jurisdiction. Territorial claims further into Syria's interior could easily add several thousand kilometers to the ducate's extent. Even the conservative value makes the territorial extent of Antioch larger than any of the preexisting themes. The largest of these were the Anatolikon 58,300 km<sup>2</sup> (22,500 mi<sup>2</sup>) and Thrakesion 57,200 km<sup>2</sup> (22,100 mi<sup>2</sup>), yet both only approached 75 percent of the ducate's size.

What is more remarkable about Antioch's size is that it eschewed compactness and assumed a long and circuitous shape, as shown in map 9.2, which led to an exaggerated

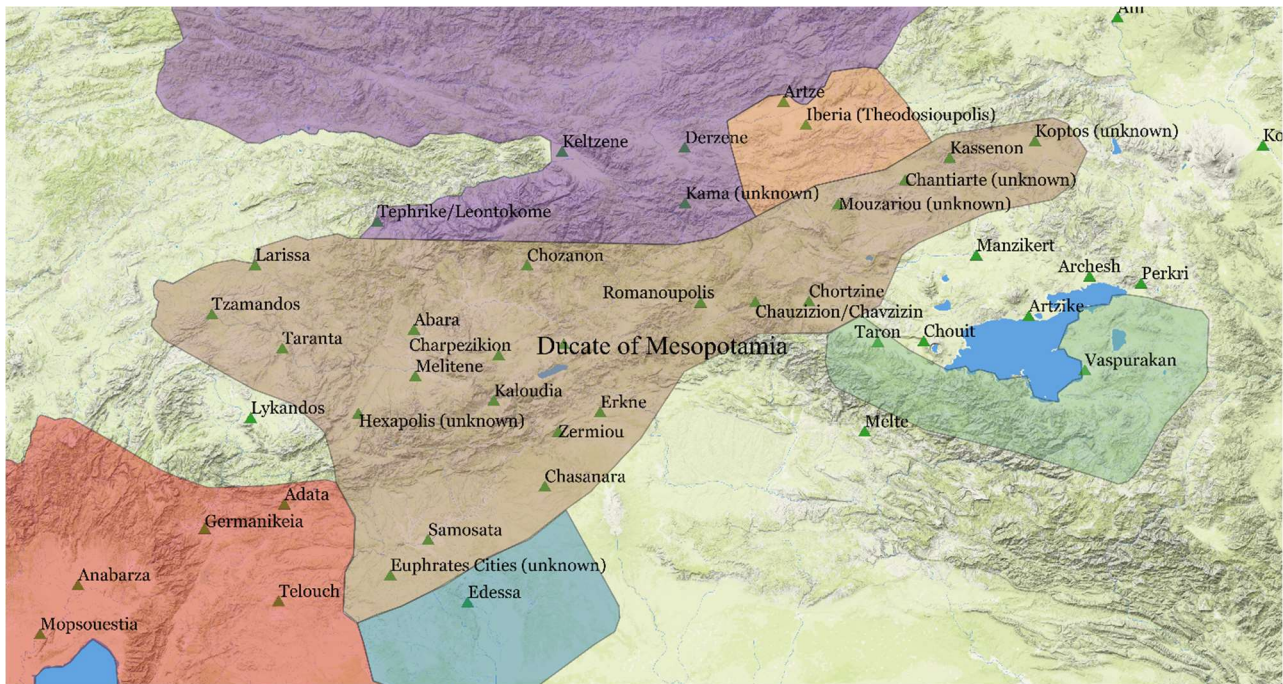
territorial coverage. Unlike the Roman Themes, which had the ability to coalesce into more compact and manageable shapes, externalities placed restrictions on the ducate. Expansion into the Levant proceeded along the coastline, with little movement into the Hamdanid-controlled Syrian interior. This resulted in an elongated irregular shape in which the ducate measured 555 km from north to south, but only roughly 50 km or less from east to west in certain parts. This 10:1 height-to-width ratio was the most pronounced of any of the empire's Asian administrative bodies. After that are the ratios of the Koloneia Theme at about 8:1 and the Kibyrraiotai Theme at 5:1.

Despite this spatial discrepancy, the ducate retained a decent level of accessibility from Antioch due to its centralized location. From Antioch it was 330 km to its southern extent at Balaneos, 240 km to the furthest northeastern holding of Adata, and 280 km to the border with the Seleukeia Theme. Travel over the Taurus range would have added time to traversing the western extent of the ducate, but a range of eleven to fourteen days to reach all parts of its jurisdiction places overall accessibility only slightly worse than the average theme at ten days. This carries similarities to Attaleia and the Kibyrraiotai Theme in that a highly centralized capital facilitated travel primarily along a route paralleling the coast.

However, this similarity masks the fact that, when Antioch was made the administrative center of the ducate, it initially fell along the frontier, and it was only with subsequent conquests as far south as Balaneos that the city attained this more central position. Unlike the Roman Themes, which were specifically designed to administer a fixed geographical space in the most efficient manner possible, Antioch was selected to address extreme volatility in territorial acquisitions and losses. The potential for growth was built into the design of the ducate, enabling expansion to the south and east. How far the Byzantines would have permitted the expansion of

the ducate before deeming it necessary to form an additional administrative body remains unknown, as the military conquests abated before such a limit was attained. As the neighboring Ducate of Mesopotamia spanned more than 600 km over more difficult terrain, it is likely that there was still considerable room for growth.

### Ducate of Mesopotamia



MAP 9.3. The Ducate of Mesopotamia

Looking at the shape of the ducate in map 9.3, the ad hoc nature of its creation and organization is on full display. Unlike the strategides and themes, this ducate exhibited little attempt towards consolidation. The ducate ran 600 km from east to west, but had a north-south extent that ranged between 70 km at its narrowest point to 250 km at its maximum, with an average of 150 km.



Despite Mesopotamia's piecemeal formation, no subsequent efforts were made to divide it into more regular or manageable sizes.

The total area of the Duchy of Mesopotamia amounted to approximately 68,900 km<sup>2</sup> (26,600 mi<sup>2</sup>), 17 percent larger than the Anatolikon, the largest theme of the tenth century. As in the case of Antioch, this measurement is also predicated on the duchy's territorial extent aligning closely to the minor themes under its control. In reality, this jurisdiction could have extended even further, easily adding several thousand additional square kilometers of coverage.

The length of Mesopotamia outstripped the longest themes of Chaldia and Koloneia by approximately 35 percent, making it more equivalent to the original incarnations of the Kibyrraiotai and Opsikion strategides. Even taking into account the terrain being inhibitory to movement, this irregular shape had no attempt at centrality of operational coverage. Ostensibly the seat of the *doux* was at the Mesopotamia Theme's capital. If Haldon's speculation on the location of the capital holds weight, this could potentially have been at the fortress of Kamakha, which would place the administrative center at the northwestern extremity of the duchy.<sup>4</sup> By comparison, the most elongated themes of the Kibyrraiotai, Chaldia, and Koloneia adhered to general rules of centrality to make administration feasible (see map 7.5 on thematic centroids). While the *doux* of Antioch's highly centralized capital afforded it coverage only marginally worse than the Roman Themes, Mesopotamia showed no hint of accounting for accessibility in its organization.

Mesopotamia also ran along the most rugged extent of the Taurus Mountains, potentially doubling the travel time in some places. It would have taken upwards of thirty-five to forty days

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<sup>4</sup> *De Thematis*, ed. Haldon, 132n210.

to reach places such as Koptos or Chantiarte along the easternmost extent.<sup>5</sup> This amounted to thirty more days of travel, or four times the maximum temporal limits allowed for the Roman Themes. The capital's coverage was more than twice as poor as the Opsikion Theme, which itself was an outlier for weak connectivity (isochrone map 7.18).

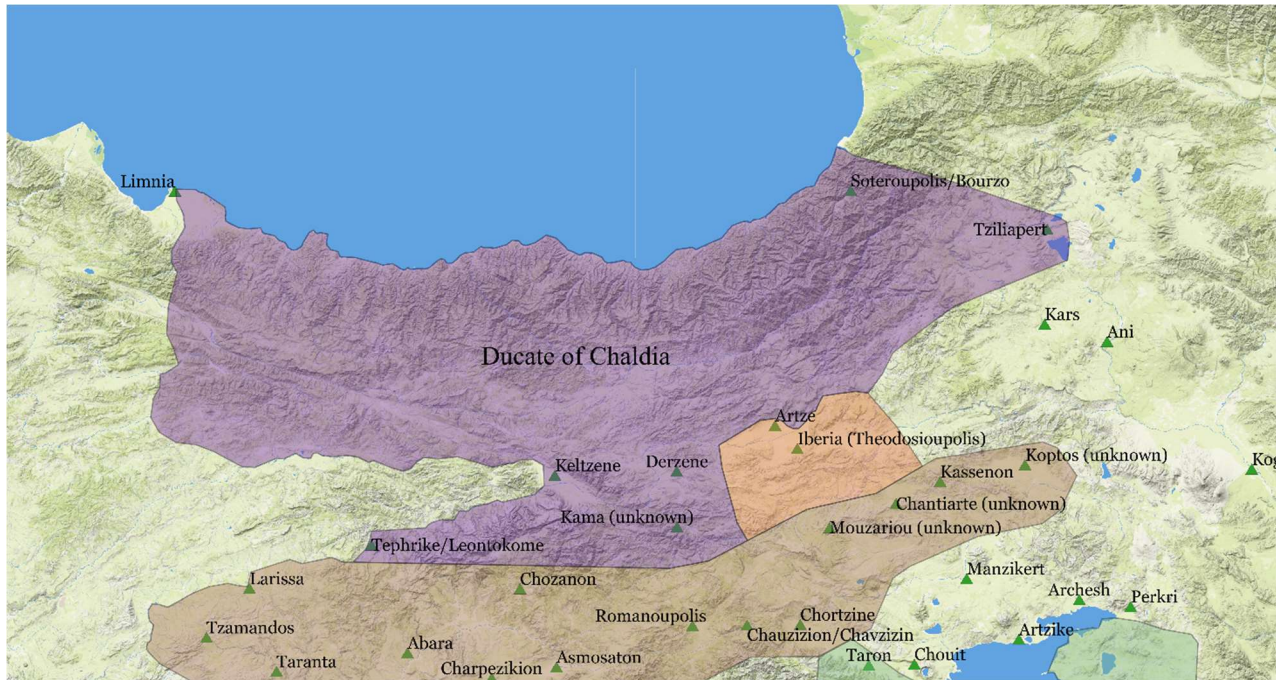
Turning to the strategides for comparison, Mesopotamia had a similar distance of coverage as the Armeniakon, approximately 600 km, but the ducate had to contend with terrain that would have added roughly fifteen to twenty days of additional travel. This is the worst coverage, by far, of any of Byzantium's administrative entities throughout the entirety of the empire's existence.

This shows that the ducate was not meant to administratively function in the same manner as the Roman Themes. Otherwise, Mesopotamia would have needed to be divided into at least two or three ducates, with a southwestern section coalescing around, say, Samosata, and a central/eastern section near a location like Romanoupolis. As this was never done, the majority of the ducate's minor themes had to exercise a degree of autonomy or else be forced to endure chronically slow communication along a militarily active region.

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<sup>5</sup> This calculation is predicated on a 50–100 percent travel burden that is uniformly applied to the Taurus Mountains and Armenian Plateau. See chapter 6 on the topography of this region and an argument for implementing this burden value.

## Ducate of Chaldia



MAP 9.4. The Ducate of Chaldia

As a theme, Chaldia functioned similarly to other Roman Themes in terms of accessibility, even despite its irregular, elongated shape and alignment with the Pontic Mountains. The efficacy of the theme depended on predominantly west-east travel, which avoided crossing the Pontic range.

As a ducate, this model of efficiency breaks down. The holdings of Derzene, Kama, Keltzene, and Tephrike/Leontokome shifted the axis of travel to a north-south direction, forcing administrative control from the capital Trebizond to directly cross the Pontic Mountains.

The *Tabula Imperii Byzantini* does not discern how the road network connected to these minor themes in the south, as well as to Tziliapert in the far east, so no direct routes and travel times can be articulated. Therefore, the best estimate is that travel between the seat of the *doux* and the outlying minor themes under its jurisdiction amounted to around fifteen to seventeen

days (265 km from Trebizond to Tephrike/Leontokome and 290 km from Trebizond to Tziliapert). This amounted to less than the thirty to forty days for travel within the Duchate of Mesopotamia but was still significantly more than the ten-day threshold for the Roman Themes. This made all three of the largest ducates incompatible with close, direct governance from their capital.

### **The Minor Themes as a Functional Defensive Network**

The logistical constraints posed by the expansive ducates of Mesopotamia, Antioch, and Chaldia reveal the administration's inability to directly govern their territorial holdings in a manner similar to the Roman Themes. Even if these regions were securely located within the empire's interior, their large sizes would still render them impractical for direct governance. Moreover, their positions along the active frontier only exacerbated these governance difficulties.

Krsmanović has also pointed out that some seats of the ducates/katepanates were not occupied continuously.<sup>6</sup> Antioch saw an unbroken lineage of administrators<sup>7</sup> and Mesopotamia potentially maintained its occupancy due to its size and importance, but the offices of other ducates/katepanates sat empty for extended periods of time.<sup>8</sup> The empire was unable to maintain continuous deployment of tagmatic units along its entire European and Asian frontiers. Instead, it redeployed troops from the ducates to areas with the most urgent needs. So, while the ducates

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<sup>6</sup> Krsmanović, *Byzantine Province in Change*, 178–79.

<sup>7</sup> Laurent, "La chronologie des gouverneurs d'Antioche," 219–54.

<sup>8</sup> Krsmanović, *Byzantine Province in Change*, 179.

played an important administrative role over the minor themes, this was neither consistent nor comprehensive.

Collectively, these factors demonstrate that the ducates/katepanates did not and could not administratively function akin to the Roman Themes, and that the minor themes within their jurisdictions necessitated a degree of autonomy to function as a viable defensive unit.

It is important to understand that the minor themes along the eastern front were not isolated entities; their functionality often depended on coordinated interactions with adjacent neighbors. Thematic locations were not placed randomly but followed larger organizational principles that the empire believed would best ensure the longevity of its presence in the newly acquired territories. *Strategoï* did not independently found their themes.<sup>9</sup> These were decisions made by the central government, meaning that the overall layout of the minor themes was intentional and should be analyzed with this deliberate planning in mind.

The rest of this chapter analyzes broader organizational trends within the minor themes to see how they functioned as a collective network of defense.

There has not been an adequate assessment of the minor themes as a collective network. Bojana Krsmanović, in *The Byzantine Province in Change: On the Threshold Between the 10<sup>th</sup> and 11<sup>th</sup> Century*, provided the most thorough accounting of the minor themes in the east by deducing forty-six of their locations.<sup>10</sup> This is derived from the rankings of the *Escorial Taktikon* (970s), which produced the same register.<sup>11</sup> The present study has added an additional twenty-four minor themes to the list, bringing the total to seventy, a nearly 50 percent increase over the

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<sup>9</sup> Brubaker and Haldon, *Byzantium in the Iconoclast Era*, 554, 559.

<sup>10</sup> Krsmanović, *Byzantine Province in Change*, 85–86, 90–94.

<sup>11</sup> *Escorial Taktikon*, 264–69.

prior sum (see appendix 1 for the full list). Such a difference in the number and understanding of the geographical dispersion of the minor themes necessitates a reevaluation of their role within the frame of the ducates/katepanates and as semi-autonomous entities.

The minor themes have also not been evaluated as a collective body using quantitative metrics; a necessity when dealing with a complicated system in which underlying trends are not readily self-apparent. This section seeks to remedy these omissions by considering the minor themes as a deliberately designed network.

### **Minor Themes and Territorial Responsibility**

Sigillographic and textual references from the period described the minor themes primarily in terms of their capitals. This was certainly the most important element of a theme, as it was home to the *strategos* as well as the administrative and military apparatus. However, the true territorial extent of the minor themes extended beyond the walls of the capital where they carried the responsibility of administering and defending an outlying region of some extent. While records do not survive to attest to this, territory under a minor theme's jurisdiction would almost certainly have been assessed akin to the Roman Themes, with taxation collected by officials from the capital.

This leads to the question: what was the territorial responsibility of the minor themes? No extant account supplies this information, but some general principles can be approximated based on the spatial organization of the minor themes.

The creation of the minor themes proceeded hand in hand with territorial conquests, with most minor themes created almost directly after the acquisition of an area. This closely ties the minor themes to a critical role in the overall military strategy along the eastern front, indicating they were strategically arrayed to best achieve this objective.

Areas of jurisdiction certainly varied between themes. Later acquisitions such as Vaspurakan<sup>12</sup> and Ani<sup>13</sup> that were composed of lands acquired from pre-existing Armenian kingdoms were considerably larger than something such as Pagrae<sup>14</sup> or Podandos<sup>15</sup> designed mainly to guard a mountain pass or important transportation artery. In addition, the average minor theme garrisoned between 500 and 1,000 troops<sup>16</sup> mainly for defensive purposes, but this could have ranged up to 4,000 in the case of Tarsos, which served an active role fielding troops in support of Antioch.<sup>17</sup> Despite this size variability, general patterns can be deduced from the density and location of their placements. With seventy minor themes in the system, the impact of outliers is minimized. Additionally, most of these outliers are situated on the eastern extremity of the system, further lessening their impact on the overall average.

Thus, for the majority of the minor themes, the creation of an average sphere of influence serves as a representative heuristic of their intended function. This sphere of influence is estimated by drawing equivalent spatial buffers around every minor theme and adjusting them

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<sup>12</sup> Nina G. Garsoïan, "The Byzantine Annexation of the Armenian Kingdoms," in *The Armenian People from Ancient to Modern Times*, vol. 1, *The Dynastic Periods: From Antiquity to the Fourteenth Century*, ed. Richard Hovhannisian (New York: St. Martin's Press, 1997), 187–98. Vaspurakan is recorded as constituting 72 fortresses, although their size and territorial extent remains unknown.

<sup>13</sup> McGeer, Nesbitt, and Oikonomides, *Catalogue of Byzantine Seals*, 4:166–68.

<sup>14</sup> Anna Komnene, *Alexiad*, 13.12; Leon the Deacon, *History*, 125; Todt, "Antioch in the Middle Byzantine Period," 178; Andrea De Giorgi and Asa Eger, *Antioch: A History* (New York: Routledge, 2021), 330.

<sup>15</sup> Attaleiates, *History*, 17.22, 21.8; *Escorial Taktikon*, 266–67; Oikonomides, *Les listes de préséance byzantines*, 360.

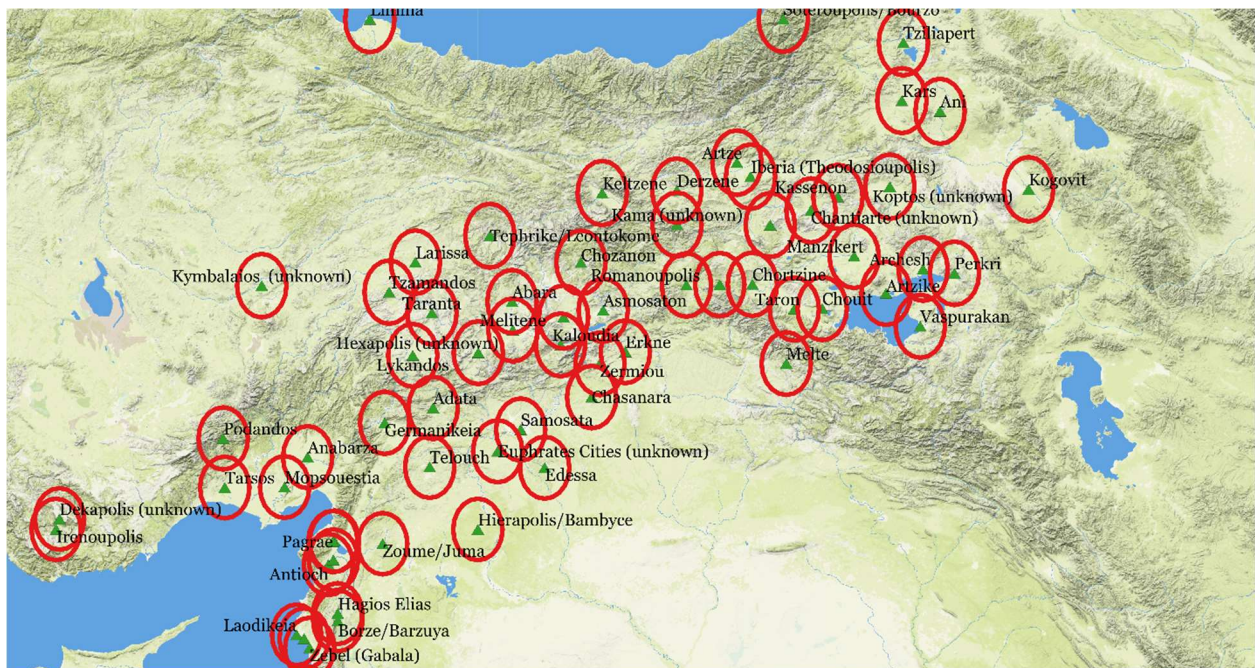
<sup>16</sup> Hild and Restle, *Tabula Imperii Byzantini*, 2:261–62.

<sup>17</sup> John Haldon, *Warfare, State, and Society*, 103–6.

<sup>17</sup> Krsmanović, *Byzantine Province in Change*, 177.

until the majority either touch or have a slight overlap.<sup>18</sup> This minimizes gaps between the themes, as they had the responsibility of protecting their surroundings in a manner that prevented an enemy from simply circumventing their position, while also minimizing jurisdictional redundancies.<sup>19</sup>

Map 9.5 represents these spheres of influence by showing the thematic capitals as green triangles and the spatial buffers as red circles.



MAP 9.5. The minor themes with a 30 km radius buffer

<sup>18</sup> De Smith, Goodchild, and Longley, *Geospatial Analysis*, 151–53.

<sup>19</sup> Aurenhammer, Klein, and Lee, *Voronoi Diagrams and Delauney Triangulations*; Okabe, Boots, Sugihara, and Chui, *Spatial Tessellations*; Okabe, Boots, and Sugihara, “Nearest Neighbourhood Operations with Generalized Voronoi Diagrams,” 43–71. Another potential method of visualizing the jurisdictions of the minor themes is through the implementation of a Voronoi diagram/Thiessen polygons. These were previously implemented in chapter 7 (maps 7.3–7.4), although to answer a different type of question. I find the “spheres of influence” model to be a better way to visualize how the Byzantines conceived of what the average jurisdiction should look like, and it is easier to detect regions of clustering. That being said, both techniques produce similar end results.



Predicated on the idea of maximizing coverage while keeping jurisdictional overlap to a minimum, the optimal buffer around each capital is a 30 km radius. Applying these hypothetical jurisdictions accounts for 75–85 percent of the eastern territory that the empire controlled outside of the Roman Themes, although such a range of coverage should be taken as an extremely rough approximation, as the borders of the Mesopotamia and Lykandos Themes remain ill-defined.

Unlike the radii of coverage drawn for the Roman Themes, which follow the trajectory of the road network, these buffers are drawn relating to distance only as the crow flies. This is done because it is difficult to accurately recreate the road network much beyond the Taurus Mountains, which strains efforts to precisely trace travel time in relation to the roads. However, even if the exact locations of specific roads are not always known, the close proximity of the cities and fortifications to one another heavily implies connectivity to their nearest neighbors and that they did not function as isolated units. At this scale, a meandering road between themes would generally only amount to the addition of a few kilometers. Contrast this to the Roman Themes whose capitals were separated by an average of 310 km and whose connecting roads sometimes assumed circuitous routes to accommodate geographical and demographic variations. Therefore, using an as-the-crow-flies method of calculation has utility portraying an approximate range of thematic responsibility.

In terms of travel time between themes, this is an instance where Scheidel’s standardized model breaks down.<sup>20</sup> The baseline of 30 km a day on foot was almost certainly not attainable for most of the minor themes. As discussed in chapter 6, travel amongst the Taurus Mountains and Armenian highlands was exacerbated by difficult terrain and stark elevation changes. However, because the distances in question are a degree of magnitude smaller than the Roman Themes, this

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<sup>20</sup> “Orbis,” accessed February 27, 2024, <http://orbis.stanford.edu>.

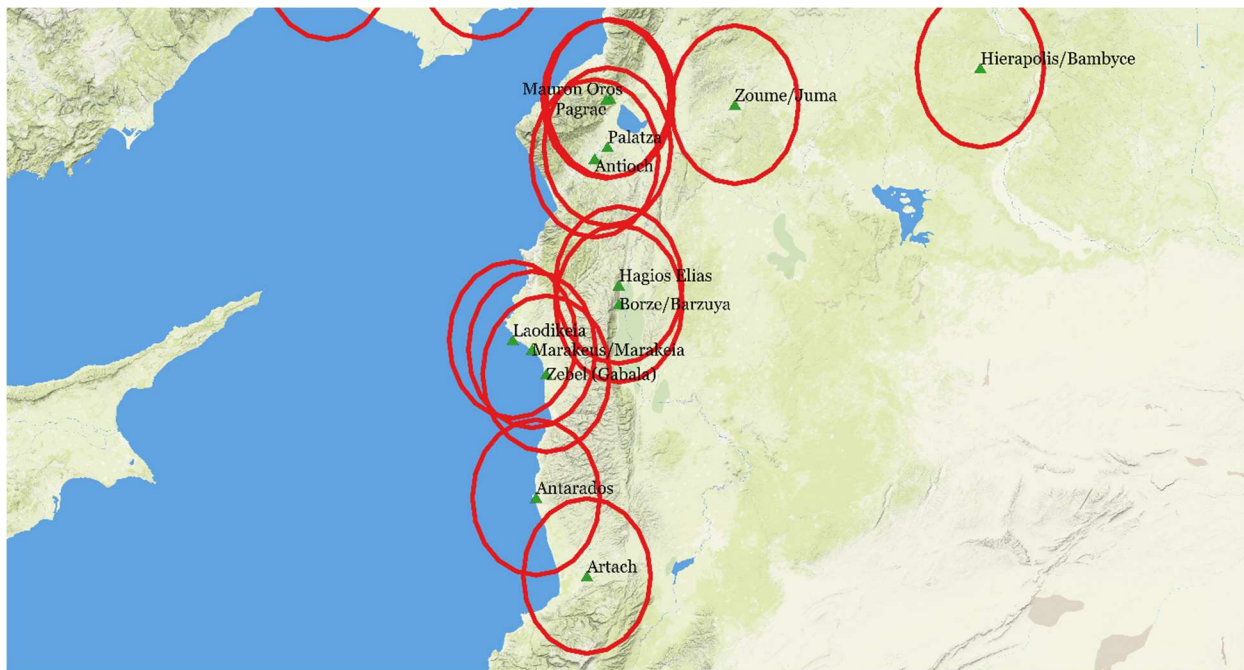
does not cause any major discrepancy when assessing such short travel times. For instance, even if a 50–100 percent time burden is imposed to account for difficult terrain, instead of 1 day of travel, such a distance from the thematic capital to the limits of its territorial extent could still be comfortably reached within 1.5 to 2 days. Aside from extreme outliers such as Balaneos in the Levant and Soteroupolis-Anakopia in the Caucasus, this made most (75–85 percent) of the empire’s landholdings east of the Roman Themes accessible from a thematic capital within 1–2 days.

Converting the 30 km radius into total area of coverage, this amounts to the average minor theme being responsible for approximately 2,800 km<sup>2</sup> or 1,100 mi<sup>2</sup> of territory. Compared to the Roman Themes, which could access nearly every portion of their territory with 300 km of road travel, the minor themes amount to one-tenth of that coverage. Even in terms of the smallest Roman Themes of the Optimaton and Seleukeia, the minor themes still only covered about one-third of their total area.

Another way to visualize the jurisdiction of some minor themes is as a connectome, where influence is mapped through a branching road network rather than encircled areas. This model would be particularly relevant for themes in mountainous terrain, where populations were primarily confined to roads. A connectome would reflect the de facto authority more accurately than the idea of uniform control over strategically or economically insignificant areas.

Roads acted as the scaffolding around which the empire exerted its authority, making control of access to them a critical function of the minor themes. The most effective form of jurisdiction varied from theme to theme, suggesting that a hybrid model—combining road network-based and total area-based approaches—could be appropriate depending on specific circumstances. Regardless of the actual jurisdictional dynamics within the minor themes, these

spheres of influence define the average distance between themes that organizers deemed necessary for effective control along the road network.



MAP 9.6. The minor themes near Antioch with a 30 km radius buffer

The one aberration to this trend in spatial distribution is the area around Antioch. As map 9.6 depicts, a clustering of minor themes only a few kilometers apart ran from the city of Antioch down the Levantine coast, which included Borze/Barzuya, Hagios Elias, Laodikeia, Marakeus/Marakeia, Mauron Oros, Pagrae, Palatza, and Zebel (Gabala). Such a concentration was a byproduct of the highly contestable nature of the region and importance of Antioch. In addition, some sites, such as Mauron Oros, were also devised as temporary fortifications and demoted from the status of theme after Antioch's conquest, making this area appear denser.<sup>21</sup>

<sup>21</sup> No. 183 "Kemales, *protospatharios* and *strategos* of Mauron Oros" (late eleventh century), in Cheynet, Morrisson, and Seibt, *Les sceaux byzantins de la Collection Henri Seyrig*; Yahya, *Chronicle*, 816; Skylitzes,

Outside of this cluster, there is evidence of a more equitable spatial distribution of the minor themes. The average distance between the capitals of the minor themes amounted to 54 km, with very few cases falling + or - 15 km outside of this range. Because the minor themes played a strategic role in buttressing military advancements along the frontier, their placements had to account for real-world factors that prohibited a perfectly even distribution. Considering this variance, the increments between the themes is too regular to be a coincidence or a product of random chance, but instead reflects a concerted strategy of how much territory a thematic outpost could properly defend and administer.

The regularity of thematic placement also suggests that most minor themes were responsible for similarly sized jurisdictions. If this were not the case, there would be evidence of several areas with high levels of clustering, as witnessed around Antioch. Likewise, there would have been multiple areas of very low density, in which a single minor theme functioned more akin to small Roman Themes such as Seleukeia or the Optimaton. Neither of these scenarios occurred with any regularity, suggesting the general desire for uniformity over specialization.

### **Connectivity of the Minor Themes**

Building on the concept of equitable proximity, this section inquires into how the minor themes related to one another in terms of connectivity as part of a broader network. Connectivity of the minor themes is a viable route of inquiry because their overall arrangement along the eastern frontier displayed indications of broader, systematic planning. It is true that the minor themes

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*Synopsis*, 261; Leon the Deacon, *History*, 136. Mauron Oros is the theme with the shortest recorded lifespan. It existed only two years from 968–69 with only two appointed *strategoi*.

exhibited a degree of autonomy, but viewing them in isolation neglects how they functioned as a cohesive whole. For instance, arbitrarily placing themes around the contested front would have yielded little strategic efficacy, leaving them vulnerable to isolation and easy conquest. This section will demonstrate that decisions on the placements of the seventy minor themes over an approximately 1,150 km by 200 km swath of the eastern frontier exhibited clear signs of deliberate planning that created a flexible and versatile connectivity network.

The following criteria are used for assessing connectivity and building a network amongst the minor themes.

- The initial parameters derive from the best fit model of the spatial buffers drawn for the last section (map 9.5). The key metric for defining connectivity constitutes those minor themes that fell within 60 km of one another (the 30 km radius multiplied by two). As previously argued, this range has consistency across the minor themes and reflects a general principle of their organization.
- Connectivity branches are then manually augmented to remove links across mountainous terrain that cannot be easily circumvented and would have encumbered a close relationship between locations. Themes that were interrupted by a mountain range are included if a clearly delineated road existed between them and they fell within the 60 km distance threshold.
- Themes that laid beyond this buffer, but were not designed to be an isolated outpost, are given a single connection to their nearest neighbor. These occurred along the extremities of the network, such as with Balaneos in the Levant, which maintained a logistical connection to the rest of the minor themes but could only

feasibly do so through its nearest neighbor Artach. The other instances of this include Tephrike/Leontokome's connection to Larissa and Keltzene's connection to Derzene.

A few exceptions to these rules are permitted where a strong connection between minor themes is documented. The precise location of Vaspurakan's capital remains uncertain, however the theme constituted the majority of the southern course of Lake Van. Likewise, its *doux* shared administrative duties with at least its neighbor Taron, implying a close connection to its neighbors to the west.<sup>22</sup> For this reason, a link is drawn to the west, despite having to traverse more than 60 km around Lake Van over mountainous terrain.

Another exception to the predetermined rules of connectivity is granted for Kogovit. This was the easternmost minor theme, established around 1050 and represented the furthest Byzantine advance into Armenia.<sup>23</sup> Unlike isolated themes such as Soteroupolis/Bourzo, Kogovit almost certainly retained a connection to the surrounding minor themes despite its distance. What form this assumed remains ambiguous, therefore connections are drawn to several neighboring themes such as Ani, despite them being beyond the predetermined 60 km threshold of connectivity.

Finally, the minor themes that were located within or near the territorial jurisdictions of the Roman Themes are omitted from this connectivity network due to their distance and the probability of them having a closer relationship to the larger themes. This includes the Dekapolis and Irenoupolis near the Kibyrraiotai Theme, Soteroupolis/Bourzo on the eastern edge of Chaldia, and Limnia between the Anatolikon and Chaldia Themes.

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<sup>22</sup> *De Administrando Imperio*, 43.65.156–67; DO 55.1.2940 “Gregory Arsakides, *magistros*, *epi tou koitonos*, and *doux* of Vaspurakan and Taron” (between 1051(?) and 1058).

<sup>23</sup> Bernadette Martin-Hisard, “Constantinople et les archontes du monde caucasien dans le Livre des Cérémonies, II, 48,” *Travaux et Mémoires* 13 (2000): 381–83.

Different distance values and parameters could feasibly be utilized for comparison, however this range does the best job of elucidating relationships between the minor themes in terms of distance, location, and overall organization.

Like the previous section designating the spatial buffers of the minor themes, these values should be taken as an approximation since the road network is not as well-documented as within the Roman Themes. Road conditions and other externalities could impact the link between two locations. Likewise, the militarily active nature of the region could affect connections, making this map a hypothetical ideal of the minor themes operating at their highest capacity.



MAP 9.7. Connectivity among the minor themes

Map 9.7 depicts the connectivity network of the minor themes. This connectivity can be assessed by looking at quantifiable metrics such as the degree of the network, the lengths of the

connections, the level of clustering, centrality, the concept of scale-free networks, and the Alpha Index.

### **Degree of the Network**

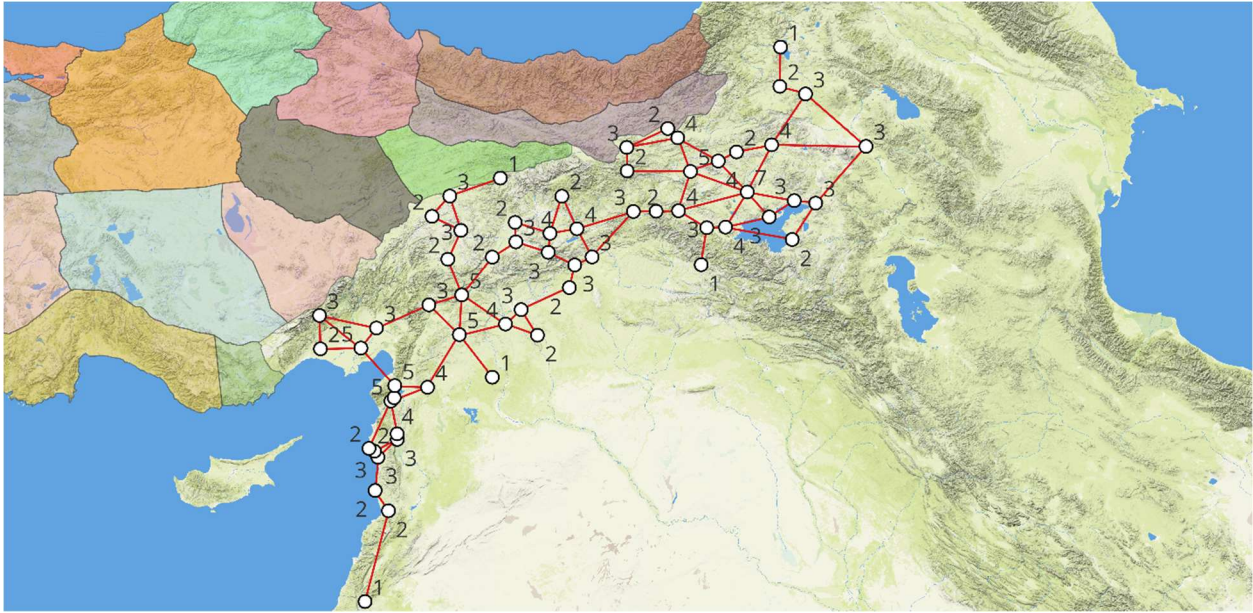
The first factor for consideration is the degree of the network.<sup>24</sup> As discussed in chapter 8, this analysis looks at the number of direct connections held by each node (in this case, the nodes are the minor themes). The higher the number of connections a node has, the better its overall connectivity. Using a similar reasoning, the number of total connections across the whole system reflects the overall health of the entire network.

The degree of the network is plotted on map 9.8, with the locations of the minor themes replaced by white dots and the themes' names replaced by their number of direct connections.

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<sup>24</sup> Newman, "Structure and Function of Complex Networks," 167–256; Shi, Yeh, Leung, and Zhou, *Advances in Spatial Data Handling and GIS*, 132.





MAP 9.8. The minor themes' degree of the network

These findings display a robust network of connectivity among the minor themes. This is expressed in table 9.2 and depicted graphically in figure 9.1.

Table (9.2) Minor Themes' Degree of the Network

<u>Degree of the Network</u>	<u>Number of Minor Themes</u>
1	6
2	20
3	21
4	10
5	0
6	5
7	1

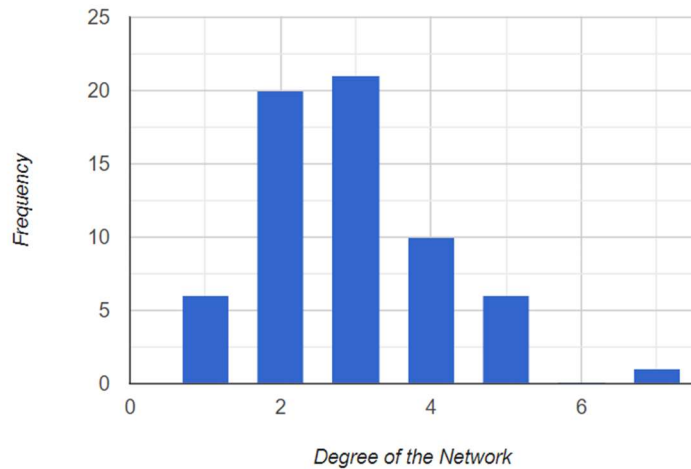


FIGURE 9.1. Bar graph displaying the degree of the network

Looking at these totals, 92 percent of the minor themes had two or more connections and 60 percent had three or more connections, averaging to 2.94 connections per theme.

The 8 percent of themes with only a single connection corresponded to Balaneos, Hierapolis/Bambyce, Edessa, and Melte along the southeastern extremity of Byzantine control and reflect the furthest attained military extent. However, if territorial gains continued, they would almost undoubtedly have been surrounded by additional minor themes and resembled the connectivity of the rest of the network.

What is most telling of the health of the system is that very few minor themes fell outside of this connectivity structure of mutual aid. Soteroupolis-Anakopia in the Caucasus functioned more akin to Cherson, isolated from the other themes as a trading and diplomatic outpost donated to Romanos III Argyros by the Georgian queen Elda/Alde, and not as part of a concerted effort towards military expansion.<sup>25</sup> Similarly, Soteroupolis/Bourzo lied 125 km from the nearest minor

<sup>25</sup> Seibt, “Soteroupolis-Anakopia,” 174.

theme of Tziliapert over very mountainous terrain.<sup>26</sup> As it was situated on a river near the Black Sea and close to Chaldia's road network, this tied the theme more closely to the Roman Themes than the minor ones. This is the only minor theme along the eastern frontier that was clearly established to be inward facing and not directly supplement the network of minor themes.

Recall that the parameters for this model only include locations within 60 km of one another. If the model is drawn to include all neighbors accessible by different routes, regardless of distance, the network's degree would increase to around four, thereby allowing for a deeper range of average connectivity than suggested by this model alone.

### **Lengths of the Connections**

When generating a topological network model, the strength of links between nodes is typically granted an additional weight of importance according to geographical distance.<sup>27</sup> The closer two locations are to one another, the higher the likelihood that they interacted in a more habitual and substantive manner.

While the minor themes expressed some variability in terms of distance between neighbors, it is slight. The smallest connections arose between Pagrae and Mauron Oros at 1.5 km, Antioch and Palatza at about 7 km, Hagios Elias and Borze/Barzuya at 8 km, and Laodikeia and Marakeus/Marakeia at approximately 9 km. These all fell within the area around Antioch. Outside of this cluster, the closest minor themes were Artze and Iberia (Theodosiupolis) at 20

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<sup>26</sup> *De Administrando Imperio*, 42.110; Werner Seibt, "The Enigma of Soteropolis," *Revue des études byzantines* 75 (2017): 321.

<sup>27</sup> Abraham, Hassanien, and Snášel, *Computational Social Network Analysis*, 204–5.

km, Abara and Melitene at 30 km, and Archesh and Perkri at 32 km. The majority of connections fell within the range of 40–60 km, with the average length between nearest neighbors at 54 km. This average distance signals little desire for tight grouping and redundancy outside of Antioch’s sphere of influence.

Predicated on this metric alone, Byzantine organization of the minor themes displayed an effort to create a system that functioned somewhat equitably across its breadth, without outsized focus on key regions or themes. The intentional design of this layout becomes more pronounced when considering the complexity of the lattice-like makeup of the themes, as opposed to a simple system such as the Islamic *ajnad* that displayed somewhat equitable spacing but only along a single north-south road and only employing five capitals.<sup>28</sup> This regularity also reinforces the idea from the last section that each minor theme held responsibility for outlying areas of approximately similar sizes.

### **Level of Clustering and Centralities**

Another way to analyze the minor theme network is through the prevalence of clusters and centralities, which often indicate the significance of specific themes or areas due to their capacity

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<sup>28</sup> Blankinship, *End of the Jihad State*, 47–48; Shahid, “Jund System in Bilad al-Sham,” 45–52; Walmsley, “Urban Geography of the Jund of Filastin.”

to accrue connections.<sup>29</sup> As discussed in chapter 8, cluster detection is performed by employing the Girvan-Newman algorithm.<sup>30</sup>

Looking at clusters among the minor themes, only Antioch stands out as a prominent center. This is reinforced by findings detailed in the previous section, where the shortest distances between minor themes are concentrated near this city, indicating frequent interactions and close relationships among the locations. Further supporting this, clustering measures reveal that these connections are significantly more numerous near Antioch compared to other parts of the network. Even without prior knowledge of Antioch's importance as the seat of the ducate, its role as a critical bottleneck where neighboring themes converge is evident.

Themes such as Manzikert, Adata, and Asmosaton exhibited a higher degree of centrality predicated on the number of connections to their neighbors, but they did not exhibit clustering. This degree of centrality does not necessarily reflect a concerted effort to emphasize the importance of these themes, but rather was just a consequence of the network having a slightly higher number of connections in that area. As analysis of the degree of the network indicated, the range of connections that each node had exhibited little overall fluctuation. Again, the lack of clustering and centralities reinforces the idea that the minor themes were generally designed to eschew geographical coalescing around particular locations outside of Antioch.

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<sup>29</sup> Jackson, *Social and Economic Networks*, 34–37; Rogerson and Yamada, *Statistical Detection and Surveillance of Geographic Clusters*; Kaiser, “Mean Clustering Coefficients, <https://iopscience.iop.org/article/10.1088/1367-2630/10/8/083042>.”

<sup>30</sup> Girvan and Newman, “Community Structure,” 7821–26; Ljucović, Vujičić, Matijević, Tomović, and Šćepanović, “Classic Clustering Algorithms,” 68–75; Jackson, *Social and Economic Networks*, 448–50.

## Scale-Free Network

On its own, a cluster can be innocuous, simply indicating a higher number of nodes in a certain location. However, too many clusters or the prevalence of certain types of clusters can be detrimental to the connectivity of the broader network. This arises when looking at the concept of scale-free networks.<sup>31</sup> In a scale-free network, most nodes connect to a low number of neighbors, while a small number of high-degree nodes monopolize the overall connectivity. These high-degree nodes, or hubs, produce the illusion of strong connectivity across the entirety of the network, but in reality restrict the high connectivity to certain sectors of the network (figure 9.2). As a result, the network becomes over-reliant on certain bottlenecks for its viability. If one of these lines between hubs is severed, the overall system no longer functions as a connected network.

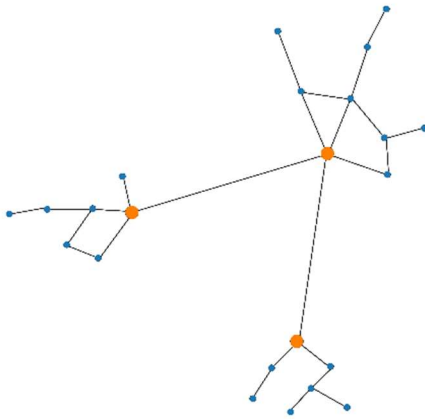


FIGURE 9.2. Diagram of a scale-free network with hubs colored orange and dependent nodes in blue. Severing a line between hubs would render them isolated from the overall network.

<sup>31</sup> For a general discussion of scale-free networks see Newman, “Structure and Function of Complex Networks,” 167–256; Albert and László-Barabási, “Statistical Mechanics of Complex Networks,” 47–97; Amaral, Scala, Barthelemy, and Stanley, “Classes of Small-World Networks,” 11149–52; Barabási and Bonabeau, “Scale-Free Networks,” 50–59; and Dorogovtsev and Mendes, *Evolution of Networks*.

This type of structure would manifest in the real world if an administration wanted to organize the frontier around a few select cities instead of a more evenly dispersed arrangement of minor themes. Such a distribution would have proven effective at concentrating power in key themes, granting them exceptional betweenness centrality by forcing all the secondary themes to funnel through their capitals when wanting to access other parts of the network. But the downside is that these themes would have been susceptible to becoming isolated by an enemy's conquest of connecting roads or cities, engendering the functionality of the entire system.

With this in mind, how does the concept of scale-free networks apply to the minor themes?

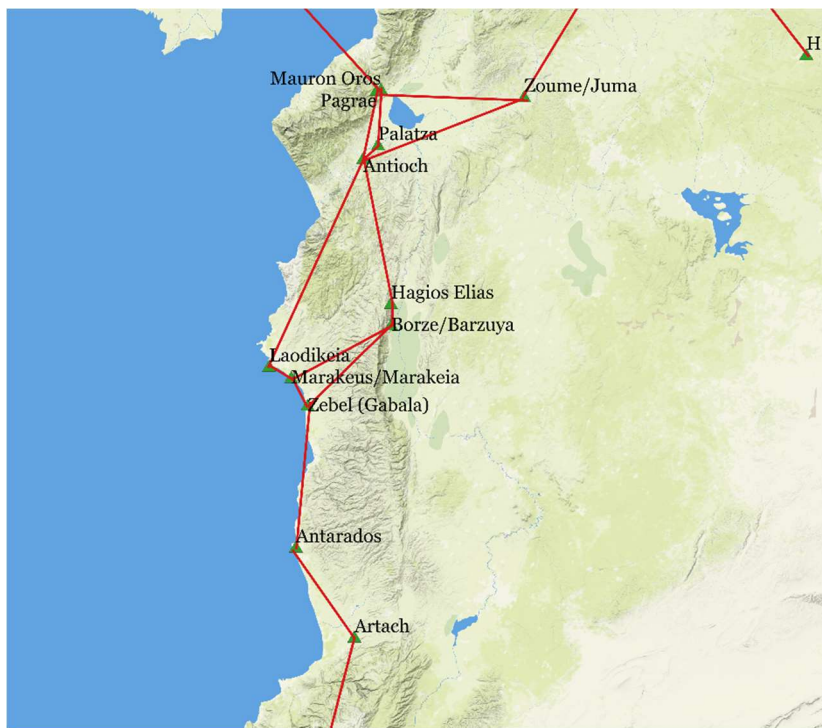
### *Antioch as a Hub*

Returning to Antioch, the only location of true clustering within the minor themes, the city presents as the only major hub, which created a bottleneck inhibiting broader connectivity.

Antioch and its neighboring themes were situated along a narrowly defined north-south coastal route, shown in map 9.9, that lacked east-west depth due to its confinement by the Mediterranean Sea and the adjacent Jabal al-Anṣariyyah (Syrian Coastal Mountain Range). As a result, every minor theme south of its location had to pass through the ducate's capital to access the rest of the empire. This granted Antioch high betweenness centrality (long-distance connectivity) as a hub, making its neighbors reliant on the city for communication and transportation.

Such reliance on a singular location was not witnessed anywhere else in the minor themes, whose distribution permitted multiple routes of travel and the ability to circumvent a location if desired. Part of this reflects the geographical constraints surrounding Antioch's location, but it also is indicative of the importance of the city as an administrative center as well as the military strategy behind its conquest and the subsequent expansion into the Levant.

The consequences of this hub-centered organization are explored in the next section by comparing the connectivity networks of specific minor themes.

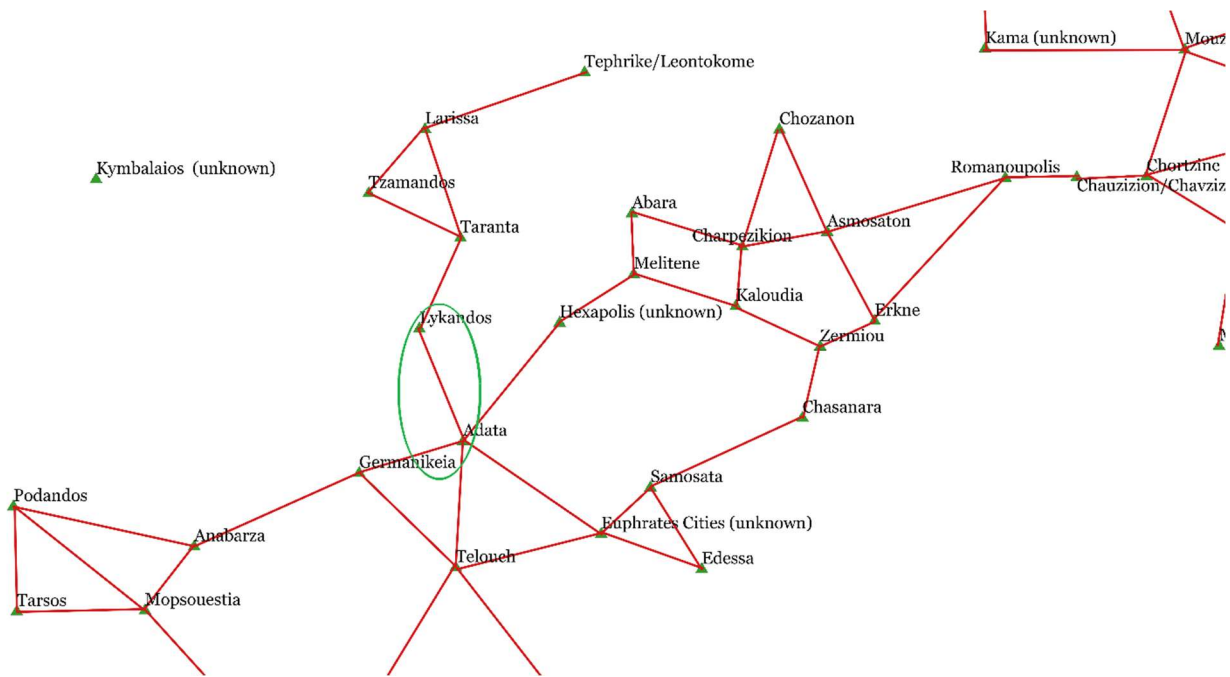


MAP 9.9. Thematic connectivity around Antioch

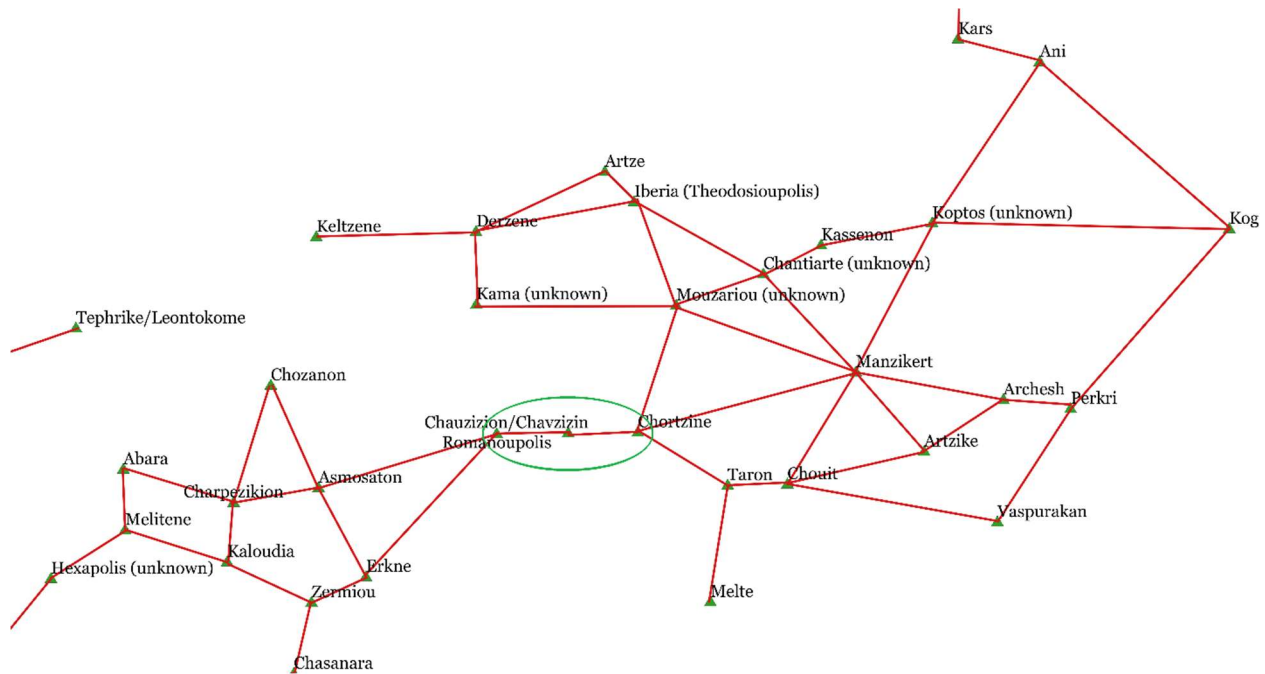


### *Additional Hubs*

Outside of Antioch, there are no hubs around which the minor themes coalesced. However, there are two bottlenecks that could have potentially restricted communication and travel within the broader thematic network. These are depicted in schematic maps 9.10 and 9.11. In these maps, the topographical map is removed so that only the minor themes and their connections remain visible. The location of the connectivity bottleneck is highlighted by a green circle.



MAP 9.10. Diagram of the minor themes (western portion), connectivity bottleneck outlined in green



MAP 9.11. Diagram of the minor themes (eastern portion), connectivity bottleneck outlined in green

According to map 9.10, if the connection between Adata and Lykandos were severed, this would have left five themes isolated from the rest of the network. An even worse degree of isolation would theoretically have arisen by severing the route between Romanoupolis and Chauzizion/Chavzizin, shown in map 9.11, which would have broken the entire network into a non-communicative western and eastern portion.

That being said, both of these bottlenecks could theoretically be bypassed, maintaining the integrity of the network. The *Tabula Imperii Byzantini* lists roads connecting Larissa and Tephrike/Leontokome to Abara.<sup>32</sup> This route is over onerous terrain and would have taken slightly longer than the two to three days allotted for the rest of the network but could have readily circumvented the bottleneck for the western portion around Adata if necessary.

<sup>32</sup> Hild and Restle, *Tabula Imperii Byzantini*, 2:124–27.

As for the constriction around Romanoupolis, similar routes could have been undertaken across the Taurus Mountains that dispel the illusion of the thematic network being divided into an eastern and western portion. For example, a route connected Tephrike/Leontokome to Keltzene. Following the road, this would have amounted to around 140 km of travel over difficult terrain, well beyond the parameters allotted for this study, but traversable if necessary. Indeed, in all likelihood, normal correspondence among the northern minor themes (Tzamandos, Larissa, Tephrike/Leontokome, Keltzene, Derzene, Artze) would logically have taken this route instead of diverting south on a longer and more time-consuming course. In addition, Choazanon could have connected to Keltzene and potentially to Kama, although the exact route to and the location of this theme remains uncertain. Ultimately, several additional options of connectivity existed for the minor themes, just ones not as efficient as displayed in the network model.

The most important takeaway is that no hubs were deliberately crafted, outside of Antioch, that confined traffic to narrowly defined routes. This is significant because the shape of the minor themes could have assumed numerous permutations. Geographical limitations and the logical selection of certain defensive locations did not mean the number and organization of the minor themes were predetermined, as there remained significant leeway in its formation.

In some ways, the makeup of the territory held by the minor themes could easily have been susceptible to the low connectivity of a scale-free network. The minor themes occupied a region that was 1,150 km from west to east, but only about 200 km deep from north to south, maxing out around 250 km. This 11:2 ratio could easily have facilitated the development of the system along narrowly defined routes that proceed in a linear fashion akin to the Levantine minor themes.

Despite the thinness of the organization of the minor themes along the frontier, they were still deliberately arrayed in a fashion that established mutual aid and could account for disruptions to the system. Along the entire front, there was a depth of accessibility in which travel was possible along at least two routes running west to east, which permitted an uninterrupted flow of communication and military movement throughout the minor themes. Aside from some themes along the Levantine coast, there were no points within the system that, if a minor theme were lost, it would completely isolate other themes.

In network analysis, this form of connectivity is known as a mesh and is characterized by a plurality of routes to access other nodes across the system.<sup>33</sup> Meshes, by design, are non-hierarchical, meaning that they privilege equality of movement over dependence on nodes of outsized importance. This illustrates the meticulous and strategic approach of the tenth-century conquests, which were characterized by a deliberate effort to advance the Byzantine-controlled frontier. These advances were precise and incremental, designed to strengthen the network of connectivity.

### **Alpha Index ( $\alpha$ )<sup>34</sup>**

The final metric used to quantitatively evaluate this network is the Alpha Index ( $\alpha$ ).<sup>35</sup> This measures the number of independent circuits that can be traveled through the network and is

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<sup>33</sup> Friedkin, "University Social Structure and Social Networks among Scientists," 1451; Pahlavan, *Understanding Communications Networks*, 372. The concept of a mesh is now most frequently applied to the arrangement of computers in an Internet connected network.

<sup>34</sup> Rodrigue, Comtois, and Slack, *The Geography of Transport Systems*, 314–15. The Alpha Index can also be referred to as a Meshedness Coefficient when discussing planar networks.

regularly employed in discussions regarding the connectivity of road systems.<sup>36</sup> The utility of this metric stems from the idea that, the greater the number of traversable routes, the greater the overall connectivity of the system.

The Alpha Index is arrived at by the formula:  $\alpha = e - v + p / 2v - 5$ ; where  $\alpha$  = the Alpha Index,  $e$  = the number of links,  $v$  = the number of nodes, and  $p$  = the number of sub-graphs. An Alpha Index of 0 indicates a network with no circuits of connectivity, while a value of 1 indicates a perfect circuit of connectivity (a scenario that would be almost impossible to occur under real-world conditions).<sup>37</sup>

The minor themes yield an Alpha Index of 0.24, indicating a network that was not designed for the sole purpose of maximizing this value, but rather one that valued internal connectivity with having to balance it against the constraints imposed by geographical and military realities. The network's 11:2 width-to-height ratio precluded the formation of direct links between most minor themes (e.g., linking Antioch directly to Vaspurakan), instead facilitating communication through already established themes. As map 9.8 demonstrates, the overall degree of the network (localized connections) remained exceptionally consistent throughout the entire system, showing that the overall number of connections reached about maximum efficiency under real-world constraints.

The Alpha Index does increase measurably when looking at specific portions of the network. Locations north of Lake Van around Manzikert bear an Alpha Index of 0.40, which is quite high under the existing parameters, indicating some well-connected areas.

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<sup>35</sup> Rodrigue, Comtois, and Slack, *Geography of Transport Systems*, 314–15; Kansky, *Structure of Transportation Networks*; Taaffe, Gauthier, and O'Kelly, *Geography of Transportation*, 104–5.

<sup>36</sup> Cynthia Baby Daniel, Saravanan Subbarayan, and Samson Mathew, "GIS Based Road Connectivity Evaluation using Graph Theory," in *Transportation Research: Lecture Notes in Civil Engineering*, vol. 45, eds. T. Mathew, G. Joshi, N. Velaga, S. Arkatkar (Singapore: Springer, 2020), 213–26.

<sup>37</sup> Rodrigue, Comtois, and Slack, *Geography of Transport Systems*, 314–15.

## Examples of Connectivity and Flexibility within the Network

The total number of minor themes and their arrangement along the frontier are inconsequential as an overall network if the individual components are easily isolated or only have access to small islands of neighbors. Therefore, the robustness of this network is measured by the capacity of the minor themes to communicate with their neighbors in a timely manner. This metric is tested through a series of hypothetical examples in which a minor theme is selected and its connectivity to its neighbors and the overall network is charted. This metric of connectivity is known as reach centrality.<sup>38</sup>

The methodology to simulate these examples takes the following form. It starts with the network principle that themes (nodes) had the capacity to communicate directly with neighbors that were connected to them by a direct line. If a theme desired to communicate with additional themes along the network, degree of separation comes into play. One degree of separation is the theme's closest neighbor. Two degrees of separation represents the location(s) directly connected to the original theme's closest neighbor.

For this study, the sample for analysis will be three degrees of separation. In terms of real-world connectivity, this represents locations that the starting theme could plausibly correspond with in roughly six to nine days of unhurried foot travel. This range of separation is selected to demonstrate the rapidity with which information could realistically be disseminated amongst the minor themes within a matter of days.

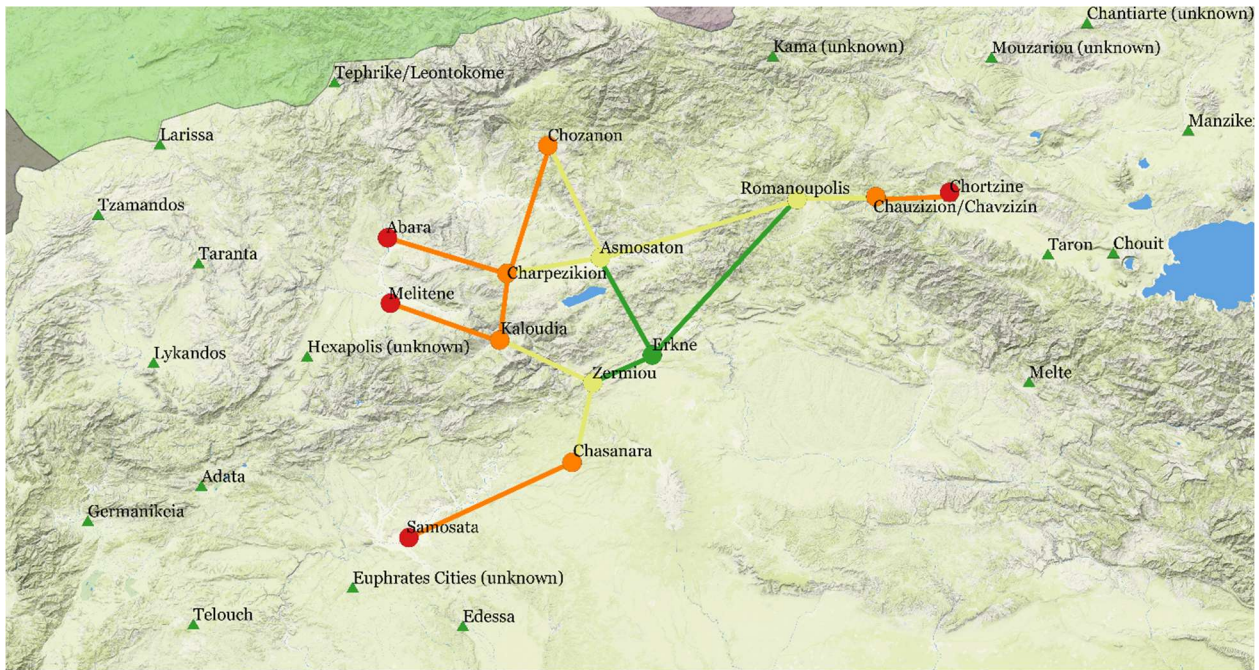
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<sup>38</sup> Ulrik Brandes and Thomas Erlebach (eds.), *Network Analysis: Methodological Foundations* (New York: Springer, 2005), 32–33; Victoria Ruth Ginn, *Mapping Society: Settlement Structure in Late Bronze Age Ireland* (Oxford: Archaeopress, 2016), 170; Robert Hanneman and Mark Riddle, *Introduction to Social Network Methods* (Riverside, CA: University of California, Riverside, 2005), 155–57.

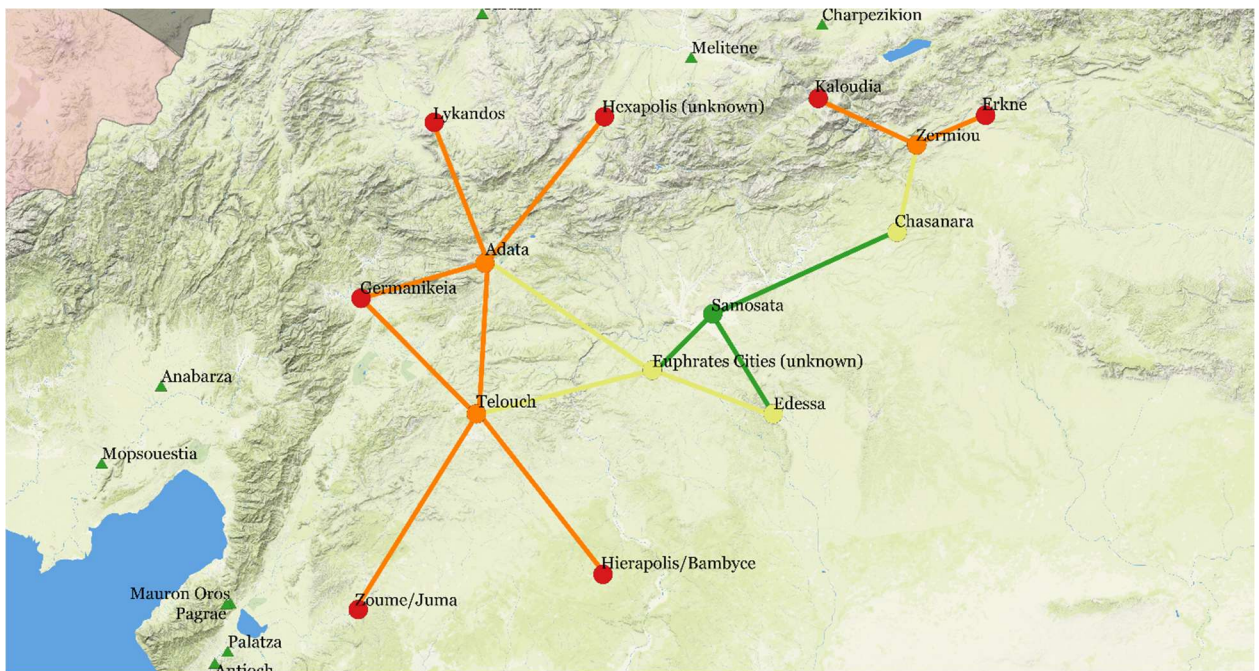
These degrees of separation are rendered graphically on maps 9.12–9.15. The circles stand in for the minor themes and, corresponding to the connectivity map (map 9.7), the lines represent their closest connection. The green lines symbolize the first degree of separation. Yellow lines signify the second degree of separation, and orange lines indicate the third degree of separation.

In the schematic representation, the green circle denotes the originating location. The yellow circle indicates a theme one degree removed from the starting theme, typically reachable within two to three days. The orange circle represents a theme two degrees removed (four to six days away), and the red circle signifies a theme three degrees removed (six to nine days).

The four samples chosen represent areas of both low connectivity (Erkne, Samosata, maps 9.12 and 9.13), and areas of high connectivity (Chouit, Zoume/Juma, maps 9.14 and 9.15). The example themes were also those situated directly along the frontier, as this was the most plausible location for an attack. Outside of these criteria, there is nothing special about the selections and the chosen themes could be interchanged with their neighbors to similar effect. The objective of these simulations is not to cherry-pick outlier themes but to demonstrate that there is a level of consistency in connectivity across the entire network.

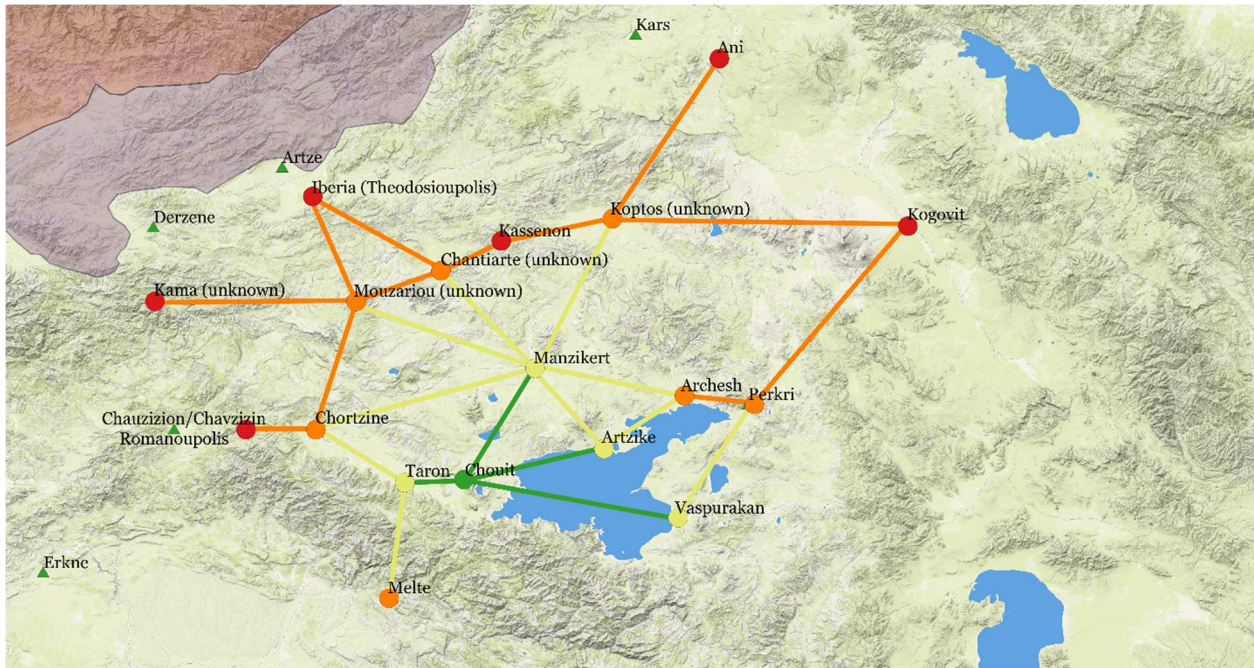


MAP 9.12. Erkne's connectivity

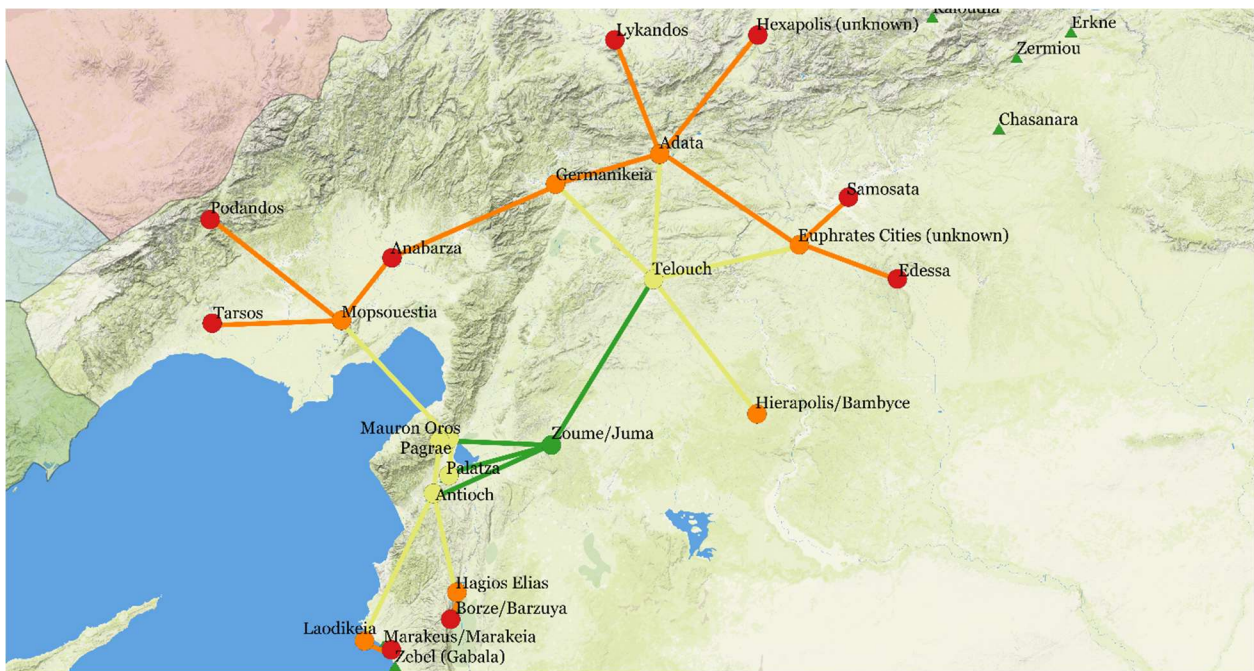


MAP 9.13. Samosata's connectivity





MAP 9.14. Chouit's connectivity



MAP 9.15. Zoume/Juma's connectivity

Table 9.3 shows the level of connectivity exhibited by this sampling of minor themes.

(Table 9.3) Number of Connections to Other Themes per Link

<u>Theme</u>	<u>Number of Connections over 1 Link</u>	<u>2 Links</u>	<u>3 Links</u>
Erkne	3	8	12
Samosata	3	6	13
Chouit	3	11	17
Zoume/Juma	5	12	21

These simulations provide a range of connectivity between twelve to twenty-one minor themes that could be theoretically accessible within three links. Applying a 50 percent travel burden to account for mountainous terrain, this would take roughly six to nine days to attain on foot. Travel times around Zoume/Juma would actually have been lower, but this rate is retained for consistency across the dataset. The average number of connections attainable through two links was nine, meaning that nine neighboring themes could have been contacted within four to six days. For one link, the number of connections was roughly three, aligning closely with the overall average of the minor themes (figure 9.1).

As expected, the areas of highest clustering and centrality around Manzikert, Antioch, and Adata boosted the total number of connections for themes in those areas. This is particularly evident at the third degree of connectivity in which the number of connections increased by an average multiple of three.

What is most telling about these samples is the consistency of coverage across the entire minor theme network. Areas of high clustering and centrality certainly boosted overall connectivity, but even the themes that laid outside these regions still maintained a sizeable

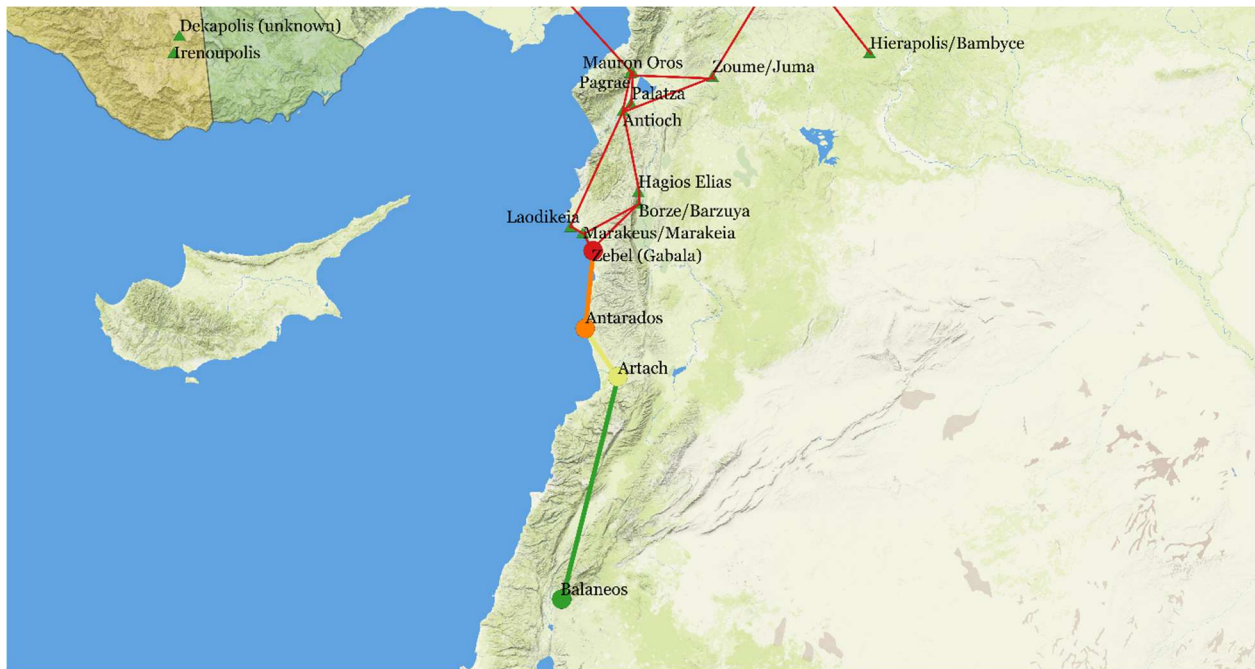
number of neighbors. This range of coverage was made possible by the sheer number of minor themes, but more so due to the strategic nature of their placements. Thematic acquisitions along the frontier did not generally proceed linearly but were arrayed to permit flexibility of communication. If, for instance, one branch of connectivity was obstructed, this would only reduce accessibility to neighboring themes by about one-third on average; the third-degree connectivity would drop from twelve to twenty-one themes to an average of around eight to fourteen themes. This is certainly a reduction, but not an inhibitory one.

After the first link between themes was established, the network quickly branched out in a manner that rendered it exceedingly difficult to constrain. Except for a few outposts situated directly along the frontier, this greatly diminished the prospect of thematic isolation in light of a military threat. Such a meticulous arrangement facilitated the defensive role the minor themes provided along the eastern front and clearly exhibits the empire's capacity to understand and harness its complex geographical makeup effectively.

An important caveat to these hypothetical examples is that individual themes may not have had the ability to render assistance when called upon. Real-world conditions, such as the size of some of the smaller garrisons, could have precluded assistance when it would have been more advantageous to remain stationary. Instead of trying to anticipate such caveats, the purpose of these examples is to reflect the overall complexity of the network. The lattice of defense ensured a redundancy of coverage that could afford the ducates time to deploy tagmatic troops to successfully buttress defenses. The ability to have multiple options to coordinate around provided the minor themes and their organizing ducates/katepanates the flexibility to address a wide array of scenarios.

## Balaneos and Poor Connectivity

Only the themes south of Antioch were arrayed in a linear fashion and serve as a useful counter example of how a poorly connected system would function. Map 9.16 shows a connectivity map for Balaneos, the southernmost thematic acquisition.



MAP 9.16. Balaneos's connectivity

It is immediately apparent that Balaneos's relationship with the overall minor theme network was exceptionally poor. One link provided one connection, two links granted two connections, and three links equated to a grand total of three connections. Compare this to Erkne, the worst-connected test case, which had quadruple the connections. Extrapolating Balaneos's connectivity further, it would take six links to arrive at Antioch, with only seven connections up to that point. Again, for comparison, Erkne had eight connections by just the second link.

The downsides of arranging the minor themes in a linear fashion are numerous. Communication with the rest of the network becomes entirely reliant on a singular neighboring node. While communication within the broader thematic network was extraordinarily difficult to hinder, correspondence between Balaneos and Antioch could have been severed at any number of points along this narrowly defined corridor. Without Artach, Balaneos would have been isolated. Taking this further, severing Antarados would render Artach and Balaneos isolated, and if Zebel (Gabala) was cut off, all three themes of Balaneos, Artach, and Antarados would be disconnected from the network and susceptible to conquest. This is the result of Antioch's position as a hub and an instance of a scale-free network. Such organization appears nowhere else amongst the minor themes because poor connectivity engenders the health of the overall system.

This analysis of Balaneos's connectivity is not intended to denigrate the empire's Levantine strategy but rather to exemplify the high degree of flexibility and responsiveness that the rest of the overall network afforded. Likewise, the Levantine themes demonstrate how strong connectivity does not arise organically, but is a reflection of a concerted effort to organize the frontier in a strategically viable manner.

### **Conclusion—The Spatial Relationship between the Minor Themes and Ducates/Katepanates**

Two conclusions are drawn from this analysis:

1) Geographical analysis shows that replicating the model of the Roman Themes was not feasible, necessitating that the ducates/katepanates assume a different form to remain viable. Their large and irregular territories spanning the harshest topographical conditions of the entire empire were too unwieldy and precluded any close oversight of their landholdings.

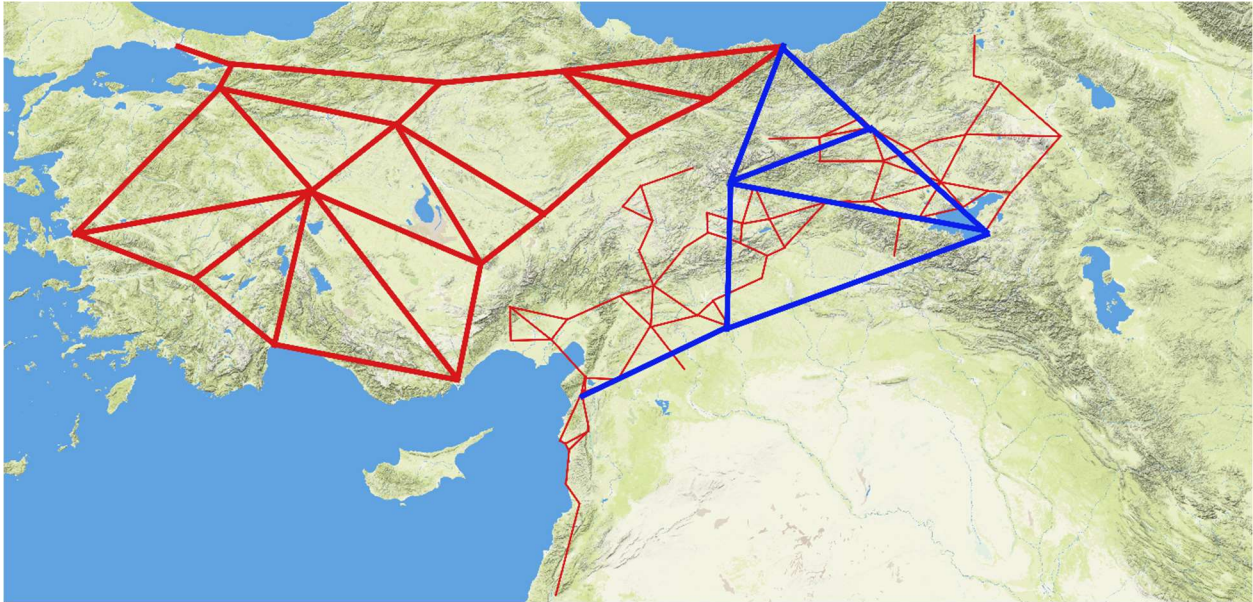
2) The empire had to rely on a degree of autonomy within the minor themes to bridge the distance and time discrepancy of governance out of a singular location. The minor themes were arrayed in a mesh network<sup>39</sup> that effectively and efficiently facilitated communication and mutual defense that helped to maintain Byzantium's presence in the region. This demonstrates very deliberate organization in the overall arrangement of the minor themes, despite the ad hoc nature of their foundations. Such structuring afforded the ducates and the military time to overcome difficult spatial constraints to either buttress defenses or expand the frontier.

The empire's development of an alternative model of spatial administration, which adapted and revised the theme system for a militarily fluid and topographically challenging region, reflects a keen understanding of and adaptability to geospatial principles.

Map 9.17 compares the composition of the three administrative networks that defined the eastern half of the empire: the Roman Themes, the ducates/katepanates, and the minor themes.

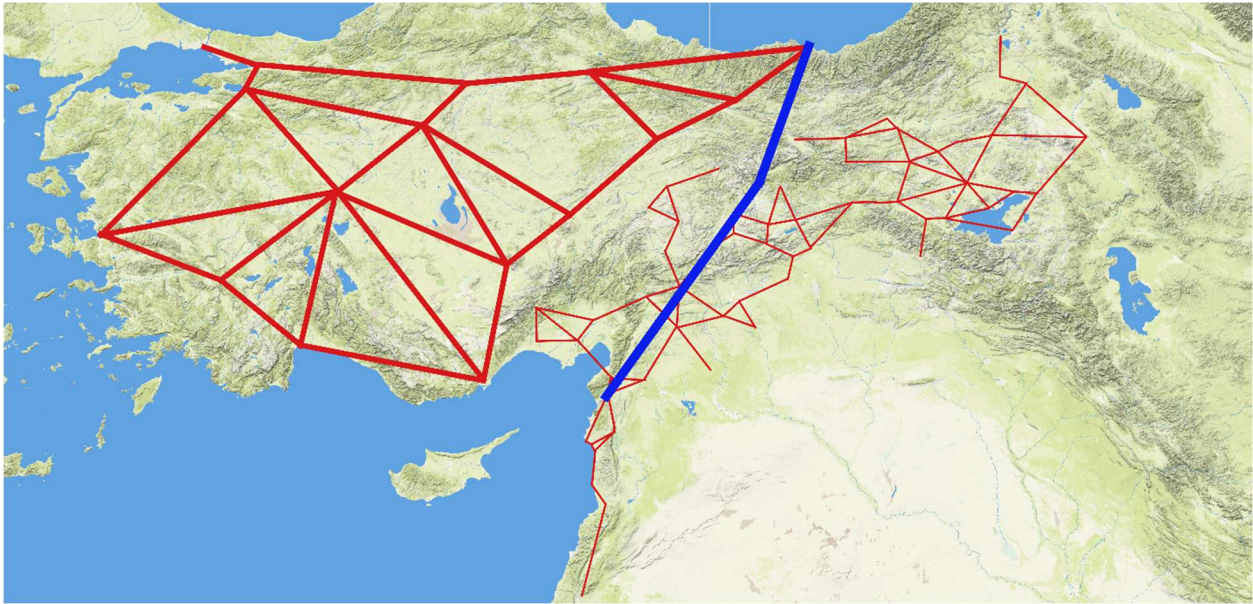
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<sup>39</sup> For more on mesh networks see Friedkin, "University Social Structure," 1451.



MAP 9.17. All networks—Roman Themes (large red), ducates/katepanates (large blue), minor themes (small red)

This study proposes that a more realistic depiction of the ducates' connectivity is exemplified in map 9.18.



MAP 9.18. All networks (minus Edessa, Iberia, and Vaspurakan)—Roman Themes (large red), ducates/katepanates (large blue), minor themes (small red)

The core of the ducates were formed around Antioch, Mesopotamia, and Chaldia, which constituted the vast majority of the ducates'/katepanates' landholdings (~90–95 percent) with the majority of the minor themes under their jurisdiction (91 percent). Vaspurakan, Edessa, and Iberia were highly specialized, ad hoc supplementations to the system. They expanded overall Byzantine control but were not devised to administer beyond their narrowly defined boundaries. The overwhelming distances between sites such as Edessa and Vaspurakan; Mesopotamia and Vaspurakan; Chaldia and Iberia; or Iberia and Vaspurakan indicate negligible direct coordination between these sites that are found within the other networks. Therefore, they do not bear the hallmarks of an interconnected network and should be removed.

With these ducates/katepanates removed, the image of an interconnected network of administrative centers disappears, reduced to a linear configuration with no complexity. This more closely resembles the linear network of the early strategides (map 8.5), although even more devoid of connective functionality. None of the features that contributed to the robustness of the thematic network, such as centrality, anticlustering, and a high degree distribution (as discussed in Chapter 8), are present. Instead, the robustness is found within the intricate arrangement of the minor theme network that served as the workhorse of stability in the east.



## **CHAPTER 10—FINAL CONCLUSIONS**

The unifying goal of this study was to provide insight into how the Byzantines understood the spatial composition of their empire and how they could use that understanding to organize the empire in the manner most conducive to governance. This was examined through four research questions:

1. Is a computational GIS approach to the strategides and themes feasible?
2. What criteria were used to divide the strategides and themes?
3. How did the strategides and themes function as a cohesive network?
4. How did the ducates/katepanates and minor themes function as administrative entities?

By answering this set of questions, this study has demonstrated that, despite a lack of extant direct evidence, it is still possible to deduce many of the underlining principles of spatial organization regarding the strategides, themes, ducates/katepanates, and minor themes. In turn, these principles provide insight into what imperial administrators valued and how their decisions addressed structural changes to the empire—whether those changes were forced upon it by externalities or arrived at through intentional deliberations.

### **Contribution to Existing Research**

This study makes two main contributions to the existing body of research concerning the administration of the Byzantine Empire.

*1) Expansion of the paradigm for understanding the strategides and themes*

The present study does not seek to revise existing arguments, but rather to show that it is possible to expand the existing paradigm of what can be understood about the strategides and themes.

GIS and quantitative studies have been underutilized in the area of Byzantine studies and have not been previously used in an analysis of the strategides and themes. This study serves as a test case for how GIS can be applied to questions regarding the spatial composition of the Byzantine Empire. The results show that, despite a paucity of extant written sources, there is enough information to produce useful datasets, and, with careful and meticulous analysis, these can meaningfully address questions that have been largely overlooked.

GIS and quantitative analysis are viable methods of inquiry into the strategides and themes that can produce substantive results capable of expanding the paradigm of what can be discussed concerning their administrative composition.

These findings demonstrate that it is now possible to address questions regarding how Byzantine administrators understood the territorial extent of the empire and sought to integrate such factors into their decisions to achieve specific organizational goals. This includes a better understanding of administrative decisions regarding land usage, demographics, and the constraints of communication and travel.

This study also shows how network models can be implemented on the composition of the strategides and themes to demonstrate how administrative centers potentially interacted contingent on geographical principles. Unlike previous network models of the Byzantine Empire, whose goals were to show relationships among individuals predicated on social relationships, this network model is grounded in principles of geographical determinism that make it applicable beyond the comparison of aristocratic or military circles. This provides reproducible evidence

relating to the structures of the strategides and themes as well as their spatial relationships to transportation networks and the flow of commerce and information.

Finally, this research provides the first GIS-based synthesis of how spatial constraints influenced administrative decisions along Anatolia's eastern frontier. This opens up a better understanding of the spatial organization of even the more remote, less-studied portions of the empire.

These findings contribute to a deeper understanding of the functioning mechanisms within these administrative systems. Additionally, they broaden the methodological toolkit available for their investigation and appraisal.

## *2) A repository of datasets, maps, and tables*

The other contribution of this study lies in the creation of an expansive dataset that provides a resource for future studies concerned with the administrative composition of the strategides, themes, and ducates/katepanates. No GIS study had previously been conducted on these administrative divisions, which necessitated the construction of these models from the ground up. This study has produced the most detailed and accurate series of maps and tables of the following geographical features related to the strategides, themes, and ducates/katepanates:

- The territorial boundaries of the strategides, themes, and ducates/katepanates
- The locations of their capitals and a heuristic sample of 386 Anatolian cities
- The reconstruction of the more than 34,000 km Byzantine road system within the empire's eastern holdings
- A network model grounded in geographical determinism that articulates how the themes and Constantinople connected

- A list of seventy minor themes that allows them to be assessed collectively for the first time
- A heuristic representation of the territorial extents of the minor themes

In addition, this study has also shown the feasibility of implementing a series of quantitative tests that include: Alpha Indices, area comparisons, betweenness centralities, bivariate and multivariate correlations, Central Place Theory, centroids, clustering coefficients, degree distributions, demographic distributions, heatmaps, isochrone surveys, network connectivity, node-to-node distances, path lengths, satellite overlays, scale-free networks, spatial buffers, and Voronoi diagrams. None of these tests have previously been implemented into a study of the strategides and themes.

All of this information is accessible through a robust dataset whose files can be easily implemented into any future GIS based studies on the strategides, themes, and ducates/katepanates. Data collection is time consuming, so any subsequent GIS studies of the strategides, themes, and ducates/katepanates can use this information as a foundation to quickly implement tests on a variety of quantitative propositions.

The datasets, maps, and tables also hold applicability beyond the scope of these administrative units. Any studies that incorporate the geography of Byzantine Anatolia could potentially find utility in these resources. As articulated in the section “Integration of the Connectivity Network,” these models hold applicability in regards to understanding Anatolia’s communication network, trade patterns, and macroeconomics, as well as spatially contingent relationships amongst administrators, nobility, and ecclesiastical figures.

## Limitations of the Study and Potential Future Applications

It is important to acknowledge and understand that, as in all disciplines, the use of GIS and quantitative analysis have limitations in their ability to address questions regarding the spatial composition of the empire. The questions that can be asked are entirely contingent on the quality of the dataset that can be ascertained. As the present study demonstrates, there are many quantifiable datapoints that can be derived from extant sources, such as data on borders, cities, roads, and topographical features, but the period of Byzantine history between the seventh and eleventh centuries is still beset by a paucity of material evidence. Absent the discovery of new documentation such as censuses, land surveys, or *itineraria*, it is unlikely that the total dataset regarding these elements will expand substantially.

These limitations permit an inquiry of the strategides and themes from a macro level that allows for general conclusions on organization, but do not permit a micro view towards understanding the mindset of specific individuals. It is highly unlikely that a quantitative GIS study will ever be able to answer these sorts of questions, but that does not diminish its utility, as it can open up avenues of inquiry that were thought unimaginable only a decade ago.

As this is the first quantitative analysis into the spatial administration of the strategides and themes, there is still abundant room to ask further questions and broaden the scope of this course of inquiry. By creating more detailed models, expanding the models to encompass additional regions and time periods, and implementing GIS tests beyond what was used in the present study, there is no immediate end to the types of questions that can be asked concerning the spatial composition of the Byzantine Empire.

Outside of the written accounts, new data sources are continuously being expanded which allows for new and more refined questions. As discussed in chapter 5 on arable land, recent studies relating to climatology show the greatest potential for sources of new data. Within the past decade, data acquisitions methods have shown greater adoption and sophistication, enabling significantly more refined and useful quantitative information. These include expansions in the areas of palynology, soil sampling, ice core sampling, oxygen isotopes, archaeobotany, and satellite surveys.<sup>1</sup>

Likewise, historical land-use studies of specific sites and regions in Anatolia, such as the Euchaïta/Avkat Project,<sup>2</sup> are increasingly providing more quantifiable data on the spatial composition of small areas. Such surveys utilize methodologies such as remote sensing, geophysical prospection, and heuristic geospatial modeling to paint a picture of a region's geology, geomorphology, and paleoenvironment to a degree never previously attempted. With the expansion of these types of surveys, it will become possible to get a clearer idea of settlement patterns, land usage, and the interrelationship of urban centers—all factors that can be used to broaden and refine the current model of the strategides and themes.

All of these techniques will lead to a rapid increase in the amount of data relating to the spatial composition of Byzantine Anatolia in the coming years, but there are still several viable routes of inquiry that can be conducted at present. With the datasets and models at hand in the present study, it becomes feasible to test additional propositions that are conducive to GIS tools. The following section provides four potential research areas that can use the present study as a baseline for future inquiries.

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<sup>1</sup> See pages 180–82 for an overview of these concepts as applied to land use.

<sup>2</sup> “Euchaïta/Avkat: The Project Methodology and Approach,” accessed April 20, 2024, <https://history.princeton.edu/centers-programs/center-collaborative-history/special-projects/past-projects/avkat/project>; Haldon, Elton, and Newhard, *Archaeology and Urban Settlement*.

- **Application of the Model to the European Portion of the Empire**

Anatolia provides the ideal topography and political stability to best understand how administrative decisions regarding the strategides and themes took shape, but it would be valuable to see how these practices applied to the western portion of the empire. The GIS tests applied to Anatolia's strategides and themes can be expanded to incorporate the empire's European possessions. This more comprehensive model can be used to compare how spatial principles outside of Anatolia were adhered to or modified to contend with localized conditions. This can further articulate the discussion of the empire's balance between administrative uniformity and adaptability.

A comparison between the western and eastern halves of the empire is possible because they were organized under similar conditions: Byzantium's European holdings during this time period were also organized under the strategides, themes, and ducates/katepanates. It is also possible to easily create datasets that encompass the totality of this area. Borders, cities, and roads can be deduced to a high degree of accuracy utilizing the same sources used to build the models in the present study. These factors make the western portion of the empire highly conducive to the same set of GIS and quantitative tests. These two models can then be combined to produce a map of the totality of the empire's administrative divisions and be used to interrogate how they functioned as a collective system.

- **Expansion of the Model to Incorporate Maritime Routes**

Another route of inquiry is to apply the models created in the present study to the maritime trade routes active in the Mediterranean, Aegean, and Black Seas during the seventh through eleventh centuries. While trade and communication across Anatolia

heavily favored overland routes, the creation of a broader model that integrates maritime waterways can provide additional nuance into the ways the empire moved people and goods along the peripheral of the thematic network. It can also be used to see how these routes augmented and supplemented the road system.

Johannes Preiser-Kapeller has ascertained these maritime routes to some degree which provides a useful dataset.<sup>3</sup> Because the present study already incorporates data regarding Anatolia's ports, this makes georeferencing and GIS integration between the two models relatively seamless. All that is necessary to construct this model is the plotting of the remaining ports compiled by Preiser-Kapeller onto the basemap created for the present study. The main difficulty in reconciling these two models is that they utilize different scales for transportation speeds and the amount of baggage that can be conveyed by water versus overland. However, these transportation factors are well-understood,<sup>4</sup> so it would mainly require the integration of two travel time scales. This new model can be utilized to further understand how the thematic network worked, as well as broader concepts regarding communication and transportation.

- **Integration of the Connectivity Network**

Regarding the network models created for the present study, the understanding of traffic flows holds applicability in other disciplines. For example, these models can be used to help chart the potential distribution of relationships amongst administrators, nobility, and ecclesiastical figures. The principles of proximity, clustering, and degree connectivity used on the capitals are likewise applicable to individuals and their average spheres of relations.

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<sup>3</sup> Preiser-Kapeller, ed., *Harbours and Maritime Networks*.

<sup>4</sup> Pryor, "Types of Ships and their Performance Capabilities," 48–51.



The network model produced in this study also bears utility in economics. The field of economics of networks seeks to understand economic phenomena through the tools of network science. Proponents of this theory argue that the structure of trade is shaped by the structure of the relationships among its participants.<sup>5</sup> Individual choices are informed and made by the relationships that connect to them directly and by various degrees of separation.<sup>6</sup> This economic theory can chart how an individual's or a city's actions are mediated by their location within the structure of the network.<sup>7</sup> Therefore, the present study's articulation of Anatolia's road system combined with the network of thematic capitals can be utilized in future economic studies to help explain how understood microscale trends can be expressed on the macroscale to express broader commercial flows and relationships.

- **Application on the Islamic World**

The structure of this study is also highly conducive to an analysis of the spatial composition of the Islamic powers that bordered Byzantium to the east. As discussed in chapter 3, the Umayyad and Abbasid Empires put forethought into the spatial composition of their territories.<sup>8</sup> The present study briefly shows that the Byzantine and Muslim administrative systems had to contend with similar conditions along the shared frontier, but implemented different solutions that reflected their political objectives as

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<sup>5</sup> David Easley and Jon Kleinberg, *Networks, Crowds, and Markets: Reasoning about a Highly Connected World* (Cambridge: Cambridge University Press, 2010), 277–300; Rachel Kranton, “Reciprocal Exchange: A Self-Sustaining System,” *American Economic Review* 86, no. 4 (1996): 830–51; Rachel Kranton and Deborah Minehart, “A Theory of Buyer-Seller Networks,” *American Economic Review* 91, no. 3 (2001): 485–508; Nicholas Economides, “The Economics of Networks,” *International Journal of Industrial Organization* 14 (1996): 673–99.

<sup>6</sup> Sanjeev Goyal, *Connections: An Introduction to the Economics of Networks* (Princeton: Princeton University Press, 2007), 1.

<sup>7</sup> This is the concept of “games on networks,” as explained in Goyal, *Connections*, 31–72.

<sup>8</sup> See the sections, “The Islamic *thughur* and *‘awasim* as a Counterpart to the Minor Themes” and “Byzantine vs. Islamic Administration along the Frontier.”

well as fiscal and military constraints. Because these Muslim empires were contemporaneous with the strategides and themes, these powers experienced similar geographical limiting factors regarding movement, communication, and the deployment of administrative and military structures. Since no comparable study has been conducted concerning the spatial compositions of the Umayyad and Abbasid Empires, the present study shows that there is significant room for expanding the understanding of administrative organization through computational GIS and other quantitative means.

A new dataset would be necessary for this investigation as the current study does not encompass this particular region. However, this does not necessitate the creation of an entirely new model, as the methodological foundations laid out in the present study provide a scaffolding upon which this sort of inquiry can be conducted. The most important constraint is to see if the cities, administrative boundaries, and road system can be deduced to a similar level of accuracy as in the present study. Asa Eger's investigation of the *thughur* and *'awasim* indicate that much is understood regarding the composition and organization of Muslim administrative practices along the Taurus and Anti-Taurus frontier, as well as the organization of the *ajnad* throughout the remainder of the empires.<sup>9</sup> If the construction of a robust dataset is possible, then only slight modifications need to be made to the methodology of the present study, mostly in the areas that concern differences in topography. Once this is accomplished, the same GIS tests can be implemented that supply data-supported rationales concerning what spatial principles were adopted and rejected. The results can then be compared to the present study to see in what ways the Byzantine and Muslim systems differed and how this reflects their

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<sup>9</sup> Eger, *Islamic-Byzantine Frontier*.

approach to governance. Likewise, similarities between the systems might be indicative of universal principles of geography that were well-known to administrators, confining their options and dictating their decisions.

## Appendix 1

### List of the Minor Themes

Unlike the creation of the Roman Themes, the number of minor themes founded during the tenth and eleventh centuries was far greater and necessitates the creation of a list for ease of comprehension. Up to now, no exhaustive accounting of the minor themes has been produced. Texts such as John Haldon's *Warfare, State, and Society in the Byzantine World, 565–1204*<sup>1</sup> and in the introduction to his translation of the *De Thematibus*,<sup>2</sup> provide charts of the themes from the tenth century. However, these are only partial, intending to give context to just the major changes. Bojana Krsmanović, in *The Byzantine Province in Change: On the Threshold Between the 10<sup>th</sup> and 11<sup>th</sup> Century*, provides the most thorough accounting of the minor themes in the east by deducing forty-six of their locations.<sup>3</sup> This is derived from the rankings of the *Escorial Taktikon* (970s), which produces the same register.<sup>4</sup> No attempt has been made to account for the entirety of the minor themes and assess them as a collective whole. This is unfortunate because the true scope of Byzantine expansion, territorial claims, and administrative organization during this period cannot be fully grasped without a comprehensive list.

This study has added an additional twenty-four minor themes to the list, bringing the total to seventy, a nearly 50 percent increase over the prior sum. As follows are the known minor themes in the Byzantine east created during the tenth and early eleventh centuries.

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<sup>1</sup> Haldon, *Warfare, State, and Society*, 83, 86–89.

<sup>2</sup> *De Thematibus*, ed. Haldon, 69–73.

<sup>3</sup> Krsmanović, *Byzantine Province in Change*, 85–86, 90–94.

<sup>4</sup> *Escorial Taktikon*, 264–69.

The entries are arranged alphabetically and take the form of:

- Theme name
- Capital
- Date established/approximate time of existence
- Approximate location
- Any pertinent details about its organization, if applicable

A note on dating the existence of the minor themes. Several of the minor themes are poorly documented, with imperial court lists and seals serving as the principal attestation of their existence. Some seals can be dated precisely if they have a specific date referencing the indiction year, or if the mentioned individual is well-known enough that they can be cross-referenced through other sources. However, this specificity is generally not the case, making it requisite to rely on stylistic elements. Iconography, writing style, and the inclusion of certain words can often provide an approximate century of production. For the following dates, most attribution is taken from the Dumbarton Oaks online seal catalog.<sup>5</sup>

### **Abara/Amara**

- Capital: Abara<sup>6</sup>
- Existed: According to the *De Administrando Imperio*, it started as a *tourma* of the

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<sup>5</sup> “Dumbarton Oaks Online Catalog of Byzantine Seals,” accessed February 27, 2024, <https://www.doaks.org/resources/seals>.

<sup>6</sup> BZS.1947.2.390 “Ioannes, *protospatharios* epi tou Chrysotriklinou, and *strategos* of Abara” (tenth/eleventh century).

Sebasteia Theme.<sup>7</sup> Under Romanos I Lekapenos it was turned into a *kleisoura* at some point before 920. Mention of a *strategos* appears in the *Escorial Taktikon* in the 970s.<sup>8</sup>

- Location: Modern Amran, near Arguvan.<sup>9</sup>
- Organization: This theme fell under the jurisdiction of the *doux* of Mesopotamia.<sup>10</sup>

## Adata

- Capital: Adata
- Existed: The *Escorial Taktikon* of the 970s mentions a *strategos*.<sup>11</sup>
- Location: Near the upper course of the Aksu River on the Pass of Hadath across the Taurus Mountains. This served as a highly contested fort, as it was an important conduit for raids across the mountains.<sup>12</sup>
- Organization: The fortress was destroyed on multiple occasions when it was under Islamic control—in 778 by Michael Lachanodrakon; in the late eighth century by Nikephoros, *strategos* of the Armeniakon; again in 841 and 879; in 949/50 by Leon Phokas; and in 957 by Nikephoros II Phokas. By the 970s it was captured by the Byzantines, rebuilt and made a theme as part of an expansionist effort to establish permanent governance in the region. It was subsequently placed under the jurisdiction of the *doux* of Antioch.<sup>13</sup>

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<sup>7</sup> *De Administrando Imperio*, 50.167–68; Kountoura-Galake et al., *Μικρά Ασία των θεμάτων*, 159.

<sup>8</sup> *Escorial Taktikon*, 266–67.

<sup>9</sup> Hild and Restle, *Tabula Imperii Byzantini*, 2:139.

<sup>10</sup> Haldon, *Warfare, State, and Society*, 88. Inclusion in the ducate is predicated on its location.

<sup>11</sup> *Escorial Taktikon*, 266–67, 359.

<sup>12</sup> Hild and Restle, *Tabula Imperii Byzantini*, 2:127; Treadgold, *History of the Byzantine State and Society*, 369, 419, 424, 443, 460, 489, 492–93.

<sup>13</sup> Anna Komnene, *Alexiad*, 13.12.

## Anabarza

- Capital: Anabarza<sup>14</sup>
- Existed: The town was captured by Nikephoros II Phokas in 962 and occupied sometime after 964.<sup>15</sup> Its date of ascension to theme status is unknown. The continued existence of the theme is attested on seals from the eleventh century, until it was ultimately conquered by Alp Arslan.<sup>16</sup>
- Location: A heavily fortified town that is modern Anavarza in Kilikia, northeast of Tarsus and Adana, 28 km south of Kozan.<sup>17</sup>
- Organization: The theme fell under the *doux* of Antioch's jurisdiction.<sup>18</sup>

## Ani

- Capital: Ani
- Existed: Ani was annexed in 1045, but administered with the theme of Iberia.<sup>19</sup> The theme proved short lived, as it was taken by the Seljuks in 1064.<sup>20</sup>
- Location: Modern Kars Province, Turkey, along the border with Armenia.
- Organization: It served as the seat of a *doux* that oversaw both Ani and Iberia.<sup>21</sup>

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<sup>14</sup> BZS 1947.2.38 "Basil Trichinopodes, *hypatos* and *strategos* of Anabarza" (eleventh century).

<sup>15</sup> Michael Gough, "Anazarbus," *Anatolian Studies* 2 (1952): 98; Hild and Hellenkemper, *Tabula Imperii Byzantini*, 5:180.

<sup>16</sup> BZS 1951.31.5.587 "Basil Trichinopodes, *hypatos* and *strategos* of Anabarza" (eleventh century); Gough, "Anazarbus," 98.

<sup>17</sup> Anna Komnene, *Alexiad*, 13.12; Hild and Hellenkemper, *Tabula Imperii Byzantini*, 5:178–85; Gough, "Anazarbus," 85.

<sup>18</sup> Anna Komnene, *Alexiad*, 13.12.

<sup>19</sup> DO 55.1.2179 "Aaron, *magistros* and *doux* of Ani and Iberia" (eleventh century); Attaleiates, *History*, 14.2.

<sup>20</sup> Attaleiates, *History*, 14.4; Marius Canard, "La campagne arménienne du sultan salgüquide Alp Aslan et la prise d'Ani en 1064," *Revue des Etudes Arméniennes* 2 (1965): 239–59.

<sup>21</sup> DO 55.1.2179 "Aaron, *magistros* and *doux* of Ani and Iberia" (eleventh century); Karen Yuzbashian, "L'administration byzantine en Arménie aux Xe-Xie siècles," *Revue des études arméniennes* 10 (1973–74): 162. An inscription in Ani's cathedral that mentions the *doux* Aaron suggests Ani was the location of his residence. This indicated Ani's spatial predominance over Iberia for at least a brief time in 1055–57.

## Antarados

- Capital: Antarados
- Existed: The theme came into existence by at least 990 during Ioannes Tzimiskes conquests in the region.<sup>22</sup>
- Location: Modern Tartus, along the Mediterranean coast of Syria. Approximately 160 km south of Antioch.
- Organization: Antarados was placed under the jurisdiction of the *doux* of Antioch.<sup>23</sup>

## Antioch

- Capital: Antioch
- Existed: The city was captured by Nikephoros II Phokas in 969 and quickly turned into an administrative center.<sup>24</sup>
- Location: Northern Syria. It served as the largest city in the region and the longstanding seat of a patriarch.
- Organization: The importance of the city and its location on the southern extent of Byzantine control necessitated a modification to the thematic command structure. It became the seat of a *doux* and the Domestic of the Schools of the Orient, which exercised command of the imperial troops on the frontier.<sup>25</sup> Several *strategoi* of the

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<sup>22</sup> Yahya, *Chronicle*, II, 443.

<sup>23</sup> Anna Komnene, *Alexiad*, 13.12.

<sup>24</sup> De Giorgi and Eger, *Antioch: A History*, 277–335.

<sup>25</sup> Laurent, “La chronologie des gouverneurs d'Antioche,” 219–54; Kühn, *Die byzantinische Armee*, 170–81; Cheynet, Morisson, and Seibt, *Les sceaux byzantins de la Collection Henri Seyrig*, 114; Cheynet, *Sceaux de la collection Zacos*, 22–23.



minor themes in the region (Adata, Anabarza, Antarados, Artach, Balaneos, Borze/Barzuya, Germanikeia, Hagios Elias, Hierapolis/Bambyce, Laodikeia (tes Syrias), Marakeus/Marakeia, Mauron Oros, Mopsouestia, Pagrae, Palatza, Podandos, Tarsos, Telouch, Zebel/Gabala, Zoume/Juma) were subsequently placed under the authority of the *doux*.<sup>26</sup> These changes turned Antioch into an operational center along the frontier, making it feasible to coordinate the small themes for larger military initiatives.

### **Archesh**

- Capital: Archesh
- Existed: Control of the theme was established by Nikephoros Komnenos in 1023 or 1024.<sup>27</sup>
- Location: A fortified town along the north shore of Lake Van, at modern Erciş.<sup>28</sup>

### **Artach**

- Capital: Artach
- Existed: The city was captured in 966. Its elevation to the status of theme is unknown but likely occurred shortly after its conquest. Its mention in the *Escorial Taktikon* indicates it was a theme by at least the mid-970s.<sup>29</sup> Seals from the eleventh century attest to its continued existence.<sup>30</sup>

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<sup>26</sup> Anna Komnene, *Alexiad*, 13.12; Haldon, *Warfare, State, and Society*, 88–89.

<sup>27</sup> Skylitzes, *Synopsis*, 336, 350. Nikephoros Komnenos replaced Basil Argyros as the *protospatharios* and succeeded in imposing control over the area.

<sup>28</sup> *De Administrando Imperio*, 44.15; Sinclair, *Eastern Turkey*, 1:319.

<sup>29</sup> *Escorial Taktikon*, 268–69.

- Location: A fortress that is now modern Irtah, near Rihaniyeh.<sup>31</sup>
- Organization: Its *strategos* fell under the command of the *doux* of Antioch.<sup>32</sup>

## Artze

- Capital: Artze
- Existed: It is mentioned as a seat of a *strategos* in the *Escorial Taktikon* (mid-970s).<sup>33</sup>  
In 979, the emperor granted the lands to the Georgian ruler David III of Tao.<sup>34</sup> David died in 1000 and the theme returned to Byzantine control. The Seljuks ultimately conquered the theme in 1049.<sup>35</sup>
- Location: Northwest of Theodosiupolis (modern Erzurum).<sup>36</sup>
- Organization: By the eleventh century the theme's *strategos* most likely was subordinated to Iberia's *katepano*.<sup>37</sup>

## Artzike

- Capital: Artzike<sup>38</sup>
- Existed: Predicated on the acquisition of adjacent themes, it was incorporated into the

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<sup>30</sup> Fogg 2093 “Theodorokanos, *protospatharios* epi tou Chrysotriklinou, and *strategos* of Artach” (eleventh century); BZS.1951.31.5.1893 “Leon Spondyles, *kourator* of Artach” (eleventh century) (tentative attribution); Yahya, *Chronicle*, II, 466.

<sup>31</sup> Eric McGeer, John Nesbitt, and Nicolas Oikonomides, eds., *Catalogue of Byzantine Seals at Dumbarton Oaks and in the Fogg Museum of Art*, vol. 5, *The East (continued), Constantinople and Environs, Unknown Locations, Addenda, Uncertain Readings* (Washington, DC: Dumbarton Oaks, 2005), 34.

<sup>32</sup> Anna Komnene, *Alexiad*, 13.12.

<sup>33</sup> *Escorial Taktikon*, 268–69; DO 58.106.4959 “Konstantinos, *chartoularios* and imperial *kourator* of Artze” (tenth/eleventh century).

<sup>34</sup> Ronald Grigor Suny, *The Making of the Georgian Nation* (Bloomington: Indiana University Press, 1994), 32.

<sup>35</sup> Morton, *Encountering Islam on the First Crusade*, 89.

<sup>36</sup> Oikonomides, *Les listes de préséance byzantines*, 363.

<sup>37</sup> McGeer, Nesbitt, and Oikonomides, *Catalogue of Byzantine Seals*, 4:148.

<sup>38</sup> “Christophor Ly[...]ounites, *protospatharios* and *strategos* of Artzike” (tenth-eleventh century), in Laurent, “Sceau inédit de Christophore stratège d’Artziké,” 452–65.

empire around 1050.<sup>39</sup>

- Location: Along the north shore of Lake Van.

### **Asmosaton**

- Capital: Asmosaton<sup>40</sup>
- Existed: ca.938.<sup>41</sup>
- Location: Modern Ašmušat, near the Murad-Su (Arsanias River).<sup>42</sup>

### **Balaneos**

- Capital: Balaneos
- Existed: The city was conquered by Ioannes Tzimiskes in 975.<sup>43</sup> Balaneos was subsequently captured by the Fatimids in 985, but retaken the same year.<sup>44</sup> Seals attest to the continued presence of a *strategos* during the tenth and eleventh centuries.<sup>45</sup>
- Location: Modern Baniyas, initially a fortress at the foot of Mount Hermon, north of the Golan Heights, along the coastal road from Laodikeia to Tripolis.<sup>46</sup>
- Organization: It was placed under the jurisdiction of the *doux* of Antioch.<sup>47</sup>

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<sup>39</sup> Haldon, *Warfare, State, and Society*, 88; Kühn, *Die byzantinische Armee*, 64.

<sup>40</sup> DO 58.106.359 “Konstantinos, metropolitan of Asmosaton” (eleventh century).

<sup>41</sup> Oikonomides, *Les listes de préséance byzantines*, 360; Hild and Restle, *Tabula Imperii Byzantini*, 2:86.

<sup>42</sup> Oikonomides, *Les listes de préséance byzantines*, 360.

<sup>43</sup> McGeer, Nesbitt, and Oikonomides, *Catalogue of Byzantine Seals*, 5:37.

<sup>44</sup> Yahya, *Chronicle*, II, 416–17.

<sup>45</sup> Fogg 240 “Veken, *protospatharios* and *strategos* of Balaneos” (tenth/eleventh century).

<sup>46</sup> McGeer, Nesbitt, and Oikonomides, *Catalogue of Byzantine Seals*, 5:xv.

<sup>47</sup> Anna Komnene, *Alexiad*, 13.12.

## **Borze/Barzuya**

- Capital: Borze<sup>48</sup>
- Existed: There is no attestation of its existence prior to 1025 but it was likely founded at the end of the tenth century.<sup>49</sup>
- Location: Ancient Lysias. Along with Hagios Elias, it protected the northern portion of the Jabal al-Anṣariyyah (Syrian Coastal Mountain Range) in northern Syria that parallels the coast.<sup>50</sup> Approximately 65 km due south of Antioch.
- Organization: Borze was placed under the *doux* of Antioch.<sup>51</sup>

## **Chantiarte**

- Capital: Chantiarte
- Existed: Chantiarte became a theme by at least the mid-970s according to its mention in the *Escorial Taktikon*.<sup>52</sup>
- Location: Near the Mesopotamia Theme.
- Organization: The theme was subject to the *doux* of Mesopotamia.<sup>53</sup>

## **Charpezikion**

- Capital: Charpezikion

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<sup>48</sup> Anna Komnene, *Alexiad*, 13.12.

<sup>49</sup> De Giorgi and Eger, *Antioch: A History*, 258, 261.

<sup>50</sup> Todt, "Antioch in the Middle Byzantine Period," 179; Getzel Cohen, *The Hellenistic Settlements in Syria, The Red Sea Basin, and North Africa* (California: University of California Press, 2006), 119.

<sup>51</sup> Anna Komnene, *Alexiad*, 13.12.

<sup>52</sup> *Escorial Taktikon*, 268–69.

<sup>53</sup> Haldon, *Warfare, State, and Society*, 88. Inclusion in the ducate is predicated on its location.

- Existed: The city was captured by 949 during Ioannes Kourkouas’s conquests.<sup>54</sup> Last mention of it is found in the *Escorial Taktikon* from the 970s.<sup>55</sup> It was potentially short-lived due to its location on the frontier.
- Location: A fortress identified as Çarpezik Kalesi, east of the Euphrates River.<sup>56</sup>
- Organization: The theme fell under the jurisdiction of the *doux* of Mesopotamia.<sup>57</sup> It consisted of a garrison of 905 soldiers, but still possessed twenty-two major *tourmarches* and forty-seven minor ones.<sup>58</sup> This gave it the highest known ratio of commanders to inhabitants of any theme. This is consistent with other Armenian themes that covered a small territory but boasted a unique administrative structure.

### Chasanara

- Capital: Chasanara
- Existed: The Byzantines conquered the city in 956 and it became a theme sometime before the early 970s when a *strategos* is mentioned in the *Escorial Taktikon*.<sup>59</sup> A *strategos* is also attested in a tenth century seal.<sup>60</sup>
- Location: Modern Siverek, between Samosata and Diyarbakır.<sup>61</sup>
- Organization: The *doux* of Mesopotamia held jurisdiction over its *strategos*.<sup>62</sup>

<sup>54</sup> Hild and Restle, *Tabula Imperii Byzantini*, 2:86; Oikonomides, *Les listes de préséance byzantines*, 241–42.

<sup>55</sup> *Escorial Taktikon*, 266–67.

<sup>56</sup> Hild and Restle, *Tabula Imperii Byzantini*, 2:86, 88.

<sup>57</sup> Haldon, *Warfare, State, and Society*, 88. Inclusion in the ducate is predicated on its location.

<sup>58</sup> Oikonomides, *Les listes de préséance byzantines*, 345.

<sup>59</sup> *Escorial Taktikon*, 268–69; Oikonomides, *Les listes de préséance byzantines*, 362.

<sup>60</sup> Fogg 1904 “N., imperial *protospatharios* and *strategos* of Chasanara (?)...” (tenth century).

<sup>61</sup> McGeer, Nesbitt, and Oikonomides, *Catalogue of Byzantine Seals*, 4:174.

<sup>62</sup> Haldon, *Warfare, State, and Society*, 88. Inclusion in the ducate is predicated on its location.

## Chauzizion/Chavzizin

- Capital: Chavzizin
- Existed: Seals attest to its existence during the eleventh century, but its location suggests it was incorporated as a minor theme sometime in the mid-tenth century.<sup>63</sup>
- Location: Also known as Hafdjidj. Modern Hafgig in the Bingöl Dağ Mountains.<sup>64</sup>

## Chortzine

- Capital: Chortzine
- Existed: The city became a theme at least by the mid-970s due to its inclusion in the *Escorial Taktikon*.<sup>65</sup> Seals also date it to the late tenth century.<sup>66</sup>
- Located: Northwest of the Plain of Muş near Taron.<sup>67</sup>
- Organization: Chortzine's *strategos* fell under the command of the *doux* of Mesopotamia.<sup>68</sup>

## Chouit

- Capital: Chouit
- Existed: It is first mentioned in the *Escorial Taktikon* of the mid-970s.<sup>69</sup>

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<sup>63</sup> BZS.1951.31.5.1733 “Basil..., imperial *notarios* and grand *kourator* of Derzene, Rachaba (?) and Chavzizin” (eleventh century).

<sup>64</sup> Oikonomides, *Les listes de préséance byzantines*, 361.

<sup>65</sup> *Escorial Taktikon*, 266–67.

<sup>66</sup> Zacos no. 1087 “Theophanes, imperial *protospatharios* and *strategos* of Chortzine,” in Zacos, *Byzantine Lead Seals*, vol. 2; “Melias, *strategos* of Chortzine,” (tenth century), in Paul Stephenson, “A Development in Nomenclature on the Seals of the Byzantine Provincial Aristocracy in the Late Tenth Century,” *Revue des études byzantines* 52 (1994): 195.

<sup>67</sup> Oikonomides, *Les listes de préséance byzantines*, 359.

<sup>68</sup> Haldon, *Warfare, State, and Society*, 88. Inclusion in the ducate is predicated on its location.

<sup>69</sup> *Escorial Taktikon*, 268–69.

- Location: A fortification east of Taron.<sup>70</sup>

## Chozanon

- Capital: Chozanon
- Existed: Chozanon was conquered and made a theme some point after 938.<sup>71</sup> By 956 it is firmly attested as a theme with additional attribution from a seal from the late tenth/eleventh century.<sup>72</sup>
- Location: Modern Hozat in Turkey’s Tunceli Province, between Kamacha and the Arsanias River.<sup>73</sup>
- Organization: Its *strategos* fell under the jurisdiction of the *doux* of Mesopotamia.<sup>74</sup>

## Dekapolis

- Capital: Unknown. Potentially Germanikoupolis (modern Ermenek).<sup>75</sup>
- Existed: The Dekapolis is only known from seals dating to the late tenth or early eleventh century.<sup>76</sup> It is not mentioned in the *Escorial Taktikon*, so it presumably did not exist until after the mid-970s. Werner Seibt and Ergun Laflı surmise the date of its foundation to be shortly after Basil II’s ascension to the throne and the defeat of Bardas

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<sup>70</sup> Nicolas Oikonomides, “L’organisation de la frontière orientale de Byzance aux Xe-XIe siècles et le Taktikon de l’Escorial,” In *Actes du XIVe congrès international des études byzantines, Bucarest, 6–12 September 1971*, ed. Mihai Berza and Eugen Stănescu (Bucharest: Editura Academiei Republicii Socialiste România, 1974), 293.

<sup>71</sup> Oikonomides, *Les listes de préséance byzantines*, 359.

<sup>72</sup> BZS.1951.31.5.869 “Nikephoros, imperial *protospatharios* and *strategos* of Chozanon” (tenth/eleventh century); Kountoura-Galake et al., *Μικρά Ασία των θεμάτων*, 347–48.

<sup>73</sup> Hild and Restle, *Tabula Imperii Byzantini*, 2:92.

<sup>74</sup> Haldon, *Warfare, State, and Society*, 88. Inclusion in the ducate is predicated on its location.

<sup>75</sup> Seibt and Laflı, “Isaurian Decapolis,” 75.

<sup>76</sup> Museum of Çeşme, no. 2008/3 “Ioan(ne) B(asiliko) (proto)spath(arios) and *strategos* of the Dekapolis” (late tenth/early eleventh century); Seibt and Laflı, “Isaurian Decapolis,” 72.

Skleros.<sup>77</sup>

- Location: The Isaurian Dekapolis constituted the inland region of Isauria and included the cities of Dalisandos, Diokaisareia, Dometiupolis, Germanikoupolis, Irenoupolis, Klaudioupolis, Lauzados, Neapolis, Titioupolis, and Zenoupolis.<sup>78</sup> How much the jurisdiction of the theme corresponded to this generalized toponymy is unknown.
- Organization: This appears to be a rare example within the minor themes in which the theme is not named after its capital. A potential reason for this novel naming convention is that the concept of the Isaurian Dekapolis predated the theme as a cluster of ten cities, as described by the *De Thematis*.<sup>79</sup>

## Derzene

- Capital: Derzene
- Existed: The minor theme was established at least by the mid-tenth century as it is referenced in the *De Administrando Imperio*.<sup>80</sup> Derzene is referenced again in the *Escorial Taktikon* (970s).<sup>81</sup>
- Location: Modern Tercan, along the route between Erzincan to Erzurum.<sup>82</sup>
- Organization: Seals from the eleventh century show it was often administered by officials in the neighboring Chaldia Theme with Trebizond then serving as the capital.<sup>83</sup> Administratively, it fell within the jurisdiction of the *doux* of Chaldia.

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<sup>77</sup> Seibt and Lafli, "Isaurian Decapolis," 75.

<sup>78</sup> *De Thematis*, 143–44.

<sup>79</sup> *De Thematis*, 143–44.

<sup>80</sup> *De Administrando Imperio*, 53.507.

<sup>81</sup> *Escorial Taktikon*, 266–67.

<sup>82</sup> McGeer, Nesbitt, and Oikonomides, *Catalogue of Byzantine Seals*, 4:150.



## Edessa

- Capital: Edessa
- Existed: The city was captured by Georgios Maniakes in 1032.<sup>84</sup> Edessa was one of the last thematic additions resulting from Byzantine military expansion into the east. The mionr theme was briefly taken by the Seljuks before falling into crusader hands by 1097.<sup>85</sup>
- Location: Modern Urfa.
- Organization: Edessa was initially the seat of a *strategos* but was later granted the overarching command of a *doux*.<sup>86</sup>

## Erkne

- Capital: Erkne
- Existed: It was made a theme sometime after 956, upon the conquest of the region. Erkne is firmly attributed in the 970s *Escorial Taktikon*.<sup>87</sup>

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<sup>83</sup> Fogg 2629 “Michael Saronites, *protospatharios* epi tou Chrysotriklinou, *chartouarios* of the *logothetes tou genikou*, judge of the Velum, and *anagrapheus* of Chaldia and Derzene” (eleventh century); Fogg 3159 “Gerbasios (?) Doukas, *protospatharios* (?) and *chartouarios* (?) of Chaldia and (?) Derzene” (eleventh century); Fogg 400 “Leon (?) Hexakionites, *spatharokandidatos* and judge (?) (or *protonotarios*?) of Chaldia and of Derzene” (eleventh century); DO 55.1.2933 “Leon Areobindos, *spatharokandidatos*, *asekretis*, and judge of Chaldia and Derzene” (eleventh century); BZS.1955.1.2521 “Michael, *asekretis* and judge of Chaldia and Derzene” (eleventh century); BZS.1955.1.2066 “Michael, *spatharios* epi tou Chrysotriklinou, *logariastes* of the grand *kouratorikion*, *artoklines*, and *anagrapheus* of Chaldia, Derzene, and Taron” (eleventh century); BZS.1958.106.5114 “N., *spatharokandidatos* and judge of Chaldia and of Derzene” (eleventh century).

<sup>84</sup> Skylitzes, *Synopsis*, 365.

<sup>85</sup> *Chronicle of 1234*, 242; Christina Tonghini, *From Edessa to Urfa: The Fortification of the Citadel* (Oxford: Archaeopress, 2021), 22–23.

<sup>86</sup> DO 58.106.4763 “Basil Apokapes, (*proto*?) *proedros* and *doux* of Edessa” (between 1077 and 1084); DO 58.106.4919 “Theodore Pegonites, *magistros* and *doux* of Edessa” (1066–67); BZS.1951.31.5.175 “Nikephoros Botaneiates, *magistros*, *vestes*, *vestarches*, and *doux* of Edessa and Antioch” (before 1062); McGeer, Nesbitt, and Oikonomides, *Catalogue of Byzantine Seals*, 4:162–63; Viada Arutjunova, “Vizantijskie praviteli Edessy v XI v.,” *Vizantijskij vremennik* 35 (1973): 137–53.

<sup>87</sup> *Escorial Taktikon*, 268–69.

- Location: A fortress that is now modern Ergani, approximately 65 km northwest of Diyarbakır.<sup>88</sup>
- Organization: Erkne was under the jurisdiction of the *doux* of Mesopotamia.<sup>89</sup>

### **Euphrates Cities/Trans-Euphrates Cities**

- Capital: Unknown
- Existed: It was founded ca.1032 after conquests by Georgios Maniakes.<sup>90</sup>
- Location: South of the Mesopotamia Theme and west of Edessa.<sup>91</sup>
- Organization: The theme was possibly administered out of Samosata, at least under Georgios Maniakes.<sup>92</sup> However, sigillographic evidence for the *strategos* of Samosata includes no mention of the Euphrates Cities.<sup>93</sup>

### **Germanikeia**

- Capital: Germanikeia
- Existed: Germanikeia was captured by Nikephoros II Phokas in 962 and is mentioned as a theme in the *Escorial Taktikon* of the 970s.<sup>94</sup>
- Location: Modern Kahramanmaraş, along the fortified frontier zone of the Taurus Mountains.<sup>95</sup>
- Organization: The theme fell under the *doux* of Antioch's jurisdiction.<sup>96</sup>

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<sup>88</sup> Oikonomides, *Les listes de préséance byzantines*, 363.

<sup>89</sup> Haldon, *Warfare, State, and Society*, 88. Inclusion in the ducate is predicated on its location.

<sup>90</sup> Skylitzes, *Synopsis*, 365; Haldon, *Warfare, State, and Society*, 88.

<sup>91</sup> Haldon, *Warfare, State, and Society*, 82–83.

<sup>92</sup> Skylitzes, *Synopsis*, 365; McGeer, Nesbitt, and Oikonomides, *Catalogue of Byzantine Seals*, 4:161.

<sup>93</sup> Fogg 1010 “George, *patrikos* and *strategos* of Samosata” (eleventh century).

<sup>94</sup> *Escorial Taktikon*, 266–67.

<sup>95</sup> Hild and Restle, *Tabula Imperii Byzantini*, 2:110, 127.

## Hagios Elias

- Capital: Hagios Elias
- Existed: A precise foundational date is unknown but, according to John Haldon, a date prior to 990 puts it in line with other conquests in Northern Syria.<sup>97</sup>
- Location: Its garrison controlled the northern part of the Jabal al-Anṣariyyah (Syrian Coastal Mountain Range) in northern Syria that parallels the coast.<sup>98</sup> Approximately 65 km due south of Antioch.
- Organization: Its *strategos* was subject to the *doux* of Antioch.<sup>99</sup>

## Hexakomia/Hexapolis

- Capital: Unknown
- Existed: The creation of surrounding themes would suggest a foundational date in the 970s which is consistent with its listing in the *Escorial Taktikon*.<sup>100</sup> Predicated on the approximate dating of seals, this theme continued to exist into the late tenth or early eleventh century.<sup>101</sup>
- Location: Hexakomia and Hexapolis are identified as the same theme.<sup>102</sup> It existed between Lykandos and Melitene, potentially derived from their territory. The name “Hexapolis” implies it constituted six cities, which would likely include Arabissos,

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<sup>96</sup> Anna Komnene, *Alexiad*, 13.12.

<sup>97</sup> Haldon, *Warfare, State, and Society*, 88.

<sup>98</sup> Todt, “Antioch in the Middle Byzantine Period,” 179; Cohen, *Hellenistic Settlements in Syria*, 119.

<sup>99</sup> Anna Komnene, *Alexiad*, 13.12.

<sup>100</sup> *Escorial Taktikon*, 266–67.

<sup>101</sup> DO 58.106.1068 “Koropalates, imperial *protospatharios* and *strategos* of Hexakomia” (tenth/eleventh century); Fogg 1283 “Leon, imperial *strator* and *dioiketes* of Hexapolis” (tenth century).

<sup>102</sup> McGeer, Nesbitt, and Oikonomides, *Catalogue of Byzantine Seals*, 4:153.

Ariaratheia, Arka, Komana, Kukusos, and Melitene.<sup>103</sup> However, this naming convention could refer to the historical region of the Hexapolis in general, meaning that the theme itself constituted a slightly different arrangement of cities.

- Organization: The theme was under the jurisdiction of the *doux* of Mesopotamia.<sup>104</sup>

### **Hierapolis/Bambyce**

- Capital: Hierapolis
- Existed: Prior to Byzantine control it served as the capital of the Abbasid's al-Awasim frontier district.<sup>105</sup> This was one of the final additions to the minor themes in the eastern portion of the empire. Romanos IV Diogenes captured it in 1069 as the only successful portion of his campaign to drive the Seljuks out of Anatolia.<sup>106</sup>
- Located: An important fortress in northern Syria in what is now Manbij.<sup>107</sup> Approximately 80 km northeast of Aleppo.

### **Iberia**

- Capital: Theodosioupolis
- Existed: The territory that later constituted the heart of the theme were granted to David III of Tao-Tayk for his support against Bardas Skleros's rebellion in 979.<sup>108</sup>

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<sup>103</sup> Oikonomides, *Les listes de préséance byzantines*, 360; Oikonomides, "L'organisation de la frontière orientale," 290; Hild and Restle, *Tabula Imperii Byzantini*, 2:152.

<sup>104</sup> Haldon, *Warfare, State, and Society*, 88. Inclusion in the ducate is predicated on its location.

<sup>105</sup> Alan Walmsley, *Early Islamic Syria: An Archaeological Assessment* (London: Duckworth, 2007), 75; Paul Cobb, *White Banners: Contention in 'Abbasid Syria, 750–880* (Albany: SUNY Press, 2001), 12.

<sup>106</sup> *Skylitzes Continuatus*, 91–93.

<sup>107</sup> Başan, *The Great Seljuqs*, 76.

<sup>108</sup> Skylitzes, *Synopsis*, 322. Skylitzes referred to this region as "Inner Iberia."

However, Basil II later grew distrustful of David III and the territory was ceded back to the Byzantine Empire upon David III's death in 1000.<sup>109</sup> This transfer was contested by the Georgian Bagratid ruler. The Byzantines captured it in 1022 as well as Artaan (Ardahan), Javakheti, and Kola.<sup>110</sup> They incorporated these lands into the new theme of Iberia. It is uncertain if the Iberian Theme was created circa 1000<sup>111</sup> after David's death, or around 1022 after the defeat of the Bagratids. No commander can be precisely attributed before 1025/6 when Niketas of Pisidia became the *katepano*.<sup>112</sup> The initial entrustment of the land to an ally and its position along the far eastern frontier explains its late incorporation into the theme system. In 1045, the Armenian capital of Ani was annexed by the Byzantines and administered by Iberia.<sup>113</sup> 1064 saw the annexation of Kars and administrative incorporation into the theme.<sup>114</sup> Large portions were captured by the Seljuks following the Battle of Manzikert in 1071, with the remnants of the theme ceded soon after.<sup>115</sup>

- Location: Within the historical region of Armenia and Georgia. Its capital of Theodosiopolis is modern Erzurum.<sup>116</sup>

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<sup>109</sup> Rapp, *Medieval Georgian Historiography*, 414.

<sup>110</sup> Rapp, *Medieval Georgian Historiography*, 401.

<sup>111</sup> Viada Arutjunova-Fidanjan, *Armjane Halkidonty na vostčnych granicach Vizantijskoj imperii (XIV.)* (Erevan, 1980), 108–35.

<sup>112</sup> Skylitzes, *Synopsis*, 349; Holmes, *Basil II*, 362–63.

<sup>113</sup> DO 55.1.2179 “Aaron, *magistros* and *doux* of Ani and Iberia” (eleventh century); Skylitzes, *Synopsis*, 409–10; Attaleiates, *History*, 14.2.

McGeer, Nesbitt, and Oikonomides, *Catalogue of Byzantine Seals*, 4:166–68; Haldon, *Warfare, State, and Society*, 85.

<sup>114</sup> Bašan, *The Great Seljuqs*, 73.

<sup>115</sup> Robert Edwards, “The Vale of Kola: A Final Preliminary Report on the Marchlands of Northeast Turkey,” *Dumbarton Oaks Papers* 42 (1988): 138–40.

<sup>116</sup> Robert Edwards, “On the Location of the Iberian Theme” (Abstracts of Papers: The 17<sup>th</sup> International Byzantine Congress, August 3–8, 1986, Washington, DC, Dumbarton Oaks/Georgetown University), 102–3; Johannes Koder, “Historical Geography,” in *The Archaeology of Byzantine Anatolia: From the End of Late Antiquity until the Coming of the Turks*, ed. Philip Niewöhner (Oxford: Oxford University Press, 2017), 23.

- Organization: The location of the theme on the far eastern extremity of the empire, in a highly contested region, led to several unorthodox administrative practices. It was governed by a *katepano* and not a *strategos*.<sup>117</sup> A large number of *kouratores* were used to supervise state-controlled lands to exact higher incomes, which was a common way for the central government to monetize the distant themes.<sup>118</sup> A separate *doux* oversaw Ani, which at some point was administratively incorporated into the Iberian Theme. This resulted in seals listing a singular “*doux* of Ani and Iberia.”<sup>119</sup> The later incorporation of Kars into the theme also saw a similar designation where its *katepano* was listed as belonging to both Kars and Iberia.<sup>120</sup> Iberia was one of the few new themes to continuously expand its territorial holdings through annexation, making the dual attribution of titles more understandable in comparison to themes acquired through rapid conquest. A final case of opaque jurisdiction comes from an eleventh-century seal denoting an “*imperial kourator* of Manzikert and of Inner Iberia.”<sup>121</sup> Oikonomides saw this, not as a reference to the theme, but more likely a geographical designation for the area north of Lake Van, adjacent to or within the jurisdiction of the preexisting Manzikert Theme.<sup>122</sup> Iberia also held prominence over the adjacent theme of Artze which, by the eleventh century, had its *strategos* hold a subordinate role to

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<sup>117</sup> McGeer, Nesbitt, and Oikonomides, *Catalogue of Byzantine Seals*, 4:166.

<sup>118</sup> DO 58.106.5502 “Michael Kataphloron, imperial *kourator* of Manzikert and of Inner Iberia” (early eleventh century).

<sup>119</sup> DO 55.1.2179 “Aaron, *magistros* and *doux* of Ani and Iberia” (eleventh century).

<sup>120</sup> No. 119 “Basilakes Phloros, *katepano* of Kars and Iberia” (eleventh century), in Jean-Claude Cheynet, Spink Auction 132 (May 25, 1999).

<sup>121</sup> DO 58.106.5502 “Michael Kataphloron, imperial *kourator* of Manzikert and of Inner Iberia” (early eleventh century).

<sup>122</sup> McGeer, Nesbitt, and Oikonomides, *Catalogue of Byzantine Seals*, 4:167–68.

Iberia's *katepano*.<sup>123</sup> These jurisdictional peculiarities reflect the ever-shifting diplomatic and military reality along the far eastern frontier.

### **Irenoupolis**

- Capital: Irenoupolis
- Existed: The theme was founded at some point after Nikephoros II Phokas's conquests of the region in 965.<sup>124</sup>
- Location: Corresponds to the modern settlements of Çatalbadem and İkizçın, in Turkey's Karaman Province.<sup>125</sup> The *De Thematibus* labels the city as part of the Isaurian Dekapolis.<sup>126</sup>

### **Kaloudia**

- Capital: Kaloudia
- Existed: It is firmly attested in the *Escorial Taktikon* of the 970s.<sup>127</sup>
- Location: Along the west bank of the Euphrates River, downstream from Melitene.<sup>128</sup>
- Organization: Kaloudia was under the jurisdiction of the *doux* of Mesopotamia.<sup>129</sup>

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<sup>123</sup> McGeer, Nesbitt, and Oikonomides, *Catalogue of Byzantine Seals*, 4:148.

<sup>124</sup> Haldon, *Warfare, State, and Society*, 88.

<sup>125</sup> Hild and Hellenkemper, *Tabula Imperii Byzantini*, 5:245.

<sup>126</sup> *De Thematibus*, 143.

<sup>127</sup> *Escorial Taktikon*, 266–67.

<sup>128</sup> Dweezil Vandekerckhove, *Medieval Fortifications in Cilicia: The Armenian Contribution to Military Architecture in the Middle Ages* (Leiden: Brill, 2020), 54.

<sup>129</sup> Haldon, *Warfare, State, and Society*, 88. Inclusion in the ducate is predicated on its location.

## Kama

- Capital: Kama
- Existed: It is mentioned in the *Escorial Taktikon* (970s),<sup>130</sup> with additional seal attestation from the tenth and eleventh centuries.<sup>131</sup>
- Location: Unknown. Possibly the Paulician fortress of Kameia, modern Kaman, south of Derzene in the Mananali region.<sup>132</sup>
- Organization: Its *strategos* was subject to the *doux* of Mesopotamia.<sup>133</sup>

## Kars

- Capital: Kars
- Existed: The theme was annexed in 1064.<sup>134</sup>
- Location: Modern Kars in eastern Turkey.
- Organization: Kars was independently administered by a *katepano*, but at times it was administered jointly with the theme of Iberia.<sup>135</sup>

## Kassenon (a tentative theme)

- Capital: Kassenon
- Existed: The date of Kassenon's foundation is unknown. The only evidence of the theme comes from a seal dating to the latter half of the eleventh century.<sup>136</sup> The *De*

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<sup>130</sup> *Escorial Taktikon*, 266–67.

<sup>131</sup> DO 58.106.827 “Niketas, *patrikios*, *praipositos epi tou koitonos*, *vestarches*, and *strategos* of Kama” (eleventh century); DO 55.1.4784 “Stephanos, monk and *hegoumenos* of Kamia” (tenth/eleventh century).

<sup>132</sup> Oikonomides, “L’organisation de la frontière orientale,” 292.

<sup>133</sup> Haldon, *Warfare, State, and Society*, 88. Inclusion in the ducate is predicated on its location.

<sup>134</sup> Başan, *The Great Seljuqs*, 73.

<sup>135</sup> Seal no. 119 “Basilakes Phloros, *katepano* of Kars and Iberia” (eleventh century), in Jean-Claude Cheynet, Spink Auction 132 (May 25, 1999); McGeer, Nesbitt, and Oikonomides, *Catalogue of Byzantine Seals*, 4:166.



*Administrando Imperio* identifies Kas(s)e as a *tourma* under the Kappadokia Theme, which may be the early tenth century precursor to the theme.<sup>137</sup>

- Location: Northern Kappadokia, near Ariaratheia (modern Pınarbaşı), between Kayseri and Malatya.<sup>138</sup>
- Organization: Werner Seibt considers it a theme based on sigillographic evidence of a *strategos*.<sup>139</sup> However, this is contested by Pantelis Charalampakis. He notes that, while it is mentioned in the *Notitia Episcopatum*, the location bears no identifiable city or fortification beyond some churches.<sup>140</sup> This would suggest that the toponymical name instead refers to the people of the area of Kas(s)e comprising a military detachment, and not a specific theme.<sup>141</sup> Furthermore, he contends that it lacked the appropriate civil officials to meet the criteria of a theme. Instead, Charalampakis argues that the title of *strategos* might simply be a naming convention chosen by the owner of the seal.<sup>142</sup> This would be a peculiar naming convention but it is not an impossible proposition. Kassenon will therefore be treated as a tentative addition to the theme system.

## **Keltzene**

- Capital: Keltzene

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<sup>136</sup> Seal no. 802 “Konstantinos, *hypatos* and *strategos* of the Kassenon” (second third of the eleventh century), in Munich, Staatliche Münzsammlung 580, Ex M.-L. Zarnitz private collection (purchased from the auction Münz Zentrum (Rheinland) 78 (September 7–9, 1994)).

<sup>137</sup> *De Administrando Imperio*, 50.109–10.

<sup>138</sup> Pantelis Charalampakis, “On the Toponymy and Prosopography of Some Minor Military-Administrative Districts in Byzantium: Kas(s)e, Vindaion, Mauron Oros,” *The Journal of Institute of Black Sea Studies* 3 (2017): 35.

<sup>139</sup> Werner Seibt, “Review of Jordanov, 2006,” *Byzantinische Zeitschrift* 101, no. 2 (2008): 821.

<sup>140</sup> Charalampakis, “Kas(s)e, Vindaion, Mauron Oros,” 37.

<sup>141</sup> Charalampakis, “Kas(s)e, Vindaion, Mauron Oros,” 38.

<sup>142</sup> Charalampakis, “Kas(s)e, Vindaion, Mauron Oros,” 39.

- Existed: At one point it served as the seat of the *tourma* for the Mesopotamia Theme. Seals attest to its existence during the eleventh century, but its foundation date remains unknown.<sup>143</sup>
- Location: Modern Erzincan, bordered to the south by the Mesopotamia Theme and northeast by the Derzene Theme.<sup>144</sup>

### **Kogovit**

- Capital: Kogovit
- Existed: ca.1050.<sup>145</sup>
- Location: In Armenia near the borders of Bazudzor and Marduts'ayk'.<sup>146</sup>

### **Koptos**

- Capital: Koptos
- Existed: The earliest mention of the theme is from the *Escorial Taktikon* in the mid-970s.<sup>147</sup>
- Location: Near the Mesopotamia Theme, at Sarıçiçek Dağı between Tephrike and Abara.<sup>148</sup>
- Organization: Its *strategos* was subject to the *doux* of Mesopotamia.<sup>149</sup>

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<sup>143</sup> BZS.1947.2.51 “Basil, most humble metropolitan of Keltzene” (eleventh century); McGeer, Nesbitt, and Oikonomides, *Catalogue of Byzantine Seals*, 4:156.

<sup>144</sup> Sinclair, *Eastern Turkey*, 1:327.

<sup>145</sup> Haldon, *Warfare, State, and Society*, 88.

<sup>146</sup> Ghewond, *History of Lewond*, 50, 52, 56; Sinclair, *Eastern Turkey*, 1:437.

<sup>147</sup> *Escorial Taktikon*, 266–67.

<sup>148</sup> Hild and Restle, *Tabula Imperii Byzantini*, 2:209.

<sup>149</sup> Haldon, *Warfare, State, and Society*, 88. Inclusion in the ducate is predicated on its location.

## Kymbalaios

- Capital: Kymbalaios
- Existed: It served as a *tourma* of the Charsianon Theme in the ninth century.<sup>150</sup> A dedicated *strategos* is identified in the *Escorial Taktikon* of the 970s.<sup>151</sup>
- Location: Unknown. Modern Kemer, 20 km north of Kaisareia, is proposed as a potential location.<sup>152</sup> Possibly identical to Kamouliana, which was along the road from Kaisareia to Tavia near the Halys River.<sup>153</sup> This would give it the job of guarding a strategic crossing.<sup>154</sup>

## Laodikeia (Laodikeia tes Syrias)

- Capital: Laodikeia
- Existed: Laodikeia's date of creation is unknown, but it was likely founded in the late 970s/early 980s in accordance with other conquests in the region.<sup>155</sup>
- Location: Modern Latakia, Syria. Approximately 95 km south of Antioch on the Mediterranean Sea. It consisted of a double fortress and a fortified harbor.<sup>156</sup>
- Organization: The theme was under the *doux* of Antioch.<sup>157</sup>

## Larissa

- Capital: Larissa

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<sup>150</sup> Hild and Restle, *Tabula Imperii Byzantini*, 2:197–98.

<sup>151</sup> *Escorial Taktikon*, 266–67.

<sup>152</sup> McGeer, Nesbitt, and Oikonomides, *Catalogue of Byzantine Seals*, 4:115–16.

<sup>153</sup> McGeer, Nesbitt, and Oikonomides, *Catalogue of Byzantine Seals*, 4:115.

<sup>154</sup> Hild and Restle, *Tabula Imperii Byzantini*, 2:197–98.

<sup>155</sup> Seal no. 39, in Cheynet, *Sceaux de la collection Zacos*; Yahya, *Chronicle*, II, 416–17, 439.

<sup>156</sup> Strabo, *Geography*, 16.2.9; Todt, “Antioch in the Middle Byzantine Period,” 179.

<sup>157</sup> Anna Komnene, *Alexiad*, 13.12; Yahya, *Chronicle*, II, 416–17, 439.

- Existed: The *De Administrando Imperio* describes it as originating as a *tourma* of the Sebasteia Theme.<sup>158</sup> It was elevated to a *kleisoura* around 908, reabsorbed by Sebasteia as a *tourma* around 913, and, according to the *Escorial Taktikon*, it became a theme by the 970s.<sup>159</sup>
- Location: Near modern Mancınık.<sup>160</sup>
- Organization: It fell under the jurisdiction of the *doux* of Mesopotamia.<sup>161</sup>

### Limnia

- Capital: Limnia
- Existed: The first mention of a *strategos* comes from the *Escorial Taktikon* in the mid-970s.<sup>162</sup>
- Location: Along the Iris River (modern Yeşilırmak River) where it enters the Black Sea.<sup>163</sup> Approximately 30 km east of Samsun.
- Organization: Limnia was subject to the *doux* of Mesopotamia.<sup>164</sup>

### Manzikert

- Capital: Manzikert
- Existed: Upon the death of David III of Tao-Tayk in 1000, this was one of several

<sup>158</sup> *De Administrando Imperio*, 50.133–34; DO 58.106.4887, “Theoktistos, imperial *spatharios* and *tourmarches* of Larissa” (ninth century?)

<sup>159</sup> *Escorial Taktikon*, 266–67; *De Administrando Imperio*, 50.143–44, 50.148–50; BZS 1955.1.5063 “Euthymios, metropolitan of Larissa” (eleventh century); Oikonomides, “L’organisation de la frontière orientale,” 291.

<sup>160</sup> Oikonomides, *Les listes de préséance byzantines*, 358.

<sup>161</sup> Haldon, *Warfare, State, and Society*, 88. Inclusion in the ducate is predicated on its location.

<sup>162</sup> *Escorial Taktikon*, 266–67.

<sup>163</sup> Bryer, “Greeks and Türkmens,” 128–29.

<sup>164</sup> Haldon, *Warfare, State, and Society*, 88. Inclusion in the ducate is predicated on its location.

regions granted to Basil II and subsequently turned into a theme centered on the city of Manzikert.<sup>165</sup> The presence of a *strategos* is referenced by sigillographic evidence in the early eleventh century.<sup>166</sup> The theme ultimately fell to the Seljuks after the titular Battle of Manzikert in 1071.

- Location: Modern Malazgirt, north of Lake Van.
- Organization: The theme's *strategos* was likely subordinated to the *doux* of Vaspurakan.<sup>167</sup> A seal describing an "imperial *kourator* of Manzikert and of Inner Iberia" suggests that duties were shared between the two themes, however this is most likely referencing the geographical region of Iberia already within the jurisdiction of Manzikert.<sup>168</sup>

### **Marakeus/Marakeia**

- Capital: Marakeus
- Existed: John Haldon proposes that it was established as a proper theme at least by 990 after the conquest of the Levant.<sup>169</sup> The first proper attribution of the Marakeus Theme comes from Anna Komnene's *Alexiad*.<sup>170</sup>
- Location: South of Antioch, near Laodikeia tes Syrias, on the Mediterranean coastal route.<sup>171</sup>
- Organization: The *doux* of Antioch oversaw the theme's *strategos*.<sup>172</sup>

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<sup>165</sup> Rapp, *Medieval Georgian Historiography*, 414.

<sup>166</sup> DO 55.1.3445 "Nikephoros S...(?), *protospatharios* and *strategos* of Manzikert" (eleventh century).

<sup>167</sup> Yuzbashyan, "L'administration byzantine en Arménie," 149.

<sup>168</sup> DO 58.106.5502 "Michael Kataphloron, imperial *kourator* of Manzikert and of Inner Iberia" (early eleventh century); McGeer, Nesbitt, and Oikonomides, *Catalogue of Byzantine Seals*, 4: 167–68.

<sup>169</sup> Haldon, *Warfare, State, and Society*, 89.

<sup>170</sup> Anna Komnene, *Alexiad*, 13.12.

<sup>171</sup> Todt, "Antioch in the Middle Byzantine Period," 179.

## Mauron Oros

- Capital: Mauron Oros
- Existed: Mauron Oros was founded in 968, during the siege of Antioch, and was especially short lived.<sup>173</sup> Evidence points to the existence of at least two *strategoï*, one Kemales<sup>174</sup> and Michael Bourtzes.<sup>175</sup> The raison d'être of the theme was to serve as a base from which Bourtzes conducted raids against Antioch's hinterland as part of the effort to make the city capitulate.<sup>176</sup> Once the city surrendered in 969, Bourtzes went to Constantinople and no new *strategos* was assigned, suggesting the termination of its status as a theme.<sup>177</sup>
- Location: Modern Bakras Kalesi, approximately 25 km north of Antioch along the southern side of the Amanos Mountains. It likely had a purely military function.<sup>178</sup>
- Organization: The theme was under the jurisdiction of the *doux* of Antioch.<sup>179</sup>

## Melitene

- Capital: Melitene
- Existed: Ioannes Kourkouas conquered the city in 934 and turned into an imperial curatorship (*kouratoreia*). However, Melitene was not elevated to the status of a theme

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<sup>172</sup> Anna Komnene, *Alexiad*, 13.12.

<sup>173</sup> Holmes, "Byzantium's Eastern Frontier," 97–98.

<sup>174</sup> No. 183 "Kemales, *protospatharios* and *strategos* of Mauron Oros" (late eleventh century), in Cheynet, Morisson, and Seibt, *Les sceaux byzantins de la Collection Henri Seyrig*.

<sup>175</sup> Yahya, *Chronicle*, II, 816; Skylitzes, *Synopsis*, 261.

<sup>176</sup> Leon the Deacon, *History*, 132–33.

<sup>177</sup> Leon the Deacon, *History*, 136; Holmes, "Byzantium's Eastern Frontier," 97–98.

<sup>178</sup> Charalampakis, "Kas(s)e, Vindaion, Mauron Oros," 28.

<sup>179</sup> Anna Komnene, *Alexiad*, 13.12.

until the 970s.<sup>180</sup>

- Location: Modern Eski Malatya, along the right bank of the Euphrates.<sup>181</sup>
- Organization: Melitene fell under the jurisdiction of the *doux* of Mesopotamia.<sup>182</sup>

## Melte

- Capital: Melte
- Existed: The theme was founded at some point after the annexation of Taron in 966, and is firmly attributed by the 970s in the *Escorial Taktikon*.<sup>183</sup>
- Location: Also called Ziyaret, situated west of Lake Van.<sup>184</sup>
- Organization: Melte was potentially under the jurisdiction of the *katepano* of Vaspurakan, but this is not firmly attested in the sources.<sup>185</sup>

## Mopsouestia

- Capital: Mopsouestia
- Existed: The city was captured by the Byzantines in 965.<sup>186</sup> It is attested in the *Escorial Taktikon* of the 970s.<sup>187</sup> Seal evidence indicates the presence of a *strategos* into the

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<sup>180</sup> *Escorial Taktikon*, 264–65; Fogg 2576 “Leon, *protospatharios* and *strategos* of Melitene” (tenth century); Beihammer, *Muslim-Turkish Anatolia*, 54.

<sup>181</sup> Sinclair, *Eastern Turkey*, 3:42.

<sup>182</sup> Haldon, *Warfare, State, and Society*, 89. Inclusion in the ducate is predicated on its location.

<sup>183</sup> *Escorial Taktikon*, 268–69; Beihammer, *Muslim-Turkish Anatolia*, 54.

<sup>184</sup> Beihammer, *Muslim-Turkish Anatolia*, 54.

<sup>185</sup> Haldon, *Warfare, State, and Society*, 88. John Haldon places Melte under the jurisdiction of the *doux* of Chaldia. However, the theme’s location south of the Ducate of Mesopotamia bisected it from Chaldia, making any contiguous connection impossible.

<sup>186</sup> Leon the Deacon, *History*, 102; Yahya, *Chronicle*, II, 796.

<sup>187</sup> *Escorial Taktikon*, 266–67.

eleventh century.<sup>188</sup> The city became the seat of a *katepano* by the mid-eleventh century.<sup>189</sup>

- Location: Modern Misis, on the Kilikian Plain.<sup>190</sup>
- Organization: Predicated on the jurisdiction of the surrounding themes, this almost certainly fell under the jurisdiction of the *doux* of Antioch.<sup>191</sup>

### Mouzariou

- Capital: Mouzariou
- Existed: The theme is mentioned in the *Escorial Taktikon* of the mid-970s.<sup>192</sup>
- Location: Fortification in Upper Mesopotamia. Identified with the fortress of Hisn al-Minsar.<sup>193</sup>
- Organization: Mouzariou was subject to the *doux* of Mesopotamia.<sup>194</sup>

### Pagrae

- Capital: Pagrae<sup>195</sup>
- Existed: Nikephoros II Phokas constructed the fortification of Pagrae around 965 after conquering the region.<sup>196</sup>

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<sup>188</sup> DO 47.2.2129 “Leon (?), *protospatharios* and *strategos* of Mamistra (?)” (tenth/eleventh century). Mamistra, in this instance, served as an alternative name for Mopsouestia.

<sup>189</sup> Seal no. 55 “Symbatios, *magistros* and *katepano* of Mopsouestia” (second half of the eleventh century), in Jean-Claude Cheynet, “Sceaux byzantins des Musées d’Antioche et de Tarse,” *Travaux et mémoires* 12 (1994): 391–478.

<sup>190</sup> Hild and Restle, *Tabula Imperii Byzantini*, 2:46; Hild and Hellenkemper, *Tabula Imperii Byzantini*, 5:351–59.

<sup>191</sup> Anna Komnene, *Alexiad*, 13.12.

<sup>192</sup> *Escorial Taktikon*, 268–69.

<sup>193</sup> Oikonomides, *Les listes de préséance byzantines*, 361.

<sup>194</sup> Haldon, *Warfare, State, and Society*, 88. Inclusion in the ducate is predicated on its location.

<sup>195</sup> Anna Komnene, *Alexiad*, 13.12.

<sup>196</sup> Leon the Deacon, *History*, 125.



- Location: Modern Bagras, a mountain fortification covering the strategic Baylan Pass in the Amanos Mountains.<sup>197</sup>
- Organization: Unlike virtually every thematic capital that existed prior to the creation of their respective theme, this fortification was purpose built and supplied with a *strategos*.<sup>198</sup> A small lower town predated Nikephoros II Phokas's conquest, but it was not elevated to the status of theme until the fort was constructed.<sup>199</sup> It was garrisoned with 1,000 infantry and 500 cavalry with the express purpose of defending the pass and raiding the countryside surrounding Antioch.<sup>200</sup> This served a similar purpose to Mauron Oros in that its *raison d'être* was the capitulation of Antioch. Pagrae was under the jurisdiction of the *doux* of Antioch.<sup>201</sup>

## Palatza

- Capital: Palatza
- Existed: Palatza became a theme at some point after 966 when the region was conquered.<sup>202</sup> Final mention of the theme is found in the *Alexiad*.<sup>203</sup>
- Location: Also called Balghat in Arabic. This covered the valley of the Nahr al-aswad or Qara-su.<sup>204</sup>
- Organization: Its *strategos* was subject to the *doux* of Antioch.<sup>205</sup>

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<sup>197</sup> Todt, "Antioch in the Middle Byzantine Period," 178.

<sup>198</sup> Leon the Deacon, *History*, 125.

<sup>199</sup> De Giorgi and Eger, *Antioch: A History*, 283, 290, 330.

<sup>200</sup> Yahya, *Chronicle*, II, 816.

<sup>201</sup> Anna Komnene, *Alexiad*, 13.12.

<sup>202</sup> Haldon, *Warfare, State, and Society*, 88.

<sup>203</sup> Anna Komnene, *Alexiad*, 13.12.

<sup>204</sup> Todt, "Antioch in the Middle Byzantine Period," 178.

<sup>205</sup> Anna Komnene, *Alexiad*, 13.12.

## Perkri

- Capital: Perkri
- Existed: Perkri was a late addition to the minor themes and was founded sometime around 1034.<sup>206</sup> This proved short lived, as Tughril Beg sacked the fortification in 1054.<sup>207</sup>
- Location: Perkri was a fortification on the northeastern side of Lake Van, at modern Muradiye. During the early tenth century, the *De Administrando Imperio* described the location as belonging to king Ashot Bagratuni before it was turned over to Abu'l-Ward.<sup>208</sup>

## Podandos

- Capital: Podandos
- Existed: The theme is first attested in the *Escorial Taktikon* of the 970s.<sup>209</sup> Sigillographic evidence indicates that a *strategos* commanded the theme into the eleventh century.<sup>210</sup>
- Location: Podandos served as a fortress controlling a passage 20 km northeast of the Kilikian Gates.<sup>211</sup>
- Organization: Its *strategos* was subject to the *doux* of Antioch.<sup>212</sup>

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<sup>206</sup> Haldon, *Warfare, State, and Society*, 88.

<sup>207</sup> Ibn al-Athir, *The Complete Work of History [al-Kamil fi'l-Ta'rikh]*, 93.

<sup>208</sup> *De Administrando Imperio*, 44.15.

<sup>209</sup> *Escorial Taktikon*, 266–67.

<sup>210</sup> Fogg 683 “Tatou[les?], *strategos* of Podandos” (eleventh century).

<sup>211</sup> Hild and Restle, *Tabula Imperii Byzantini*, 2:261–62; Attaleiates, *History*, 17.22, 21.8.

<sup>212</sup> Anna Komnene, *Alexiad*, 13.12.

## Romanoupolis

- Capital: Romanoupolis
- Existed: The city was incorporated into the empire around 942 as a part of the Mesopotamia Theme and then elevated to the status of a theme by 969.<sup>213</sup> The *Escorial Taktikon* refers to a *strategos* in the 970s.<sup>214</sup>
- Location: Modern Bingöl in eastern Anatolia.<sup>215</sup>
- Organization: Romanoupolis fell under the jurisdiction of the *doux* of Mesopotamia.<sup>216</sup>

## Samosata

- Capital: Samosata
- Existed: Samosata was conquered in 958, is mentioned in the 970s *Escorial Taktikon*, and remained the seat of a *strategos* into the eleventh century.<sup>217</sup>
- Location: Modern Samsat, northwest of Urfa on the north bank of the Euphrates.<sup>218</sup>

## Soteroupolis-Anakopia

- Capital: Soteroupolis-Anakopia
- Existed: The theme was created ca.1033 upon the donation of the region by the Georgian queen Elda/Alde to Romanos III Argyros.<sup>219</sup> A *strategos* of Soteroupolis and

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<sup>213</sup> Haldon, *Warfare, State, and Society*, 88; Oikonomides, *Les listes de préséance byzantines*, 359.

<sup>214</sup> *Escorial Taktikon*, 266–67.

<sup>215</sup> Beihammer, *Muslim-Turkish Anatolia*, 417.

<sup>216</sup> Haldon, *Warfare, State, and Society*, 88. Inclusion in the ducate is predicated on its location.

<sup>217</sup> Fogg 1010 “Georgios, *patrikios* and *strategos* of Samosata” (eleventh century); *Escorial Taktikon*, 266–67; Oikonomides, *Les listes de préséance byzantines*, 360.

<sup>218</sup> Sinclair, *Eastern Turkey*, 4:144.

<sup>219</sup> Seibt, “Soteroupolis-Anakopia,” 174–75.

Anakopia is indicated in a mid-eleventh century seal.<sup>220</sup> It continued as a theme until ca.1074 when it was conquered by Georgia.<sup>221</sup>

- Location: The theme is identified with modern Pitsunda in Northwest Georgia, on the Black Sea coast.<sup>222</sup> This situates the theme as Byzantium's furthest encroachment into Abkhazia. This is not to be confused with the Soteroupolis listed in the *Escorial Taktikon* that is identified with Bourzo (modern Borçka, Turkey).<sup>223</sup>

### **Soteroupolis/Bourzo**

- Capital: Soteroupolis/Bourzo
- Existed: Seals attest to its start as a *kleisoura*,<sup>224</sup> with its first mention as the seat of a *strategos* in the *Escorial Taktikon*.<sup>225</sup>
- Location: The exact location of the fortress is debated but it lies somewhere within the area of the southeastern Black Sea. The *De Administrando Imperio* situates it on the border with Abkhazia.<sup>226</sup> Werner Seibt and Ivan Jordanov argue that there are two different themes of Soteroupolis that describe different locations.<sup>227</sup> The Soteroupolis in the *Escorial Taktikon* had its *strategos* at the fortress of Bourzo, and is identified as modern Borçka by Nikos Oikonomides and Bruno Baumgartner.<sup>228</sup> This should not be

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<sup>220</sup> "Nicholas, imperial *protospatharios* of the Chrysotriklinos and *strategos* of Soteroupolis and Anakoupia" (mid-eleventh century), in Seibt, "Soteroupolis-Anakopia," 175.

<sup>221</sup> Seibt, "Soteroupolis-Anakopia," 174.

<sup>222</sup> Seibt, "Soteroupolis-Anakopia," 174.

<sup>223</sup> *Escorial Taktikon*, 268–69.

<sup>224</sup> No. 948, in Zacos, *Byzantine Lead Seals*, vol. 2.

<sup>225</sup> *Escorial Taktikon*, 268–69.

<sup>226</sup> *De Administrando Imperio*, 42.110.

<sup>227</sup> Seibt, "Enigma of Soteropolis," 321.

<sup>228</sup> Oikonomides, *Les listes de préséance byzantines*, 362; Bruno Baumgartner, "Studien zur historischen Geographie von Tao-Klardžeti," PhD diss. (University of Vienna, 1996), 221.

confused with the Soteroupolis of northwestern Georgia, which was annexed ca.1033.<sup>229</sup>

- Organization: Soteroupolis/Bourzo fell under the jurisdiction of the *doux* of Chaldia.<sup>230</sup>

## Taranta

- Capital: Taranta
- Existed: The theme is first mentioned in the *Escorial Taktikon*.<sup>231</sup> It is also attested in seals from the late tenth century.<sup>232</sup>
- Location: A fortification 4 km northwest of Darende and 80 km northwest of Melitene.<sup>233</sup>
- Organization: Taranta was subject to the *doux* of Mesopotamia.<sup>234</sup>

## Taron

- Capital: Taron
- Existed: Taron was elevated to the status of a theme in 966/7.<sup>235</sup> It is again attested in the *Escorial Taktikon* from the following decade.<sup>236</sup>
- Located: Due west of Lake Van in the Turuberian Province of Greater Armenia, in the approximate location of modern Turkey's Muş Province.<sup>237</sup>

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<sup>229</sup> Seibt, "Soteroupolis-Anakopia," 175.

<sup>230</sup> Werner Seibt and Ivan Jordanov, "Στρατηγὸς Σωτηρουπόλεως καὶ Ανακουπίας. Ein mittelbyzantinisches Kommando in Abchazien (11. Jahrhundert)," *Studies in Byzantine Sigillography* 9 (2006): 237–38.

<sup>231</sup> *Escorial Taktikon*, 266–67.

<sup>232</sup> DO 58.106.1645 "Palatinos, imperial *protospatharios* and *strategos* of Taranta" (tenth century).

<sup>233</sup> Oikonomides, "L'organisation de la frontière orientale," 290; Hild and Restle, *Tabula Imperii Byzantini*, 2:290–91.

<sup>234</sup> Haldon, *Warfare, State, and Society*, 88. Inclusion in the ducate is predicated on its location.

<sup>235</sup> Oikonomides, *Les listes de préséance byzantines*, 355–56.

<sup>236</sup> *Escorial Taktikon*, 264–65.

- Organization: Prior to 966/7 it was semi-independent, with the local Taronite princes granted the title of *strategos* by Leon VI and Romanos I.<sup>238</sup> This title-granting to foreign rulers predominantly appeared along the far eastern frontier, demonstrating the Byzantine’s preference for diplomacy with these small kingdoms. Instead of trying to subjugate these kingdoms, they could serve as a de facto buffer state against the more impending Islamic and Turkish threats. After that, Taron was properly incorporated into the Byzantine Empire and elevated to the status of a full theme. Some administrative duties blended with neighboring themes such as Chaldia, Derzene, and Vaspurakan, which indicates a blurring of official posts along the empire’s far eastern periphery.<sup>239</sup>

## Tarsos

- Capital: Tarsos
- Existed: Tarsos was captured by Nikephoros II Phokas in August 965 and was turned into an imperial *kouratoreia* and the seat of a *strategos* not long after.<sup>240</sup> A *strategos* is listed in the *Escorial Taktikon* the following decade.<sup>241</sup> Seals attest to its continued existence into the eleventh century.<sup>242</sup>

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<sup>237</sup> Beihammer, *Muslim-Turkish Anatolia*, 54.

<sup>238</sup> *De Administrando Imperio*, 43.65.152.

<sup>239</sup> *De Administrando Imperio*, 43.65.156–67; DO 55.1.2066 “Michael, *spatharios* epi tou Chrysotriklinou, *logariastes* of the grand *kouratorikion*, *artoklines*, and *anagrapheus* of Chaldia, Derzene, and Taron” (eleventh century); DO 55.1.2940 “Gregory Arsakides, *magistros*, *epi tou koitonos*, *doux* of Vaspurakan and Taron” (between 1051(?) and 1058); Oikonomides, *Les listes de préséance byzantines*, 355–56.

<sup>240</sup> Leon The Deacon, *History*, 106–9.

<sup>241</sup> *Escorial Taktikon*, 264–65.

<sup>242</sup> BZS.1947.2.339 “Theophilos, metropolitan of Tarsos and *synkellos*” (eleventh century); BZS.1947.2.163 “Nikephoros, *chartouliarios* and imperial *kourator* of Tarsos” (eleventh century).

- Location: Modern Tarsus, west of Adana on the Kilikian Plain.<sup>243</sup>
- Organization: After 969, its *strategos* was placed under the jurisdiction of the *doux* of Antioch.<sup>244</sup>

## Telouch

- Capital: Telouch
- Existed: Telouch was conquered by Nikephoros II Phokas in 962.<sup>245</sup> Firm attestation of the theme is by Ioannes Skylitzes in the early 1030s when Georgios Maniakes served as its *strategos*.<sup>246</sup> The survival of a single seal also indicates the presence of a *strategos*.<sup>247</sup>
- Location: Modern Dülük, near Germanikeia on the Tarsus Mountain frontier, between Aleppo and Marash.<sup>248</sup>
- Organization: Its *strategos* fell under the jurisdiction of the *doux* of Antioch.<sup>249</sup>

## Tephrike/Leontokome

- Capital: Tephrike (renamed Leontokome “the town of Leon” after its conquest by Basil I. However, the name “Tephrike” was still occasionally used in correspondence).<sup>250</sup>
- Existed: The city served as a Paulician stronghold until its conquest by Basil I in 878,

<sup>243</sup> Hild and Hellenkemper, *Tabula Imperii Byzantini*, 5:428–39.

<sup>244</sup> Anna Komnene, *Alexiad*, 13.12.

<sup>245</sup> Skylitzes, *Synopsis*, 360.

<sup>246</sup> Skylitzes, *Synopsis*, 360.

<sup>247</sup> Tarsos Museum 9761454 “Michael (?), *magistros*, *vestes*, and *strategos* of Telouch” in Cheynet, “Sceaux byzantins des Musées d’Antioche et de Tarse,” 426–27.

<sup>248</sup> Skylitzes, *Synopsis*, 360.

<sup>249</sup> Anna Komnene, *Alexiad*, 13.12.

<sup>250</sup> Fogg 3694 “David Geiton (?), imperial *spatharokandidatos* and *episkeptites* of Tephrike” (eleventh century); *Escorial Taktikon*, 266–67.

whereupon it was turned into a *kleisoura*.<sup>251</sup> The city was then elevated to a theme and given a *strategos* sometime between 934–44.<sup>252</sup> A *strategos* is mentioned again in the *Escorial Taktikon*.<sup>253</sup>

- Location: Modern Divriği, 100 km southeast of Sivas.<sup>254</sup>

## Theodosiupolis

- Capital: Theodosiupolis
- Existed: Theodosiupolis was captured by Theophilos Kourkouas in 949, where he held a military governorship, and turned into a theme sometime thereafter.<sup>255</sup> The *Escorial Taktikon* mentions a *strategos*, indicating an administrative presence into the 970s.<sup>256</sup> In 979 the territory was granted to David III of Tao-Tayk but was reacquired by the Byzantines upon his death in 1000.<sup>257</sup>
- Location: Modern Erzurum.
- Organization: Upon its reacquisition by the Byzantines in 1000, it was made the capital of the newly constituted Iberia Theme.<sup>258</sup> This made it one of the few themes to fully lose its thematic status and merge with another one. This administrative measure also transferred it from the jurisdiction of the *doux* of Chaldia to the newly constituted *doux*

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<sup>251</sup> Oikonomides, *Les listes de préséance byzantines*, 350.

<sup>252</sup> Oikonomides, *Les listes de préséance byzantines*, 350.

<sup>253</sup> *Escorial Taktikon*, 266–67.

<sup>254</sup> Philipp Niewöhner, ed., *The Archaeology of Byzantine Anatolia: From the End of Late Antiquity until the Coming of the Turks* (Oxford: Oxford University Press, 2017), 23.

<sup>255</sup> *De Administrando Imperio*, 45.2; Matthew of Edessa, *Chronicle*, 53, 58.

<sup>256</sup> *Escorial Taktikon*, 264–65.

<sup>257</sup> DO 55.1.4227 “Theodosios, *proedros* of Theodosiupolis” (eleventh century); Rapp, *Medieval Georgian Historiography*, 414.

<sup>258</sup> Skylitzes, *Synopsis*, 387–88. Skylitzes mentioned one Alousianos as a *strategos* in Theodosiupolis in 1040, indicating the persistence of the city as the capital of the Iberia Theme.



of Iberia.<sup>259</sup>

## Tzamandos

- Capital: Administered by Lykandos, the capital of the Lykandos Theme.<sup>260</sup>
- Existed: From 957.<sup>261</sup>
- Location: Tzamandos is associated with modern Kuş Kalesi, on a mountaintop overlooking the road from Kaisareia to Melitene.<sup>262</sup> The *De Administrando Imperio* places the site, prior to its elevation as a theme, along the frontier with the Lykandos Theme, in the Anti-Taurus Mountain range.<sup>263</sup>
- Organization: Tzamandos was administered out of the Lykandos Theme.<sup>264</sup> This made it the rare theme not governed by a *strategos* within its own territory.<sup>265</sup> This unusual configuration was likely due to the involvement of Melias, the *strategos* of Lykandos, during the construction of Tzamandos's fortification after successfully reviving his own territory.<sup>266</sup> This may also have been done as a way to check Konstantinos Doukas's machinations out of the neighboring Charsianon Theme. Tzamandos later fell under the jurisdiction of the *doux* of Mesopotamia.<sup>267</sup>

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<sup>259</sup> Haldon, *Warfare, State, and Society*, 88.

<sup>260</sup> *De Administrando Imperio*, 50.1.157; Canard, *Histoire de la dynastie des Hamdanides*, 780, 954.

<sup>261</sup> Haldon, *Warfare, State, and Society*, 88.

<sup>262</sup> Hild and Restle, *Tabula Imperii Byzantini*, 2:300; Sevgi Parlak, "Une citadelle du Moyen Âge: Forteresse de Tzamandos (Zamanti)," *Synergies Turquie* 4 (2011): 59–68.

<sup>263</sup> *De Administrando Imperio*, 50.1.156–58.

<sup>264</sup> *De Administrando Imperio*, 50.1.157; Canard, *Histoire de la dynastie des Hamdanides*, 780, 954.

<sup>265</sup> For arguments supporting Tzamandos as its own theme see Holmes, *Basil II*, 335; Haldon, *Warfare, State, and Society*, 88; J. Eric Cooper and Michael Decker, *Life and Society in Byzantine Cappadocia* (New York: Palgrave Macmillan, 2012), 147.

<sup>266</sup> *De Administrando Imperio*, 50.1.157.

<sup>267</sup> Haldon, *Warfare, State, and Society*, 88. Inclusion in the ducate is predicated on its location.

## Tziliapert

- Capital: Tziliapert
- Existed: The theme likely existed during the second half of the tenth century.<sup>268</sup>

Tziliapert is attested only in seals, which makes its exact lifespan indeterminable.<sup>269</sup> Its absence in any of the *taktika* led Oikonomides to conclude that its existence was short-lived.<sup>270</sup>

- Location: Oikonomides identifies Tziliapert with the village of Gjuljabert along Turkey's northeastern border.<sup>271</sup>

## Vaspurakan

- Capital: unknown (potentially Van)
- Existed: The theme was created when Senekerim-Hovhannes, the king of Vaspurakan, ceded the land to the Byzantines in ca.1021/2 in return for the position of *strategos* of Kappadokia and the cities of Abara, Larissa, and Sebasteia.<sup>272</sup>
- Location: Vaspurakan constituted the lands south and east of Lake Van, comprising 3,000 to 4,400 villages and 72 fortresses.<sup>273</sup>
- Organization: Vaspurakan was established as a katepanate.<sup>274</sup> It was larger than most

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<sup>268</sup> Cheynet, “De Tziliapert à Sébastè,” 214.

<sup>269</sup> “Konstantinos, *protospatharios* and *strategos* of Tziliapert,” in Cheynet, “De Tziliapert à Sébastè,” 214; “N., *protospatharios* and *kleisourarches* of Tziliapert,” in Cheynet, “De Tziliapert à Sébastè,” 213.

<sup>270</sup> Oikonomides, *Les listes de préséance byzantines*, 355; Oikonomides, “L’organisation de la frontière orientale,” 287–88.

<sup>271</sup> Oikonomides, *Les listes de préséance byzantines*, 355; Oikonomides, “L’organisation de la frontière orientale,” 287–88.

<sup>272</sup> For evidence supporting the date of annexation see Tony Bromige, *Armenians in the Byzantine Empire: Identity, Assimilation, and Alienation from 867 to 1098* (London: I.B. Tauris, 2023), 59; Garsoïan, “Byzantine Annexation of the Armenian Kingdoms,” 187–98.

<sup>273</sup> Garsoïan, “Byzantine Annexation of the Armenian Kingdoms,” 187–98.

of the minor themes and more commensurate with the size of themes such as Iberia and Mesopotamia that were acquired from kingdoms through diplomacy. It merged, or shared administrative duties, with the Taron Theme around 1050, not long before its conquest by the Seljuk Turks.<sup>275</sup>

### Zebel/Gabala

- Capital: Zebel (Anna Komnena identified Zebel with the city of Gabala based upon imitation of the local pronunciation).<sup>276</sup>
- Existed: The city was captured and made the seat of a *strategos* by Ioannes Tzimiskes in the mid-970s.<sup>277</sup>
- Location: Modern Djebble, 30 km south of Laodikeia.
- Organization: The *strategos* fell under the control of the *doux* of Antioch.<sup>278</sup> This did not diminish its role as a theme and its accompanying hierarchy, as the town of Paltos served as a *tourma* of Zebel.<sup>279</sup> Instead it added an additional layer of administration above the *strategos* in order to facilitate coordinated military actions in the region of Kilikia.

### Zermiou

- Capital: Zermiou

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<sup>274</sup> Fogg 1106 “Stephanos, archbishop of the Katepano of Vaspurakan” (eleventh century).

<sup>275</sup> DO 55.1.2940 “Gregory Arskides, *magistros*, *epi tou koitonos*, and *doux* of Vaspurakan and Taron” (between 1051? and 1058); McGeer, Nesbitt, and Oikonomides, *Catalogue of Byzantine Seals*, 4:169.

<sup>276</sup> Anna Komnene, *Alexiad*, 13.12.

<sup>277</sup> Yahya, *Chronicle*, 369; Fogg 874 “Eustratios Botaneiates, *patrikios*, *anthypatos*, and *strategos* of Zebel” (eleventh century); seal no. 51 “Abdellas, *kouropalates* and judge of Zebel,” in Cheynet, *Sceaux de la collection Zacos*.

<sup>278</sup> Anna Komnene, *Alexiad*, 13.12.

<sup>279</sup> DO 58.106.2443 “Andrew, imperial *spatharokandidatos* and *tourmarches* of Paltos” (tenth/eleventh century).

- Existed: The theme existed sometime after 956 when the surrounding region was conquered.<sup>280</sup> A *strategos* is firmly attributed by the 970s in the *Escorial Taktikon*.<sup>281</sup>
- Location: modern Çermik about 65 km west of Diyarbakır.<sup>282</sup>
- Organization: Zermiou fell under the jurisdiction of the *doux* of Mesopotamia.<sup>283</sup>

### **Zoume/Juma**

- Capital: Zoume<sup>284</sup>
- Existed: Zoume was likely founded in the mid-960s, prior to the capture of Antioch in 969.
- Location: North of Antioch in the valley of the Nahr ‘Afrin, in the region between the Kurd Dag and the Jabal Sim’an.<sup>285</sup> It was also known as al-Guma in Arabic.
- Organization: The theme was under the jurisdiction of the *doux* of Antioch.<sup>286</sup>

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<sup>280</sup> Haldon, *Warfare, State, and Society*, 88.

<sup>281</sup> *Escorial Taktikon*, 268–69.

<sup>282</sup> Oikonomides, “L’organisation de la frontière orientale,” 292.

<sup>283</sup> Haldon, *Warfare, State, and Society*, 88. Inclusion in the ducate is predicated on its location.

<sup>284</sup> Anna Komnene, *Alexiad*, 13.12.

<sup>285</sup> Todt, “Antioch in the Middle Byzantine Period,” 178; De Giorgi and Eger, *Antioch: A History*, 242, 330.

<sup>286</sup> Anna Komnene, *Alexiad*, 13.12.

## Appendix 2

### List of Cities in the *Notitia Episcopatum* (*Notitia 7*) and their Corresponding Theme

The *Notitia Episcopatum* comprises 386 total cities within Anatolia. These cities are categorized as follows: metropolitans (31), archbishoprics (14), and suffragans (341). The following list pairs each city with its theme.

<u>Metropolitans</u>	<u>Theme</u>
Kyzikos	Aegean Sea
Amorion	Anatolikon
Antiocheia	Anatolikon
Ikonion	Anatolikon
Synnada	Anatolikon
Amasia	Armeniakon
Euchaïta	Armeniakon
Ankyra	Boukellarion
Klaudioupolis	Boukellarion
Pessinous	Boukellarion
Neokaisareia	Chaldia
Trebizond	Chaldia
Kaisareia	Charsianon
Mokesos	Kappadokia
Tyana	Kappadokia
Myra	Kibyrraiotai
Perge	Kibyrraiotai
Side	Kibyrraiotai
Kotyaion	Opsikion
Nikaia	Opsikion

Chalkedon  
Nikomedeia

Optimaton  
Optimaton

Gangra

Paphlagonia

Ephesos  
Smyrna

Samos  
Samos

Sebasteia

Sebasteia

Seleukeia

Seleukeia

Hierapolis  
Laodikeia  
Sardeis  
Stauroupolis

Thrakesion  
Thrakesion  
Thrakesion  
Thrakesion

Archbishoprics

Theme

Parion

Aegean Sea

Misthia

Anatolikon

Germia  
Nakoleia

Boukellarion  
Boukellarion

Rizaion

Chaldia

Kotradon  
Selge

Kibyrraiotai  
Kibyrraiotai

Koloneia

Koloneia

Apameia

Opsikion

Amastris  
Pompeioupolis

Paphlagonia  
Paphlagonia

Chonai  
Miletos  
Sebastopolis

Thrakesion  
Thrakesion  
Thrakesion

SuffragansTheme

Abydos	Aegean Sea
Dardanos	Aegean Sea
Ilion	Aegean Sea
Lampsakos	Aegean Sea
Adrianoupolis	Anatolikon
Akroinon	Anatolikon
Amblada	Anatolikon
Apameia	Anatolikon or Thrakesion
Barata	Anatolikon
Baris	Anatolikon or Thrakesion
Basada	Anatolikon
Bindaios	Anatolikon
Dokimeion	Anatolikon
Ipsos	Anatolikon
Kanes	Anatolikon
Klaneos	Anatolikon
Konana	Anatolikon
Laodikeia Kekaumene	Anatolikon
Laodikeia Sidera	Anatolikon
Laranda	Anatolikon
Limenos	Anatolikon*
Lysias	Anatolikon
Lystra	Anatolikon
Malos	Anatolikon
Metropolis	Anatolikon
Oumanada	Anatolikon or Kibyrraiotai
Pappa	Anatolikon
Parlais	Anatolikon
Perta	Anatolikon
Philomelion	Anatolikon
Phyteia	Anatolikon
Pissia	Anatolikon
Polybotos	Anatolikon
Prymnessos	Anatolikon
Psibela	Anatolikon*
Pyrgoi	Anatolikon
Sabatra	Anatolikon
Sibindos	Anatolikon*
Siniandos	Anatolikon*
Sozopolis	Anatolikon
Tibassada	Anatolikon
Timbrias	Anatolikon
Tityassos	Anatolikon*
Tymandos	Anatolikon

Tyraion	Anatolikon
Zarzela	Anatolikon or Kibyrraiotai
Amnisos	Armeniakon
Andrapa	Armeniakon
Bariana	Armeniakon
Gazala	Armeniakon
Ibora	Armeniakon
Kotziagra	Armeniakon
Sibiktos	Armeniakon
Sinope	Armeniakon
Zaliche or Leontoupolis	Armeniakon
Anastasioupolis	Boukellarion
Aspona	Boukellarion
Dadybra	Boukellarion
Daphnoudios	Boukellarion*
Eudoxias	Boukellarion
Germokoloneia	Boukellarion
Gordoserbon	Boukellarion
Hadrianoupolis	Boukellarion
Hagios Agapetos	Boukellarion
Helioupolis	Boukellarion
Herakleia Pontike	Boukellarion
Kaborkin	Boukellarion
Kaloumna	Boukellarion*
Klera	Boukellarion
Krateia	Boukellarion
Maximiana	Boukellarion*
Midaeion	Boukellarion
Mnizos	Boukellarion
Modrene	Boukellarion
Noumerika	Boukellarion
Orkistos	Boukellarion
Pitanissos	Boukellarion*
Prousias	Boukellarion
Sora	Boukellarion
Spalia	Boukellarion
Synodia	Boukellarion*
Tattaios	Boukellarion
Tios	Boukellarion
Kerasous	Chaldia
Komana	Chaldia
Polemonion	Chaldia
Aipolia	Charsianon



Aragena	Charsianon
Ariaratheia	Charsianon
Basilika Therma	Charsianon
Berinoupolis	Charsianon <sup>1*</sup>
Kamouliana	Charsianon
Taouion	Charsianon
Dasmenda	Kappadokia
Doara	Kappadokia
Euaissa	Kappadokia*
Hagios Prokopios	Kappadokia
Kiskisos	Kappadokia
Koloneia	Kappadokia
Kybistra	Kappadokia
Nazianzos	Kappadokia
Nisa	Kappadokia
Parnassos	Kappadokia
Phaustinoupolis	Kappadokia
Posala	Kappadokia
Sasima	Kappadokia
Sobesos	Kappadokia
Adada	Kibyrraiotai
Akanda	Kibyrraiotai*
Anemourion	Kibyrraiotai
Antiocheia	Kibyrraiotai
Araxe	Kibyrraiotai
Ariassos	Kibyrraiotai
Aspendos	Kibyrraiotai
Attaleia	Kibyrraiotai
Balboura	Kibyrraiotai
Barbe	Kibyrraiotai
Choma	Kibyrraiotai
Dalisandos	Kibyrraiotai
Dikiotanabron	Kibyrraiotai
Dometioupolis	Kibyrraiotai
Etene	Kibyrraiotai
Eudokias	Kibyrraiotai
Germanikopolis	Kibyrraiotai
Halikarnassos	Kibyrraiotai
Hagiodoula	Kibyrraiotai*
Iassos	Kibyrraiotai
Irenoupolis	Kibyrraiotai

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<sup>1</sup> *De Administrando Imperio*, 50.103–4. The exact location is unknown but the city was transferred from the Boukellarion to Charsianon.

Isba	Kibyrraiotai
Kandyba	Kibyrraiotai
Karallia	Kibyrraiotai
Kasa	Kibyrraiotai
Kaunos	Kibyrraiotai
Keramos	Kibyrraiotai
Kibyra	Kibyrraiotai
Knidos	Kibyrraiotai
Kolybrassos	Kibyrraiotai
Komba	Kibyrraiotai
Korakesios	Kibyrraiotai
Korydalla	Kibyrraiotai
Kotaina	Kibyrraiotai
Kremna	Kibyrraiotai
Lausada	Kibyrraiotai
Lebissos	Kibyrraiotai
Lornaia	Kibyrraiotai
Lyrbe	Kibyrraiotai
Magydos	Kibyrraiotai
Makre	Kibyrraiotai
Manaua	Kibyrraiotai
Markiane	Kibyrraiotai
Maximianoupolis	Kibyrraiotai
Meloeta	Kibyrraiotai
Mylome	Kibyrraiotai*
Myndos	Kibyrraiotai
Neapolis	Kibyrraiotai
Nysa	Kibyrraiotai
Oinoanda	Kibyrraiotai
Orumna	Kibyrraiotai
Orykanda	Kibyrraiotai
Ouamanada	Kibyrraiotai
Palaiota	Kibyrraiotai
Patara	Kibyrraiotai
Perbaina	Kibyrraiotai
Petnelissos	Kibyrraiotai
Phellos	Kibyrraiotai
Phoinikous	Kibyrraiotai
Pinara	Kibyrraiotai
Podalia	Kibyrraiotai
Pou gla	Kibyrraiotai
Proine	Kibyrraiotai
Sagalassos	Kibyrraiotai
Sandida	Kibyrraiotai
Sbide	Kibyrraiotai
Selinous	Kibyrraiotai

Sennea	Kibyrraiotai
Sidyra	Kibyrraiotai
Sindos	Kibyrraiotai
Syedra	Kibyrraiotai
Telmessos	Kibyrraiotai
Tergasos	Kibyrraiotai*
Titioupolis	Kibyrraiotai
Tlos	Kibyrraiotai
Xanthos	Kibyrraiotai
Zenoupolis	Kibyrraiotai
Berissa	Koloneia
Satala	Koloneia or Chaldia
Adraneia	Opsikion*
Aizanoi	Opsikion
Antandros	Opsikion
Apollonias	Opsikion
Assos	Opsikion
Augoustopolis	Opsikion
Baris	Opsikion
Basilinoupolis	Opsikion
Daskylion	Opsikion
Dorylaion	Opsikion
Eriste	Opsikion*
Gaioukome	Opsikion*
Gargara	Opsikion
Hadriana	Opsikion
Hadrianos	Opsikion
Helenopolis	Opsikion or Optimaton
Kaisareia	Opsikion
Kone	Opsikion*
Linoe	Opsikion
Lopha	Opsikion*
Miletopolis	Opsikion
Meros	Opsikion
Neokaisareia	Opsikion
Oke	Opsikion
Oraka	Opsikion
Poimaninos	Opsikion
Pionia	Opsikion
Prousa	Opsikion
Spora	Opsikion
Tiberioupolis	Opsikion
Troados	Opsikion

Daphnousia	Optimaton
Prainetos	Optimaton
Ionopolis	Paphlagonia
Adramyttion	Samos
Elaia	Samos
Erythrai	Samos
Klazomenai	Samos
Kyme	Samos
Lebedos	Samos
Magnesia on the Maiandros	Samos
Metropolis	Samos
Myrine	Samos
Phokaia	Samos
Pitane	Samos
Priene	Samos
Teos	Samos
Tralleis	Samos
Nikopolis	Sebasteia
Sebastopolis	Sebasteia or Armeniakon
Adrasos	Seleukeia
Dalisandos	Seleukeia
Diokaisareia	Seleukeia
Iuliosebaste	Seleukeia
Kelenderis	Seleukeia
Klaudiopolis	Seleukeia
Kodada	Seleukeia
Lamos	Seleukeia
Meloe	Seleukeia*
Olbe	Seleukeia
Philadelphieia	Seleukeia
Sybela	Seleukeia
Agkura	Thrakesion
Akmonia	Thrakesion
Akrassos	Thrakesion
Alinda	Thrakesion
Anaia	Thrakesion
Aninata	Thrakesion
Anotetarte	Thrakesion*
Antiocheia tou Maiandrou	Thrakesion
Apollonias	Thrakesion
Apollonos Hieron	Thrakesion

Appia	Thrakesion or Opsikion
Aristeia	Thrakesion
Arkadioupolis	Thrakesion
Atanassos	Thrakesion
Attouda	Thrakesion
Aygaza	Thrakesion
Aurelioupolis	Thrakesion
Bage	Thrakesion
Bargulia	Thrakesion
Blandon	Thrakesion
Brioula	Thrakesion
Brouzos	Thrakesion
Chairetopa	Thrakesion*
Dalde	Thrakesion
Diokleia	Thrakesion
Dios Hieron	Thrakesion
Elouza	Thrakesion
Eukarpia	Thrakesion or Anatolikon
Eumeneia	Thrakesion
Gabala	Thrakesion
Gordorynia	Thrakesion or Opsikion*
Gordos	Thrakesion
Granikos	Thrakesion
Harpasa	Thrakesion
Herakleia Lakyma	Thrakesion
Herakleia Salbaka	Thrakesion
Hermokapeleia	Thrakesion
Hierapolis	Thrakesion
Hierokaisareia	Thrakesion
Hieron	Thrakesion
Hyllarima	Thrakesion
Hypaipa	Thrakesion
Kada	Thrakesion
Kaloe	Thrakesion
Kerassea	Thrakesion
Kidyessos	Thrakesion
Kindrama	Thrakesion
Kolophon	Thrakesion
Labanda	Thrakesion
Lagina	Thrakesion
Larba	Thrakesion
Lunda	Thrakesion
Lykaon	Thrakesion or Opsikion*
Maionia	Thrakesion
Maschakome	Thrakesion
Mastaura	Thrakesion

Meizos	Thrakesion
Metelloupolis	Thrakesion
Mossyna	Thrakesion
Mostene	Thrakesion
Mylasa	Thrakesion
Nea Aule	Thrakesion
Neapolis	Thrakesion
Nysse	Thrakesion
Oinoukome	Thrakesion*
Orina	Thrakesion or Opsikion*
Orthosia	Thrakesion
Otrous	Thrakesion
Palaeoupolis	Thrakesion
Peltai	Thrakesion
Pergamos	Thrakesion
Philadelpheia	Thrakesion
Phoba	Thrakesion or Opsikion*
Sala	Thrakesion
Satala	Thrakesion
Sebasteia	Thrakesion
Setta	Thrakesion
Sia	Thrakesion
Silandos	Thrakesion
Soublaios	Thrakesion*
Stektorion	Thrakesion
Stratonikeia	Thrakesion
Synaos	Thrakesion or Opsikion
Tabai	Thrakesion
Tapasa	Thrakesion
Thapsioupolis	Thrakesion*
Theodosiupolis Perperene	Thrakesion
Temenou Thyrai	Thrakesion
Traianoupolis	Thrakesion
Trapezoupolis	Thrakesion
Tripolis	Thrakesion

\* There is uncertainty around the actual theme that corresponds with this city. However, the theme listed here is the most probable counterpart.

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