

**Small-World Networks and Mediterranean Dynamics in the
Euboean Gulf: An Archaeology of Complexity in
Late Bronze Age and Early Iron Age Greece**

by
Alex R. Knodell

A Dissertation
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This dissertation by Alex R. Knodell is accepted in its present form
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dissertation requirement for the degree of Doctor of Philosophy.

Date_____

John F. Cherry, Advisor

Recommended to the Graduate Council

Date_____

Susan E. Alcock, Reader

Date_____

Stephen D. Houston, Reader

Date_____

John K. Papadopoulos, Reader

Approved by the Graduate Council

Date_____

Peter M. Weber, Dean of the Graduate School

Alex R. Knodell

Joukowsky Institute for Archaeology and the Ancient World
Brown University
Box 1837 / 60 George Street
Providence, RI 02912
alex_knodell@brown.edu | 612-385-8364
<http://brown.academia.edu/AlexKnodell>

Education

- | | |
|-----------|---|
| 2013 | Ph.D., Joukowsky Institute for Archaeology and the Ancient World, Brown University
Dissertation: <i>Small-World Networks and Mediterranean Dynamics in the Euboean Gulf: An Archaeology of Complexity in Late Bronze Age and Early Iron Age Greece</i>
Committee: John F. Cherry (chair), Susan E. Alcock, Stephen D. Houston, John K. Papadopoulos |
| 2010-2011 | Regular Member, American School of Classical Studies at Athens |
| 2007 | B.A. with Honors and Distinction, University of Wisconsin-Madison (Majors in Classics, Classical Humanities, and Anthropology) |
| 2006 | Summer Session Member, American School of Classical Studies at Athens |

Research Interests

Mediterranean archaeology, Aegean prehistory and early history, regional and landscape archaeology, Geographic Information Systems, technology and production, archaeometallurgy, urbanism, networks, colonization, comparative approaches to complex societies, archaeological theory and ethics

Publications

- | | |
|------|--|
| 2013 | Geoarchaeology of Ancient Aulis (Boeotia, Central Greece): Human Occupation and Holocene Landscape Change. <i>Journal of Archaeological Science</i> 40:2071-2083 (Matthieu Ghilardi, Maxime Collet, Sylvain Fachard, David Psomiadis, Pierre Rochette, François Demory, Alex R. Knodell , Maria Triantaphyllou, Kosmas Pavlopoulos, Doriane Delanghe-Sabatier, Andrew Bicket, Jules Fleury). |
| 2012 | Landscapes North of Petra: The Petra Area and Wadi Silaysil Survey (Brown University Petra Archaeological Project, 2010-2011). In <i>The Nabataeans in Focus: Current Archaeological Research at Petra. Papers from the Special Session of the Seminar for Arabian Studies Held on 29 July 2011</i> , edited by Laila Nehmé and Lucy Wadeson. Supplement to the Proceedings of the Seminar for Arabian Studies 42. Oxford: Archaeopress, pp. 5-16 (Susan E. Alcock and Alex R. Knodell). |

- 2011 Brown University Petra Archaeological Project: The 2010 Petra Area and Wadi Silaysil Survey. *Annual of the Department of Antiquities of Jordan* 55:489-508 (**Alex R. Knodell** and Susan E. Alcock).
- 2011 Levantamiento topográfico de El Zotz. In J.L. Garrido López, S. Houston, and E. Román (Eds.), *Proyecto Archeológico “El Zotz”: Informe No. 5, Temporada 2010*. Guatemala: Informe Entregado al Instituto de Antropología e Historia de Guatemala, pp. 387-394 (**Alex R. Knodell** and Thomas G. Garrison).
- 2010 Ancient Egypt: A Special Issue of *Archaeology Magazine*, published by the Archaeological Institute of America (Assistant Editor).

Internet Publications

- 2010-2012 Brown University Petra Archaeological Project, Internet Edition: <http://proteus.brown.edu/bupap/Home> (Creator and Editor; Author of various sections).
- 2009 Some Problems and Potential in Community Engagement and Making Archaeology Public. *Archaeolog*. August 28: http://traumwerk.stanford.edu/archaeolog/2009/08/some_problems_and_potential_in.html#more.

Academic Conference Papers

- [2013] A Conduit between Two Worlds: The Euboean Gulf between Island and Mainland. Paper to be presented at *An Island between Two Worlds: The Archaeology of Euboea from Prehistoric to Byzantine Times*, Eretria, Greece, 12-14 July 2013.
- [2013] Geoarchaeological Research on Euboea: Past Perspectives, Current Research, and Future Scope. Paper to be presented at *An Island between Two Worlds: The Archaeology of Euboea from Prehistoric to Byzantine Times*, Eretria, Greece, 12-14 July 2013 (Matthieu Ghilardi, **Alex R. Knodell**, Sylvian Fachard, Kosmas Pavlopoulos, and Andrew Bicket).
- 2013 Data and Other Revolutions in the Countryside of Petra. Paper presented at the *Seventh World Archaeology Congress*, Dead Sea, Jordan, 14-18 January 2013 (Susan E. Alcock, **Alex R. Knodell**, Christopher A. Tuttle, and Thomas M. Urban).
- 2013 The Petra Area and Wadi Silaysil Survey, 2010-2012: Motivations, Methods, and Preliminary Results. Paper presented at the *114th Annual Meeting of the Archaeological Institute of America*, Seattle, 3–6 January 2013 (**Alex R. Knodell** and Susan E. Alcock).
- 2012 Geoarchaeology of Ancient Aulis (Boeotia, Central Greece): A Long-Term Connectivity between Human Occupation and Landscape Change. Paper presented at the *2012 European Geosciences Union*, Vienna, Austria, 22-27 April 2012 (Matthieu Ghilardi, Maxime Collet, Sylvian

- Fachard, David Psomiadis, Pierre Rochette, François Demory, **Alex R. Knodell**, Andrew Bicket, Maria Triantaphyllou, Kosmas Pavlopoulos, and Doriane Delanghe-Sabatier).
- 2012 Natural and Social Production Environments in Minoan Crete: Shared Processes in Ceramic and Metallurgical Industries. Paper presented at *Classics Goes Green: Interactions with the Environment in the Ancient World*, University of Cincinnati, 21 April 2012 (**Alex R. Knodell** and Emilia Oddo).
- 2012 Sport, Art, and Identity in the Ancient Greek World: Imaging the Olympics and the Emergence of Panhellenism. Paper presented at the colloquium, *Imaging Movement in Art and Science*, Providence College, 1 February 2012.
- 2012 Socializing Interactions in the Early Iron Age Mediterranean: Multi-Scalar Network Intensification in the Euboean Gulf and Beyond. Paper presented at the *113th Annual Meeting of the Archaeological Institute of America*, Philadelphia, 5-8 January 2012.
- 2011 Landscapes North and Nearby Petra: The Petra Area and Wadi Silaysil Survey, BUPAP (2010-2011). Paper presented at the *2011 Annual Meeting of the American Schools of Oriental Research*, San Francisco, 16-19 November 2011 (**Alex R. Knodell** and Susan E. Alcock).
- 2011 Petra in a Landscape Mode: The 2010 Petra Area and Wadi Silaysil Survey. Paper Presented at the *112th Annual Meeting of the Archaeological Institute of America*, San Antonio, 6-9 January 2011 (Susan E. Alcock and **Alex R. Knodell**).
- 2010 GIS Approaches to Networks, Territories and Perception from an Extensive Archaeological Survey of Euboea. Paper Presented at the *111th Annual Meeting of the Archaeological Institute of America*, Anaheim, 7-9 January 2010.

Academic Conferences, Colloquia, and Sessions

- [2015] Palaeoenvironmental Change and the History of Human Occupation in the Mediterranean Islands since the Last Glacial Maximum: A Multidisciplinary Approach. International Colloquium to be held at the Institut d'Etudes Scientifiques de Cargèse, Cargèse, France, 30 June-2 July 2015 (Scientific Committee Member).
- 2013 Archaeologies of Greece: Big Questions, Next Directions. Conference at the Joukowsky Institute for Archaeology and the Ancient World, Brown University, 15-16 March 2013 (Co-organizer with Susan E. Alcock, John F. Cherry, Sylvian Fachard, and Fotini Kondyli).
- 2012 Before *Mare Nostrum*: Current Issues in the Prehistory of the Mediterranean. International Colloquium at Brown University, Fall 2012

- (Co-organizer with Clive Vella, Thomas Leppard, and Müge Durusu-Tanrıöver).
- 2010 Where's the Theory in Archaeological Science? Materiality and Material Science in Concert. Session at the 2010 Meetings for the Theoretical Archaeology Group, Brown University, Providence, RI, 30 April – 2 May 2010 (Co-organizer with Nicolas Wolff).
- 2010 Archaeology without Borders: Disparate Traditions, Convergent Archaeologies, Unscripted Conversations. Session at the 2010 Meetings for the Theoretical Archaeology Group, Brown University, Providence, RI, 30 April – 2 May 2010 (Moderator).

Archaeological Fieldwork

- 2010-present Field Director, Brown University Petra Archaeological Project, Jordan (Brown University)
- 2012 Field School Director, Archaeology of College Hill – Excavations at Brown University, Providence, RI (Brown University)
- 2009-2011 Geoarchaeological Research in Central Euboea, Greece (Independent Dissertation Research)
- 2010 Survey Team Leader, Proyecto Archeológico El Zotz, Guatemala (Brown University)
- 2009 Field School Instructor, Archaeology of College Hill – Excavations at the John Brown House, Providence, RI (Brown University)
- 2009 Survey Team Leader and Fieldworker, Eastern Boeotia Archaeological Project (Canadian Institute in Greece)
- 2008 Ceramic Analyst, Excavations at Lefkandi, Greece (British School at Athens and Oxford University)
- 2008 Fieldworker, Excavations at the Athenian Agora, Greece (American School of Classical Studies at Athens)
- 2007 Fieldworker, Excavations at Tongobriga, Portugal (Brown University)

Teaching Experience

Brown University

Consultant and Guest Presenter

- 2013 Coursera Open-Curriculum Course – Archaeology's Dirty Little Secrets

Instructor on Record – Teaching Fellow

- 2012 ARH 1900 – The Archaeology of College Hill

Teaching Assistant

- 2013 ARCH 0405 – State of Siege! Walls and Fortifications in the Greek and Roman World
- 2012 ARCH 1720 – How Houses Build People: An Archaeology of Architecture and Society
- 2009 ARCH 1900 – The Archaeology of College Hill
- 2008 ARCH 0150 – Introduction to Egyptian Archaeology and Art

Providence College

Instructor on Record – Special Lecturer

- 2012 ARH 490 – Independent Study in Classical Archaeology and Art
- 2012 ARH 106 – Art History Survey
- 2011 ARH 106-001 – Art History Survey
- 2011 ARH 106-002 – Art History Survey

Other Professional Experience

- 2010-2011 Research Assistant in Geographic Information Systems, Joukowsky Institute for Archaeology and the Ancient World
- 2009-2010 Secretary, Archaeological Institute of America – Narragansett Society
- 2009 Graduate Representative to the Faculty, Joukowsky Institute for Archaeology and the Ancient World
- 2009 Editorial Assistant, *Archaeology* Magazine
- 2006-2007 Administrative Intern, University of Wisconsin-Madison Classics Department

Fellowships, Honors, and Awards

- 2012 Graduate International Colloquium Grant for “Before *Mare Nostrum*: Current Issues in the Prehistory of the Mediterranean” (with Clive Vella, Thomas Leppard, and Müge Durusu-Tanrıöver)
- 2012 Travel Award, Brown University Office of International Affairs
- 2011 Platt Fellowship, American Schools of Oriental Research
- 2011 Charles E. Merrill Fellowship, Chi Psi Educational Trust
- 2010 Graduate Research Travel Award, Brown University Graduate School
- 2010-2011 Dissertation Fellowship, Brown University Graduate School
- 2010 Tinker Award, Brown University Center for Latin American Studies
- 2010, ‘11, ‘12 Graduate Student Travel Award, Archaeological Institute of America
- 2008 William A. Dyer Fellowship, Brown University Graduate School
- 2008 Society for American Archaeology Ethics Bowl Runner-Up
- 2007 Graduate Fellowship, Brown University Graduate School
- 2007, ‘08, ‘10 Edmund C. Lynch Fellowship, Chi Psi Educational Trust
- 2006 Phi Beta Kappa
- 2006 Gertrude E. Slaughter Award, University of Wisconsin Classics Department
- 2006 Clifford H. Williams Scholarship Award, Chi Psi Educational Trust
- 2004, ‘05, ‘06 Greek Scholarship Award, University of Wisconsin
- 2005 Harold G. Lundburg Scholarship Award, Chi Psi Educational Trust
- 2003 Corcoran Lions Scholarship Award
- 2003 Wright Hennepin Electric Scholarship Award
- 2003 Valedictorian, Rockford High School, Rockford, Minnesota

Languages

Modern Greek (intermediate speaking, reading); Spanish (basic speaking, reading); German (basic speaking, reading); French (reading); Ancient Greek (reading); Latin (reading)

Academic and Professional Affiliations

Archaeological Institute of America
Society for American Archaeology
American School of Classical Studies at Athens
Aegeus – Society for Aegean Prehistory
American Schools of Oriental Research
Phi Beta Kappa

References

John F. Cherry (Joukowsky Family Professor in Archaeology and Professor of Classics, Joukowsky Institute for Archaeology and the Ancient World, Brown University; Box 1837 / 60 George Street, Providence, RI 02912; Phone: 401 863 6412; John_Cherry@brown.edu)

Susan E. Alcock (Director, Joukowsky Institute for Archaeology and the Ancient World, Joukowsky Family Professor in Archaeology and Professor of Classics, Brown University; Box 1837 / 60 George Street, Providence, RI 02912; Phone: 401 863 3710; Susan_Alcock@brown.edu)

Stephen D. Houston (Dupee Family Professor of Social Science and Professor of Anthropology and Archaeology, Department of Anthropology, Brown University; Box 1921, Providence, RI 02912; Phone: 401 863 3251; Stephen_Houston@brown.edu)

John K. Papadopoulos (Professor of Archaeology and Classics, Cotsen Institute of Archaeology and Department of Classics, University of California, Los Angeles; 308 Charles E Young Dr. North A210 Fowler Building / Box 951510, Los Angeles, CA 90095; Phone: 310 206 4997; jkp@humnet.ucla.edu)

Joan R. Branham (Chair and Professor of Art History, Department of Art and Art History, Providence College; 1 Cunningham Square, Providence, RI 02918; Phone: 401 865 1789; jbranham@providence.edu)

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CHAPTER 1

Introduction

The Mediterranean has no unity but that created by the movements of men, the relations they imply and the routes they follow.

Fernand Braudel (1972: 276)

The Late Bronze Age and Early Iron Age Mediterranean witnessed profound changes in the constitution and character of the societies living around its shores. The interactions within and between these societies were complex, and involved a range of scales, from the small worlds of interactive local communities to the Mediterranean dynamics with which these small worlds were connected. While the theoretical and methodological approach of this study could readily be applied to any of the regions surrounding the Mediterranean (Fig. 1.1), the primary focus here is on the Euboean Gulf, a maritime conduit that runs between the central Greek mainland and the island of Euboea (Fig. 1.2). As a geographical entity it is a sheltered channel that links the northern and southern Aegean Sea, and is surrounded on all sides by a diverse set of landscapes that make up the modern regions of Attica, Boeotia, Phthiotis, Thessaly, and Euboea. More importantly, this waterway has been an critical nexus of human interaction in many different phases of history, where geography, individuals, groups, and materials have come together in the course of day-to-day local practices, as well as long-distance voyages that spanned the Aegean and in some cases the entire Mediterranean.

This dissertation uses aspects of network theory to study social complexity and interaction in the Euboean Gulf from the Palatial Bronze Age to the Protohistoric Iron Age (Table 1.1). From a socio-political perspective, this period saw the floruit and

Cultural Period	Ceramic Period	Dates BCE
Early Mycenaean Period (c. 1750 – 1400)	Middle Helladic III (MH III)	1750/20 – 1700/1675
	Late Helladic I (LH I)	1700/1675 – 1635/00
	Late Helladic II A (LH IIA)	1635/00 – 1480/70
	Late Helladic II B (LH IIB)	1480/70 – 1420/10
Palatial Bronze Age (c. 1400 – 1200)	Late Helladic III A1 (LH IIIA1)	1420/10 – 1390/70
	Late Helladic III A2 (LH IIIA2)	1390/70 – 1330/15
	Late Helladic III B (LH IIIB)	1330/15 – 1210/1200
Postpalatial Bronze Age (c. 1200 – 1050)	Late Helladic III C (LH IIIC)	1210/1200 – 1070/40
	Early	1210/1200 – 1170/60
	Middle	1170/60 – 1100
	Late	1100 – 1070/40
Prehistoric Iron Age (c. 1050 – 800)	Early Protogeometric (EPG)	1070/40 – 1000
	Middle Protogeometric (MPG)	1000 – 950
	Late Protogeometric (LPG)	950 – 900
	Early Geometric (EG) / Sub-Protogeometric (SPG)	900-850
	Middle Geometric I (MG I) / Sub-Protogeometric (SPG)	850-800
Protohistoric Iron Age (c. 800-700/650)	Middle Geometric II (MG II)	800 – 750
	Late Geometric (LG)	750 – 700 (or 650?)

Table 1.1 Chronology and abbreviations for the Late Bronze Age (LBA) and Early Iron Age Aegean (EIA)¹

¹ For dates up to LH III B, see Manning (2010: 23, Table 2.2); from the end of LH III B to EPG, see Weniger and Jung (2009: 416, Fig. 14), though I have amended this to conflate LH III C Developed and LH III C Advanced into LH III C Middle and I have included Submycenaean in LH III C Late (see Papadopoulos *et al.* 2011 for problems with Submycenaean as an independent phase); for MPG to LG see Dickinson (2006: 23, Fig. 1.1) and Coldstream (2003: 435, Fig. 128); for a possible extension of the Late Geometric period into the 7th century see Papadopoulos (2003: 146; forthcoming). See Chapter 2 (pp. 27-32) for a more in-depth discussion of chronological issues.

collapse of the Mycenaean palaces, the reorganization of societies in the Postpalatial Bronze Age and Prehistoric Iron Age, and patterns of expansion and intensification in Protohistoric Iron Age, in which groups of Greeks and Phoenicians became the first societies to be truly *of* the Mediterranean, rather than simply *in* it.²

In terms of material culture, these societal developments were enmeshed in networks of circulating raw materials, finished products, technologies, styles, and preferences; in this context there were major shifts in metallurgical technology (as iron replaced bronze as the predominant utilitarian metal), ceramic styles (figural art declined and returned, as regional styles coalesced or diversified), and communicative semiotic systems (the Linear B script disappeared following the Palatial collapse and writing emerged again some four centuries later with the innovation of the Greek alphabet). While the primary focus is on how these material and social changes took place in the Euboean Gulf, these developments must be seen in their broader Mediterranean context. This part of the Aegean was connected to a wide and diverse world throughout the periods in question, although the character of these connections, both within and outside of the Euboean Gulf, varied tremendously over time.

The Euboean Gulf and its surrounding lands were unique in the Mediterranean during this period with respect to their social and geographical context, connectivity across long distances, and changes in societal organization. In particular, this dissertation focuses on the inter-relationship of conceptual, social, and material networks on multiple scales (local, regional, and trans-Mediterranean). In sum, I argue that such multi-scalar interactions fed in to one another to impact the major social, political, and technological

² I borrow here from the distinction Horden and Purcell make between history *in* the Mediterranean and history *of* it.

changes seen throughout the period in question, and that networks provide a strong means of modeling and explaining these changes. In particular, the networks in which the Euboean Gulf operates increasingly exhibit characteristics of “small worlds” and “the strength of weak ties,” where the addition of even a single connection into a wider system can result in the relatively rapid diffusion of political, cultural, and technological ideas. At the same time, these networks go through phases of greater and less centralization and stability, resulting in occasional societal upheaval and reorganization in explainable, though not necessarily predictable, patterns in the dynamics of social complexity.

The Contribution and Originality of the Project

First and foremost, this dissertation is a contribution to the archaeology, history, and human geography of the Euboean Gulf. The particular originality of this project lies in its diachronic scope, analytical methods, and multi-scalar approach to interaction. While this part of Greece is increasingly recognized as an important geographical entity for the study of the Late Bronze Age and Early Iron Age, there is no synthesis that provides an in-depth treatment of the currently available (and ever growing) body of archaeological evidence, which highlights both the coherence and diversity of the regions surrounding this dynamic body of water. As a synthesis of data related to the Euboean Gulf, this dissertation provides an integrated approach to human settlement, socio-political structures, and environmental concerns, which will be of use to other scholars, in addition to the specific analyses and interpretations that make up the bulk of this work. Yet what is presented here is much more than a synthesis.

From a disciplinary standpoint, this project aims to bridge long-acknowledged disciplinary divides, which continue to be a concern for Mediterranean archaeologists.

The separation of prehistory and history based on the presence or absence of written records may at times be a useful classificatory scheme, yet in the end obscures how prehistoric and historical periods relate to one another. The utility of moving beyond such divisions has been acknowledged in edited volumes on the Late Bronze Age and Early Iron Age in Greece (Deger-Jalkotzy and Lemos 2006) and even applied to the Euboean Gulf (Crielaard 2006), though never in the holistic, explanatory framework presented here, which explicitly aims to understand relationships between coincident social phenomena, and how they are informed by diverse, multi-scalar networks of interaction. Moreover, the chronological framework within the period of analysis is based on socio-political change, rather than pottery styles, as is the norm (Table 1.1).

The theoretical framework applied to the archaeology of the Euboean Gulf is novel. While network theory is increasingly prevalent in archaeology and ancient history, it has yet to make a significant impact on the specific geographical and chronological context of this dissertation. While widely applicable, a network approach that specifically focuses on *diachronic* change is particularly appropriate for the Euboean Gulf, as interactions on multiple scales, from the local to the trans-Mediterranean, were transformed in ways that fundamentally altered the history of the Mediterranean world. Moreover, the combination of network perspectives and geographical realities is crucial. The analysis of land routes and potential interconnections between sites has been done for several of the regions discussed in this dissertation, but it is only by bringing them together that networks, land routes, and sea routes can cross geographical scales and escape regional boundaries that, while real concerns, are fluid and permeable. By combining archaeological data accumulated over several decades with geographical and

environmental data that has never before been considered in this context, fresh perspectives are offered on both how and why multi-scalar interactions took place.

This framework and the resultant interpretations offer several contributions relevant to the archaeology of the Late Bronze Age and Early Iron Age Euboean Gulf, as well as to the archaeology of complex societies:

1. A demonstration of the effectiveness of network thinking as an explanatory and interpretative framework
2. An integrative approach to high-level theories of interaction, geographical and environmental information, and material culture
3. Documentation of how such approaches lend insight to social complexity, power relationships, the construction and legitimation of authority, and conceptions of landscape, seascape, and distance
4. An explication of diachronic dynamics of social complexity through the interdependence of multi-scalar networks
5. A demonstration of how network changes and encounters with others play a role in the formation of local, regional, and cultural identities

The analyses and interpretations from which these contributions are derived form the bulk of this dissertation. Individual interpretations advanced in each of the historical chapters (5-8) that are either novel or add nuance to pre-existing interpretations are too many to enumerate here in any useful form. I am sure that certain ideas put forth here will be met with disagreement or dismissal, but I submit that a certain amount of reasoned speculation is necessary in order to provide meaningful explanations of archaeological data, which will always be an incomplete and selective record of the human past. The main contribution of this project is to demonstrate how networks on multiple scales coalesce in the Euboean Gulf in the Late Bronze Age and Early Iron Age, and can be used to explain the many and varied social changes seen at this time.

Recurrent Terms and Themes

There are several terms and themes that occur throughout this dissertation and require some explanation. The first and most important are contained in the title of this work. Networks are frequently referred to as groups of links and nodes. These links and nodes can be either abstract models, or to refer to real places and the material and social links between them. Several different types of networks are discussed, as well as theoretical perspectives derived from various aspects of network theory. These are discussed in greater depth in Chapter 2 as ways of modeling flexible, multi-directional interactions of various types. Networks are used primarily to model, analyze, and describe interaction, which is a prominent theme in this dissertation. Small worlds refer to a type of network where most links are shared between small, proximate groups of nodes, and these groups are linked together by less frequent, yet important, ties. The result is a multi-scalar network in which habitual interactions within small worlds are essential, but informed by the “weak ties,” or less frequent interactions, that introduce new ideas and prevent stagnation. Dynamics refers essentially to change and how such networks of interaction intensify and regress, as well as expand and contract over time.

Interaction is itself a loose concept, as it could be used to refer to nearly all types of human behavior. Here it is used in many different ways, chiefly to show how different types and scales of connections between people, places, and things are related. But interactions are not simple connections that can be drawn on a graph. They are forces of cohesion and exclusion, both intentionally deployed and unintentionally experienced. In practical terms, interactions have to do with movement, travel, materials, and encounters between different individuals and groups. In this way, understandings of others are

formed and certain items or materials assume the role of exotica and become valuable for their intimations of distance and exclusivity. In another way other types of material engagements become commonplace through more habitual encounters, which also will vary over time and space. Finally, such notions of interaction, distance, and others are related to identity, in the sense that they remind people of similarity within their own social groups, and differences with other ones. Identity therefore must be understood as mutable, multiple, and constantly in flux, though informed by a set of social interactions, memories, landscapes, and practices.

Complexity is used in a general sense to refer to the condition of being intricate or complicated, which characterizes most aspects of human behavior and social interactions. In a more specific sense, I refer to complexity theory, which aims to study how relationships between parts result in collective formations. Mostly, however, the term refers to social complexity, which has to do broadly with how interconnectedness relates to the emergence of new properties, such as larger, more internally diverse, and more complex, yet integrated, social structures, and societies in which social inequality is present through the manipulation of these structures (e.g., Chapman 1990; 2003). Social complexity should be viewed on a sliding scale, as a concept that does not conform to strict definitions or sets of attributes, but has to do with structure, interaction, and power (Kohring and Wynn-Jones 2007).

With respect to social complexity, reorganization is another theme that runs throughout this dissertation. Societies endlessly constitute and reconstitute themselves (Giddens 1984), as institutions become entrenched and reformulated through daily practices (Bourdieu 1977). Constant processes of reorganization result in ongoing small-scale change that is not visible in archaeological timescales. However, rapid, large-scale

change often is observable archaeologically, and can be compared to patterns of punctuated equilibrium observed in evolutionary theory (Gould 1972).

Polity is a term that is used to refer to independent political entities within complex societies. Again, the definition is deliberately broad, and may refer to a Mycenaean palace, an independent community of the Postpalatial period, or an Archaic Greek *polis*. Greater specificity is employed in individual chapters, though the general term is used in the broad sense where appropriate, especially in reference to interactions between independent political entities that may not be directly comparable in size, scale, and complexity.

Other themes that run throughout this dissertation are space, place, and landscape. Following Tuan (1977) I would define these categories as socially constructed in ways that are informed by the physical environment, human experiences, and collective memory. Place-making activities condense interactions by bringing together individuals participating in local networks for particular practices, such as communal feasting or drinking. Like other types of interactions, such practices are related to social complexity in the sense that they are both inclusive and exclusive, serving to create and reinforce social bonds, inequalities, and associations with place. In a similar way, technology and production are also prominent themes, as agricultural and craft production practices bring together materials and practices across local and regional landscapes, and products and technological knowledge often travel over long distances. Mobility and movement between places, spaces, and landscapes are the means by which networks are constituted, and are thus essential considerations that are also multi-scalar.

Finally, I refer often to the media of interaction, by which I mean the things through which messages move and meanings are transferred. In particular, I mean images

(whether figural or not) and texts. Face-to-face interactions (cf. Goffman 1967) can only rarely be observed archaeologically, and then mostly through media such as texts or figural art. Even so, archaeology is uniquely positioned to find meaning in material culture, its spatial distribution, and diachronic changes. Just as materials serve as media through which we find meaning in the past, so too did they act of for their contemporary makers, users, and observers, for whom images, words, and materials provided important linkages. In some cases the meanings these media carried was deliberate and clear, in others more unintentional and subtle.

Summary of Chapters

The first part of the dissertation (Chapters 2-4) focuses on the disciplinary, theoretical, and geographical scope of the project. Chapter 2 discusses current disciplinary issues, namely how traditional splits between Aegean prehistory and classical archaeology, and anthropology, classics, and art history complicate the study of Late Bronze Age and Early Iron Age Greece. It also presents regionalism as a key issue in Greek archaeology, especially if one aims to study interaction on multiple scales. To that end, the chapter reviews the types of data relevant to studying interactions on multiple scales, from individual site reports, to regional surveys, to catalogs of imports.

Chapter 3 presents the theoretical framework of the dissertation, first by discussing diffuse and often incompatible approaches to interaction. Archaeological approaches to interaction are by no means unified, and come from a wide variety of theoretical backgrounds and intellectual priorities. The same is true for network theory, which has been deployed differently in disciplinary contexts ranging from sociology to neuroscience. However, certain principles of network theory have emerged as widely

applicable, whether talking about links between Hollywood actors or neurons. The types of network behavior that feature most prominently in this dissertation are the small worlds principle, the strength of weak ties, scale-free network growth, and centrality. I argue that the utility of network theory is in generating flexible models able to cross conceptual and geographical scales. By contextualizing the approach adopted here in terms of previous work on interaction and network theory, I provide an original approach to network analysis in archaeology. This approach does not adhere strictly to approaches developed for sociology, the physical sciences, or even other recent uses in archaeology or history (e.g., Knappett 2011; Malkin 2011). Rather, it provides an application of network thinking that is at once heuristic, analytical, and interpretative, drawing on a variety of evidence that is often seen as incompatible, in order to understand and explain how seemingly divergent social phenomena are related and change over time.

Chapter 4 presents the geographical realities in which such networks operate. It begins by discussing the role of geography and the environment in human interactions, and in the constitution of space, place, and landscape. The Euboean Gulf is then discussed as a waterway, both in and of itself, and as it connects to the surrounding landscapes and seascapes of parts of Greece, the Aegean, and the wider Mediterranean. The distribution of natural resources, whether agricultural land, forests, or metals, in some ways mirrors the local, regional, and trans-Mediterranean scales that this project aims to address, and serves as an important impetus for interaction.

The second part of this dissertation (Chapters 5-8) provides a diachronic explication of network dynamics across local, regional, and trans-Mediterranean scales, divided into four parts: the Palatial Bronze Age (Chapter 5), the Postpalatial Bronze Age (Chapter 6), the Prehistoric Iron Age (Chapter 7), and the Protohistoric Iron Age (Chapter

8). These four chapters provide an integrative, synthetic study of a variety of related, though seemingly divergent, social phenomena, including the collapse of the Mycenaean palaces and rise of the Greek city-state, the disappearance of Linear B and adaptation of the Greek alphabet from the Phoenician script, the technological transition from bronze to iron as the dominant utilitarian metal, and a major shift in the nature of maritime interactions from being a predominantly eastern Mediterranean phenomenon to encompassing nearly all the shores of the Middle Sea.

Chapter 5 is about the Palatial Bronze Age in central Greece, and aims to confront issues of hegemony, territory, and trade. It begins with a brief overview of the emergence of Mycenaean palaces in central Greece, which differs markedly from the better known Peloponnesian examples. I then discuss Linear B and archaeological evidence for highly centralized networks of production, and import consumption as an exclusive practice of creating social inequality. On a regional level, I show how Linear B documents from Thebes correspond with geographical projections of palatial territory based on the cost of passage across the landscape. The network and territorial models here are also used to help explain aspects of the collapse of the palaces around 1200 BCE, when over-centralization and territorial shifts led to competing hegemonic claims between polities, which were ultimately rejected by the societies over which the palaces purported to rule.

Chapter 6 marks a return to prehistory in the Postpalatial Bronze Age, as written records (Linear B) are lost with the collapse of the Mycenaean palaces. I argue, however, that this should not be seen as a *societal* collapse, but rather viewed in terms of reorganization, wherein networks of settlement, production, and long-distance interaction shifted in the context of new forms of social complexity. Significantly, some areas that emerge most prominently from this milieu, such as East Lokris and Euboea, were on the

fringes of the palatial territory in the preceding period, meaning they did not experience “collapse” at all, and were able to coopt long-distance networks that had long been dominated by the palatial elite. It is no small matter that as these changes in power relationships happened in the highly connected Euboean Gulf, and similar patterns of decentralization can be observed in the Eastern Mediterranean.

Chapter 7 confronts the notion that the Prehistoric Iron Age should be seen as a the “Dark Age” of Greece. In the first place, I return to the topic of regionalism, discussed in Chapter 2, to demonstrate that the areas surrounding the Euboean Gulf were quite different from elsewhere in Greece. There is no demonstrable decline in social complexity from the previous period; if anything, the range of social inequality, craft specialization, and involvement in overseas networks increased in this period, as social differentiation increased, the technology for producing iron as a utilitarian material was harnessed, and innovations in pottery production spread rapidly around the Aegean. Moreover, these developments happened just as the Phoenicians increased their interest in the west, and Euboeans intensified their own involvement with the East.

Chapter 8 deals with the shortest span of time, and the largest body of material of all of the chapters of the dissertation. The subject is the role of the Euboean Gulf in the cultural revolution that occurred in the eighth century BCE. This century saw some of the most dramatic developments of any in Greek history. Settlement numbers increased substantially, causing a reconfiguration of local and regional networks, out of which the use of regional sanctuaries as hubs and mediators in the landscape intensified dramatically (though this trend had begun in the Postpalatial Bronze Age). This local and regional reorganization coincided with an expansion of long-distance networks, as Greek settlements overseas were established by Euboeans (alongside Phoenicians) in southern

Italy and Sicily. Finally, these developments were accompanied by a media revolution in the form of the invention of the Greek alphabet and a dramatic explosion of figural art, which had not been absent in previous centuries, but certainly was inconspicuous. Most of these developments have discernable roots in the Euboean Gulf in the early eighth century (and to some extent before), which come to a head in a period of punctuated equilibrium between around 750 and 700 BCE.

Chapter 9 presents my conclusions and some thoughts on future directions for and broader implications of this work. The first part of the dissertation (Chapters 2-4) provides, on the one hand, an integrative disciplinary and theoretical framework that eschews disciplinary boundaries in favor of flexibility and interpretative synthesis; on the other, it makes a case for treating the Euboean Gulf as an analytical unit that brings together regions that traditionally are either discussed in isolation or lumped together with the rest of Greece. I make an argument for thinking of regions based on connectivity, rather than disciplinary and modern political boundaries. In each chapter of the second part of this dissertation (Chapters 5-8) I take a synthetic approach to data concerning the Euboean Gulf, which results in new interpretations and conclusions. However, it is in viewing these interpretations together from multi-scalar and diachronic perspectives that the most interesting and meaningful conclusions presented in this dissertation arise.

From the outset, it should be clear that this dissertation deals with a long span of time (c. 1400-700 BCE) in a large geographical area, ranging from the local landscapes surrounding the Euboean Gulf in central Greece to the vast expanse of the entire Mediterranean basin. It is precisely the need to articulate interactions between the local and the “global” that has driven this project from the beginning. At times specificity must

be sacrificed for scope, and at others broad trends may be obscured by detail. Yet I have aimed to achieve some balance between the general and the specific, and between synthesis, novel analysis, and interpretation in a way that is able to match the admittedly broad goals set out here.

CHAPTER 2

The Disciplinary Setting: Between Prehistory and History

... If it is true to say that the Great Tradition has been insufficiently aware of the intellectual challenge offered by recent developments in anthropological archaeology, it is also the case that the New Archaeology has been largely blind to, and remains in considerable ignorance of, the immense potential offered by the archaeology of the Ancient World.

Colin Renfrew (1980: 297-298)

Much has changed since Renfrew wrote of the Great Tradition versus the Great Divide separating classical archaeology from then recent developments in archaeological theory, yet disciplinary divisions remain. In a world of diverse theoretical approaches and a multitude of different types of data, acquired with different circumstances and disciplinary contexts, approaches to the archaeology of the ancient world are far from uniform; and effective, integrative synthesis is far from straightforward. This dissertation aims to confront three issues that have long deterred integrative approaches in Aegean archaeology: (1) the disciplinary division between Aegean prehistory and classical archaeology, (2) regionalism within Greek archaeology, and (3) descriptive, rather than explanatory or interpretive, approaches to interaction. This chapter addresses these disciplinary concerns and reviews current issues in the chronology and culture history of the time period in question. The principal discussion will be of the Aegean, with special reference to the Euboean Gulf, though references to, and summaries of, the wider Mediterranean setting will also be included, as integrating information across multiple

geographical scales is one of the main goals of this study. To that end, the focus on disciplinary context is also multi-scalar, beginning with aspects of chronology and cultural history understood mainly through the excavation of individual sites or reading ancient authors; I then consider the archaeology of regions; the final component of this chapter summarizes evidence for long-distance interaction in the Late Bronze Age and Early Iron Age Aegean and Mediterranean. This discussion sets the stage for Chapter 3 and its introduction of archaeological approaches to interaction, network theory, and multi-scalar network dynamics.

Between Prehistory and History: Late Bronze Age and Early Iron Age Greece

The time period covered by this dissertation is something of a boundary object.¹ That is, it is used variously, with different goals and perspectives, without clear consensus about where it fits. This period is also quite literally at a chronological boundary, a liminal space falling between changes in political systems – the fall of the Mycenaean palaces and the rise of Greek *poleis*; metallurgical technologies – the shift from bronze to iron as the predominant utilitarian metal; writing systems – the disappearance of Linear B and the adaptation of the Phoenician script into the Greek alphabet; and, more generally, the replacement of “Mycenaean” with “Greek” culture. In a disciplinary sense, this study falls between the purviews of Aegean prehistory and classical archaeology, and stands just before Greek literary history; it is also of broader relevance to the archaeology of complex societies. This period is thus of potential

¹ Boundary object is a term that comes from sociological literature, and refers to fields or objects of study that have different meanings for different interested parties. Originally coined by Star and Griesemer (1989), it has become particularly relevant in the discipline of Science Studies, mainly in discussions of the sociology of knowledge.

interest to practitioners in all of these fields, though for different reasons and often with different motivations, goals, assumptions, and priorities. Nearly twenty years ago Ian Morris identified three “great divides” in the archaeology of Greece, which can be extended to classical archaeology in general. These are the divides between (1) anthropological and classical archaeology, (2) prehistory and history, and (3) archaeology and history (Morris 1994: 14-15). While these divides have rarely been absolute, and have changed significantly in the last two decades, they remain apposite for this study, and are worth considering in some detail here, as this work has been informed by all of these disciplinary contexts.

The Great Tradition and the Great Divide

Beginning from a general archaeological perspective, the first disciplinary rift is the “great divide” between anthropological and classical archaeology. Brought to the fore by Renfrew (1980), who argued for increased dialogues between classical and anthropological archaeologists, this issue has been continually revisited, often by prehistorians and researchers working in the liminal space of Late Bronze Age and Early Iron Age Greece (e.g., Snodgrass 1985, 2002; Dyson 1993; Morris 1994; Davis 2001; Galaty and Parkinson 2007; Tartaron 2008). While this split is a major concern for many working in the fields of Aegean prehistory or classical archaeology, who have made increasing strides to bridge this gap in recent decades, it does not seem to be of much consequence to most archaeologists elsewhere in the world. For example, Price (2001) does not mention archaeologies of the Mediterranean world once in a chapter on the future of archaeology, published at the turn of the millennium, and classical archaeologists are generally portrayed as distant from and uninterested in current debates

in archaeological theory (Johnson 2010: 221-222 [Figs. 13.1 and 13.2]), though this is demonstrably no longer the case. Yet even classical archaeologists who have been on the forefront of engaging with developments in anthropological archaeology from the 1970s onward still characterize classical archaeology as something different, distinct from both classics and other forms of archaeology (Snodgrass 2012: 14). This might be acceptable if we consider many distinct yet potentially overlapping archaeologies, such as classical archaeology, Maya archaeology, historical archaeology, etc., but to say, generally, that classical archaeology is one thing and archaeology another perpetuates divisions that, while at times are still very real, can often be broken down to productive ends. The problem is thus not what we call particular sub-disciplines, but how drawing boundaries can lead to insularity and stagnation. To some extent classical archaeology has trended toward hermeticism, though in this it is by no means alone as an archaeological subfield. In this case, however, one explanation lies in the Great Tradition itself, which consists of centuries of scholarship and deep bibliography, in which practitioners tend to immerse themselves, whether as rites of passage or self-flagellation. The datasets are thus incredibly rich, though in some cases, such immersion can have a way of restricting and channeling thought toward tradition, at the expense of innovation.

To some extent, this divide has been bridged, and dialogues between anthropological archaeologists and those working in the Mediterranean are more open than ever before. But this change did not happen overnight, nor has it obviated the issue. The efforts to bridge these gaps were made chiefly by individuals whose work did not fit into the traditional subfields of classical archaeology, two of whom stand out as particularly significant: Colin Renfrew and Anthony Snodgrass.

In 1972 Colin Renfrew published *The Emergence of Civilization*, which used then cutting-edge systems theory to *explain*, rather than describe, social change in the Early Bronze Age Cyclades. Significantly, this fell well outside the more entrenched fields of Minoan and Mycenaean studies and traditional approaches to the topic. John Cherry has noted in the foreword to the new edition of *The Emergence* that this departure from traditional narratives toward the explanation of culture process and culture change had an enormous impact both at the time of publication and on the subsequent generation of scholars (Cherry 2011: xxii-xxiv).

The second figure is Anthony Snodgrass, who departed from description and catalog-based approaches in classical archaeology to concentrate on context, quantification, and rigorous treatment of all materials, not only those of art historical significance; his embrace of regional survey as a primary and intrinsically valuable form of fieldwork was also critical to the development of the field (Morris 1994: 39; see also Snodgrass 2006 for a collection of influential essays published throughout his career). Both Renfrew and Snodgrass aimed to answer questions of historical and sociological significance. While other scholars certainly played important roles in expanding the horizons of Greek archaeology, these two individuals, through their scholarship, students, and intellectual legacy, had perhaps the most lasting impact.

While it is true that the gap between classical and other archaeologies is narrowing, there are serious impediments to progress on this front. The first is simply historical. The tradition of scholarship in the study of the classical civilizations of the Mediterranean world is quite long. The sheer amount of data that exists, often coming out of diverse research traditions and written in multiple languages, can be difficult to handle even for specialists, let alone outsiders seeking to undertake comparative studies.

Second, there are very real institutional obstacles, especially in the United States, where Mediterranean archaeologists are generally found in classics or art history departments, while archaeologists specializing in the archaeology of anywhere else in the world are typically in anthropology; outside of the United States, archaeologists are more frequently grouped together, or in history departments. Academic obligations are thus divergent, as are physical locations, tenure expectations, and opportunities for discussion and collaboration (Davis 2001). This institutional framework naturally affects the training and production of subsequent generations of scholars. An exciting movement away from this trend in the United States can be seen in the growing number of institutes devoted to archaeology, broadly defined, which have more in common with European institutional structures. So while significant progress has happened and continues to happen on bridging the Great Divide, there remain very real structural obstacles.

Aegean Prehistory and Classical Archaeology

Divisions between Aegean prehistory and classical archaeology are presented here because the subject at hand involves both – drawing on approaches from each field and straddling the two in terms of chronological focus. Both of these fields have been the subject of recent synthesis and self-reflection (e.g., Cullen 2002; Cherry *et al.* 2005; Alcock and Osborne 2012), though are too wide-ranging and varied to discuss in great detail. The emphasis here, then, is their remit and how this has impacted the field that falls in between.

Aegean prehistory as a discipline covers the archaeology of the Aegean Sea and surrounding areas from the Paleolithic period to the end of the Bronze Age. The geography is of interest because, while in principle it should involve the entire Aegean,

there are significant biases in the amount of attention given to particular areas. Indeed, some definitions of the “Aegean” in “Aegean prehistory” limit the primary geographical interest to Crete, the Aegean islands, and the Greek mainland, with rather secondary interest in interactions with western Anatolia, Cyprus, the Levant, Egypt, peninsular Italy, Sicily, and Sardinia (Margomenou *et al.* 2005: 2). Renfrew argues that this marginalization of other regions, especially western Anatolia, does not hold up to scrutiny (Renfrew 2005: 154). While Renfrew is correct in pointing out the long-standing interests Aegeanists have had in these areas, certain parts of the Aegean have received much more attention than others. Crete has been subjected to the most intensive research by far, followed closely by the southern Greek mainland. The reasons for this are partly historical, going back to the “fathers” of the discipline, Heinrich Schliemann and Arthur Evans with their excavations at Troy, Mycenae, and Knossos (Schliemann 1880; 1881; Evans 1921); the foundations laid by them have had a dramatic impact from the 19th century onward.

While Aegean prehistory purports to cover everything from the Paleolithic period to the Bronze Age, it is rooted in the study of the palatial societies of the Middle and Late Bronze Age – the Minoan and Mycenaean civilizations – both of which would be more properly termed protohistoric. The work of Schliemann and Evans, and the academic field that followed their initial efforts, was from the start embedded in historical Greek conceptions of the mythological past, as are the very names by which we refer to them. As Muhly points out, this becomes a problem when modern scholars attempt to “create a serious history out of fantasy and folklore” (Muhly 2011: 4). At the same time, however, historical Greek accounts of the Bronze Age cannot be dismissed as entirely uninformative. This problem is nothing new, and approaches to it range from

Schliemann's Homer-guided excavations at Troy to the "Homeric Archaeology" that attempted to provide a more balanced approach to the textual and material evidence related to the Late Bronze Age and Early Iron Age (e.g., Schliemann 1881; Lorimer 1950; see also Carter and Morris 1995; Cullen 2002: 8). For most of the 20th century, approaches to textual material ranged from over-reliance to complete dismissal, so in that respect Aegean prehistory was distinct from classical archaeology (which, to be fair, was relying on historical, rather than mythological material). Yet approaches to the material record remained very similar on both fronts, with primary attention devoted to large-scale excavation, monumental architecture, and artistic achievements in painting, sculpture, metalworking, and ceramics.

In the late 20th and 21st centuries Aegean prehistory came more closely in line with developments in anthropological archaeology. Reviews of recent work in Aegean prehistory chronicle this development in detail, attributing it to the realization that the methodological and theoretical developments in the archaeology of other complex societies had much to offer scholars working in the Aegean (e.g., Bennet and Galaty 1997; Tartaron 2008). While this trend began with prehistorians, it was soon taken up by some groups of classical archaeologists, earliest and most effectively by Anthony Snodgrass and his students, who highlighted new priorities for the discipline (Snodgrass 1987), and made innovative contributions to the fields of mortuary analysis (Morris 1987; Whitley 1991), the synthesis and interpretation of regional survey data (Alcock 1993), and material culture (chiefly ceramic) studies (Shanks 1999). Yet this engagement with alternative approaches and viewpoints was by no means universal.

Following the palatial civilizations of the Bronze Age, traditional classical archaeology does not really begin to take an interest until the return of figural art in the

Late Geometric Period, around 750 BCE, and interest in the traditional topics of monumental architecture, sculpture, vase painting, etc. does not hit full stride until the Archaic period. Moreover, the field, especially in the United States, is closely tied to classical philology. The reasons for this are several. From the outset, there was the admirable holistic view of drawing on multiple types of data (textual, material, iconographic) to answer historical questions. But in practice there was often a hierarchy of evidence (and interest), which resulted in the desire to conduct archaeological fieldwork to confirm cultural or historical information found in texts, rather than archaeology being seen as an intrinsically valuable academic endeavor. The unfortunate result is that the classical archaeologist has often been seen as a second-class citizen in the field of classical studies, perhaps as someone who does not have the training or language competency to handle the rigors of philological research. This viewpoint of archaeology as the “handmaiden of history” is extremely limited (e.g., Morris 2000: 3).

The other field to which classical archaeologists are most closely tied is art history. As is philology, this is part of what Renfrew called the Great Tradition (1980), in which the classical world is held to be the foundation of Western culture. The methods and interests of the art historian, however, are much more rarely tied to those of the archaeologist outside of classical studies. Yet art history is perhaps the field in which Aegean prehistorians and classical archaeologists overlap the most. This background in art history has also contributed to the catalog-based approach that long characterized the intellectual priorities and publication within the field. This was equally true of Aegean prehistory for much of the 20th century, though began changing with the aforementioned shift in priorities of the last few decades.

These are generalizations, to be sure, but serve to highlight the fact that the Early Iron Age falls outside of the traditional remit of both Aegean prehistory and classical archaeology. Papadopoulos (1993: 195) suggests that the “deliberate distance” maintained between the second millennium and classical Greece, or the “iron curtain,” is a mirage, as is the notion of a Dark Age that falls between “prehistoric” and historic or classical Greece (Papadopoulos, forthcoming). One of the aims of this dissertation is to demonstrate that such an “iron curtain” obscures much of what is interesting in the periods in question, and that viewing transitions from “prehistory” to “history” as a continuous and dynamic process is the only way to understand the character and complexity of this formative age.

Archaeology and History

It is ironic that the period just after the traditional end of Aegean Prehistory is, in a technical sense, more technically prehistoric than that preceding it. With the collapse of the Mycenaean palaces, we also see the temporary disappearance of writing (Linear B). Because the script was used strictly for palatial administration, there was simply no longer a need for the scribal institutions that produced it (Deger-Jalkotzy 2008: 392; Palaima 2010: 362). Writing does not re-emerge in Greece until the Middle-Late Geometric Period, and then in a much different capacity. Yet the absence of contemporary written texts does not deter scholars from using later documents to gain insight into the period in question.

Again, we can see the Early Iron Age as a sort of boundary object, though this is changing, with the period increasingly being incorporated within studies falling on either side of it chronologically. One surprising trend, given the prehistoric character of this

period, is that it is much more frequently included in studies of the early history of Greece, (e.g., Osborne 1996; Hall 2007) and not late prehistory (e.g., Shelmerdine 2008; Cline 2010b).

The divide between historians and archaeologists of the ancient Mediterranean has primarily been dictated by subject matter and categories of evidence. Classical studies are steeped in the tradition of events-based political and military history. The intellectual backdrop of this goes back as far as antiquity itself, so perhaps we should not be surprised that the object of study (ancient historical texts) has influenced the modern discipline. On the other hand, material culture is often considered the purview of the archaeologist, so is rarely engaged with by the historian. There is also a chronological division, with ancient history beginning to take a serious interest only in the Archaic period, when texts discuss contemporary events. Archaeology, of course, is by nature diachronic, though it is no coincidence that the disciplines of classical archaeology and ancient history are dominated by study of the same time period (Archaic Greek to Roman). Despite this temporal overlap, however, archaeology has been largely unsuccessful in attempts to match archaeologically documented events precisely with those in recorded historical narratives (Snodgrass 1987: 65).

The current academic environment has been influenced by numerous intellectual movements outside of archaeology and classical studies. Since the rise of social history in the 20th century, and the large role of Mediterranean historian Fernand Braudel and the *Annales* school, the field has come to overlap much more with archaeological concerns. Social history took an interest in the lives and institutions of “ordinary” people, and marked a significant departure from the study of political/military events, mainly narrated with reference to specific elite individuals and groups. Braudel’s innovation was to

introduce elements of geographical and temporal scale, identifying three categories of history, the *longue durée*, *conjoncture*, and *histoire événementielle*, which can be oversimplified to refer to geological, social, and individual rhythms of time (Braudel 1972: 20-21). This view of history is of particular interest to archaeologists, not least Mediterranean prehistorians, who drew not only on Braudel's interest in the long-term, but also on his deep study of Mediterranean geography and the role of the sea in human interactions (Bintliff 1991; Knapp 1992; Barker 1995; Knapp and Blake 2005: 11). On the one hand, then, history was providing a theoretical framework from which to approach social change on multiple time-scales; on the other, historians began engaging with issues that archaeologists had long been equipped to handle.

One of the most successful studies to engage archaeological and historical material in Braudelian terms is *The Corrupting Sea* (Horden and Purcell 2000),² which deals with aspects of Mediterranean history ranging from antiquity to the Medieval period. Other historians of the classical world have made increasing use of archaeological data, particularly (and necessarily) in undertaking topics dealing with Early Iron Age Greece (e.g., Thomas and Conant 2003). From the historian's perspective, this period is viewed as increasingly important, largely due to the contributions of archaeologists. As Whitley (2002: 77) points out, "if the Archaic period is what made Classical Greece possible, the Early Iron Age is in turn the crucible of Archaic Greece." Recent historical syntheses of the Archaic period, for example, often begin with Mycenaean precursors and make use of archaeological evidence in an effort to

² This is not to say the Horden and Purcell agree entirely with Braudel's conception of Mediterranean history. While Braudel saw overall unity in Mediterranean environments and societies over time, Horden and Purcell (2000: e.g., 36-39) argue for a more diverse picture of microecologies around the Mediterranean, which necessitated connectivity between such different areas.

write social history (Osborne 1996; Hall 2007). Archaeologists, too, more commonly associate the Early Iron Age with what follows than with what comes before (Morris 2000; Whitley 2002). Perhaps this can be linked with a pervading interest in origins – in this case the origins of Classical Greece – despite the fact that these same authors would acknowledge that such an interest is teleological.

Finally, some comment must be made about the relationship of archaeology and history outside of the Mediterranean. Most archaeologists studying societies with written records would agree that such records can and should play some role in their study, even if it is primarily based on material culture. Yet there is rarely discussion of critical methods for doing such integrative work, let alone consensus on how it should be done. The lack of dialogue on this topic should come as a surprise, given the amount of discourse coming out of American “Historical Archaeology” (e.g., Hall and Silliman 2006). Morris (2000) has engaged with this problem in the past, but with relatively little impact on the wider community of either ancient historians or classical archaeologists. In the same integrative vein, we must take the opportunity to engage with texts as material culture. The Late Bronze Age and, especially, the Early Iron Age offer excellent opportunities for more nuanced and critical approaches to archaeological materials and texts.

Chronology and Cultural History

Turning from disciplinary history to the period under study, some chronological consideration is essential. What follows in this section, however, is not an in-depth discussion of relative and absolute dating, nomenclature, and contested transitions. Recent syntheses of the periods in question cover these issues in depth (e.g., Lemos 2002;

Dickinson 2006; Shelmerdine 2008; Coldstream 2008; Manning 2010; Papadopoulos, forthcoming). Here I provide a general chronological overview and discuss the reasoning behind the periodization I have adopted (Table 1.1). I also provide some comment on the disciplinary impact of current categorization systems for the periods and regions relevant to this dissertation.

The relative chronology of the Late Bronze Age and Early Iron Age is traditionally rendered through reference to particular ceramic periods. This can be problematic, especially for non-specialists, because there is often no indication of either calendar dates or to what sort of cultural-historical period such a date might belong. A summary of this information is given in Table 1.1, dividing time into periods of historical relevance and presenting the corresponding ceramic periods and calendar years. The cultural historical periods are of my own choosing, and correspond to the divisions employed in the diachronic approach that makes up Chapters 5-8 of this dissertation.³ The ceramic periods are a standard product of the 19th century Three Age System with arbitrary divisions in to Is, IIs, and IIIs, and early, middle, and late subdivisions.⁴ It is, of course, absurd that all ceramics styles should fall into such neat sets of threes, but this system is almost certainly too entrenched to change (cf. largely unsuccessful attempts by Knapp for Cyprus: Knapp 2008; Manning 2010: 11-12). The best we can do is discuss

³ The terminology for the four periods treated in detail (the Palatial Bronze Age, Postpalatial Bronze Age, Prehistoric Iron Age, and Protohistoric Iron Age) is admittedly hellenocentric – referring to cultural developments in Greece, rather than the Mediterranean as a whole. This choice reflects the principal focus of the dissertation on the Euboean Gulf, though should not be taken to apply to the Mediterranean at large. Indeed, such a chronological scheme for the entire Mediterranean would be impossible, as levels of literacy, social complexity, and technology vary tremendously from region to region. This terminology is partially inspired by Knapp's (2008; 2013) periodization for Bronze Age Cyprus.

⁴ This actually goes back even earlier, to the 18th century and Winckelmann's notion of the progression of a style from beginning to floruit to decay, an idea that has dominated approaches to classical art and archaeology for much of the history of the discipline.

these periods in conjunction with more culturally meaningful divisions of time and provide dates that might allow non-specialists a foot in the door to attempt comparison. Regionalism too, is a factor, as periods do not stop and start at the same time across the Greek world (Papadopoulos, forthcoming), nor should we expect them to (see chronological discussions in Manning 1995; 2010; Mountjoy 1999; Lemos 2002; Coldstream 2003[1977]).

The chronological span in question begins in the Late Bronze Age, in the Mycenaean palatial period, specifically Late Helladic III. While sociopolitical changes leading up to the Mycenaean palaces no doubt have their roots in earlier periods, it is not until LH III that all architectural and social aspects of the Mycenaean palaces seem to have reached full form. In LH IIIA we begin to see marked territorial expansion, increased monumental building, centralization of authority, formalized religion, and the emergence of specialists tied to state administration (Wright 2008: 248-249), making this the first distinctly “palatial” period in the Mycenaean world. Divisions within the Late Bronze Age (LH IIIA, B, and C) are based on ceramic typologies, and perhaps suggest more coherence than is actually present. While LH IIIA and B are palatial periods, LH IIIC refers to the period after the collapse of the Mycenaean palaces and the attendant shifts in social and political systems. From a socio-political perspective, LH IIIC may have more in common with the following, rather than preceding period (Dickinson 2006).

As we move forward in time we come to the Early Iron Age, set aside from the preceding period by a major technological change – the inception and development of iron as the predominant utilitarian metal. This coincides with the Protogeometric ceramic period (c. 1050-900, divided into Early, Middle, and Late) and the Geometric Period (c. 900-700, again split into Early, Middle, and Late based on Athenian sequences, though in

Euboea the designation Subprotogeometric replaces Early and Middle [Popham *et al.* 1980: 11-12]). Again, these sequences were built around changes in ceramic styles, rather than socio-cultural developments. Within the Protogeometric and Geometric period, the late Middle Geometric (MG II) and Late Geometric stand out from the others in terms of social and political change: it is here that we see the adaptation of the Phoenician script into the Greek alphabet, the emergence of written literature with Homer and Hesiod, the reappearance of figural art in vase painting, the rise of the Greek *polis*, and the earliest colonization movements to the western Mediterranean. These coincident developments have led to the eighth century being discussed in terms of renaissance and revolution (Chapter 8, pp. 269-273).

This brief discussion of relative chronology introduces the framework for the narrative presented later in this dissertation (Chapters 5-8), which makes divisions based on socio-political change, rather than ceramic styles. The period designations employed here are thus Palatial Bronze Age, Postpalatial Bronze Age, Prehistoric Iron Age, and Protohistoric Iron Age (Table 1.1). Perhaps even more important is the notion that such chronological divisions imply that these time periods are clearly defined, discontinuous, or otherwise unconnected. This cannot be the case – as with other types of boundaries, such as the disciplinary splits discussed above and the regional demarcations below, these should not be seen as rigid or impermeable.

Assigning absolute dates to this chronology is complicated. There is a large literature on High and Low Chronology controversies in the mid-2nd millennium BCE, where radiometric dating is in disagreement with other absolute dates obtained by matching Aegean ceramic styles with historically dated Egyptian or Near Eastern objects in the same contexts; this most famously concerns the date of the Thera eruption (see

Manning 2010 for a recent summary). While these discrepancies are more or less resolved by LH III, when radiometric and historical dates are in relatively close agreement, the amount of attention devoted to the mid-2nd millennium controversy has meant that much less scientific attention has been given to establishing absolute chronologies for the late 2nd and early 1st millennia.

The relatively few attempts at radiometric dating undertaken in LBA-EIA Aegean contexts has led to a reliance on Aegean exports found in Levantine or Egyptian contexts, for which absolute dates are more obtainable, though some debate remains (Finkelstein and Piasetzky 2010; 2011; Mazar 2011). That said, the absolute dates obtained through Aegean ceramics in foreign contexts have generally held up to scrutiny and what is called the Low Chronology for absolute dating in the Levant is now in rather close agreement with conventional Aegean chronologies (Fantalkin 2001, 2008; see especially Fantalkin *et al.* 2011). James *et al.* (1991) challenged these traditional dates (close to those given in Table 1.1), advocating a down-dating of the Late Bronze Age to the 10th century BCE. However, Manning and Weninger (1992) quickly rebutted this argument, demonstrating that radiocarbon evidence from Late Bronze Age and Early Iron Age sites around the Aegean shows that such an alternative chronology is simply not possible.⁵ These dates are also in general agreement with a more recent assessment for LH III C and Protogeometric contexts from Kastanas (Weninger and Jung 2009) and with “Submycenaean” and Protogeometric tombs from Torone (Papadopoulos *et al.* 2011).

Dendrochronology is complicated by the lack of usable wood found in Aegean contexts from this time (Manning *et al.* 2001). When used in conjunction with

⁵ Sites from which Manning and Weninger took and reviewed radiocarbon samples include Asine, Assiros, the Cape Gelidonya LBA shipwreck, Kastanas, Knossos, Lefkandi, Midea, Mycenae, Nichoria, and Pylos.

radiocarbon dating, the results have generally been in agreement, as was the case with the Uluburun shipwreck, where radiocarbon and tree ring dates based on the Anatolian sequence date it to the end of the 14th century BCE with some confidence (Pulak 2008: 297). The Cornell Tree-Ring Laboratory claims to have relatively good coverage for the Late Bronze Age and Early Iron Age Aegean, but there is a gap beginning around 750 BCE (Kuniholm 1996). This claim of Aegean coverage is also slightly misleading, as this sequence applies to the eastern Mediterranean in general, not just Greece and the Aegean. The main impediment to dendrochronology in the Aegean remains the dearth of usable wood found in LBA-EIA archaeological contexts.

Perhaps the most promising development in archaeometric dating in recent years is the developing technique of ceramic rehydroxilation, where the chemical recombination of ceramics with environmental moisture is measured, and the rate corresponds to a known power law (Wilson *et al.* 2009). With a general level of accuracy of +/- 22 years, this has great potential for dating archaeological ceramics, as well as for calibrating other radiometric techniques and questioning assumptions about style. As useful and generally consistent as eastern Mediterranean synchronisms have been, they ultimately rely on stylistic assessment of materials that are outside of their regular context. There is too much room for error here, and factors that could potentially skew the chronology, such as the heirloom effect, are rarely considered. Such considerations do not frequently surface in Aegean chronological discussions, yet other world archaeologies (most notably North American historical archaeology) have developed sophisticated methods of dealing with them (see, e.g., Adams 2003). So while our chronology is relatively stable for this period, refinement and progress will come through the further development of archaeometric dating techniques in the Aegean itself, and

more nuanced approaches to periodization that move beyond ceramic chronologies. Useful as it is, pottery does not represent all aspects of any given culture, and thus should not be the primary determinant of how its history is divided. While few would disagree with this, ceramics remain a dominant and, in many cases, determinative framework.

Regional Studies in Greek Archaeology

The division of space is a basic element in any type of historical or archaeological research, yet it is by no means straightforward. Just as chronological and topical issues must be bound and justified, so too must geographical territories. This section outlines the study area investigated in this dissertation, discusses previous conceptions of the region, and argues for a maritime, rather than purely terrestrial, unity as a cohesive factor. The specific role of geography in social interactions is discussed in further detail in Chapter 4. From the outset, it is stressed that the unifying factor chosen to demarcate a region here, the Euboean Gulf, is but one of several possible ways to understand the region(s) under study. Alternative approaches discussed below include ancient divisions of territory, often lasting into the present, and archaeological approaches to regional studies.

Allowing for different conceptions of territory and regions, definitions are still in order. Region refers to a geographical area bound together by defined physical or cultural factors. Territory is also a relative term, referring to possession or association with a particular polity or group. These terms are naturally dependent on context and require specificity as they are being used.

Dividing Space in Antiquity

A history of regional studies necessarily begins in antiquity. In the case of Greece, regional divisions today remain quite similar to how they can be reconstructed from ancient sources. While we must allow for the fact that political territories changed over time, it is likely that conceptions of natural geographical boundaries were more resilient. That said, I would argue that these still need to be treated loosely – so while regions existed in places similar to their current positions, their borders should be seen as fluid, permeable, and subject to change. The aim here is to highlight ancient perspectives relevant to geographical conceptions of the Euboean Gulf, as presented in early textual sources, rather than to provide a comprehensive survey of literary references. Further archaeological and geographical perspectives on geographical boundaries are integrated into diachronic discussions later in this dissertation (Chapters 5-8).

Our earliest textual indications of territoriality in the regions surrounding the Euboean Gulf come from the Mycenaean period, namely the Linear B archive from Thebes (Chadwick 1970; Spyropoulos 1975; Aravantinos *et al.* 2001; 2002; Deger-Jalkotzy and Panagl 2006; Del Frio 2009). The tablets and inscribed stirrup jars offer some hints regarding conceptions of territory in the Mycenaean world in the form of toponyms, ethnics, and ethnic anthroponyms (see Del Frio 2009 for a full catalog and discussion).

While the occurrence of these terms is helpful, their meaning is often much more ambiguous. As strictly economic documents, they occasionally record quantities of items going to or coming from particular locations. Sometimes these place-names are recognizable due to their appearance in later periods, but rarely is there an indication of territorial control (contra Aravantinos *et al.* 2001; 2002). For example, the sites of

Amarynthos and Karystos, both located on Euboea, appear in the Linear B tablets from Thebes as *a-ma-ru-to* and *ka-ru-to* (Piteros *et al.* 1990: 153-154; Del Frio 2009: 42, 47; Palaima 2011). However, there is nothing that specifies the location or importance of these places – they are listed only in the context of goods going to or coming from them. *A-ma-ru-to* appears in records of a delivery of one pig and some allotments of wool; *ka-ru-to* only appears in the context of delivering one pig. The assumption that they are on Euboea is made based on later place names, but this is complicated by uncertainties as to their nature and exact location. While there is evidence of a substantial Mycenaean site at Amarynthos (Sackett *et al.* 1966: 64-66; Theurillat and Fachard 2007; Fachard *et al.* 2008), no more than a few sherds of Mycenaean material have been found in the entire region of Classical and later Karystos (Cullen *et al.* 2011: 38). It is possible that Mycenaean Karystos simply has not been found, but this seems unlikely since the region has been under various campaigns of intensive and extensive archaeological survey since the 1980s in the course of the Southern Euboea Exploration Project (SEEP) (Keller 1985; Talalay *et al.* 2005; Tankosic and Chidiroglou 2010; Cullen *et al.*, forthcoming). It may be worth considering whether place names moved between the Mycenaean and Classical periods, in which case the *ka-ru-to* of the Thebes tablets might refer to a location further north on the island, perhaps in the area of Dystos. This seems unlikely, due to its distance inland, but it remains a rare site in southern Euboea with any significant Mycenaean remains: Fachard (2009) reports a LH Cyclopean wall near the site, at Loupaka, and Mycenaean sherd scatters have also been observed on the slopes of the acropolis (Sackett *et al.* 1966: 76). Alternatively, Hankey (1952) and Fachard (2012: 238) report Mycenaean material from Philagra, which is closer to Karystos than Dystos, though located on the Aegean coast, making an association with Thebes less likely. Fachard

(2012: 75) suggests it is a Mycenaean site based on the etymology of the place name, which appears as a personal name in the Knossos tablets (Chadwick and Baumbach 1963: 167, 254); however, this place name would be an argument against Philagra being associated with *ka-ru-to*. In sum, the location of *ka-ru-to* remains unknown, and illustrates the difficulties of locating places mentioned in Linear B.

For the mainland, the Linear B tablets from Thebes provide more information about Mycenaean political geography in central Greece, though it is rarely definitive. First, there is no question that Thebes is the dominant political center in at least its immediate area. This is the only site in central Greece at which a significant number of Linear B texts have been found, and the record-keeping evidenced in the archive is in line with other Mycenaean central authorities, with agricultural and other goods coming into and going out of the palace. LH III Thebes is also by far the largest site in the region, with an enceinte comparable to that at Gla, which already dwarfs the Mycenaean centers of the Peloponnese (Symeonoglou 1985: 31-32; see Chapter 5, Fig. 5.2). There has also been some success in identifying the extent of Thebes' territory, though this becomes less certain as we move farther from the site (see Euboean examples above). Del Frio (2009) argues that among the 25 identified toponyms the locations and statuses of three can be identified with reasonable certainty to indicate a sort of political hierarchy. The first is Thebes itself, rendered as *te-qa* in Linear B. Two other sites appear as sort of second-order centers, which is argued based on the size of their crops as they appear in the Thebes tablets: *e-re-o-ni* (classical Eleon, near modern Arma)⁶ and *e-u-te-re-u* (ancient Eutresis, now called Arkopodi). From this Del Frio (2009: 67) argues for a three-tier

⁶ This site is currently under investigation by the Eastern Boeotia Archaeological Project, which conducted three seasons of intensive survey in the area (2007-2009) and is currently excavating Mycenaean levels at the acropolis of Eleon (Burns *et al.* 2011).

settlement hierarchy, similar to those of Knossos and Pylos, though this cannot be proved with any certainty.

The locations of sites mentioned are also significant. The sites whose locations can be reasonably projected seem to support the traditional split of Boeotia between Orchomenos and Thebes (Del Frio 2009: 66-67), which divides Boeotia into northwestern and southeastern, relatively evenly between the two palatial centers (Dakouri-Hild 2010a). All of the sites with recorded economic relationships to Thebes seem to fall into territory close to Thebes, or to the south or east. Finally, the tablets record relationships with numerous other regions: there are the aforementioned Euboean toponyms, two Cretan, one Anatolian, and one Laconian. This is not unusual, and serves to illustrate the wider Mycenaean world of which Thebes was a part. It is significant, however, that the only other sites that seem to be mentioned are culturally Mycenaean. So while the Linear B texts provide locations and goods coming or going, a geographical reading indicates aspects of territory and regionalism with respect to Thebes and its significance as a regional power in Boeotia, though not necessarily extending direct control further afield, and as a player in a wider set of Aegean interactions.

Moving forward in time, our next textual references come from the earliest Greek literature, the poems of Homer. These come four to five centuries after the Linear B tablets, though purport to describe events contemporary with the Mycenaean world. The poems of Homer were the products of long oral traditions, which preserved varying traces of Bronze Age realities, mixed with cultural information from Homer's own time and everything in between.⁷ That said, information gleaned from Homer must be considered

⁷ See Morris and Powell (1997) for the diversity of perspectives on Homer and the Bronze Age. Bennet (1997), for example, is extremely skeptical that Homer can serve as any sort of guide for the Bronze Age, though he is referring mainly to Linear B tablets, while Raaflaub (1997) describes the more balanced view

in light of its potential cultural context (spanning some 400-500 years), as well as the poet's intentions (again taking into account the long oral tradition and the potential for traces of many different individuals' words in the final product). Despite these qualifications, there are several significant points relevant to the Euboean Gulf in the earliest Greek literature.

The Euboean Gulf first appears in Homer's *Illiad* (2.303), where Aulis is named as the mustering point for the Greek army bound for Troy. More significantly, it also appears at the beginning of the first regional description of any kind in Greek literature, at the beginning of Homer's Catalog of Ships (*Illiad* 2.496).⁸ Homer begins his catalog of towns providing ships for the Greek invasion with Boeotia, then proceeds to make his way clockwise around the Euboean Gulf. Latacz (2004: 243) suggests that the catalog of ships begins in Boeotia and the legendary gathering took place at Aulis, because Thebes was the seat of an overall ruler of the Ahhiyawa and Aulis was the principal port of Thebes in Mycenaean times. Palaima (2011: 56) disputes this, pointing out that this interpretation is based on ambiguous interpretations of cuneiform text KUB 26.91 (which Latacz argues yields the name Kadmos) and the Linear B texts discussed above (Latacz reads power relationships, e.g., with Euboea, where none are stated). Moreover, if Thebes was *the* major power in the Mycenaean world and Homer has memory of this, it makes little sense that he would cast Agamemnon, Menelaus, Nestor, and Odysseus, rulers from the Peloponnese, as the most politically relevant individuals in the expedition. There is no doubt that Thebes was among the most powerful centers in the Mycenaean world,

of Homeric Society existing chiefly in a literary sense, though as an amalgamation of real and imagined aspects of the past and Homer's contemporary world.

⁸ See Visser (1997) for an authoritative study of the Catalog of Ships.

perhaps even the most, but there is no strong evidence to suggest that it maintained hegemony over other major centers.⁹ Finally, while Homer mentions a Lower Thebes (Υποθήβας) (*Iliad* 2.505), he does not list Thebes proper (possibly reflecting the destruction of the citadel in the generation before the Trojan War). It seems much more likely that Homer begins his catalog with Boeotia and the Euboean Gulf on account of its legendary significance – he begins in this region by gathering towns in his poem, just as the ships supposedly gathered at Aulis to begin the expedition against Troy. The progression through the places is also of great significance, and lends primacy to the sea as the main mode of movement between regions. Homer begins his list with the towns of Boeotia,¹⁰ several of which are located on the coast. While some of this order depends on meter, Homer begins and ends with coastal sites (Hyria and Anthedon) then transitions to the next region. He moves next to western Boeotia and Phokis, before returning to the Gulf with Lokris, which contributed forty ships from the towns of Kynos, Ophus, Kalliaros, Bessa, Scarphe, Augeiai, Tarphe and Thronion (2.527-535). Of the places whose locations are known, all are either on the Gulf or within 10 km (about a two-hour walk) of its shores. Shifting to Euboea, whose inhabitants are described as the Abantes,¹¹ the entire island is described as a coherent geographical unit, as Homer lists locations in the northern (Histiaea, Kerinthos, Dios), central (Chalkis and Eretria), and southern

⁹ The “Ahhiyawa question” and the possibility of a Theban hegemony, which I argue against, are discussed further in Chapter 5.

¹⁰ In order, Hyria, Aulis, Schoenus, Scolus, Eteoneus, Thespeia, Graia, Mycalessus, Harma, Eileision, Erythrae, Eleon, Hyle, Peteon, Ocalea, Medeon, Copae, Eutresus, Thisbe, Cononeia, Haliartus, Plataea, Glisas, Lower Thebes, Onchestos, Posideon, Arne, Mideia, Nisa, and Anthedon (Homer, *Iliad* 2.496-510).

¹¹ This ethnic designation is not entirely clear. While Homer describes the Euboeans collectively, as Abantes, there are also two other designations used for Euboea, when it is divided into three parts, with the Elliopes in the north, Abantes in the center, and Dryopes in the south. See Sakellariou (2009) for a recent study of Greek ethnic designations and their relevance to the Bronze Age.

(Styra and Karystos) parts of the island (2.536-545). From Karystos, Homer finishes his circuit of the Euboean Gulf by crossing over into Attica and discussing the Athenian contribution (2.546-565).

The catalog thus provides information about regional designations and the polities within them that would be maintained in similar form throughout the Classical period and, in some cases, into the modern period. So while political territories changed over time, the geographical regions in which they were embedded were considered coherent units – in this case Boeotia (divided into east and west), Phokis, Lokris, Euboea, and Attica. Given this resilience, it seems likely that these would have obtained in the Mycenaean period as well.

Hesiod, too, mentions the Euboean Gulf and provides some clues as to how regions were encountered in the Early Iron Age. He also provides some sense of different geographical scales. This is presented as part of his moralizing argument in *Works and Days* (650-663), where he claims no skill in seafaring, for he never sailed over the “wide” sea, but had only sailed to Euboea from Aulis. From this it is clear that Euboea is a distinct region, though easily reachable. Sea travel across the Gulf is thus represented as simple and thought of differently than going further abroad. He claims that this is his only personal experience with ships, though seems to know enough about it to provide instruction, meaning that seafaring was a major part of everyday life, in which regions were viewed as distinct, yet easily traversable.¹²

¹² Crossings were relatively easy and frequent in later periods, known from inscriptions that record fixed prices between Oropos and Chalkis (Robert 1969). The recent discovery of a small Middle Bronze Age boat at Mitrou, suitable for not much more than crossing the Gulf, may indicate regular crossings in earlier periods as well (van de Moortel 2012).

A final aspect of dividing space in antiquity is has to do with linguistic divisions.¹³ Language, both spoken and written, is an important identity marker, which varied considerably across the Greek world, though our understanding of its early development is somewhat complicated.

Mycenaean Greek is fairly homogeneous. Some differences have been observed both within and between corpora from Pylos and Knossos, though these may be merely a matter of personal choice, and may not reflect later Greek dialectical divisions (Ventris and Chadwick 1973: 75-76). There have also been attempts to divide Mycenaean Greek into “normal” and “special” usages, in order to explain this minor variability (Risch 1966). One obvious possibility is that the relative uniformity is the result of the highly specialized script, which may not correspond directly to colloquial language. Indeed, Linear B was adapted from a script (Linear A) that was not designed to record Greek in the first place. Moreover, the language recorded in Linear B has definite “East Greek” roots, even in areas where “West Greek” is known to have been in use in later period, suggesting the possibility of class-based language divisions; at the same time, however, these differences may simply be the result of the diachronic development of the language, unintentional misspellings, or intentional variation (Horrocks 2010: 20-21). Whatever the case may be, it seems likely that the apparent uniformity of Mycenaean Greek is more the result of the limited use of its script than linguistic uniformity across all of central and southern Mainland Greece. The dialectical variety seen later is a key point in this argument.

¹³ This is not the place for a detailed linguistic discussion. More detailed accounts of the basic information presented here can be found in a variety of locations (e.g., Kirchhoff 1887; Buck 1955; Palmer 1980; Jeffery 1990; Christidis 2007; Horrocks 2010: 9-40).

At some point before the eighth century BCE the dialectical divisions found in the Classical period were formed. While it seems likely that these were at least partially in place in the Mycenaean period, the limited Linear B corpus and issues described above make it impossible to know for sure. Since antiquity, Greek dialects traditionally have been divided into three groups, with regional subcategories within them: (1) Ionic (including the Euboean and Attic dialects); Aeolic (the dialects of Thessaly, Boeotia, Lesbos, and northwest Anatolia); and Doric (speakers of Peloponnesian and Northwestern Greek dialects) (Horrocks 2010: 14). Thus, at least five dialects in all three language groups were spoken around the Euboean Gulf.¹⁴ These correspond quite neatly with ancient and modern territorial divisions. Thessaly has its own dialect, as do Attica and Boeotia. The Euboean dialect is Ionian.¹⁵ East Lokris, Phokis, and Doris spoke Northwest Doric. While this overview of dialects may suggest divergence, there are marked similarities in the earliest alphabetic inscriptions from each of them, which demonstrate clear relationships (for discussion of the individual scripts and their similarities to their geographical neighbors, see Jeffery 1990). In sum, the linguistic evidence suggests clear regional linguistic divisions in terms of both spoken language and script. Their correspondence with historical, geographical regional boundaries suggests that language has great relevance for conceptions of regions and territory. These dialectical divisions, however, have more to do with habitual interactions within regions, rather than any sort of isolation from other regions. The traceable similarities in scripts,

¹⁴ See Horrocks (2010: 14) for a map.

¹⁵ Though the Euboean dialect does appear to have certain quirks, at least in later periods. Rhoticism – the occasional use of a rho instead of a sigma – was a feature at Eretria, as well as Oropos, which speaks to that long-standing connection across the Euboean Gulf; though this feature disappears around 300 BCE (Jeffery 1990: 81; Knoepfler 1997).

especially early scripts, show clear interaction between regions, speakers, and writers, especially in the early development and spread of the alphabet. These similarities are not surprising, given the role of the Euboean Gulf in the innovation and dispersal of the alphabet (discussed further in Chapter 8).

This is not the place for an analysis of further linguistic information or historical sources relating to the Euboean Gulf, though it should suffice to say that there is both continuity and change in the conception of territories and regions.¹⁶ In sum, it is difficult to surmise how exactly territories and boundaries were conceived in any given period. One thing we can be certain of, however, is that they are politically contingent, permeable, and changed frequently over time. Regions, on the other hand, were more likely to be geographically constructed, and their physical realities must always be considered in conjunction with more fluid conceptions of territory. These discussions are necessary because they affect how the macroregion under study – the Euboean Gulf and surrounding landmasses – has been approached, encountered, and interpreted from antiquity to the present.

Despite the permeability and fluidity of these boundaries, historical conceptions of them have been remarkably consistent, and thus had a major impact on archaeological research agendas, from both an intellectual and practical perspective. While geographical divisions are often very real and necessary in framing archaeological research, it is also possible to go beyond them and consider other ways of understanding territory, in this case giving greater weight to a maritime perspective.

¹⁶ A further line of study would have to do with particular hero-cults and religious practices. However, these have more to do with local landscapes and polity identity, so cannot be treated in detail here, though will come up elsewhere in the dissertation as appropriate.

Regional Archaeology in Greece

This dissertation is necessarily dependent on the efforts of previous generations of archaeologists and topographers, especially those who took an explicitly regional approach to documenting and detailing the archaeological record. I thus rely on divergent data sets from archaeological excavation, survey work, and regional or historical synthesis, often coming from different regions, intellectual backgrounds, and research agendas. The most important class of data for this type of large-scale regional analysis comes from archaeological survey. Alcock (1993; 1994) has demonstrated the utility of combining diverse data sets in studies of Roman imperialism and in the Hellenistic world, and similarly integrative studies have been undertaken by Bintliff (1997) on the rise of complex societies and for the entire archaeological history of Greece (2012), and by Halstead (1994) on prehistoric land-use variation. These investigations generally take a broad approach, looking at trends across mainland Greece or, indeed, the entire Hellenistic East. The current focus of this study on the Euboean Gulf narrows the geographical focus significantly, though still encompasses several regions: Boeotia, Lokris, Thessaly, Euboea, and Attica. Within each of these zones a variety of regional research has been undertaken. This section briefly reviews the disciplinary history and context of regional archaeology in Greece, the datasets relevant to this dissertation, and presents an argument for a multi-regional approach. I do not discuss early travelers' accounts in detail here, as they are often incorporated into the syntheses reviewed below. The same is true for excavations, though I do mention certain projects where appropriate.

In the Aegean (and throughout the wider Mediterranean and beyond) it is widely accepted that regional studies make up an important component of archaeological interpretation and fieldwork, despite the fact that excavation (especially large-scale) still

tends to carry more prestige. Regional survey,¹⁷ however, has a long history that is dependent on both specific situations in Greece and historical developments in world archaeology. Regional studies of material traces of the past can be traced back to antiquity itself, at least as far as Strabo and Pausanias, whose primary goals were to describe topography, the built environment, and known or possible associations with history and mythology. These ancient authors are the founders of the genre of travel literature, which was the primary venue for publication of archaeological sites and landscapes until the 19th century. Among the most prominent and wide-ranging of these travellers was Cyriac of Ancona, particularly significant to the Euboean Gulf as the “rediscoverer” of ancient Eretria (5 April 1436). The Euboean Gulf (especially Negroponte) remained an important strategic location to both Ottomans and Venetians, though little attention was given to archaeological remains.¹⁸ Travel writing became particularly widespread among wealthy Western Europeans on the Grand Tour in the 18th to early 20th centuries, who turned to ancient texts in attempts to locate, map, and describe ancient sites (see Pajor 2006: 50-53 for a list and discussion of travelers accounts). The first print publication of Pausanias in 1516 made him an especially popular tour guide thereafter (e.g., Stuart and Revett 1762-1816; Dodwell 1819; Leake 1821; for discussion, with further references, see Wagstaff 2001). These endeavors proceeded successfully (if not systematically) and were the primary source of knowledge about archaeological sites and landscapes until the 20th century. That said, the earliest

¹⁷ The term “survey” is used in Greece to refer to a variety of different activities, from architectural mapping to extensive reconnaissance. For this reason, it is at times confusing for archaeologists coming from non-Mediterranean backgrounds. A brief perusal of regional literature in Mesoamerica and the Aegean, for example, shows that the terms settlement pattern studies and archaeological survey are used in each area, respectively, to refer to the same type of activity.

¹⁸ Though in certain areas, such as Chalkis, the effects of centuries of sustained interest and occupation has obliterated much of the archaeological record from the Late Bronze Age and Early Iron Age.

movements toward more scientific and systematic study of archaeological landscapes began in the early 19th century with the French *Expédition scientifique de Morée* (published 1831-1838), which to some extent followed the model of the earlier *Description de l'Égypte* (1798-1801) and included volumes on geography, geology, and botany, as well as archaeological sites and antiquities (Blouet and Ravoisié 1831; Puillon-Boblaye 1836).¹⁹

More structured approaches to regional archaeology began to take form in the mid-20th century, following the innovative approach of settlement pattern studies pioneered by Gordon Willey in the Virú Valley Project (Willey 1953). Willey was concerned with the region, rather than the individual site, as the most meaningful scale for archaeological research geared toward understanding cultural processes. This view was later articulated by Willey's colleague Julian Steward (1960) as something that should be true of research in the social sciences in general. Willey's work in the Virú Valley was part of a wider trend in world archaeology characterized by movement toward more scientific and problem-oriented research, culminating in the New Archaeology of the 1960s (though see Wylie 2002: 25-41 for a discussion of important antecedents). Indeed, Lewis Binford himself argued that regions, rather than sites, represented the most important scale of analysis in archaeological research (1964), drawing on the work of Willey and Steward. This shift toward problem orientation, methodological explicitness, and sampling were part of what David Clarke (1973) famously called the "loss of

¹⁹ Unpublished letters and documents from the *Expédition* concerning Euboea are currently under study by Fachard and Pajor, who note that this was much more of a military mapping operation, without a great deal of interest in archaeological material. Nonetheless, they remain important for the history of landscape studies in Greece.

innocence” and led to research design becoming an increasingly important aspect of regional studies (e.g., Redman 1973; 1987; Plog *et al.* 1978; Schiffer *et al.* 1978).

In the Aegean, the beginnings of systematic, multidisciplinary regional survey are generally placed with the University of Minnesota Messenia Expedition (UMME), which conducted fieldwork in the late 1950s and through the 1960s (McDonald and Rapp 1972), the publication of which, Cherry notes, coincided with the Binford’s *An Archaeological Perspective* (1972), Clarke’s *Models in Archaeology* (1972), and Renfrew’s *The Emergence of Civilization* (1972), all of which functioned to “kick-start” regional studies in the Aegean (Cherry 2003: 141). UMME began as a rather traditional project, concerned with Homeric and Bronze Age topography in the southwest Peloponnese, but soon recognized the multitude of remains from various periods, and evolved into a multidisciplinary, diachronic endeavor. For the aims and scope of excavation and survey, the project also drew on parallels from both Old and New World contexts (McDonald and Rapp 1972: 15), namely Braidwood’s Prehistoric Project in northern Mesopotamia (Braidwood and Howe 1960), Adams’s Diyala Basin Archaeological Project (Adams 1965), and Sanders’s Teotihuacán Valley Project in Mesoamerica (Sanders 1965), though this influence seems to have been present more in publication than actual fieldwork (Cherry 2003: 142). It nevertheless is the case that, in accordance with trends in world archaeological theory, and following the publication of seminal projects in both the New World and Old World, there was a massive boom in projects whose goals were to study the distribution of human settlement across the landscape on a regional scale.

Standard narratives of the development of archaeological survey in Greece (e.g., Fotiadis 1995; Bennet and Galaty 1997; Cherry 2003; 2004; Tartaron 2008) relate that UMME was followed not long after by a further systematization of methods in the course

of projects on Melos in 1976 (Cherry 1982); the Argolid Exploration Project (Jameson *et al.* 1994) and the Cambridge/Bradford Boeotia Expedition (Bintliff and Snodgrass 1985), both of which ran from 1979-1983; and on Kea in 1983-1984 (Cherry *et al.* 1991). These projects and their successors all emphasized the importance of regions over the individual site, made strong cases for survey as a stand-alone endeavor, began to incorporate off-site data into archaeological research questions, sought to synthesize regional data to answer questions of significance to long-term history and anthropology, and had a commitment to continual incorporation of multiple methods and new techniques in data acquisition and analysis. Moreover, they have made use of increasingly intensive methods, following the maxim that greater intensity of investigation results in the discovery of more sites and acquisition of more data (Cherry 1983b: 390-391). These methods, while widely accepted in the Mediterranean, have come under criticism from both outside and within, as some argue that the intensive coverage of small areas results in problems of data comparability and overall regional coverage (Blanton 2001; Terranato 2004). This point, however, is more illustrative of differences in priorities than good or bad methodologies. Whatever our views on how we *should* be doing survey, the fact of the matter is that it has been done using a variety of intensive and extensive methods in regions that are often contiguous or overlapping. So in order to conduct research that is truly regional in scope, it is more important to answer questions of how to deal with and integrate datasets that currently exist, even though they have been acquired with different methods and priorities. Moreover, in nearly every survey project area within Greece, excavations of some kind have been conducted, which poses another concern for data integration. Methodological debates rarely emphasize the large amount of regional work conducted using less systematic, more extensive methods, or the variety of excavations that have

Project	Methodology	Region	References
Mycenaean Gazetteer	Extensive/Catalog	Greece	Hope Simpson 1965; Hope Simpson and Dickinson 1979
Fossey – Boeotia	Extensive/Catalog	Boeotia	Fossey 1988
Cambridge/Bradford Boeotia Expedition	Intensive	Boeotia	Bintliff and Snodgrass 1985; 1988; see Bintliff <i>et al.</i> 2007: 313-316 for list of publications
Leiden Ancient Cities of Boeotia Project (Tanagra Project)	Intensive	Boeotia	Bintliff <i>et al.</i> 2009
Eastern Boeotia Archaeological Project (EBAP)	Intensive	Boeotia	Burke <i>et al.</i> 2009
Oropos Survey	Intensive	Boeotia/Attica	Cosmopoulos 2001
Fossey – Opountian Lokris	Extensive/Catalog	Lokris	Fossey 1990
Cornell Halai and East Lokris Project	Extensive/Intensive	Lokris	Coleman 1992; Kramer-Hajos and O’Niel 2008
Enipeus Valley	Extensive	Thessaly	Decourt 1990
Euboea Survey	Extensive	Euboea	Sackett <i>et al.</i> 1966
Southern Euboea Exploration Project	Extensive/Intensive	Euboea	Keller 1983
Kampos Project	Intensive	Euboea	Tankosic and Chidioglou 2010
Eretria Survey	Intensive	Euboea	Simon 2000; 2001; 2002
Territory of Eretria	Extensive/Intensive	Euboea	Fachard 2012
Skourta Plain Survey	Intensive	Attica	Munn and Munn 1989; 1990
Atene Survey	Extensive/Intensive	Attica	Lohmann 1985; 1993
Sites of Attica	Extensive/Catalog	Attica	Petropoulakou and Pentazos 1973

Table 2.1 Regional survey projects around the Euboean Gulf

taken place within these regions. This type of work – comprised of unsystematic surveys and sporadic excavations – remains the only documentation we have for the vast majority of the archaeological landscape. Such extensive projects are often topographically oriented and take a catalog approach, and while their methods are not as sophisticated as contemporary and later intensive surveys, they remain invaluable for archaeological

interpretation on a regional scale (e.g., Alcock 1993). Such is the case for much of the regional work published concerning the Euboean Gulf (Fig. 2.1; Table 2.1).

Regional Studies in the Euboean Gulf

In the Mycenaean period and in Homer, the most influential region in the vicinity of the Euboean Gulf was Boeotia. This is also one of the best-surveyed regions in Greece, though there are great disparities in the type and quality of work conducted there. An extensive survey that sought to treat the region as a whole was conducted mainly in the 1960s, though published much later (Fossey 1988). In publication, Fossey rightly contextualizes his methods, acknowledging the above-mentioned developments in methodology and theory that occurred between fieldwork and writing. This survey should certainly not be considered comprehensive in coverage, but it does provide a catalog of sites (Bronze Age to Roman) throughout Boeotia, as well as an analysis of their historical context and the region's development through time. While in some ways outdated even at the time of publication, it is an invaluable resource, without which little context would exist for the more detailed studies discussed below. For the Mycenaean period, Hope Simpson (Hope Simpson 1965; Hope Simpson and Dickinson 1979; Hope Simpson and Hagel 2006) has provided site gazetteers and regional overviews for all of Greece. These datasets compiled by Fossey, Hope Simpson, and others using similar methods, now considered outdated, have provided opportunities for the next generation of scholars to approach it with new methods, such as GIS-based landscape and regional analysis (for Boeotia, see Farinetti 2011).

Several intensive surveys have also taken place in Boeotia, beginning in the late 1970s with the Cambridge/Bradford Boeotia Expedition (Bintliff and Snodgrass 1985).

The study area was some 50 km² in the vicinity of the Classical sites Askra, Haliartos, and (chiefly) Thespiiai in southwestern and central Boeotia. The project took a diachronic approach, and in methodology was similar to other recent or ongoing intensive surveys in Greece at the time (e.g., Cherry 1982; Cherry *et al.* 1991; Jameson *et al.* 1994). Bintliff and Snodgrass conducted fieldwork on and off throughout the 1980s and early 1990s (e.g., Bintliff and Snodgrass 1985; 1988; see Bintliff *et al.* 2007: 313-316 for all project publications up to 2007). Fieldwork continued in a new phase beginning in 2000 as the Leiden University Ancient Cities of Boeotia Project, under the direction of John Bintliff and Bozidar Slapsak, moving its coverage eastward to focus on Tanagara and Koroneia, with annual reports appearing in *Pharos* (e.g., Bintliff *et al.* 2009).

This latter phase of the Boeotia Project's work is also in the vicinity of the Eastern Boeotia Archaeological Project (EBAP), which conducted three seasons of intensive survey (2007-2009) followed by its current excavation project on the acropolis of ancient Eleon, where they are excavating Mycenaean levels (Burke *et al.* 2009; Burns *et al.* 2011). EBAP's work is of particular significance on account of its proximity to the Euboean Gulf and its location on the main route between Thebes and its principal maritime outlet (the Gulf generally, and the site of Aulis specifically).

Survey work in the vicinity of Oropos is another project of direct relevance, in terms of both location and chronology (Cosmopoulos 2001). The survey work conducted here is supplemented by excavations, which revealed some of the earliest direct evidence for iron production in Greece (Mazarakis Ainian 2002; 2007a; 2007b; Doonan and Mazarakis Ainian 2007).

Finally, contemporary with the initial phases of the Boeotia Project is the Ohio Boeotia Expedition, which focused on western Boeotia, particularly the area of Thisbe

(Gregory 1980; 1990). While this, too, was intensive and diachronic in the nature of its fieldwork, research and publication priorities tended more toward the Late Antiquity, Byzantine, and later historical periods. Similar research (though with Classical emphasis) was conducted in southern Boeotia in the course of the Stanford-Skourta Plain Project in the 1980s (Munn and Munn 1989; 1990), currently under further analysis for a doctoral dissertation at Pennsylvania State University (preliminary results presented in Iacobelli 2012).

Moving northward, into Lokris, Fossey (1990) is again the primary source of basic information, at least for Opountian (eastern) Lokris. Compared to Boeotia, this region is certainly under-researched, though is of increasing interest for the Late Bronze Age and Early Iron Age. Dakoronia (1993) has undertaken a study of Homeric geography in the area, drawing on the work of Fossey, earlier efforts by Oldfather (1916), and the results of excavations undertaken by the Lamia Ephorate of Prehistoric and Classical Antiquities. More recent survey work was undertaken by the Cornell Halai and East Lokris Project (CHELP) (Coleman 1992; see Kramer-Hajos and O’Niel 2008 for a recent publication of one aspect of the project, though final, definitive publications have not appeared). An outgrowth of this project was Kramer-Hajos’s doctoral dissertation, later published as a monograph (2008), which synthesized information on Mycenaean East Lokris, paying special attention to its wider setting in the northern Euboean Gulf.

For Thessaly, most regional work has been focused either on earlier prehistory (Andreou and Fotiadis 2001) or around the Hellenistic city of New Halos (Efstathiou *et al.* 1990). Work on the Mycenaean to Geometric periods has been limited to specific sites, such as Dimini (Adrimi-Sismani 2006; Pantou 2010) or particular types of remains, such as Georganas’s (2002) synthetic work on burial practices in the area, most notably

studying the unique EIA tumuli. Feuer's (1983) summary of Mycenaean Thessaly takes borders and territory as an explicit approach from the outset, providing a (then) badly needed regional overview. He has recently elaborated on this work through chemical analysis of Mycenaean ceramics in Thessaly (Feuer and Schneider 2003) and a more general study that draws upon the Thessalian dataset (Feuer 2011). Adrimi-Sismani (2007) continues this trend to ground Thessaly firmly as a long-neglected part of the Mycenaean world, and Georganas (2003) has provided a synthesis of Thessaly in the Early Iron Age. However, it remains the case that little systematic survey has been conducted in southern Thessaly.

For Euboea itself, an extensive survey of the island was undertaken mostly in the 1950s and 1960s, by the British School at Athens (Sackett *et al.* 1966). This project recorded 92 ancient sites of all periods (Neolithic through Roman) in its maps and site catalogs, though primary focus was given to the prehistoric periods. Their methods combined extensive reconnaissance with reviews of previously published reports and conversations with informants throughout the island. However there are no claims to comprehensiveness of coverage and one of the authors now even suggests that this type of survey has been made obsolete by the innovations in intensive survey methods discussed above (Sackett pers. comm.). While this is not the type of survey that would be designed today, it is certainly not obsolete, not least because the archaeological landscape was quite different in the 1960s than it is today. It remains the only regional and sub-regional synthesis undertaken for most of the island, and the dataset compiled can still be usefully analyzed with a host of modern methods, especially though the use of technologies such as GIS (Knodell 2010).

More recently, several campaigns of fieldwork have been carried out in the Karystia from the 1980s onward, in the course of the Southern Euboea Exploration Project (Keller 1983, 1985; Talalay *et al.* 2005; Cullen *et al.* 2011). Following Keller's 1979-1981 one-man survey of the watershed of the bay of Karystos, three subsequent campaigns followed. The first took place from 1984 to 1988 on the Paximadhi peninsula, which located some 164 ancient sites in an area of 22 km² (Keller and Hom 2010; Cullen *et al.*, forthcoming). The second phase was track-based, following a variety of pre-modern routes published on topographical maps, which served as non-random survey transects and reported some 100 sites, in addition to developing methods for investigating ancient land-routes (Wickens 2011). Finally, the Karystian Kampos Survey was carried out in 2006-2007, focused on the plain north of the Paximadhi project area and west of Karystos proper, which combined extensive and intensive methods (Tankosic and Chidioglou 2010). While much of the research focus has been on the prehistory of the region, almost no trace of Mycenaean settlement has been found (Cullen *et al.* 2011: 38). However, settlement resumes just after the Bronze Age, demonstrated by the recent excavations of a team from the University of Amsterdam at the site of Plakari, which have revealed the presence of a sanctuary dating to the Protogeometric and Geometric periods (Crielaard 2011a).

Other major survey efforts on Euboea were undertaken in the territory of Classical Eretria by the Swiss School of Archaeology in Greece, largely under the direction of Sylvian Fachard (Fachard *et al.* 2009; Psalti *et al.* 2010; Fachard 2012). These efforts documented, through extensive survey, some 180 sites (or clusters of features) in the *chora* of Eretria. Initial mapping and discovery was followed by more intensive collection and documentation at select areas of interest. This project was supplemented

by an epigraphical study, since Eretria is one of the best-documented Greek *poleis* in terms of its inscriptions, which name as many as 60 individual demes. A dense network of roads and paths between sites was also recorded, making this region one of the most coherently explored in Euboea. In a separate project, also under the auspices of the Swiss School, three seasons of intensive survey were undertaken in the immediate vicinity of Eretria itself, though this has been published only in preliminary reports (Simon 2000; 2001; 2002).

Finally, as we round our circuit of the Euboean Gulf and come to Attica, there is a remarkable dearth of systematic survey work, considering the disproportionate amount of attention this region has received in terms of excavation, epigraphic, and topographical studies. The border between Attica and Boeotia is an exception to this trend, with Munn's work on the Skourta Plain (see above) and ongoing work by Fachard (2013) on the borders of Attica. Within Attica itself, Lohmann (1985, 1993) undertook a relatively small project in the deme of Atene in the 1970s and 80s, though no intensive survey in the vein of the "new wave" (Cherry 1995) has yet been carried out. This is one of the few regions of Greece where this is the case. The most comprehensive regional pictures are given by Petropoulakou and Pentazos (1973) in a catalog of sites, or Goette (2001) in what is essentially a guidebook.

If we consider the extensive and topographic work of Fossey (1988; 1990), Sackett *et al.* (1966), and others to be a sort of first phase of archaeological survey, and the projects employing intensive methods from the late 1970s onward to be a second phase or "new wave" (Cherry 1995), we are currently in a third phase (though these phases should not be seen as mutually exclusive). The advent of Geographical Information Systems (GIS) has ushered in this third phase of regional work in Greece,

which aims to integrate previously existing archaeological data with geographical and environmental information in a dynamic format. Of course, these technologies play a role in the analysis of survey data and open doors that did not previously exist for the massive amounts of information collected, especially in the course of intensive surveys. Moreover, they allow for much faster processing and manipulation of survey data, allowing teams to essentially process as they go, in the field, and publish at least preliminary results with sophisticated distribution maps soon after (e.g., Knodell and Alcock 2011; Alcock and Knodell 2012). But GIS also allows for novel approaches to low-resolution data, such as simple site locations and period maps of major sites. A next step would be the successful integration of multiple types of survey data in a GIS format, though this has certainly been done impressionistically without the use of GIS (e.g., Alcock 1993, 1994; Bintliff 1997). Current problems in data compatibility and publication rights complicate this picture (Alcock and Cherry 2004), though some type of integration remains essential for analysis and interpretation of settlement and interaction on a regional (as well as trans-regional) scale. Efforts toward database building are invaluable contributions to complex and multi-scalar analysis. For regional survey work, several online resources exist (Gates *et al.* 2004), and the list is constantly growing. Moreover, several large databases of archaeological sites exist, though these are usually buried in the personal collections of select individuals. Sarah Murray (2013) has assembled a database of Late Bronze Age and Early Iron Age sites in Greece, including all those known from rescue excavations, research projects, and regional surveys. This is an invaluable resource, but still not straightforward. When it comes to analyzing these data, decisions must still be made about what to include in, for example, the regional

network analyses conducted in this dissertation, since isolated tombs or a few sherds may sometimes be worth “site,” or “settlement” status, sometimes not.

In sum, studies of ancient texts, travelers accounts, historical records, excavation results, and regional survey data all contribute to our understandings of regions, which have varied remarkably from antiquity to the present. The aim of reviewing this information here is to illustrate the vast discrepancies in types of data that are employed in this dissertation, and to stress the need for synthesis in macro-regional studies. In addition to the integrative power of GIS, networks offer a powerful means of conceptualizing the human interactions on local, regional, and trans-Mediterranean scales that these datasets represent (discussed further in Chapter 3).

Cataloging Interaction in the Late Bronze Age and Early Iron Age

A final aspect of disciplinary context is concerned with long-distance interactions. What follows is a summary of data sources and methods, with a special focus on the Euboean Gulf in the Late Bronze Age and Early Iron Age.

The two main categories of evidence for understanding relationships within and between cultural groups in the ancient Mediterranean are material and textual. There are five general categories of texts that apply to studies of interconnectivity in the Late Bronze Age to Early Iron Age Aegean: Linear B documents, non-Greek written sources in which Greece is mentioned, early Greek inscriptions, early Greek poetry, and later classical sources. Linear B has been discussed above, as has the significance of Homer and Hesiod, especially to the Early Iron Age. Later accounts, however, can become problematic and contested, particularly those which give primacy to Euboea as the major player in early Greek colonization. While the historical and archaeological evidence from

Pithekoussai is in relative agreement about an early Euboean presence in the central Mediterranean (Ridgway 1992), there is a danger of over-interpreting earlier evidence, essentializing, and ignoring other parties of interest in the wider Mediterranean milieu (e.g., Papadopoulos 1997; 2011). For this reason the material evidence discussed below is of primary interest, and texts are used as supplemental cultural information, rather than direct testimony.

Ceramics are by far the most ubiquitous and most studied items in the archaeological record. While the preservation of such materials can be a great boon to archaeologists, it can skew the archaeological record by providing information where “soft things” that do not preserve as well, yet could have been equally meaningful in the past, do not (Papadopoulos 2005: 571-575; see also Snodgrass 1987:38 on “the positivist fallacy”). For all of the periods in question, there has been a tendency to divide pottery styles regionally, thereby allowing for the examination of interaction between regions. These regional styles correspond to the geographical regions outlined above, relevant from ancient sources to modern regional surveys. For the Mycenaean period, Mountjoy (1999) discusses Boeotia, Phthiotis (in which Lokris is included), Euboea, and Athens in terms of their regional styles, though she notes here and elsewhere that in LH IIIA and B a *koine* could be observed across Greece, which then dissolved into local styles in LH IIIC (1990). In terms of interconnectivity within the Aegean, the general interpretation is that high degrees of interaction in the Mycenaean palatial period resulted in this *koine*, which dissipated into regional individuality following the collapse of the palaces and less structured interactions. Moving into the Protogeometric and Geometric periods, regional divisions of pottery styles are maintained and again used to identify intra-Aegean relationships (Desborough 1952; Lemos 2002; Coldstream 2008[1968]).

Moving further afield, the presence of Aegean ceramics in foreign contexts is used to describe interconnectivity on a much broader scale. Mycenaean pottery has been found throughout much of the Mediterranean world. In the east, the appearance of Aegean pottery was the result of various trade relationships that existed among the various states and empires of the Late Bronze Age (van Wijngaarden 2003), though this was only one of several products circulating at this time. There was also a significant amount of contact with Italy, leaving no doubt that the “first western Greeks” (Ridgway 1992) were Mycenaean. Taylour (1958) originally identified 17 sites with Mycenaean pottery in Italy, a number which has since been expanded to 78 (Vagnetti 1999). Papadopoulos (2001: 439-441; forthcoming) has observed that these are frequently found in the same areas as later Greek points of contact and colonization in the Geometric and Archaic periods. The nature of this presence of Mycenaean material in the central Mediterranean is not well understood, but Papadopoulos (1997; 2001; forthcoming) has frequently asserted that the “quest for metals” should be considered a likely impetus, given the importance of the metals trade in the Late Bronze Age eastern Mediterranean, and for the Iron Age Phoenicians in whose wake the Greek colonization movements took place. There is not a clear point of origin for this pottery, and indeed assemblages at the same site often seem to derive from several different areas of the Mycenaean world (Fisher 1988). In sum, pottery is the main category of material used to show that Mycenaean were engaged in a Mediterranean network that included Egypt, the Levant, Cyprus, Anatolia, Sicily, Sardinia, and Italy. The specific character of this engagement, and its variability between the Palatial and Postpalatial Bronze Age is discussed further in Chapters 5 and 6.

Such pottery evidence is typically seen as a Mycenaean prologue to later Greek activities in the Mediterranean, in which pottery is supplemented by the existence of historical references to colonization. Lemos (2002: 228-229) summarizes the current evidence for Protogeometric pottery in the eastern Mediterranean, and it is at this time that specifically Euboean involvement is brought to the fore, though interpretations range from suggesting Euboean precolonization or emporia (Boardman 1990; Popham 1994) to more minimalist positions that see the Euboeans as part of a much wider Mediterranean system of exchange, in which they were not necessarily the primary actors (Papadopoulos 1997; Sherratt and Sherratt 1993). Papadopoulos (1997; 2011) in particular cautions against the over-interpretation of ceramic evidence as a form of chasing “literary phantoms” – historical accounts of Euboeans leading the way in the early phases of Greek colonization. These interpretations will be discussed more fully in Chapters 7 and 8: for now suffice it to say that Greek, and particularly Euboean Protogeometric and Geometric pottery becomes widespread in both the east and central Mediterranean, and is our primary archaeological evidence for recording interaction.

Materials such as metals and other commodities are generally considered the prime movers of long-distance trade in the LBA-EIA Mediterranean. Our knowledge of these materials comes from excavated deposits throughout the eastern and central Mediterranean, as well as various shipwrecks, three of which are known for the Late Bronze Age. The Uluburun wreck is the largest and represents the diversity of trade in the LBA eastern Mediterranean, dating to around 1300 BCE (Pulak 2008). The Cape Gelidonya wreck seemed to have specialized in metal exchange (Bass 1967), and the Iria wreck in the Gulf of Argos carried a variety of ceramic vessels from Crete and Cyprus, especially (Phelps *et al.* 1999). The evidence from these wrecks and excavated Bronze

Age sites in the Aegean has appeared in recent summaries of Late Bronze Age trade (Mee 2008; Burns 2010). Fuller catalogs of foreign items in LBA Aegean contexts have also been compiled in recent decades (Lambrou-Phillipson 1990; Cline 1994). And numerous synthetic approaches to Late Bronze Age trade have appeared as edited volumes or monographs (e.g., Gale 1991; Knapp and Cherry 1994; Burns 2010; Galaty *et al.* 2010).

The bibliography on the topic is vast for the Late Bronze Age, though this is not the case as we move into the Postpalatial Bronze Age or Early Iron Age. This discrepancy in scholarship can be generally attributed to attitudes of decline in these periods, though little systematic work has been done to confirm this negative view. Contrary to this general picture, Parkinson (2010) has demonstrated that the minimum number of external interactions per decade actually increased from known LH III B to LH III C deposits in Greece.

As we move into the Iron Age significantly less attention is paid to the metals trade, largely due to the rise of iron as the predominant utilitarian metal in use in the Aegean. Unlike bronze, iron is not often linked to long-distance trade and interaction, due to its relative geological ubiquity. This led to Snodgrass's (1989) theory of a bronze shortage contributing to the development of iron metallurgy, referred to as the circulation model. At the same time Morris (1989) proposed the deposition model, which argued that iron was in fact scarcer than bronze at the beginning of the iron age, and that a bias in burial deposition (iron being deposited as a prestige item) has skewed the archaeological record. One of the major problems with both of these approaches is that the archaeological record will always be biased against iron on account of its remarkably poor potential for preservation (and skewed against bronze in a different way, due to its

recyclability). Unlike bronze, the dynamics of iron production and potential for exchange have not been well articulated. Whatever the nature of any type of “trade” in iron, production processes occurred across scales, and often in conjunction with bronze production processes, as indicated in Geometric levels at Oropos and Eretria provide any clues (Doonan and Mazarakis Ainian 2007; Verdan 2007).

Metals matter, as do the commodities that appear in contexts such as the cemeteries at Lefkandi as markers of trade and exchange. The realization that bronze continued to be used in significant quantities during the Early Iron Age, as well as the presence of imports (especially from Cyprus and the Levant), means that networks that were once thought to have dissipated following the collapse of the Mycenaean palaces need to be reconsidered. Furthermore, more rigorous approaches to the meanings of these imported objects need to be taken into account (as, e.g., Burns 2010 does for the Late Bronze Age).

In sum, Late Bronze Age and Early Iron Age Greek activities overseas have been so dominated by discussions of trade on the one hand and colonization on the other, that little attempt has been made to understand the complexity of the material evidence seen as indexes for these processes. The presence or non-presence of pottery at particular sites is used to argue for trade or colonization, without thinking about what this means in terms of culture change, colonial encounters, material engagements, and the multiple agencies involved in multi-material interactions. This trend in scholarly emphasis is of course not ubiquitous, but it coincides with an overwhelming trend toward description (systematically cataloguing what is found where), as opposed to explanation (looking at bigger picture issues such as culture contact, interactions across scales, and social change). Network theory provides a useful way into these problems, without privileging

particular categories of evidence such as ceramics or historical accounts, and is capable of explaining and understanding interactions across multiple scales from a diachronic perspective. This has intrinsic value as a study of social change in the Late Bronze Age and Early Iron Age Mediterranean, as well as disciplinary value in terms of crossing boundaries that traditionally separate classical studies and anthropological archaeology, Aegean prehistory and classical archaeology, and archaeology and history.

CHAPTER 3

Networks and Scales: Theorizing Interaction and Complexity

Gradually consciousness develops into self-consciousness and sophistication erodes the paradigms of innocence... The discipline emerges as a restless body of observations upon particular classes of data, between a certain range of scales, held together by a network of changing methodology and implicit theory.

David Clarke (1973: 6)

In Clarke's seminal "Archaeology: The Loss of Innocence" (1973) he argued forcefully and eloquently that archaeological interpretations are not self-evident, and that categories of evidence, such as those discussed in Chapter 2, must be recognized for what they are – a sample of a sample of a sample of a record of human behavior – and interpreted through the use of explicit method and theory. Recent literature on early complex societies has emphasized a need for analysis of social dynamics on multiple scales (e.g., Lock and Molyneaux 2006; Galaty *et al.* 2010; Parkinson 2010; Knappett 2011). Crucial to this is the development of a framework for understanding interconnectivity between sites, regions, and macroregions, and how this relates to social complexity. This is nothing new in the archaeology of the Late Bronze Age and Early Iron Age Mediterranean, and the description of social and spatial relationships between sites and larger areas has long been a priority. My aim is to use networks as integrative structures to connect multiple types and scales of evidence, and thus to provide a framework and set of interpretations for complex interactions and changes in social

complexity.¹ I begin by discussing past and current approaches to the archaeology of interaction, then move into a specific discussion of specifically how networks can be used to provide explanations for archaeological phenomena and historical processes, as well as individual interactions, power relationships, and specific events.

The theoretical approach outlined here is rooted in network theory, which itself is a branch of complexity theory (Mitchell 2009). It is taken as a given that human societies are composed of complex sets of relations and can thus be treated as complex systems (or complex adaptive systems), underlying all of which are networks. Like many of the disciplinary concepts outlined in Chapter 2, network theory is a boundary object (see p. 16, fn. 1), and has developed and been employed differently by numerous disciplines. Approaches based in the hard sciences and in the social sciences can be particularly divergent, the problems and overlaps of which are discussed in more detail below. As a result of this divergence, networks have been employed variously in studies of the ancient Mediterranean (see, e.g., Malkin 2011 and Knappett 2011 for recent examples rooted in the study of networks in sociology and physics, respectively). The applications of network theory to archaeological studies, however, generally have in common the desire to model and explain social interactions, in particular relationships between people, places, ideas, and things. However, this is no clear-cut path and some explanation of disciplinary context and specifically *how* networks can be relevant is required.

This chapter begins by examining previous approaches to interaction in the Bronze Age and Iron Age Mediterranean, which range from descriptive, catalog-based approaches, to elaborate uses of anthropological theory to develop models with greater

¹ See Chapter 1 (p. 8) for the uses and meaning of complexity in the disciplinary sense of complexity science and in the sense of social complexity or complex societies.

explanatory power, seeking to answer questions of how and why interactions happen. The next section provides a brief outline of network theory and discusses recent applications in Mediterranean history and archaeology. Finally, I present the particular approach to studying interaction employed in this dissertation, which argues for studying network patterns diachronically and on multiple scales, in order to understand network dynamics and their relationship to social, political, and technological change. My approach to networks does not strictly adhere to models developed for physics or sociology; these are rarely compatible with archaeological datasets.² Rather, I aim to draw on concepts from network theory, including network centrality, small worlds, and the strength of weak ties to model and explain patterns of social change over time, especially as related to the settlement patterns surrounding the Euboean Gulf (cf. Broodbank 2000; Tartaron, forthcoming). The goal is to present a specific, well-defined model that will be applied to the Euboean Gulf and its wider Mediterranean context. Chapter 4 will discuss the real geographical space in which such networks must operate.

Archaeological Approaches to Interaction

There does not currently exist a unified body of theory on interaction or exchange in archaeology or anthropology. Occasional summaries of the topic are put forward (e.g., Schortman and Urban 1987, 1992), but these do not tend to have wide-ranging impact, due mainly to the diversity and cultural, temporal, and historical contingency of the topic.

² Malkin (2011: 25) discusses similar problems for historical datasets, noting that things like power laws and the existence of scale-free networks, while hermeneutically applicable to historical and archaeological problems, did not become apparent until researchers began working with datasets involving millions of data, such as the World Wide Web (Barabási 2002). Knappett has worked much more closely with colleagues in the physical sciences to adapt models more explicitly rooted in physics to archaeological problems (Knappett *et al.* 2008; Knappett 2011). While very sophisticated, these models are less flexible than the approach espoused here, in terms of accommodating multiple and diverse datasets.

Interaction has long been a popular term in archaeological research, yet it has never seen the development of a mainstream or unified body of theory to deal with it. Such a diverse treatment of the concept exists perhaps because the term could be used to describe nearly all aspects of human behavior, and is thus a nebulous and wide-ranging topic. Quite often interaction is linked to social change in archaeology, which should be no surprise, since societies, at their core, are defined by interactions between living beings. It is, of course, overly dismissive to suggest that interaction is everything and so cannot be employed as a concept with any explanatory power, and it is a tautology to say that interaction is everything and so explains everything. There is thus a need for specificity when using terms with such a broad remit.

The diversity of use seen by the term “interaction” in archaeological literature should need little explanation or justification. It has been used accurately to describe a variety of human behaviors in the past and present, with respect to ancient individuals, past groups, modern archaeologists, and the things that they study. While this diversity results in the lack of a unified concept, there are some observable historical trends, especially when dealing with the principal way the term is used in this dissertation – that is, social interactions between people, groups, things, and landscapes across local, regional, and interregional scales.

The general trend of the history of interaction studies in archaeology is a progression from strictly descriptive approaches to more nuanced and complicated pictures based on anthropological theories concerning, for example, trade, culture contact, semiotics, or complexity theory. In the archaeology of the Aegean and the wider Mediterranean world, there is not always a clear transition from one of these trends to the next, and the current picture remains quite varied.

Interaction is invoked most commonly in discussions of interregional contacts and long-distance relationships. Focusing, for the moment, on the Mycenaean world, some of the earliest interpretations of long-distance contact involved trade with other, better understood states of the ancient Near East. The wealth of Egyptian, Mesopotamian, Levantine, and Cretan materials excavated by Schliemann in the Shaft Graves at Mycenae very quickly brought this topic to the fore, and interest in it has continued ever since (Schliemann 1880; Burns 2010a; 2010b). A similar diversity of materials was found by Evans at Knossos, and at other Minoan centers, which led to the earliest systematic study of such materials by Pendlebury (1930), who took a catalog-based approach to Egyptian objects in the Aegean. This type of study, very characteristic of traditional Aegean prehistory and classical archaeology, can be called a descriptive approach, the typical aim of which is to collect systematically all evidence for a particular type of material. While this is extremely useful, and has been foundational for the discipline, such catalogs are, regrettably, often regarded as ends in themselves, and rarely accompanied by more than a minimal interpretative summary. This trend has continued throughout the history of the discipline (e.g., Lambrou-Phillipson 1990; Cline 1994). The descriptive/catalog approach has also been typical of the Early Iron Age. This type of approach is not, of course, the *only* way people have dealt with interaction, as discussed below. The point here is that the descriptive approach came earliest and has persisted the longest, indicating the value of such catalogs.

Interpretative strides have been made alongside such attempts to compile and organize evidence for interaction, which is where we see a clearer progression in the scholarship. Early efforts to explain the presence of foreign goods in Aegean contexts in the Bronze Age, and their relationship to culture change, took diffusion as a model.

Evans (1921: 19), for example, explained elements of Minoan culture based on contacts with Egypt and the Levant, thus accounting for similarities in crafts, dress, and architecture. Gordon Childe, too, looked to diffusion as an explanation for culture change, though in the much broader context of the prehistory of Europe (1925). The legacy of Childe in explaining interaction and culture change in relation to previous archaeological studies is fittingly described by Flannery (1994: 109-110), who wrote: “It hardly matters if some details of Childe’s scheme don’t fit... What matters is that Childe had a vision of evolution at a time when other archaeologists had only chronology charts.” Childe himself believed that his most useful contributions to archaeology were interpretative concepts and methods of explanation, rather than fieldwork or museum study (1958b: 69). In the case of the Aegean, Childe discussed its role in numerous synthetic studies of social change across vast geographical areas (e.g., Childe 1925; 1936; 1942; 1958a). However, most of his Aegeanist contemporaries, whether prehistorians or classicists, had little interest in evolution or diffusion, preferring more traditional art-historical or text-based approaches to the archaeological record.

For the wider world of archaeological thought, Schortman and Urban (1987: 40-48) have reviewed the broad range of archaeological approaches to interaction, by which they mean inter-societal interaction, beginning with diffusion, which emerged as a reaction to evolutionary theory; most importantly, this was the first somewhat unified framework within anthropological archaeology to address problems of inter-societal contact and its role in social change. Starting another influential trend, Caldwell (1964) used the concept of the interaction sphere, referring to a geographical ambit through which people, goods, and ideas move, to explain the presence of exotic goods in the Hopewellian burial cult in the American Midwest. This term continues to be used in a

descriptive sense, but Caldwell's work also represents an increased sophistication in diffusionist approaches that is often overlooked.

Trade studies followed diffusion as the predominant framework of the late 1960s and 1970s. Schortman and Urban (1987: 49) define trade as "the peaceful movement of goods among two or more societies," drawing on the work of K.C. Chang (1975) and Renfrew (1969). While strides were made toward resolving some of the problems of diffusion (e.g., its failure to account for independent invention or innovation), trade as reflected in the archaeological record represents only one aspect of a whole range of interactions that may have existed within and between ancient societies; moreover, trade studies are criticized for lacking a unified theoretical structure for the interpretation of interaction (Schortman and Urban 1987: 53). Renfrew (1975) took account of these problems and, like Caldwell (1964), put forward a nuanced and complex model that brought greater sophistication to trade studies frameworks.

In a development contemporary with trade studies, some archaeologists were drawing on cybernetics to view culture as systems (Clarke 1968; Flannery 1968). Systems theory approaches aimed on the one hand to systematize the study of complex societies, and on the other to provide an integrated perspective on endogenous social change. Beginning in the 1970s, Aegeanists began to engage with such theoretical developments in anthropological archaeology. To some extent, this has been discussed in Chapter 2, but it bears particular relevance for studies of interaction and social change. For Aegean archaeology, Renfrew's *Emergence of Civilisation* (1972) was by far the most important book published in the course of this movement, mainly because it shifted the focus from diffusion and long-distance interactions to endogenous development, using systems theory to explain social change in the Early Bronze Age Cyclades.

Renfrew's work soon became one of the most influential studies for subsequent generations of Aegeanists, bringing them into dialogue with anthropologically-inclined archaeologists working elsewhere in the world (Cherry 2011: xxiv).

In the 1980s, Wallerstein's (1974) World Systems Theory came to the fore in archaeological literature, promising to broaden interregional studies to incorporate social, economic, and political variables into studies of interaction-driven social change. Indeed, World Systems Theory remains influential today, as indicated by the wide chronological range of references below. Wallerstein's model appeared to offer much to archaeologists and it has been employed by researchers working in many different parts of the world, including western Asia (Kohl 1979), Europe (Kristiansen and Larsson 2005), the Mediterranean (Sherratt and Sherratt 1993), and Mesoamerica (Blanton and Feinman 1984). However, World Systems Theory has since faced serious question as to its appropriateness for archaeological application. Schneider (1977) very quickly questioned whether this model was appropriate for pre-capitalist societies. Stein (e.g., 2002) is one of the more vocal critics of the approach, arguing against the ability of such a top-down framework to successfully traverse different scales, proposing instead a model that allows for interaction to be created from the bottom-up, as well as the top-down. Despite these criticisms, however, World Systems Theory remains very much alive in archaeology, though its proponents are well aware of its shortcomings and aim to account for them by (1) differentiating between Wallerstein's model and World Systems as used by archaeologists and (2) asking research questions appropriate for such a large-scale model (e.g., Kohl 1987; Kardulias and Hall 2008; Parkinson and Galaty 2010).

In the wake of Wallerstein's impact, and following Renfrew's earlier work on localized developments with *The Emergence* (1972) and on the social impact of long-

distance trade (1975), Renfrew and Cherry (1986) highlighted regional interactions with the concept of Peer Polity Interaction (PPI), which aimed to examine a range of interactions between different sociopolitical units, usually within a single geographical region. Such interactions include, but are not limited to, competition, warfare, competitive emulation, symbolic entrainment, the transfer of innovations, and the exchange of goods (Renfrew 1986: 8-10). Overall, the framework is sufficiently broad to be cross-culturally applicable, as demonstrated by examples from several different contexts, most notably Minoan Crete (Cherry 1986), early Greece (Snodgrass 1986), and the Classic Maya (Friedel 1986; Sabloff 1986). The most obvious example is the small polities of Greece, which “emerged *together*, pulling each other up by the bootstraps, as it were” (Renfrew 1986: 11). PPI is strongest and most useful for its middle-range approach, which rejects both wholly endogenous and wholly exogenous explanations of culture change. Yet the model is not without complications concerning (1) how widely applicable it is, (2) its relationship to state formation, and (3) problems of chronological resolution; these all are magnified in prehistoric contexts (Cherry 1986: 42-45; Cherry and Renfrew 1986). Moreover, PPI can be seen as an important precursor to the network approaches put forward here and elsewhere (Malkin 2011: 64).

The role of geography in archaeological thought has also been at the core of interaction studies. In the New Archaeology and its processual offshoots, there was a great interest in spatial analysis, as well as scale, leading Binford (1964: 425) to remark that the region was the most appropriate scale for studying culture change. As Knappett (2011: 22) points out, however, this trend in archaeology was, counter-intuitively, contemporary with a major shift in geography from geometric to relational approaches to geographical space. Such relational or “topological” views, which hold that human

practices do not simply occur within space, but rather create it, now dominate the field of geography (see Murdoch 2005 for a recent overview). However, the best solution probably lies somewhere in the middle, in a view of space that incorporates both geometric and relational perspectives (Soja 1996).

Archaeology has often lagged behind the fields on which it draws, but it eventually followed a similar pattern. The postprocessual turn of the 1980s rejected geometric approaches to space and geography in favor of relativist influences from social theory. Emphasis then shifted away from systematic analysis of societies as wholes and social change, to hermeneutic, phenomenological, and other subjective approaches to material culture, space, place, and landscape (e.g., Hodder 1982; Shanks and Tilley 1987a, 1987b; Tilley 1994; Bradley 1998; Thomas 2012). Little specifically about interaction has appeared in postprocessual (or interpretative) archaeological literature, though later trends, which have viewed processual and postprocessual archaeologies as complementary, rather than competing, approaches have shown a renewed interest. Trigger (2006: 484-528) has described such recent, middling trends in terms of “pragmatic synthesis,” a term taken up by Preucel and Mrozowski (2010) in a recent collection of essays.

While the processual and postprocessual debates raged in the 1980s and 1990s, and cooled in the 2000s, most archaeologists of the Mediterranean world remained largely on the fringes. However, they held considerably more sustained interest in interaction studies than those involved in “mainstream” theoretical debates. Mediterraneanists outside of mainstream classical archaeology – chiefly prehistorians – paid particular attention to production and exchange, seeking to form more holistic perspectives, even though the emphasis was usually on long-distance interactions (e.g.,

Knapp and Stech 1985; Gale 1991; Knapp and Cherry 1994). A parallel trend drew upon the *Annales* school from the work of French historians, chiefly Braudel (1972), to examine how Mediterranean patterns of history, including interactions, operated on different timescales. The role of geography continues to be at the forefront of interaction studies in Mediterranean prehistory and history (Horden and Purcell 2000; Harris 2005; Knapp and Blake 2005), and this is discussed further in Chapter 4.

Recent trends in the archaeology of the Aegean Bronze Age, have focused on political economy (Pullen 2010), Aegean palatial societies (Galaty and Parkinson 2007; Nakassis *et al.* 2011), and interactions between eastern Mediterranean states (Parkinson and Galaty 2010). These approaches are particularly noteworthy for their engagement with current anthropological archaeology and efforts to make Aegean archaeology relevant to the wider archaeological community (cf. Tartaron 2008). Moreover, the group of scholars working in this field has made significant strides in developing archaeological theories of interaction, stressing the need for analysis on multiple scales. For example, Parkinson (2010) draws on world systems, PPI, and dual-processual theories to model interaction on macroregional (Mediterranean), regional (Aegean) and local (intra-polity) scales. In the course of his analysis, he notes the difficulty of integrating different theoretical frameworks, for example observing how core-periphery models can mask local variation. I aim to demonstrate that a more flexible network approach can move more fluidly between scales.

For post-Bronze Age periods, the emphasis of literature on interaction has traditionally targeted eastern influences on Greece or Greek influences on the western Mediterranean. Part of this has to do with the “Great Tradition” of classical scholarship, for which this was of major interest in terms of identifying influences in and the spread of

Greek (and, as a derivative, Western) civilization. To generalize about approaches in history and art history, an historian's approach to interaction may attempt to reconstruct narratives through analysis of early Greek poetry, myth, and art, and through the analysis of the later histories of Herodotus and Thucydides. A focus on both narrative, propaganda, and unarticulated assumptions adds nuance to such studies. An art historian's approach may be quite different, aiming to track the spread of artistic styles, for example in vase painting, as they move from different regions of Greece into Etruria and throughout Italy and the wider Mediterranean.

Archaeologists began to make departures from uncomplicated approaches to events-based history and charting artistic influence long ago, most significantly with seminal books by Snodgrass on the "Dark Age" of Greece (2000[1971]) and the Archaic period (1980), as well as numerous articles (many of which are collected in Snodgrass 2006). Snodgrass and others drew upon archaeological discourse from outside of the classical world to consider material evidence in its own right, and move away from the "tyranny of the text" (Papadopoulos 1999). In terms of interaction studies, Snodgrass departed significantly from the traditional emphasis on colonization and the spread of Greek artistic styles to examine the spread of iron technology throughout the Mediterranean, his study of which remains unparalleled to this day (Snodgrass 1980).

The integration of non-traditional studies of interaction caught on more slowly in classical archaeology than it did in Bronze Age archaeology, but that has begun to change as Mediterranean archaeology has come into greater contact with mainstream trends in archaeological theory, and studies of culture contact have moved from traditional hellenocentrism (e.g., Boardman 1980), to incorporate more current postcolonial perspectives (e.g., Van Dommelen 1997; 1998; Lyons and Papadopoulos 2002; Gosden

2004; Hodos 2006; Dietler 2010). These studies represent a reaction and correction to traditional Western narratives that give historical precedence to the legacy of Greek colonialism and attempt to restore agency to the populations with which the Greeks were coming into contact. This is obviously part of the broader intellectual trend of postmodernism, which is gaining ever more ground in classical studies.

A final trend in interaction studies brings materials, or things, into the discussion as potential social actors at the core of the archaeological project (Hodder 2012a; Olsen *et al.* 2012). In the increasingly eclectic world of archaeological theory there are several such movements, most notably those rooted in materiality (e.g., Miller 2005; Knappett 2012); cognitive archaeology, which emphasizes how cognition can be distributed through artifacts and the environment, as well as individuals (Malafouris and Renfrew 2010); and symmetrical archaeology (e.g., Witmore 2007; Olsen 2012), which draws on Actor-Network Theory in a call for equal consideration for non-humans in social and technological relationships (e.g., Law 1992; Callon and Law 1997; Latour 2005). Knappett (2011) has recently summarized these approaches in introducing his own study of Aegean (Minoan) networks on multiple scales, discussed in greater detail below; however, he does not bring to the fore a discussion of interaction studies specifically related to the Aegean and Mediterranean, as I have attempted to do here.

What we are left with, then, is a long and diverse history of interaction studies, which have employed radically different theoretical frameworks and reached highly varied conclusions with regard to interaction in Late Bronze Age and Early Iron Age Greece and the Mediterranean. There are, however, some trends that are worth highlighting before continuing. (1) The long, “great” tradition of Mediterranean archaeology has resulted in a rich dataset and over 100 years of potentially relevant

research for the study of interaction in the periods in question. Yet the diversity of theoretical (and a-theoretical) approaches makes it difficult to construct a coherent picture of change over time, not least because of the historical disciplinary divisions between the domains of Aegean prehistory and classical archaeology (see Chapter 2). (2) Emphasis has overwhelmingly been on long-distance interactions, such as trade (for the Late Bronze Age) and colonization (for the Geometric and Archaic periods). Settlement-pattern studies have recently placed emphasis on territory and political relationships at a regional scale, though these are rarely integrated with studies of long-distance interactions or urban planning to look at other sets of social relationships. (3) Current trends in interaction studies illustrate the remarkable diversity of theoretical perspectives in contemporary archaeological thought, which bring to the table a variety of different goals, for example, examining local interactions in the built environment (Fisher 2009), regional analysis of the territory of polities (Bevan 2010), or interpreting material connections which sometimes span the length of the Mediterranean (van Dommelen and Knapp 2010). While this diversity presents us with a complicated picture, it also makes it a good time for holistic syntheses that cross scales, which network approaches are well positioned to offer.

Network Theory

Networks can be defined very simply as sets of people or things with connections between them, commonly referred to as “nodes” and “links” respectively. While the language and theories of networks vary, reflecting the diverse disciplinary backgrounds in which they are employed, the broad concepts associated with them remain powerful, precisely because of their breadth. Network Theory has revealed general patterns in the

behavior of these abstracted nodes and links, whether the nodes are societies, settlements, individuals, or neurons. Barnes (1972: 1), very early on, urged caution at the great potential of network theory, remarking that it lay somewhere between a “new analytical panacea” and “just another fashionable word.” This point is reiterated by Knappett (2011: 37) at the beginning of his recent summary of “networks between disciplines.”³ Network Theory, like interaction, is a broad field with a diverse intellectual history that crosses many disciplines. This section briefly outlines the intellectual history of networks, in order to lay out the structures, terminology, and principles of those aspects of network thinking used in this dissertation.

Terminology, History, and Principles

Networks are often discussed in abstracted terms as “nodes” and “links,” or “vertices” and “edges,” represented visually as “graphs.” While here I prefer to use “network,” the terms “network” and “graph” can at times be used interchangeably, especially in mathematics or the physical sciences. The level of connectedness for particular nodes can be described as their “degree,” which refers to the number of links that connect a node to other nodes. Thus, a node with a degree of four is directly linked to four other nodes. Somewhat confusingly, “degree” also can refer to the number of links separating two disparate (thus, not directly connected) nodes, hence the popularized “six degrees of separation” concept, which, is usually described as the shortest path length.

³ There will necessarily be some overlap between Knappett’s overview and that presented here, though with different points of emphasis – he, for example, is much more interested in Network Science, its applicability to physics, and models derived directly from it, while I am more concerned with using networks as interpretative tools, drawing on applicable models developed elsewhere, though without strict adherence to them (not unlike approaches taken by Broodbank [2000] and Tartaron [forthcoming], as well as Malkin [2011] for historical data). That said, Knappett rightly acknowledges the wide-ranging uses and disciplinary domains of networks and his approaches are by no means one-dimensional.

“Hubs” are nodes with particularly high degrees (in the first sense of number of directly attached links), and stand out as well-connected.

The collection of intellectual traditions we now call Network Theory, at least as most commonly applied in the social sciences, is remarkably wide-ranging, and has its roots in Systems Theory, Complexity Science, and Complexity Theory, to name just a few relevant trends. Yet this is only how one branch of Network Theory has developed. The real roots of network thinking go back much further (for recent overviews see Barabási 2002; Watts 2003; Newman *et al.* 2006).

The generally accepted foundations of network thinking⁴ can be traced back to Graph Theory, and its founder Leonhard Euler, who turned to schematic representation to address the famous “Bridges of Königsberg” problem (Euler 1741). This issue arose from the people of Königsberg (Modern Kaliningrad, a Russian enclave at the border between Poland and Lithuania on the Baltic Sea) wanting to know whether it was possible to cross the seven bridges of their town only once and return to the same starting point. It was not possible, which Euler proved by looking at the landmasses as nodes, and bridges as links (Fig. 3.1). Looking at this as a connected graph, Euler demonstrated that the entirety of the graph could be traversed, using each link only once, only if each node had an even number of links. Not surprisingly, the impact of Euler’s Graph Theory was felt more in mathematics and physics than in other disciplines, and thus the intellectual history of networks can be traced fairly directly through them. Euler was by no means the first to

⁴ Network thinking is perhaps a more appropriate term than Network Theory, which is by no means a unified body of thought (see below) and, as several scholars have pointed out, rather poorly networked (Knox *et al.* 2006: 114; Knappett 2011: 37). This same distinction has been made for Systems Theory, e.g., by Renfrew (1972: 18-19), who used “systems approach” to describe his adaptation of Systems Theory to archaeological datasets.

use networks and graphs analytically, and philosophy already had a long history of employing such concepts in the 18th century (Parrochia 2005; Knappett 2011: 40-41).

Moving forward to the 20th and 21st centuries, there are currently two dominant, but related trends in network theory: Social Network Analysis (SNA), rooted in sociology, and Network Science, rooted in mathematics and the hard sciences; both are relevant here, SNA for its role in the early development of network concepts, and network science for its ties to complexity theory. Unfortunately, this type of fissioning has characterized network thinking in general (Carrington *et al.* 2005; Knox *et al.* 2006). SNA has been used to describe and explain numerous types of links, or ties. Just as the nodes in a network can take many different forms, so too can links, which may be broadly categorized as similarities, social relations, interactions, and flows, and broken down into smaller subcategories from there (Borgatti *et al.* 2009: 894).

The specific roots of SNA can be traced to the 1930s with sociometry, which aimed to quantify things like social influence and flows of information (Moreno 1934); this was seen as a kind of physics, and goes back to the efforts of Comte and Durkheim to draw parallels between the social sciences and physical and biological sciences (Borgatti *et al.* 2009: 892). The 1940s and 1950s saw the increasing implementation of Graph Theory and growing programs of laboratory experimentation involving networks.

The next significant developments occurred in the 1950s and 1960s. It was during this period that some of the basic terminology and principles of network thinking having to do with network structures evolved, and most of the various trends that have developed in different disciplines afterward still have this language in common. Baran (1964) presented three different types of networks based on degree of centralization: centralized, decentralized, and distributed networks (Fig. 3.2). He used this to argue for

the implementation of distributed networks in digital data storage, observing that the more centralized a network is, the more susceptible it is to attack. This led to the further observation that among real-world networks that develop organically, distributed networks are in fact relatively rare, and not as efficient as networks with higher degrees of centrality. The shortest distance between two nodes, in network terms, is the path that involves the fewest links. Thus, in a centralized network (Fig. 3.3), the maximum distance between any two nodes is only two links, while in a distributed network it will be many more. In reality, however, networks will rarely be connected through only a single hub. Natural and social networks are never purely centralized nor evenly distributed, falling always somewhere in between. The level of centralization, however, is significant, especially in attempting to evaluate network changes, as I attempt to do for the Euboean Gulf in the Late Bronze Age and Early Iron Age.

Studies in how and at what scale things are connected eventually resulted in the articulation of the “small-world” problem. This was first developed to answer the question of how many links in a chain of acquaintanceship would it take to connect two randomly selected people who did not know each other (Milgram 1967; Pool and Kochen 1978). This has led to the popular notion that only six degrees, on average, separate any person from any other person in the world. This demonstration of connectivity has important implications for the general nature of interactions between individuals and groups, although it must be kept in mind that the context in which this research was conducted was that of a much more densely populated and technologically connected world than we typically encounter in archaeological contexts. That said, it was later discovered that many other types of networks exhibited small-world characteristics. The basic premise is that the introduction of even a few new, random links in a non-random

network, will greatly shorten the average distance between nodes in the network (Fig. 3.4). Watts and Strogatz (1998) demonstrated that many types of network graphs have a small average shortest path length and high clustering coefficient when compared to a random graph – these are the properties of a small-world network in mathematical terms; this was demonstrated empirically by analyzing connections in three very different situations: between film actors, within a power grid, and the neural connections of worms. So while the small-world phenomenon is not necessarily universal, it is also not simply an artifact of the globalized, connected 20th and 21st centuries.

Another core concept is the strength of weak ties, in which links between nodes are often stronger, or more impactful, when they are not shared with other, closer nodes in a network; weak ties thus facilitate the introduction of new ideas, and interrupt the stagnation that often develops from the “stronger” ties with more frequent interactions (Granovetter 1973). This is illustrated in Fig. 3.4, where closer links, many of which are shared, are represented as solid lines, and the weaker ties, which may exist as the only links between two otherwise separate groups, are dashed lines.

A final topic of relevance is scale-free networks and power laws. This is popularly characterized as the “the rich get richer” phenomenon. Scale-free networks were first identified as such by Barabási and Albert (1999), when they noted that in many networks, the degree distribution seems to follow a power law. That is, the number of nodes with a very high number of links will be exponentially lower than the number of nodes with a smaller number of connections; in the same way, the few, very well-connected nodes, or hubs, will have an exponentially higher number of links (so a higher degree) than the less well-connected nodes. Moreover, as a network expands, new nodes are more likely to be

attached to already well-connected nodes, a principle called preferential attachment; hence the rich get richer.

While the disciplinary settings, trends, and priorities of network theory differ markedly, the basic foundations outlined here are relatively constant, and widely applicable. The small-world phenomenon, the strength of weak ties, and scale-free networks have all been observed in a variety of real world situations, though most importantly (for our purposes) in social network analysis. For this reason these core concepts have had the greatest impact on archaeological and historical applications of network theory.

Networks in Archaeology and History

Applying concepts developed in modern sociology and the physical and biological sciences to archaeological and historical study is never going to be straightforward. The postprocessual critique demonstrated this clearly with respect to the “blind positivism” associated with the New Archaeology (Shanks and Tilley 1987a: 29-45). Uses of networks in archaeological and historical studies rarely have the types of law-seeking ties to the physical sciences that characterized processualism; on the contrary, they have been used quite successfully to mediate between data-driven empiricism and more interpretative approaches, combining, for example, complexity theory with orientations toward agency and materiality (Hodder 2012b: 9; Knappett 2011).

A fundamental problem with applying networks to archaeological and historical datasets is these datasets are never complete. Returning to Clarke (1973), we are inevitably dealing with a sample of a sample of a sample, at best. Malkin (2011: 25)

discusses the problems of applying Network Theory to historical datasets, noting that things like power laws only became apparent when thousands or millions of data were analyzed at once. These caveats aside, there have been sophisticated and robust uses of networks, applied to diverse datasets, which have broad theoretical relevance and exciting implications.

As mentioned above, networks have long been on the radar of archaeologists and historians, though generally in descriptive terms. Braudel (1972), in particular, was interested in the interactions between structures and networks (*réseaux*) in the *longue durée*. More recently, historians of the Mediterranean have taken an explicitly network approach to study a variety of topics, for which the *Mediterranean Historical Review* has been an important outlet (Malkin 2003; Malkin *et al.* 2007).

Network approaches have also caught on among Mediterranean archaeologists. This is not surprising given the early interest in systems theory, where Renfrew also used a network-based close-proximity analysis to compare assemblages from cemeteries (Renfrew 1972: 144-145). Other network-types of approaches included the use non-metric multidimensional scaling to determine the locations of places mentioned in the Linear B tables of Pylos, based on written connections between them (Cherry 1977; Kendall 1977); mathematical and geographical models (see essays in Renfrew and Cooke 1979 and Hodson and Kendall 1971); a more recent attempt at multidimensional scaling uses networks of word association (Nakassis and Pluta 2003). As mentioned above, peer-polity interaction was an important precursor as well (Renfrew and Cherry 1986).

Broodbank (2000), is rightly acknowledged as a major innovator in bringing explicit aspects of network theory to Aegean datasets (Knappett *et al.* 2008: 1010), though had an important precursor in Renfrew's earlier use of close proximity analysis

(1972: 142-147), and drew specifically on the John Terrell's (1977) proximal point analysis (PPA) in the Solomon Islands. Broodbank constructed a network between Early Cycladic sites, then used PPA and nearest neighbors analysis to model hypothetical site locations and connections. Moreover, he suggested driving forces for connections, suggesting social storage⁵ as one such driving force, with power and prestige as important byproducts of interactions. Knappett (2008; 2011) together with his colleagues (Knappett *et al.* 2008) have drawn on a variety of network approaches to elaborate upon Broodbank's example, most significantly stressing the importance of multiple scales.

In the wider world of archaeological thought networks can be seen as part of a broader interest in complex systems (Bentley and Maschner 2003; Kohler 2012). Yet networks do remain the basic architecture of these approaches, which is why they are brought to the fore here. The two main uses of networks in current archaeological thought focus on the one hand on small-scale social networks, and on the other regional or large-scale issues. For example, Coward and Gamble (2008) argue for the gradual incorporation of material culture into social networks as part of human evolution, while Smith (2005) has applied the concept to examine the political geography of ancient states in comparative perspective, and Munson and Marci (2009) have applied network models to epigraphic data to examine competition among competing Classic Maya polities. While there are many other examples of archaeological uses of network theory, this brief list highlights the diverse scales, materials, and goals that can come into play.

⁵ Broodbank (2000: 84) describes social storage as a spectrum of behavior that buffers "against disaster in regions like the Cyclades where environmental micro-diversity makes it likely that the fortunes of the individual communities participating in a social storage network would vary in a given year." That is, communities establish means by which they can share or trade resources as insurance against crop failure or other shortfalls (see also Halstead 1989).

Only very recently have archaeologists attempted to use networks to integrate multiple scales of analysis. Schortman and Urban (2011) have recently applied social network analysis to the Postclassic Naco Valley, Honduras, examining relationships between political leaders at different levels of a political hierarchy. Knappett (2011) is perhaps most novel in his attempt at multi-scalar analysis, in that he is looking not only at multiple scales, but multiple potential actors in the network, further expanding the utility (and appropriateness) of the model for archaeological datasets.

Multi-Scalar Network Dynamics through Time

The studies of interaction and networks in archaeological contexts discussed above foreground the theoretical framework set forth here, which runs throughout this study. The basic goals are to map and understand networks on local, regional, and interregional scales, and to articulate relationships between network change and social, political, and technological change for the period(s) in question. While I would advocate that this is a widely applicable framework, I would not describe this as universal, or intended to push uniformity in how we approach complex societies. Networks do not replace or displace other forms of archaeological analysis or interpretation; they do, however, seem appropriate for the particular “big-picture” issues this dissertation aims to address, which cover sometimes narrow, sometimes sprawling geographical and temporal scales to address how disparate, yet contemporary, social phenomena are related (or not).

Defining Networks: A Topology of Links and Nodes

The diversity of archaeological datasets makes network approaches particularly appealing. If we accept that social interactions occur between individuals, groups, things,

and landscapes, we are left with a wide variety of nodes that are relevant to network dynamics, though this needs some definition. The media through which these dynamics are interpreted, however, are not individuals and groups, as we would have in a network analysis in sociology, for example. Rather, we are dealing with partial material traces left by individuals and groups. What they do and can represent, in terms of their topology, or arrangement of links and nodes, is not straightforward and is necessarily enmeshed in an interpretative exercise.

For the most part, the nodes used in network analysis in this dissertation are archaeological sites in the Euboean Gulf region. At times, nodes can and will refer more specifically to institutions (such as workshops) or individuals (for example, from burials) identified at particular sites; nodes can also refer more broadly to regions in the wider Mediterranean context. This flexibility is necessary in attempting to reconstruct networks on multiple scales from incomplete datasets.

Links must be defined with equal flexibility. The individuals, groups, things, and places that act as nodes are mediated by a variety of other individuals, groups, things, and places, which necessarily result in a variety of types of interactions. The natures of these interactions are diverse and resist strict typologies; divisions between, for example, economic and symbolic interactions would mask their interconnectedness. The priority, then, is constructing a topology, rather than typology, of relationships; more qualitative assessments of the nature of these relationships can then follow. Thus, types of links represented here can be strictly material (e.g., trade or raw material procurement) or rather more ephemeral (seen through things like similarities or flows in technology, information, or visual culture). The types of links (which are not to be taken as mutually

exclusive) and their correlates that will be drawn upon in this dissertation appear in Table 3.1.

Link	Index/Indices
Exchange	Raw materials and intermediate products (e.g., clay, ore, copper, tin, iron, bronze, ingots, wool); finished products (e.g., ceramics, metalwork, textiles)
Cabotage	Spatial relationships (e.g., position on trade routes)
Production	Raw materials, manufacturing processes
Political tie	Texts (Linear B, Homer, later authors); inscriptions; spatial relationships
Tribute	Written sources; visual representations
Conflict	Written sources; destruction horizons at archaeological sites
Influence or emulation	Material culture (especially visual culture or “style”); e.g., architecture, ceramics, metalwork, etc.
Diffusion of innovations	Technological change (e.g., metal and ceramic production; writing)

Table 3.1 Examples of links and their indices in the archaeological or historical record

Finally, as in any archaeological endeavor, some interpretative license is necessary, and a sort of hierarchy of information should be in place, which identifies what we think we know, what is likely, and what is possible or may be. Therefore, we must also include probable and (at times) purely hypothetical links and nodes in evaluating networks, though always indicating their specific character and plausibility.

Multiple Scales

A great strength of network thinking is its ability to cross multiple scales, while maintaining a relatively unified, or at least integrated, theoretical framework. At its core, my focus is on the Euboean Gulf as a unifying geographical entity (see Chapter 4). In order to understand relationships in such a large region, however, it is necessary to

include smaller-scale relationships within it, and larger-scale connections beyond it. Knappett (2011) has taken a similar approach, largely centered around ceramic production and distribution in the Minoan Aegean, by analyzing micro-networks of proximate interactions, meso-networks concerned with communities of practice, and macro-networks of regional interactions. I expand upon this both thematically and spatially, to include a wider array of links and a broader geographical scale. In general, then, discussions in the following chapters refer to local networks, on individual and community levels, regional networks, referring to the Euboean Gulf and surrounding territories, and inter-regional interaction, which range from intra-Aegean to trans-Mediterranean scales. These should not be seen as stark divisions, but rather groupings with relatively fluid boundaries.

Scale is of further importance because this is where some of the network properties described above emerge. The degree of network centrality will appear very different in various parts of the Aegean or Mediterranean at different times. In the Euboean Gulf, we see a major transition from more centralized to more distributed networks as we move from the Palatial to Postpalatial Bronze Age; if we zoom out further, the small worlds principle becomes apparent, as does the strength of weak ties. For example, the breakdown of long-distance trade relationships between Thebes and Near Eastern centers (weak ties that are not shared with surrounding sites in the region) seem to have major consequences for the position of Thebes in the network of the Euboean Gulf, and compromises its centrality. An exclusive focus on local developments would not take into account this significant factor.

Local and regional developments, such as competition between proximate centers, or even individuals or families, can impact long-distance networks as well. In this way,

the historically attested Lelantine War would have dramatically changed the nature of Chalkidian and Eretrian colonial activity in the central Mediterranean and Aegean (Knodell 2012). These general interpretations concerning Thebes and the Lelantine Plain have been considered before, though not in explicitly network terms that can draw more subtle connections, in addition to the obvious ones mentioned here for the sake of examples. By mapping and interpreting a variety of types and scales of connections together, we can begin to see (1) how they were related, (2) why they were related, and (3) what the results of these relationships were. When we consider these results in the long term, they become even more meaningful.

A Diachronic Perspective

In addition to considering multiple scales, a diachronic approach to networks is the other major theoretical priority of this dissertation, and represents a novel approach to the archaeology of the Euboean Gulf. As discussed in Chapter 2, the long-standing tendency has been to focus on particular sites in particular periods. While many useful and detailed studies exist, synthesis and narrative is long overdue. For this reason the chapters of this work that provide a historical synthesis, analysis, and reinterpretation (5-8) take a diachronic approach to networks, focusing not only on topology, but also change. Given that network models are by nature synchronic, examining how they change, and explaining why they change over time, is a major goal and contribution of this dissertation.

Diachronic perspectives in Mediterranean archaeology have diverse roots, but can most significantly be traced back to the work of Braudel and the *Annales* school of history. Braudel (1972) provided the example for writing history *of* the Mediterranean,

rather than history *in* the Mediterranean, and famously brought different timescales to the fore of historical thought, suggesting that time can be looked at as *histoire événementielle* (the short term history of events and actors) and the *longue durée* (long-term, structural history).⁶ This type of approach was recognized as apt for archaeology, especially regional survey, which necessarily deals with multiple periods and, at times, human history ranging from the Paleolithic to the present day (Bintliff 1991; Knapp 1992). In recent years, especially, long-term and Braudelian perspectives have received increased interest, due to the work of Horden and Purcell (2000), who undertook a study of Mediterranean history focused on historical periods, but ranging widely from late prehistory to the present (see Harris 2005 and Horden and Purcell 2006 for examples of the impact of the work).

Assessing change over long periods of time has long been a strength of archaeology in general. This study looks at a period of around 700 years that are rarely considered together (Chapter 2). The result is a diverse dataset drawn from several decades of scholarship with equally diverse priorities. While this makes it, in some cases, difficult to get a high-resolution picture of transitions between particular subperiods, distinct patterns are apparent in the long term, and can be articulated and better understood through networks.

Dynamics, Intensification, and Regression

Dynamics, that is the forces or properties of change and their development, can be revealed through diachronic network perspectives. Where, when, and how networks

⁶ Braudel also included geological time (*l'histoire quasi immobile*), sometimes confused with the *longue durée*, and a meso-scale of social/structural time (*conjuncture*).

intensify or regress has real explanatory power for understanding social, political, and technological change. Processes such as intensification or regression can be revealed through network density, and can be explained through the interpretation of links and nodes, as outlined above. This is a way of articulating some of the core concepts of complexity theory, such as emergence, self-organization, and innovation, as well as how they become distributed topologically and geographically. Again, networks provide the underlying architecture of complexity.

Modeling Settlement Networks

Some explanation is required for how the network structures and behaviors discussed above emerge from archaeological datasets. In Chapters 5-8 of this dissertation I use nearest neighbor networks to show how local and regional networks form from necessary interactions between communities. While other types of network analysis in archaeology have aimed to *document* interaction through similarities in ceramic styles and production and exchange practices (e.g., Knappett 2011), my aim here is rather to *model* archaeologically ephemeral interactions on local and regional levels, based on the assumption that any given site will interact with at least three of its nearest neighbors. This assumption is based on the fact that communities need to interact with one another in order to diversify agricultural and craft production, participate in inter-communal social storage practices, and make suitable marriages between what are generally small agricultural communities. Such issues are of fundamental importance in the quintessentially Mediterranean environments surrounding the Euboean Gulf, which make up a mosaic of microecologies with various and often seasonally unstable resource-bases (e.g., Horden and Purcell 2000: 378).

This type of nearest-neighbor model is similar to the proximal point analysis used by Broodbank (2000: 180-186) for the Early Cyclades, though differs in that it includes only known sites, involves a larger area, and puts equal emphasis on both land- and sea-based interaction. Moreover, it uses a minimum of three nearest neighbors as a means of establishing a base-line that is uniform throughout the study area. This is not to suggest that these were the only interactions that happened, or even that these interactions definitely happened, but it presents a set of likely models that can be used (1) to provide an architecture of interaction that is simply not possible to know in its entirety from material evidence alone and (2) to show how likely interactions between settlements are change over time, in the face of shifting settlement patterns. Rendering such connections graphically (see Figs. 5.5, 6.3, 7.3, and 8.4) allows us to see patterns of interaction, how sites relate to one another over distance, and how local or regional groupings emerge as small worlds, which are sometimes joined to one another by weak ties over longer distances. This is a relatively simple procedure, but the real value in it comes from comparing such measures with what we know about period-specific drivers of interaction, and the material culture changes that come as a result of it; the analysis and interpretation of these factors together is crucial for the arguments put forward in this dissertation. By viewing settlement and material culture changes in network terms, particularly how they relate to the above mentioned concepts of centrality, small worlds, and the strength of weak ties, as well as their dynamics through time, new conclusions regarding specific events, rapid changes, and gradual processes can be reached.

Networks in Geography

The final aspect of the network approach used in this dissertation involves its operation in the real world. Network thinking can map the relationships between people and things, reveal the underlying structures of these relationships, and demonstrate how they change over time. But these relationships take place in real physical, geographical space. In the modern world, in which network theory was developed and is most commonly used, connections happen instantaneously as a result of the media technologies in everyday use. While social networks were certainly relevant in antiquity (as I argue throughout this study) they must have operated very differently, and at much more variable speed. Geography would have had a major stake in this, and is as relevant as other actors, whether people or things, that compose the networks we aim to study. If nodes and links are the architecture of networks, geography, both physical and conceptual, needs to be considered the medium through which they flow. This is the subject of Chapter 4.

This chapter has provided the theoretical context and framework of this dissertation. The first section reviewed past and current approaches to the archaeology of interaction in the Mediterranean, and wider world of archaeological thought. This underscored the diverse and disjointed datasets and interpretations that are relevant to the period in question. An integrative and holistic approach is clearly necessary, and networks provide a flexible, yet robust way of dealing with the multifaceted nature of relevant data and methods of interpretation. The second part provided an explanation of relevant concepts drawn from network theory, emphasizing small worlds, the strength of weak ties, and scale-free networks as particularly relevant concepts. Finally, I described how these concepts would be combined in order to understand social, political, and

technological change in the context of the Late Bronze Age and Early Iron Age Euboean Gulf. By offering a flexible, yet transparent, definition of network components and description of how networks will be used, it will be possible to present an integrative analysis of interaction that (1) is capable of traversing multiple scales, (2) is diachronically significant, and (3) reveals patterns of intensification and regression that are relevant to the development of ancient societies.

CHAPTER 4

Geographies of Mobility: The Euboean Gulf in the Mediterranean

Since Euboea lies parallel to the whole of the coast from Sounion to Thessaly, with the exception of the ends on either side, I would connect my description of the island to the areas around it.
Strabo (*Geography* 10.1.1)

That geography has an impact on the operation of social dynamics at all levels, and thus networks at all scales, is undeniable. Yet the nature of this relationship has been somewhat fraught. In the 1980s and 1990s it became unfashionable in some archaeological circles to discuss the impact of geography or the environment on social dynamics, a reaction to the “spatial turn” in geography, which rejected “spatial science” to focus on themes such as culture, identity, and experience (Thomas 2012: 168). Indeed, these very words (geography and environment) often risk inciting charges of geographic or environmental determinism. A total rejection, however, of the role of geography or environment is simply not an intellectually tenable position. The real question, as with most things, concerns the *degree* to which geography and environment impact (rather than determine) human behavior and lived experiences, perceptions, and conceptions of space and place (*sensu* Tuan 1974; 1977). In other words, we might ask what agency geography and environment have in social interactions. If we are prepared to give art, other inanimate objects, or, more generally, things agency in social interactions (Gell 1998; Latour 2005; Witmore 2007; Hodder 2012a), we must certainly lend some to the

natural world. This notion is by no means novel. Indeed, intimations of environmental agency are nearly ubiquitous in the ancient world, as we know from the literary and archaeological record. Aristotle (*Politics* 7.1326-1327), for example, raised the importance of proximity to the sea in a discussion of where to found a city: on the one hand, the sea invites the introduction of strangers, potentially bad for the order of the city; on the other, the sea offers access to trade routes and merchants, as well as the military advantages a navy brings. Long before Aristotle, Hesiod warned against sailing at inopportune times, pointing to celestial bodies to indicate when it is good to sail. In addition, there are numerous examples from Greek religion, not least in the sacrality of certain landscapes and places. The gods (especially Poseidon and Zeus) are constantly invoked in the explanation for natural disasters, and almost every terrestrial or celestial entity was ascribed divinity, from Helios to the nearly ubiquitous gods of rivers and streams. So we must consider that the environment not only had agency, but divine agency – that is, a capacity to act that was far superior to that of humans. These notions, while spelled out in the Archaic and Classical periods, certainly had roots in Mycenaean Greece, and, in a general sense, even earlier periods.

Place names, too are frequently tied to the natural landscape, which thus becomes meaningful for how places are understood, uttered, and tied to identity. Quite frequently these have roots in prehistory, and can often be traced confidently back to the Mycenaean period.¹ The geographic and environmental roots of places, names, and religious beliefs suggests, at least on some level, engagements with the natural world that are very long-

¹ Instances of the continuity of toponyms from the Mycenaean to Classical period are particularly well documented for Euboea by Robert (1960: 172), Knoepfler (1997: 366 fn. 113), and Fachard (2012: 51-76). The most common type concerns specific types of trees or other natural features, especially among Eretrian demes. For example the Eretrian deme Ptelea, meaning elm tree, comes from the Linear B word, *pe-te-re-wa* (Chadwick and Baumbach 1963: 240; Fachard 2012: 326).

term, and play a constitutive role (1) in local identity through conception of space and understanding of place; (2) in regional dynamics in terms of boundaries, land routes, and movement; and (3) in interregional relations through the sea as both barrier and connector, something to be both embraced and feared.

While networks can be used to describe the interconnections of links and nodes (Chapter 3), these abstractions must be grounded in the agents, materials, and bodies that operate in real space and time. This chapter describes the geographical setting inhabited by people, goods, and ideas. I pay particular attention to interactions between human societies and their environments: the land- and sea-routes through which social and material networks flowed, and the obstacles and opportunities offered by the resources, landscapes, and seascapes of the Euboean Gulf and wider Mediterranean.

The Euboean Gulf

At its core, the Euboean Gulf is of paramount importance for connectivity in the wider Aegean as a sheltered, multidirectional conduit running between the northern and southern parts of the Aegean Sea and its surrounding lands. In contrast to the Aegean (northeastern) coast of Euboea, which has significant, year-round currents moving in a southeastern direction (Papageorgiou 2008), the gulf would have provided a relatively safe and easy passage over significant distance. The impact of such geographical opportunities on travel and human settlement cannot be understated.

The Euboean Gulf runs approximately 200 km southeast to northwest, dividing Mainland Greece from the island of Euboea (Fig. 4.1). At its widest, the southeastern end, it is some 40 km across, though for most of its course it has a relatively narrow span,

contracting to less than 50 meters at the Euripos channel at Chalkis.² Its coasts are, for the most part, gentle beaches, though these are at times contrasted with mountainous interruptions, making some shores less welcoming than others (Fig. 4.2). Nonetheless, the Euboean Gulf offers a number of protected bays, many of which continue to serve as ports for ferries running back and forth between island and mainland – there are currently at least five ferry routes in regular use to take people, cars, and anything else back and forth across the Gulf, as an alternative to the two bridges at Chalkis.

The southernmost extent of this body of water is typically referred to as the Petali Gulf, after the islet of Petalioi just off the southwest coast of Euboea (Fig. 4.1). This body of water separates Attica from southern Euboea, and is included in the discussion here as an essential part of the maritime corridor linking the southern part of the Aegean to Thessaly and Macedonia in the north. The most significant anchorages (Fig. 4.3) in this area are, on the mainland coast, Braona Bay, near the Mycenaean site of Perati and Classical sanctuary of Artemis at Brauron, and at Rhamnous, Marathon, and Thorikos. On Euboea the principal ports are found at Karystos and its neighboring site, Marmari, just to the northwest. While these are the largest, deepest, and most historically significant harbors, even a simple examination of the Euboean and Attic coastlines reveals that both are littered with sheltered inlets. Moreover, the protection offered by Euboea itself is a stark contrast to the often-fierce waters on the northern and eastern

² As is typical in Greek geography and archaeology, a variety of spellings exist for many of the place names discussed herein. Euboea is often transliterated as Euboia, or, more phonetically for Modern Greek, Evia. In the same way it is not uncommon for Boeotia to appear as Boiotia or Viotia. For the Euboean Gulf one might also see Evoikos Kolpos, and the Euripos is often rendered as Euripus or Evripos. The letters “k” and “c” have also been used interchangeably (as in Chalkis and Chalcis), depending on preferences of authors toward Greek or Latin transliterations. For the most part, I have adopted Greek-based spellings, though where Latinized versions are more familiar (as in the case of Euboea, Boeotia, or Euripos) I have elected to use those.

coasts of the island. On both sides of the Gulf, there are rarely more than 20 km separating completely sheltered anchorages, and many places in between would make for suitable landings as well. Such topography (Fig. 4.2), along with the typically calm waters of the Gulf would have been a haven for sailors on the long route to northern Greece, and a far cry different from the dangers much more typical of early seafaring in the Mediterranean.³

As one moves northwest into the southern Euboean Gulf, passing the bottleneck between Cape Drakonera and Styra Bay, the waters calm even further and the distance between the Euboean and Attic/Boeotian coasts narrows to an average of around 10 km. The lower part of the Euboean coast, between Styra and Aliveri, is rather mountainous and at times steep, though dotted with the aforementioned inlets. Almiropotamos Bay is a suitable anchorage, as is Porto Boufalo, which was probably the port of Dystos, as it is linked to the site by an ancient road (Fachard 2012: 100).⁴ Between Aliveri and Chalkis are located some of the largest fertile plains of the island, making this part of the gulf a densely inhabited settlement corridor (Fig. 4.2), with important anchorages at Pounta, Aliveri, Amarynthos, Eretria, and Lefkandi.

Looking across the gulf from Eretria (Fig. 4.4) indicates the potential for easy interaction between island and mainland. The Boeotian and Attic coasts between Cape Drakonera and the Euripos affirm this status as an important settlement corridor and, like

³ This is not to say that sailing on the Euboean Gulf would have been entirely without difficulty. Anywhere in the Mediterranean is susceptible to rapid changes in wind direction, especially along some of the more mountainous coasts. In the Euboean Gulf such coasts are not uncommon, not to mention the odd currents characteristic of the Euripos itself (Morton 2001; see also the Mediterranean Pilot [1916: 141-152] for specific challenges in the Gulf).

⁴ Leake (1835: 435-436) sailed to Boufalo from Rhamnous, describing the journey; Sackett *et al.* (1966: 103) noted an obsidian scatter at the bay itself, which was later identified by Sampson (1988-1989: 72-74) as an Early Helladic II site (Fachard 2012: 331).

the Euboean coast in this area, are dotted with numerous archaeological sites, seaside villages, and beaches all the way to the Euripos. The most significant of these are the protected bays at Agia Marina, Agii Apostoli, Oropos, and Vathi (the site of Ancient Aulis). These harbors are known to have been in use in antiquity and were the site of some of the most important archaeological sites in the region. Oropos, for example, continues to be used as one of the principal ports for ferries going back and forth between the modern town there and Eretria.

Aulis is of particular interest. It has often been assumed that this site functioned as the main port for Thebes in the Palatial Bronze Age, due to its legendary significance. From a literary perspective, the place appears first in Homer as the gathering point of the Greek fleet on its way to Troy (*Iliad*, 2.303), and with the rest of Boeotia is at the beginning of the Catalog of Ships. Hesiod also mentions Aulis as his point of departure on a ferry to Chalkis (*Works and Days*, 651-653). There is no question that Aulis functioned as a harbor of some kind, but the use of this port as a gathering point for the legendary Greek army on its way to the Troy has been viewed as problematic since antiquity, as Strabo points out, due to the small size of the harbor (*Geography* 9.2.8). This skepticism might be checked, however, by a simple examination of the topography of the wider area (Fig. 4.5). The location of the archaeological site is known (at least since the Classical period) by the presence of a fifth-century temple of Artemis, discovered by the Germans in 1941 and excavated between 1956 and 1961 under the auspices of the Archaeological Society at Athens (Threpsiadis 1956; 1958; 1959; 1960; 1961). It is located about 200 meters inland from the current shoreline at Mikro Vathi. Yet there are two additional bays in the area: Vathi Limen, just one kilometer to the south, and the much larger bay housing the Mycenaean site of Glypha to the north. Moreover, a recent

geoarchaeological study at Mikro Vathi itself has revealed that the bay would have been substantially larger during the Mycenaean period (Ghilardi *et al.* 2013). Finally, the location of Aulis in the Gulf itself had both economic and religious significance. These three suitable anchorages just south of the Euripos were well positioned to control access to the northern and southern parts of the Euboean Gulf, both at the Euripos and at the bottleneck that forms at the Strait of Aulis, 2.5 km southeast of Vathi Limen. The transitional nature of this part of the gulf is further highlighted by the presence of the mythic and later cultic associations with Artemis, a goddess of wayfarers who, incidentally, is well-represented elsewhere on the Euboean Gulf at Amarynthos, Brauron, Rafina, and Artemida (Fig. 4.3) (Cole 2000).

Moving north to the Euripos itself, we are confronted with the narrowest and most geologically unique location in the gulf. The water narrows to less than 50 meters across, and has been spanned by a variety of bridges over time (see Fig. 4.6 for the current one). The height should be immediately apparent as problematic to sea traffic, and was a problem that has had to be dealt with throughout the history of the bridge, going back to when the strait was first spanned in 411 BCE with a wooden construction (Diodorus Siculus 13.47.3).⁵ Justinian is said to have replaced it with a movable structure. The Ottoman Turks later replaced this with fixed bridge, and it was not until after the Greek War of Independence that another movable bridge was built, once again opening the entire length of the Euboean Gulf to maritime traffic (McGilchrist 2011).⁶

⁵ See Bakhuizen (1985) for an account of the successive bridges of Chalkis.

⁶ The later history of Euboea as Negroponte, named for the bridge at Chalkis, exemplifies the geographical importance of the island and the Euripos for both Ottoman and Venetian occupations in Greece. This long-term trend is certainly worth further consideration in the historical geography of the Euboean Gulf.

As a marine phenomenon the Euripos is unique, and has been puzzled over since antiquity.⁷ Its narrow width and position near the center of the Euboean Gulf has resulted in a very strange tidal pattern. These tidal currents are the result of the independent flow of water into the strait through the northern and southern Euboean Gulf, creating a gradient in sea level across the strait (Tsimplis 1997). While tidal flows are typically very weak in the Mediterranean, in the Euripos they can produce currents reaching approximately 12 km per hour. Moreover, these currents change in a (roughly) six-hour cycle for parts of the wider area (the south port of Chalkis, 200 meters from the Euripos itself), though such a model for the frequent current changes in the narrowest part remains elusive (Tsimplis 1997: 100). The significance of this is the relative unpredictability of currents and the narrow width of the passage. This would have made smaller vessels dependent on the tide to cross, and forced to wait in the northern or southern harbors (or at least their vicinity) to cross, lending significant commercial authority to whoever controlled the strait. Furthermore, the narrowness (less than 50 meters) leaves sea traffic isolated, vulnerable, and largely dependent on those controlling the territory on either side, a factor which has made Chalkis among the most prominent settlements of the region throughout its history (Bakhuizen 1985).

⁷ The unpredictable, frequently changing tidal flows of the Euripos were discussed by Plato (*Phaedo* 90), when Socrates uses the Euripos as an analogy for continuous change. Aeschylus (*Agamemnon* 190) mentions it as the route through which the light of the beacons from Troy pass to announce Agamemnon's arrival. Euripides, of course, discusses the area as being uncommonly calm to build suspense at the beginning of *Iphigenia at Aulis* (10-15), contrasted with the whirlpools, twists, and waves described in *Iphigenia at Taurus* (5-10), after the sacrifice has taken place. Strabo (*Geography* 9.2) provides some geographical description and Pliny (*Natural History* 2.100) describes the tidal phenomenon. These are the main ways in which the Euripos is discussed, though there are many mentions beyond the brief examples listed here, especially concerning specific historical events (e.g., in Pausanias (*Description of Greece* 1.23 and Livy (*History of Rome* 28.5). Of course, it is perhaps most famous as the legendary location and cause of the death of Aristotle, who, according to popular tradition, threw himself into the waters out of frustration in trying to understand the pattern of the tides.

Moving northward on the Euboean coast (Fig. 4.3), Artaki Bay provides an immediate site of maritime significance, demonstrated through the presence of Manika, a giant of the Early Bronze Age notable for its unprecedented large size and seemingly gridded organization of the settlement; moreover, a great deal of Anatolian and Cycladic material was found, making this site unique for this period of Greek history (Sampson 1985; 1988; Davis 1992: 34-39). Not far up the coast, Politika Bay (and to a lesser extent the small bay at Vrisakia [now a base of operations for the LARKO mining company]) provide access to the Psachna Plain (see below, Figs. 4.19 and 4.20).

North of Politika, however, the Euboean coast of the gulf is dominated by Mount Kandili, which breaks briefly at Limni and Rovies (Fig. 4.3) before continuing as Mount Teletherio. Much of this coast, then, is rather inhospitable until one reaches the larger bays of Aidedsos and Yialtra at the northern end of the gulf. Kandili, for example, is so steeply up against the coast, that there is no modern road running between Politika and Limni, making the available options for travel sailing, or taking a rather long and steep path around or over the mountain (Fig. 4.7). These problematic coasts seem to be reflected in the archaeological record as well, given the known distribution of sites in the area, though it must be kept in mind that much of this land was not surveyed in the course of the extensive survey of the island – particularly because of this problem of inaccessibility (Sackett *et al.* 1966; Sackett pers. comm.). An approach to archaeological survey based on maritime accessibility could prove interesting in this context.

The Boeotian and Lokrian coasts in the northern Euboean Gulf are quite different, and are littered with headlands and nearby islands that provide shelter for sea traffic, and coastal plains that make them attractive for settlement. A simple glance at the distribution of sites on either coast (Fig. 4.2) highlights these differences. Just west of Chalkis, Paralia

Panaghistas, the modern name for the site that is alternatively called Lithosoros or Salganaeus (Bakhuizen 1970) is located in a small bay (Fig. 4.3). Between here and Skroponeri Bay lies the ancient site of Anthedon, whose harbor and acropolis have made it especially interesting, though most of the excavations at the site took place in the 19th century (Rolfe 1889; see Schläger *et al.* 1968; Hope Simpson and Dickinson 1979: 252-253; Fossey 1988: 252-257 for more recent summaries).

Moving northwest (Fig. 4.3), the terrain is very rugged until Larymna, which was built as an important outlet to the Gulf in the Palatial Bronze Age for Gla, Orchomenos, and settlements of the Kopaic Basin (Fig. 4.8). Continuing up the coast (Fig. 4.3), Atalanti Bay houses several smaller bays, settlements, and topographic features of interest, including Theologos (Halai), Mitrou, Kynos, and the extensive Atalanti Plain. Continuing up the gulf, Skala Arkitsas and Agios Konstantinos, both modern ferry ports, provide harbors before one passes between Cape Knimis (on the mainland) and Cape Kinaion (on Euboea) amidst the Lichades Islands. From here, one can continue west into the Malian Gulf, providing access to Phtiotis and Lamia, or turn northeast to follow the Orei Straits toward the Pagasetic Gulf and the Aegean.

From the Malian Gulf into the Pagasetic Gulf (Fig. 4.3) easy harbors are found at Styliis and Glyfa, the later of which, at least, is a regular outlet for crossing the Oreoi Straits to Oreoi. In the Pagasetic Gulf itself, the main port is at Volos, though there are various other locations of interest, most notably at the southern end of the Almyros Plain. A tiny anchorage is available on the southwest end of the Pagasetic Gulf at Trikeri, which would be a suitable safe haven in bad weather. Asminion provides the last major anchorage on the way to the Aegean. Though, as with the rest of this description of the

Euboean Gulf and its anchorages, there are many other locations that could be, and no doubt have been used to harbor boats.

The numerous settlements and sanctuaries dotting the coasts of the Euboean Gulf are both a reaction to and reason for the importance of the sea route. The relative success of these settlements has in many ways depended on how they exploited this route, as well as the natural barrier the sea provides between the island and mainland. Yet the lands surrounding this body of water are in many ways different, and the region as a whole might be conceived as a sort of microcosm of the Mediterranean, at least as conceived by Horden and Purcell (2000). That is, an amalgamation of microecologies characterized by fragmentation and uncertainty, which necessitate a certain amount of codependence and connectivity. Here, the gulf serves to facilitate this connectivity, linking, for example the agricultural plains of Boeotia and Lokris with the timber-rich mountains of Euboea. But more on resources will come later. For now, the favorable maritime conditions of the gulf, as well as its location on a major route between the north and south Aegean make it a crucial conduit for the movement of people, goods, and ideas – a fluid space through which networks could trickle or surge relatively freely. As touched-upon in the discussion above, however, this also has to do with the history of settlement in the surrounding areas, and the external routes, over land and sea, that feed into it.

Land Routes

The land routes surrounding the Euboean Gulf are numerous, but somewhat confined by the dynamism of the Greek landscape.⁸ Low hills and plains contrast the

⁸ Much work has been done on ancient roads and land routes of central Greece. I do not review this work in detail, as that would be the subject of a separate study. My aim here is more general, to show the

sharp relief of mountains and gentle expanse of the sea, usually with all of these features in sight of one another. These often sharp distinctions aid in the reconstruction of ancient routes, as they tend to follow more or less the course of modern roads, necessarily working their way around mountains, through valleys, and so on. Taken another way, routes might be seen as corridors, which can be made to appear through modeling the cost of passage across the landscape. Using GIS, one can manipulate topographical data to show such corridors with relatively low costs of passage, and we can begin to see the general routes that would be favorable to follow throughout the region, along with areas of greater difficulty (Fig. 4.7).⁹ The routes illustrated and discussed below are generally modeled on this cost surface, though where additional information about ancient routes is available it is discussed.

As in Chapter 2, the following discussion will begin with Boeotia and work its way clockwise around the study area. The goal is to chart briefly the terrestrial paths that intersect with the maritime networks of the Euboean Gulf and wider Mediterranean, in order to introduce the physical spaces through which people had to move as they articulated the material, social, and conceptual networks discussed in Chapter 3. More specific discussion of *how* this worked is contingent on historical contexts, settlement

topographically determined land routes that traverse the different parts of this macro-region. Nevertheless, some mention should be made of studies of particular importance. There are several surveys and edited volumes of ancient roads in Greece (e.g., Pritchett 1980; Goette 2002; Hellman 2010). Attica has seen by far the most work in this regard (e.g., Young 1956; Vanderpool 1978; Lohmann 2002; Korres 2010). Fossey (1988; 1990) provides overviews for Boeotia and East Lokris; Farinetti (2011) provides a recent update for Boeotia, and Kramer-Hajos (2008) has a recent study on East Lokris.

⁹ This cost model is based on remotely sensed ASTER elevation data. This data has a 30 meter resolution, which is well suited for this type of analysis (Doyle *et al.* 2012 found that there was little difference in regional cost analyses performed with 10 m resolution AIRSAR data and 30 m resolution ASTER, while there was a large difference between these and results derived from 90 m SRTM data)

patterns, and a range of other factors that will be more fully drawn out in Chapters 5-8 for each of the periods in question.

Boeotia

Boeotia, like much of Greece, is a land of contrasts between mountains, valleys, and coasts (Fig. 4.8). Yet, while its borders are clearly defined by the mountains, Kithairon and Parnes, to the south, and Mt. Chlomon (the southeastern end of the Kallidhromon range) in the north, the area between is composed of a valley system that contains plains much larger than those found in other regions of central Greece.

Up to this point, Boeotia has been subjected to more rigorous study than other areas in central Greece, both in terms of its archaeological landscapes and the routes that navigate them. Most recently, Farinetti (2011: 44-45) has mapped the archaeologically testified or topographically likely routes that traverse the region. This was done through a combination of GIS-based cost-surface analysis and the evaluation of archaeological data on a regional scale, and they have been partially followed here (Fig. 4.8).

Considering destinations, sites of human habitation and outlets to the sea are of primary importance. From the Corinthian Gulf, one can enter Boeotia from the west just north of Mount Kithairon, at Livadhostro Bay and the site of Kreusis (Fossey 1988: 157-163). Heurtley (1925) observed road remains along this route, which he thought to be Mycenaean, a reasonable assumption given the fact that this is the best route from Thebes to the Corinthian Gulf (Hope Simpson and Hagel 2006: 163-164). A route then runs east-northeast along the north edge of Kithairon, past Eutresis, toward Thebes, which is located roughly equidistant from the Euboean and Corinthian Gulfs. From Thebes, there are two principal paths one can take to the Euboean Gulf, both of which begin in the

direction of Eleon, before splitting there to go northeast toward Aulis and east-southeast toward Tanagra and the coastal sites of Dhilesi and Oropos. Another road from Thebes to the Euboean Gulf leads north, then northeast and is funneled into the gulf at the location of Anthedon.

In the northern part of Boeotia, the domain of Bronze Age Orchomenos, the Kopaic basin becomes a major factor that changes drastically in the span of time dealt with in this study. While this is naturally an area that fluctuates between lacustrine and marshy or swamp-like conditions, it was drained in the Mycenaean period (LH III A2/B1, c. 1300 BCE), reclaiming an area of approximately 300 square km for agricultural purposes (Knauss *et al.* 1984; Knauss 1987; Iakovides 2001). Moreover, this remarkable feat of Mycenaean engineering opened up the land for traversal, removing a natural boundary between the principal Mycenaean settlements of the region, Thebes and Orchomenos. The implications of these massive landscape interventions are several, and are discussed in greater depth in Chapter 5.

Like Thebes, Orchomenos is approximately equidistant between the Euboean and Corinthian Gulfs. To reach the Corinthian Gulf, the most direct route is to go either west toward Delphi, or south to Chorsiai (Fig. 4.8). For the Euboean Gulf, one can either follow the north side of the Kopaic basin to Gla and then Larymna, head east-northeast toward the eastern end of the Atalantian Plain, or go north to enter the Atalantian Plain on its western edge and arrive at the Euboean Gulf from there. The final major route from Orchomenos leads northwest, following the course of the Kephissos river, along the southern edge of Mount Knemis, through Phokis and into the Malian Plain. A western offshoot of this takes one to Delphi and the harbor at Itea, on the Corinthian Gulf.

East Lokris

East Lokris (Fig. 4.9) comprises a relatively narrow strip of land between the Kallidromon mountain range on its southern edge, separating it from Boeotia and Phokis, and the Euboean Gulf to the north. It is traditionally divided into three parts.

Epiknemidian Lokris (the landscape of which is dominated by Mt. Knemis) and Opuntian Lokris (after the city Opous¹⁰) both are located on the shores of the northwestern part of the Euboean Gulf. These are often discussed together as simply East Lokris. This is geographically distinct from a Ozalian Lokris, which is located on the Corinthian Gulf, and separated from East Lokris by Phocis and Doris; discussion here focuses only on the regions bordering the Euboean Gulf.

Kramer-Hajos (2008: 18-34) has recently reviewed the geology, topography, climate, vegetation, and agriculture of the area, attempting to reconstruct the landscape of East Lokris as it was in the Mycenaean period. She also points out the natural routes in the landscape, which are generally in line with those presented in Fig. 4.9. In short, access to the Euboean Gulf is mediated through paths that work their way around and through the Kallidromos range, Mt. Knemis, and Mt. Chlomon. Kalapodi is a location of particular significance, on the pass that connects the Kephissos river valley running through Phokis and Boeotia to Lokris. At Kalapodi the routes split to go east toward the Atalantian Plain, housing Atalanti and Kynos on the Euboean Gulf, or north to Mistros. This is the principal land route into Lokris from the south and west, while from the south or east one can skirt the slopes of Mt. Chlomon to enter the Atalantian Plain on the east side, near Mitrou and Halai. To move northwest from Lokris, the easiest route is to

¹⁰ Dakoronia (1993: 117) gives the modern site of Kastraki/Kokinovrachos as the most likely candidate for ancient Opous.

follow the seaside edge of Mt. Knemis up the coast to the Malian Gulf, passing Thermopylae to enter the Malian Plain.

Thessaly

Thessaly lies directly north of the Euboean Gulf and consists mainly of the large Thessalian Plain, which offers ample opportunity for land routes throughout the northern part of the region (Helly 1979; Decourt 1990). For access from the south, however, Mt. Othrys is a major obstacle for travelers, generally forcing them along the coast of the Euboean Gulf, between the mountain and the Orei Straits, to enter the Plain of Alymros along the west side of the Pagasitic Gulf, passing several sites along the way (Fig. 4.10). Here the Kastro of Volos and Dimini are the most likely contenders for the Mycenaean palace of Iolkos, though there are several other Bronze Age sites in the area (Pantou 2011: 383-386; discussed further in Chapter 5). These principal sites, just off the Bay of Volos at the northern end of the Pagasitic Gulf, serve as the main centers through which Thessaly would have been connected to the central and southern Aegean and Euboean Gulf. Much of the territory to the east (Magnesia) is made difficult by Mt. Peleion, as is the area to the north, the coasts of which do not become favorable outlets until one reaches the southern edges of the Thermaic Gulf.

The major land route to northern Greece continues past Volos and through Thessaly toward Larissa, with several offshoots into western Greece along the way. This is significant because, north of Lamia the Pagasitic Gulf would have been the most favorable outlet to the Aegean, basically until one reaches Macedonia. People using this outlet to go south would have most likely entered the Euboean Gulf from the Pagasitic Gulf, passing along the length of this sea route and likely needing to stop along the way.

So while Thessaly is the northernmost and furthest of the regions under consideration, its importance as a connection to the north of Greece, by both land and sea, is paramount, in different ways, throughout the period of study.

Euboea

As the second largest island in the Aegean and fifth largest in the Mediterranean Euboea has a varied natural environment whose mountains and valleys, agricultural plains and wooded highlands has led some to describe it as a sort of microcosm of Greece as a whole (McGilchrist 2010: 9). Like much of Greece, the routes of communication are largely determined by the contours of the landscape and the necessity to find favorable passes through often mountainous terrain (Fig. 4.11). In general, however, this terrain is much more difficult to cross than that of Boeotia or Attica, which has in part led to historical territorial divisions between different parts of the island (Sackett *et al.* 1966). The land routes of Euboea itself follow these basic topographically determined trends (Fig. 4.11). Unsurprisingly, these correspond with the locations of modern roads throughout the island.

On the northern coast of the island, routes mainly follow the shore, though occasionally the presence of mountainous landscapes necessitate routes that are not direct, as in the case of the route from Lichas to Oreoi, for example, being pushed along the more favorable course on the south side of Mt. Lichas. To move south from here the main passage is between Mts. Teletherio and Xiro toward either Rovies (ancient Orobiai) or Kerinthos, before continuing south to pass between Mt. Kandili and the Dirphys range, the highest mountains on the island, which dominate the northern half of the central part of the island. From Chalkis routes east and south proceed largely along the coast with

opportunities to turn northward toward the Kyme area from Eretria and Aliveri. The principal route to the southern part of the island moves inland after Aliveri to pass through the plain around Dystos, returning to the coast near Styra.

Smaller-scale routes in the Eretriad (the territory that was dominated by the polis of Eretria in the Classical period) have been mapped in much greater detail by Fachard (2012: 91-109), whose thorough extensive survey of the area included the documentation of ancient road remains, as well as the projection of likely paths between the different demes of Eretria, based on these road remains and the natural topography (Fig. 4.12).

The natural difficulty of many of these land routes reiterates the importance of sea travel, as Euboea's landscapes are much less permeable than those of the mainland (Fig. 4.7). Moving cargoes of any size is not only easier by ship, but in many cases also much faster. The use of land routes would certainly have been widespread, but should be seen as small-scale and rarely over great distance, highlighting the fragmented nature of Euboea as a land mass and fluid condition of the Euboean Gulf. The implications of this are important: (1) Contacts between polities in distant parts of the island are likely to have been primarily maritime in nature. (2) The strength of weak ties emerges as a significant factor, as more distant contacts coming through ports give them prominence in land-based networks. (3) The gulf coast of the island is more connected from both terrestrial and maritime perspectives than the Aegean coast, which has prominent, well-connected sites only in the areas of Kyme and Kerinthos.

Attica

Passage through Attica is fairly straightforward and the landscape is generally less challenging than other places (Fig. 4.13). On a regional scale, routes mainly involve

negotiating Mts. Hymettos, Pentele, and Parnes, as well as the smaller mountains, but equally difficult terrain on the southern end of Attica, the Lavriotiki. Most of the destinations shown here are coastal, and oriented toward the Euboean Gulf. These include Lavrion, Perati, and Marathon, but inland sites of importance become apparent too, often at places such as Menidhi where natural paths intersect.

The importance of southern Attica for the period in question (and later periods as well) cannot be understated. The rich silver and copper deposits of the Lavriotiki were major commodities, and the relative ease with which they could be accessed by sea was also significant, though land routes would have been important, too.

Finally, the routes coming into and out of Attica are more clearly circumscribed than movement within Attica itself (Fig. 4.7). Mts. Parnes and Kithairon present fairly substantial borderlands, forcing people travelling overland to take either a western course or eastern course. The former leads toward Boeotia and the Corinthian Gulf, which passes through the Mazi Plain and later Attic border settlements and forts at Panakton, Eleutherai, and Oinoe. The latter leads in the direction of the Euboean Gulf, skirting the east side of Parnes to enter Boeotia near Oropos, territory that was hotly contested in historical times.

It is immediately apparent about the territories surrounding the Euboean Gulf that the sea is never far, and is easily accessed through multiple, though well-defined routes throughout the regions explored above. This is not meant to detract from the importance of land-routes and overland communications. In fact, overland travel was certainly the norm, and sea travel should be seen as less common in everyday life, as we know from Hesiod, the everyman of Early Iron Age central Greece. But the importance of the sea for the larger scale and longer distance movements was a defining feature of early Greek

society. The specifics of such attitudes, and how they might be charted through time, are presented in Chapters 5-8, but for now we should turn to the wider Mediterranean, and the winds and currents that influence the routes across it.

Sea-Routes in the Wider Mediterranean

Taking a step back to the largest geographical scale of analysis, some discussion is necessary concerning how people, things, and ideas moved on a trans-Mediterranean scale. Sea-routes in the Mediterranean, like land-routes, are dependent on a number of cultural and environmental factors. While the sea presents a much more open course, and ships often provide much faster and more efficient means of moving large cargoes, there can be a great degree of uncertainty. Storms, wrecks, navigational errors, and piracy were very real dangers in the past, making the rewards of sea travel rife with risk. Yet this was nothing unique to the Mediterranean world. As Horden and Purcell (2000) hold paramount, the relationship between fragmentation, uncertainty, and connectivity are at the core of the very nature of the Mediterranean. Just as uncertainties exist in relation to phenomena such as climatic variability and tectonic activity, which primarily influence activities such as agriculture, so the sea presents risks, both natural and human, though it also connects fragmented landscapes and offers opportunities for diversification.

While sea routes are determined by human actors, the technologies they employ, and the destinations they choose to pursue, they are heavily influenced by environmental concerns, namely winds, currents, and landfalls (Morton 2001). The weather systems around the Mediterranean Basin produce a variety of local wind patterns that can affect sea routes (Harding *et al.* 2009: 77-78). These vary in intensity and occasionally direction on a seasonal basis, and have been modeled recently based on satellite data (Zecchetto

and De Biasio 2007). The notable trend here is that wind speeds and predictability tend to be ameliorated near coasts, where sailing within sight of land also provides navigational advantages. The effect of winds on ancient seafaring, in particular, is discussed by Arnaud (2005: 16-22), who makes the important point that it is not so much the direction of winds that can negatively affect seafaring, but rather their strength. Zecchetto and De Biasio (2007) suggest that, while winds in much of the Aegean do not pose a great obstacle, the southern and west coasts of Italy, and the east and north coast of Sicily may have, and the eastern Mediterranean could have, too, depending on the direction of travel.

Mediterranean currents would have also played a significant role in mobility. These have been reviewed by various authors in relation to ancient seafaring (Höckmann 1985; Agouridis 1997; Arnaud 2005: 23-26), so need not be rehearsed in great detail here, though are worth illustrating for their relationship to ancient sea routes (Fig. 4.14). The dominant patterns are of a roughly counter-clockwise circulation from the Strait of Gibraltar, moving eastward along the south coast of the Mediterranean, turning north at the Levantine coast and then west toward the Aegean. Smaller circuits, again mostly counter-clockwise, occur in the Aegean, Adriatic, and Tyrrhennian seas, as well as between Corsica and Sardinia and the Iberian Peninsula. For the places of primary interest to this dissertation, they highlight the importance of coastal travel, which is underscored by visibility.

For the Aegean, Agouridis (1997) and Papageorgiou (2008) have examined the likely impact of winds and currents by looking at them in combination with archaeological data to present a detailed model of sea routes in the prehistoric Aegean (simplified in Fig. 4.15). These highlight the importance of the Euboean Gulf as a venue for two-directional movement along the west side of the Aegean. The current and winds

on the Aegean coast of Euboea make travel southward possible, but more difficult than in the sheltered waters of the gulf.

Sea-routes, of course, are dependent on points of origin and destination, and environmental factors like winds and currents can be regarded only as contexts in which sailors must have operated. They have been presented here as relatively consistent influences, and have been presented as general models for the Aegean (Fig. 4.15) and the Mediterranean in general (Fig. 4.16). These obviously cannot be considered the only routes, and, in some cases were probably not used with any particular frequency. Yet these remain important sources for our understanding of movement by sea, and have been remarkably consistent from antiquity to the present.

Natural Resources

A final aspect of geographies of mobility has to do with the distribution of natural resources as motivations for movement. These necessitate mobility on local, regional, and trans-Mediterranean scales, and are essential for basic subsistence, as well as craft production and, at times, the creation of social difference. The basic distributions of agricultural land, wood, and metals, and their wider significance, are discussed below.

Agricultural Plains

Several fertile, agricultural plains surround the Euboean Gulf (Fig. 4.17).¹¹ There are several possible ways to study the agricultural potential of a landscape. One simply

¹¹ This model for landscape type is based on slope, derived from an ASTER digital elevation model of 30 m resolution. The slopes used to classify the terrain type in this map are: plain < 5% slope; undulated = 5-10%; hilly = 10-20%; extreme > 20%.

involves using topographical information (slope) to determine which areas are potentially viable for agriculture, without heavy investment in terracing (Fig. 4.17). This model is supported by general overlap with modern land use (Fig. 4.18),¹² though a topographic model has the benefit of accounting for areas that have been taken over almost entirely by urban sprawl (e.g., Athens and Volos). Some of these plains have supported some of the more successful polities of Greek history, while others have supported communities that played a much smaller role. Much of Boeotia is dominated by the Theban Plain and Kopaic Basin, drained in the Mycenaean period but thereafter a lake, and the Attic Plain must be seen as quite substantial as well, despite its current condition as the concrete jungle of modern Athens (note the difference between Figs. 4.17 and 4.18).

The nature of agricultural production during the periods in question is understood to varying degrees, much more so for the Mycenaean period than others. Mycenaean agriculture has been the subject of fairly intense study, due to its prominence in Linear B tablets, though the picture is not always clear (Halstead 1992). We do know that Mycenaean palaces were involved, both directly and indirectly, in the mobilization of a range of resources – practices which included taxation, direct production, and a variety of unrecorded transactions (Halstead 2007: 67). Moreover, it is clear that Mycenaean palaces were nearly always sited near fertile, broad agricultural plains. Agricultural products included the predictable mix of grain, olives, and vines, as well as flax, honey, spices, and sheep. It is tempting to draw a direct association between the most prominent

¹² This modern land use data is derived from the CORINE project (coordination of information on the environment), published by the Commission of the European Communities (<http://www.eea.europa.eu/publications/COR0-landcover>). This data is derived from satellite imagery analysis and land records in several European countries (here, obviously, Greece). It has been simplified here to group different types of forest and agricultural cover under these two broad headings.

palatial centers in the Mycenaean period – Orchomenos, Gla and Thebes¹³ – and the size of the plains they inhabit, though the presence of a palace on the much smaller plain at Volos questions this. There is no doubt, however, that the presence of some type of substantial agricultural plain overwhelmingly coincides with Mycenaean sites of prominence (this is also the case for Oreoi, Psachna, Chalkis, Amarynthos, Dystos, Marathon, and Athens).

In the Early Iron Age the picture is less clear, given the collapse of palatial administration and absence of written records (Foxhall 1995), though there remains continuity in settlement around many of these plains, despite a substantial drop in the overall number of sites. Snodgrass (1987: 187-209) has suggested that this may be due to a shift toward more pastoral economies, though this rests mainly on assumptions that may not be justifiable for this period (Cherry 1988: 28). Finally, the Early Iron Age faunal data set rests very thinly on Nichoria, which is far distant from the Euboean Gulf, both geographically and culturally. As I argue in Chapter 7, regional difference seem to be the rule for the Prehistoric Iron Age, which should give us pause before extrapolating data sets from one region to apply them to another.

What is more apparent is that the agricultural plains surrounding the Euboean Gulf provide important resource-bases for human communities, whatever period we may be talking about. They are well watered by rivers and streams, have easy access to the sea, and, in many cases, maintain close proximity to other types of terrain that would allow for a diversification of the resource base, keeping plains for agriculture while

¹³ This is fleshed out more fully in Chapter 5. While Gla has traditionally not been considered a palatial center, this is generally due to historical divisions of Boeotia between Orchomenos and Thebes. The relationship of Gla to these historically attested polities requires further consideration.

affording other land for grazing animals, beekeeping, and other activities. The semi-regular dispersal of these types of plains around the gulf, around which settlement has tended to cluster, again highlights its status as a major settlement corridor where communities could be self sufficient and even create surplus, while maintaining positions of commercial prominence along the major land and sea routes of the area.

Timber and Fuel

Certain regions surrounding the Euboean Gulf (Euboea in particular) are also noteworthy for their forest resources, in both antiquity and modern times (Fig. 4.18). The Mediterranean forest is perhaps the most overlooked resource of the ancient world. For example, the recent *Oxford Handbook of Engineering and Technology in the Classical World* (Olsen 2008) has only a single chapter that deals with harvesting wood, which is on woodworking (Ulrich 2008); yet nearly all of the technologies and production strategies discussed in the book are dependent on wood for tools, building materials, or fuel, and often for all three. Thirgood (1981) rightly stresses the importance of timber as a constantly used, and often abused, natural resource, in his study of the historical depletion of forests around the Mediterranean basin. Many of the basic necessities of life depend on wood as a source of both fuel and timber, which provide food, heat, and shelter, and technological change can result in rapid intensification of wood use. By the Bronze Age, wood was depended upon not only for household use, but for fuel in organized pyrotechnological industries, building materials for ships, and building in state-sponsored, large-scale architectural projects (Meiggs 1982; Wertime 1983). As these practices contracted and expanded over time, pressure on these resources varied

markedly. Moreover, like agriculture, these resources depended on climatic factors, which would have affected their relative abundance on a year-to-year basis.

While the traditional stance on deforestation in the region follows Plato, who already in the fourth century BCE lamented the disappearance of the wooded landscapes in then recent memory, Grove and Rackham (2001) have argued that this is really much more complicated. While human populations do put real pressure on the natural environment, human history and ecological history are not always directly linked, and we need to account for a certain degree of resilience in forest landscapes (the present situation is not very much better or worse than that described by Plato). That said, these resources are finite and susceptible in the short term to over-exploitation, even if they have a remarkable ability to recover over time.

The distribution of forests in the Mediterranean is not difficult to chart. There is a general pattern of thinner, smaller tree-cover at low elevations near densely populated areas, while higher elevations with greater rainfall and less population density tend to correspond with thicker forests and larger trees. This is significant because these large trees were necessary for ship construction. As resources, these large trees were both rarer and more difficult to renew than their more widespread, smaller brethren.

For the study region of this dissertation, Euboea itself is the best known for its forest resources and has been throughout its documented history. Much of its terrain is mountainous, and it has never had the population density of Attica or even the traditionally more rural Boeotia. Dirphys, Kandili, and Ochi are taller than the other mountains surrounding the gulf, excepting Othrys in the north, yet remain quite accessible. Euboea was regarded as famous for its ships (*Homeric Hymn to Apollo* 31), and wood remained an important aspect of Euboean trade into modern times (Sackett *et*

al. 1966: 34). That said, Euboea is not mentioned as a major source for timber in the Classical and Hellenistic periods, when northern Greece, specifically Macedonia and the Chalkidiki was considered an important source for timber for ship building; though the “small wood” of Euboea is mentioned in inscriptions (Fachard 2012: 42-46). With regard to the Late Bronze Age and Early Iron Age, it is difficult to measure the extent that wood from Euboea would have been used for shipbuilding and other types of construction. Whatever the case may have been in later periods, we know that quantities of wood were available, especially in the northern part of the island. This must have been significant for settlements along the Euboean Gulf, at the very least for fuel. The importance of forests for fuel cannot be understated. In addition to the daily practices of heating and cooking, pyrotechnologies depended heavily on wood as fuel for various types of production. Overlapping spheres of production are discussed more fully in Chapter 6.

The Quest for Metals

The quest for metals is historically one of the most overt driving factors for trade and movement around the Mediterranean. While agricultural produce, clays, and wood are all available on local or regional scales, metals are commodities much less evenly distributed across the earth’s surface. The development of metal technologies, and their dispersal throughout different parts of the Mediterranean, resulted in the expansion of production and trade networks, and brought into everyday life materials with sometimes very distant origins. The associations that came with these materials are significant in terms of their impact on attitudes toward distant, often “foreign” places, the politics of value, and economies of scale. Metals, in particular their often distant origins, have been seen as a major motivating factor for the maintenance of Mycenaean palatial authority

(Chapter 5), as well as the colonization movements that come into play in the final period dealt with in this dissertation (Chapter 8). Moreover, changes in metal technology may have resulted in a significant reorientation of production strategies and the networks of which they are comprised (Chapter 7).

Metals of primary significance for this study are copper, tin, lead, silver, and gold. These occur naturally in various qualities and quantities throughout the Mediterranean (Fig. 4.19). Mining and metallurgical practices are reasonably well understood for the Classical Greek and Roman period (e.g., Davies 1935; Healy 1978), though earlier periods remain troublesome on account of the lack of written records and the fact that mine sites would often continue to be used through time, destroying evidence from previous periods. However, study of geological ore sources, production remains, and finished products can be quite illuminating. A recent review of archaeometallurgy in the Mediterranean emphasizes the importance of mineral rich zones and their relationships with major centers and the places between, in order to examine the spatial, technological, and social aspects of mining and metallurgy (Kassianidou and Knapp 2005). This geographical dispersal of ores, and the technological and economic organization that accompanied it, necessitates a multi-scalar perspective.

For the prehistoric period copper is by far the most important metal, followed closely by tin. Copper occurs in several locations, with major sources throughout Anatolia, especially in the northwestern and northeastern areas, and interspersed between them (Gale *et al.* 1985; Wagner and Öztunali 2000). In the Levant, the vicinity around Wadi Faynan has particularly rich deposits, which were exploited almost constantly from the Early Bronze Age to the Roman period (Hauptmann 2007). Egypt, too, had ready access to several sources in the Sinai and Eastern Desert (Ogden 2001). However, the ore

sources of Cyprus (Constandinou 2012), the Aegean (Gale *et al.* 1985; Muhly 2008; Georgakopoulou *et al.* 2011), and Sardinia (Lo Schiavo 1988) are certainly of greatest importance for LBA-EIA geographies of mobility. That said, in the later periods, especially, the copper sources of Italy (Sestini 1979), France (Tylecote 1987; Domergue 2008), and Spain (Diaz-Andreu and Monetro Ruiz 2000) become increasingly relevant.

Tin (with copper) is the other material required for bronze production and is more problematic (Kassianidou and Knapp 2005: 223-225).¹⁴ The dominant, but not entirely satisfactory, opinion is that tin used in LBA bronze production came from the rich ore deposits in Afghanistan (Muhly 1999); this is bolstered by some references in cuneiform documents to a trade network connecting these locales to Mesopotamia and Anatolia (Maddin *et al.* 1977). Other, closer tin deposits exist in the Taurus mountains of Turkey (Yener and Vandiver 1993), and small deposits are known in the central and western Mediterranean, in Tuscany and the facing island of Elba, on Sardinia and Corsica, on the southern coast of Spain, and further inland in Iberia and France (Merideth 1998: 29). Spain is perhaps the most interesting of these areas, as excavations have revealed Bronze Age mines and smelting sites at Logrosan, as well as two Mycenaean sherds at Montaro (Kassianidou and Knapp 225; Rodriguez Diaz *et al.* 2001; Martin de la Cruz 1990). Up to this point, many of the smaller scale sources have been rejected due to minimalist attitudes toward trans-Mediterranean interaction, though it seems increasingly likely that such sources would have been important factors in LBA-EIA Mediterranean dynamics.

¹⁴ That said, bronze can also be made with the combination of copper and antimony or arsenic. Such alloys, whether created by design or accident, have received far too little attention. In the study of ancient bronze-working.

Silver occurs only very rarely in native form, and the only known deposits of silver to have been worked in antiquity are polymetallic, most often argentiferous lead, which require the extraction of silver through the process of cupellation (Craddock 1995: 211-228). There are several silver sources in Anatolia (Moorey 1994), though the most important sources in the eastern Mediterranean are in the Aegean. While the Cycladic island of Siphnos has silver deposits that are known to have been exploited since the EBA, by far the most significant sources in the Aegean are in the Lavriotiki, in Attica, not far from the southern end of the Euboean Gulf (Gale and Stos-Gale 1981; Pernicka *et al.* 1985; Kakavoyiannis 2005; Lohmann 2005). Lead Isotope Analysis (LIA) and Neutron Activation Analysis of materials from Mycenaean sites throughout mainland Greece have suggested that the Lavriotiki region was the nearly exclusive source for silver during this period in the Aegean (Stos-Gale and Gale 1982). However, later analysis suggests that the northern Aegean was the source of at least six of the fourteen silver objects found in the Shaft Graves at Mycenae (Stos-Gale and Macdonald 1991: 273-279; Papadopoulos 1996b: 173; Papadopoulos 2005: 588-591). Between Mt. Pangaion, the Chalkidiki, and Thasos, this region was a mining powerhouse, whose importance cannot be overlooked, both on its own terms, and with regard to its long-distance connections.

Gold, despite its rarity, is broadly scattered across the earth's surface, though in very small amounts (Craddock 1995: 110). Some areas, of course, are richer than others, and for the Mediterranean the principal deposits can be found in Egypt and Nubia (Müller and Thiem 1999). Other deposits are found in Anatolia in Lydia and along the Black Sea coast, regions that acquired significant fame for this in myth and later history (Williams and Ogden 1994: 13). In the Aegean, Siphnos was known to have gold mines, as were

certain locations in Macedonia and Thrace, including the island of Thasos (Des Courtils *et al.* 1982; Vavelidis and Andreou 2008).¹⁵ Of particular interest from the historical period is Peisistratus' exile on the Thermaic Gulf, who was involved in the settlement of Rhaecelus, from which he mounted an expedition to Mt. Pangaion to exploit its mines (Viviers 1987). This gives the impression that northern gold was simply there for the taking, or at the very least was accessible to those with the proper resources to mount an expedition. Gold deposits also occur in northern Italy and central France, though the most significant sources in the central and western Mediterranean are in Iberia, in southern and southwestern Spain (Lehrberger 1995).

Iron enters the picture as an important resource around the turn of the second millennium BCE (Wertime and Muhly 1980). Compared to the metals discussed up to this point, iron is nearly ubiquitous. Like other metals, it occurs in various quantities throughout the Mediterranean, and technological adoption was probably followed closely by relatively local exploitation (Snodgrass 1980b). Workable iron sources occur on Cyprus, often as gossans (weathered copper ores), and ores are found throughout the lands surrounding the Mediterranean. In Greece, iron can be found in various quantities throughout the Aegean Islands, though the richest deposits come from Laconia, Boeotia, and Euboea (Bakhuizen 1976). However, not all ores are created equal. Etruria, and in particular the island of Elba, was known for particularly rich iron ores, which were mined from a very early date (Hartmann 1982). It is also significant that the rich iron ores of Elba and Populonia co-occur with other metals, namely copper, and small quantities of

¹⁵ See also the recent Ph.D. thesis by Zannis (2006) on the gold mines of Pangaion. Papadopoulos (2005: 588-591) reviews evidence from ancient authors on the mines of northern Greece.

tin. Such areas, especially those rich in multiple metals, would have been major draws for regional and interregional exploitation and exchange.

From Geography to Connectivity

It is easy to discuss the distribution of routes, resources, and environmental contexts, but less so to talk about what they mean for the societies, people, and things that are the object of archaeological study. I have attempted to highlight the importance of the natural world in articulating interaction across scales. By emphasizing geography in drawing connections within and between landscapes, seascapes, and coast-scapes, we can turn now to the operation of conceptual and real-world networks in specific historical contexts, namely through a diachronic, multi-scalar approach to interaction in the Late Bronze Age and Early Iron Age Euboean Gulf and the wider Mediterranean world. This multi-scalar synthesis is the goal of the following chapters (5-8) that make up the second part of this dissertation.

CHAPTER 5

Confronting Hegemony: Consuming Networks in the Palatial Bronze Age

And from this gain another gain is born.

Aeschylus (*Seven against Thebes*, 437)

The title of this chapter and the above quotation are both references to the Bronze Age palace at Thebes, and have wider significance concerning its place in the Mycenaean world. While anachronistic, they are applicable to the nature of Mycenaean palatial power in central Greece. The title refers to the possibility of a Theban hegemony in the Late Bronze Age, though the Theban Hegemony is better known as the name of a historical period in the 4th century BCE (371-362), when Thebes was the most powerful city-state of Classical Greece. The quotation is from Aeschylus, writing in the 5th century BCE, and might be seen as an early description of scale-free network growth.¹ It is fitting (for the purposes of this study) that it refers to dramatic action taking place at Thebes.

The argument for the presence of a Theban hegemony in the Bronze Age stems from the large size of the site compared to others, apparent influence throughout the central Greek mainland and Euboea, and possible appearance in Near Eastern texts (first discussed by Niemeier 1999; more recently in Latacz 2004 and Niemeier 2005). As discussed in

¹ Aeschylus describes a process where *kerdos* (κέρδος), gain or profit, is itself an impetus for further gain or profit. This process could also be described as scale-free network growth, the “rich get richer” phenomenon, or self-intensification. For the use of scale-free networks in this dissertation, see Chapter 3 (pp. 82-83).

Chapter 2, this argument rests upon assumptions concerning later historical sources, fragmentary Linear B tablets, and interpretations of Near Eastern texts where the picture is not so clear-cut. While Thebes was certainly a powerful palatial state in the Late Bronze Age, there is little to suggest that it maintained direct control over most of central Greece and Euboea. At the same time, however, the growth in settlement, architectural elaboration, and overseas contact seen in the archaeological record at Thebes during the palatial period can be explained through analogy with the same type of self-intensifying behaviors exhibited by scale-free networks, as sites preferentially attached to already well-connected places. The small-worlds phenomenon and strength of weak ties are also relevant as centers became much more connected through just a few more links that held a great deal of sway.

Thebes makes for a particularly good case study as a major center that relied heavily on the Euboean Gulf for access to regional and overseas trade routes. But this was just one of a few palatial centers, or peer polities, that seem to have experienced similar network growth, emerging from the early Mycenaean settlement pattern, forming small worlds where centers connected to each other by weak ties played a strong role in cultural homogenization. The high level of palatial centralization, while it created a rapid shift in power dynamics in the Late Bronze Age landscape, also left this system vulnerable to collapse. Much of our evidence from the Euboean Gulf for this period, and so a good deal of discussion in this chapter, focuses on Thebes. Other centers have received considerably less archaeological attention, but must be included in this discussion if we are to reconstruct a landscape of multi-scalar relations through and around the Euboean Gulf. Confronting hegemony, then, refers on the one hand to scholarly notions of relationships between Thebes and its surrounding territory, on the

other to historical confrontations between competing polities that are evidenced in the archaeological record and may have contributed to the collapse of Mycenaean state administration at the end of the Palatial Bronze Age.

This chapter aims to accomplish three things. First, it describes the emergence and operation of the palaces, and how these can be understood through networks – specifically how individuals and groups made active use of multi-scalar networks in the development of power relations. Second, it shows applicability of network and geographical modeling in the regional analysis of territories and boundaries. Third, it proposes some rather specific historical scenarios, based on these models and the extant archaeological evidence, which may have contributed to the social upheaval at the end of the palatial period. Altogether, these themes reveal patterns in the networks of the Palatial Bronze Age that contextualize and provide new explanations for the rapid rise and fall of the Mycenaean palaces surrounding the Euboean Gulf (c. 1400-1200 BCE); this discussion also lays the groundwork for the emergence of different systems in the Postpalatial period (Chapter 6).

Prelude: Emergent Complexity in Central Greece

The Mycenaean palace systems did not appear *ex nihilo*, fully formed, nor are the circumstances of their emergence insignificant. The development of nascent complexity is reasonably well understood for Mycenaean Greece in general (e.g., Dickinson 1977; 1994; Voutsaki 2001; Parkinson and Galaty 2007; Wright 2008), though the formation of the palaces represents a marked leap forward that does not occur until LH IIIA2 (Table 1.1) (Wright 2006). Discussions of Mycenaean state formation tend to focus on a number of related factors, namely burial evidence for growing social inequality, growth in the

scale and number of monumental building projects, and an increase in the consumption of “elite” material culture, all in an increasingly centralized and exclusive manner. Blanton *et al.* (1996) would define this in dual-processual terms, where Mycenaean leaders seem to have pursued highly centralized, network-based pathways to power, in contrast to the corporate strategies of Minoan states (Parkinson and Galaty 2007).² That is, Mycenaean leaders sought to establish and maintain social inequality through personal self-aggrandizement, based on the exploitation of material and social networks, rather than the more integrative, distributed expressions of state authority practiced by the Minoan elite. This takes the form of (1) a monopoly on the consumption and distribution of prestige goods, such as imports and high-status craft-products; (2) the control of human resources necessary for constructing monumental architecture associated with palatial authority – elite tombs and the palaces themselves; and (3) full or partial control of aspects of production (agricultural and craft) used to support the palace administration.

Most reviews of the development of Mycenaean civilization leading up to the Palatial Bronze Age focus on elaboration in elite burials, particularly the development of tholoi in Messenia, which had its roots in earlier Cretan traditions, as well as increased differentiation in the wealth of grave goods and the attendant implications for developing social stratification (e.g., Rutter 1993; Wright 2008). Although well formulated, evidenced, and argued, these explanations are drawn almost exclusively from the Peloponnesian datasets, with little attention given to the wider Mycenaean world. Phialon (2011) has recently sought to remedy this imbalance for central Greece, in a study that

² Network versus corporate power strategies have been discussed by Blanton *et al.* (1996) and in the Aegean case by Parkinson and Galaty (2007). Yet the centralizing network strategies and integrative, yet distributed, corporate strategies should not necessarily be seen as mutually exclusive. Elite strategies in the creation of inequality will almost certainly involve both exclusivity *and* inclusivity. That said, trends in one direction or the other (toward network or corporate strategies) can be observed, as is the case here.

looks at the emergence of Mycenaean civilization in this region, drawing specifically on Renfrew's (1972) work in the Early Bronze Age Cyclades. The formative Mycenaean period is quite different in central Greece than in the Peloponnese. Large tholoi are much less abundant, and are widely distributed, rather than packed relatively close together, as in the Argolid and even more so in Messenia. Tholoi in central Greece are located only at Thorikos, Marathon, Menidi, Orchomenos, Dimini, Sesklo, Kapliki (near Volos), and on Euboea in the vicinities of Aliveri and Oxyliothos, though built tombs of a smaller scale, some of which resemble tholoi, are more widely distributed, especially in Thessaly (Fig. 5.1).³ Only two of these tholoi to appear in central Greece before LH IIIA-B, at Thorikos and Kapliki (Cavanagh and Mee 1998: 44-46, 63-64). Elaboration in funerary architecture can still be seen, however, in the form of chamber tombs. Phialon (2011: 374) notes the following general trends seen in the prepalatial period in central Greece: (1) an increase in the number of chamber tombs, especially at Thebes, Chalkis, and Athens by LH II; (2) already in LH IIA, there seems to be a marked differentiation in social hierarchy at Thebes and Thorikos, though less so at other important sites, including Kirrha, Eutresis, Orchomenos, and Eleusis; (3) at Athens and Eutresis, in particular, there seems to be an early rise in Aeginetan, Cycladic, and Minoan imports. Eutresis is perhaps not where we would have expected to find such imports, given the huge amount of imports at Thebes, beginning in LH IIIA2 and especially in LH IIIB. This shift, however, from many imports at Eutresis in the Prepalatial period to few in the Palatial period, speaks to the consolidation of import consumption as a pathway to power employed by the Theban elite during the transition into the Palatial period.

³ Though most of the Thessalian tholoi are Postpalatial, as discussed in Chapters 6 and 7 (Georganas 2000; 2002).

Based on the huge number of imported, especially Cretan, finds at Thorikos (Laffineur 2010), it is clear that the Euboean Gulf was on the radar of Minoan traders, almost certainly as a source of copper and silver (Gale and Stos-Gale 1982), and probably as a route to the gold and silver sources of Macedonia. It is certainly possible that Thebes, as a rising territorial power in the nascent complexity of Mycenaean central Greece may have extended its influence toward the Gulf, precisely to take advantage of the prestige goods being consumed by the Mycenaean elite elsewhere, from an earlier date, which would have played a large role in the processes of state formation. Thebes may have come late to the game, but was a center significant enough to become a major player in it in relatively short order – its command over a particularly large and fertile agricultural plain, and access to both the Corinthian and Euboean Gulfs provided a context in which a new state could flourish. This dual access to major waterways, along with influence from its Peloponnesian and Minoan contacts, may explain its seeming meteoric rise, in contrast to the prolonged period of state formation in the Peloponnese (lasting some 250 years from MH III to LH IIB).

In network terms the pattern seen from the beginning of the Palatial period corresponds with those observed in scale-free networks. Archaeologically, this means that in the Palatial period, there are fewer tombs with lots of wealth, corresponding to a consolidation of power and resources among an increasingly small, elite sector of society (Dakouri-Hild 2010b). Not only were networks coopted by increasingly fewer people, they also expanded and intensified, as a result of powerful individuals having greater capacity and desire to seek new, more frequent, and more distant connections. This pattern of relatively rapid self-intensification should be seen as an instance of groups in power building upon their own success, in attempts to consolidate increasing authority,

using the institution of the palace, rather than relying only on charismatic individuals, as was likely the case in earlier periods. Of course, authority and power are linked to individuals, but the office (in this case that of the *wanax*⁴) lends greater legitimation to individual authority and allows centralization to be perceived as occurring in the name of the state, rather than a particular person.

The foregoing discussion is also applicable to greater Boeotia (Dakouri-Hild 2010a), East Lokris (Kramer-Hajos 2008), and Thessaly (Adrimi-Sismani 2007), though Euboea remains a problem, due largely to the extremely limited amount of work done on the Mycenaean period here (the summary in Sackett *et al.* 1966 is still the most comprehensive). In the general picture, Euboea does not seem to have the same degree of social stratification present, though was widely occupied with significant occupation on nearly all of its major plains (at Oreoi, Kerinthos, Psachna, Chaklis, Amarynthos, Aliveri, and Dystos; the area of modern Karystos seems to be the only exception to this pattern; Figs. 5.1 and 4.17). Euboea might be viewed as a non-state area in the Mycenaean world (cf. Pullen and Tartaron 2007; Tartaron 2010) or, as some suggest, under the thumb of Thebes (Aravantinos *et al.* 2001), though I argue against this view below.

Phialon's (2011) focus on state formation in central Greece gives special attention to Boeotia, as that is where our best evidence is located. But it is very possible that

⁴ On the socio-political role of the *wanax* (*wa-na-ka* in Linear B) see Palaima (1995; 2006). There is little doubt that the *wanax* is the central figure in the Mycenaean socio-political hierarchy (Shelmerdine 2006), with a capacity to command comparable to other understandings of kingship in early complex societies (Wright 1995). The etymology of the term is somewhat opaque, though in meaning it may be related to the Hittite *hassu-* (king), which has to do with birth, fertility, and lineage – that is, the basis for kingship is linkage to ancestral (and divine) power and the capacity to produce for his people (Palaima 2006: 57). It is also noteworthy that the *wanax* and second-in-command *lawegetas* (*ra-wa-ke-ta*) were the only individuals to possess a *temenos* (*te-me-no*), often interpreted as landed estate, but clearly related to the later Greek word for sacred space (Palaima 2006: 62; Nikoloudis 2008b: 590). This linkage has implications for a relationship between kingship and religious authority, or at least suggests that the spaces possessed by these individuals were important places of group religious practice.

palaces did not emerge in the same way elsewhere in central Greece, nor should we expect them to, since we already see differences between here and the Peloponnese, first in the rapidity with which palace emergence happens, and second in the apparently stronger Minoan connection here, evidenced by the larnax burials from Thebes and Tanagra, as well as particularly strong Minoan influence in the earliest frescoes (Brysbaert 2008a; 2008b).

While we cannot speak for the Minoan connection as strongly outside of Boeotia, general patterns are observable. First, there is a rapid expansion of settlement across central Greece as we move into the palatial period. For the relevant regions, the number of sites recorded by Hope Simpson and Dickinson (1979) nearly triples, going from 54 LH I-III A1 sites to 157 LH III A2-III B sites (Fig. 5.1).⁵ The growth of particular centers at Thebes, Orchomenos (and eventually Gla), Volos (possibly Iolkos), and Athens, along with what we know about state administration from elsewhere in the Mycenaean world, suggests the centralization of political authority that can be seen as a type of secondary state formation, corresponding with expanding regional networks. The influx of imports, discussed below, also suggests an expansion of interregional networks. This rapid intensification of interactions on multiple scales, then, is an explanation for the rapidity with which the palaces emerge as a major shift in the nature of social complexity in the Euboean Gulf and its surrounding territories. The following section discusses how these centers, having risen to prominence, operated and were influenced by their local, regional, and inter-regional networks.

⁵ While many more sites than those documented by Hope Simpson and Dickinson (1979) are known, these figures are given because they are consistent within the same system. It would be a misleading comparison, for example, to compare intensive survey data from Boeotia, with extensive survey data from Attica, and another type of extensive survey data from Thessaly.

Gathering Connections at Palatial Hubs

The palaces and other principal settlements of Mycenaean central Greece were the undisputable hubs of interaction for the Euboean Gulf and its surrounding regions. Here, elites deployed a variety of strategies aimed at self-aggrandizement and the location of authority with official offices, held by individuals. Through consumption of exclusive aspects of societal and extra-societal production, whether monumental architecture, large-scale feasting, or foreign exotica, leaders sought to make explicit their ability to control access to materials and interconnections, highlighting the networks of power in which they were enmeshed and which they sought to control. This seems to be abundantly clear in the Mycenaean centers of Crete and the Peloponnese, based on detailed studies of Linear B texts from Knossos and Pylos (Bennet 1985; Shelmerdine 2001). Recent studies concerning the Thebes tablets are highly relevant, as discussed in Chapter 2 (Olivier *et al.* 1990; Del Frio 2009). Yet we know relatively little of the administration at other Mycenaean centers, including Orchomenos, Gla, Athens, and Iolkos (Volos). And direct projection of workings in the Peloponnese and Crete may not be appropriate, given the recent consensus that we should not expect Mycenaean palaces across the Aegean to look and act the same (Nakassis *et al.* 2010: 247). This section attempts first to identify some of the problems that exist in studying the Mycenaean centers of central Greece, and second to combine existing archaeological evidence and theoretical models to gain a holistic interpretation of the interactions within, between, and beyond the Mycenaean states surrounding the Euboean Gulf.

Problems of Palatial Settlements in Mycenaean Central Greece

From the outset, we should consider some problems concerning how we understand the nature of Mycenaean palatial authority and interaction in central Greece; these problems are part of the reason that the sort of synthesis presented here has not been attempted before. These issues begin with the palaces themselves, none of which are excavated with the degree of completeness seen at Mycenae, Tiryns, Pylos, or Knossos (though, given the nature of some of the early excavations, this could be considered a good thing). The palaces for which the Euboean Gulf was an important maritime axis – Thebes, Orchomenos, Iolkos, and Athens – present us with a range of difficulties, from being nearly completely covered by later settlement (Thebes), to disagreement about the very presence of a palace (Iolkos, Athens). Despite these difficulties, remarkable strides in piecing together fragmentary evidence have been made in recent years.

Following the Bronze Age, Thebes was covered by many subsequent phases of building, from the Archaic and Classical periods all the way to the present. The ancient landscape of the Kadmeia (the palace area) and its surroundings is thus divided into numerous modern plots; many of these have been the subject of rescue excavations, especially from the 1960s and 1970s, when the city went through a sort of “urban transformation” (Symeonoglou 1985: xvii; Dakouri-Hild 2010b: 690). Symeonoglou’s (1985) work remains the most comprehensive synthesis of the archaeology of Thebes as a whole, and has also been invaluable for our understanding of the chronology and layout of the Kadmeia (1973). Dakouri-Hild (2001a; 2001b; 2005; 2010b) has pulled together a variety of evidence for the Kadmeia from the extensive, yet difficult to collate, rescue excavations; the result has been a synthesis of evidence for palatial and household

architecture, workshops, writing and administration, and fortifications.⁶ This work represents the great potential of relationships between academic archaeology and cultural heritage management, as well as some of the substantial difficulties (Aravantinos 1996; Dakouri-Hild *et al.* 2003).

Orchomenos presents problems of its own. Schliemann was the first excavator at Orchomenos, which began a tradition of German involvement at the site (Schliemann 1881). A problem with the next phase of fieldwork (Bulle 1907) is that most of the Mycenaean material from the German excavations of the site (Bulle 1907) was not published until several decades after the excavations had taken place (Mountjoy 1987; Sarri 2010). Moreover, the fragmentary nature of the excavations has resulted in many of the same problems found at Thebes. There is also the question of what to make of Gla. Many scholars working in Bronze Age Boeotia agree that there was a Mycenaean palace at Orchomenos, and that Gla was a satellite fortress designed to oversee the drainage works and fortification network in the Kopaic Basin (Iakovides 1989; 1995; 1998; 2001; Hope Simpson and Dickinson 1979: 235-240; Hope Simpson and Hagel 2006: 73-75, 77-78). This, too, is problematic, as it presupposes that a Mycenaean palace (Orchomenos) supposedly in sometimes-violent competition with its neighbor (Thebes),⁷ would not be fortified, while its satellite outpost (Gla) would have some of the most impressive fortifications in the Mycenaean world. Furthermore, recent fieldwork at and around the citadel at Gla has revealed that this architectural juggernaut was much more complicated than previously thought: geophysical and pedestrian survey suggest that field systems

⁶ Dakouri-Hild is also in the process of publishing the excavations of Keramopoullos from the early 20th century.

⁷ Bronze age conflicts between Thebes and Orchomenos are postulated mainly based on the literary tradition in which Herakles and the Thebans destroy Orchomenos (Strabo 9.2.40).

were directly related to the citadel (Lane *et al.* 2012) and geophysical survey and simple brush clearance have allowed the mapping of extensive, freshly discovered sets of buildings within the enceinte (Stamos *et al.* 2012). As I discuss below, it seems likely that the installation at Gla represents a relocation of Orchomenian palatial authority in LH IIIA2/LH IIIB1, while Orchomenos remained an important, ancestral center.⁸

The third Mycenaean territory of interest, Thessaly, was supposedly home to the palace of Iolkos (Adrimi-Sismani 2006; 2007). There is substantial disagreement, however, over (1) whether this rightly belongs in discussions of the “Mycenaean” world and (2) whether and where a Mycenaean palace existed in the region. Three recent articles on this subject come to very different conclusions. In the first, Adrimi-Sismani (2007) argues that recent work in Thessaly reveals a substantial Mycenaean presence in the region, as well as a palace (Iolkos) at Dimini. Prior to this another site had been proposed as a potential location for Mycenaean Iolkos: the Kastro at Volos (Theocharis 1961). Adrimi-Sismani (2007) is also responding to previous exclusions of Thessaly in major reviews of the Mycenaean palatial period (e.g., Rutter 1993; Shelmerdine 1997) and marginalization of the area as a periphery (Feuer 1983; 1999). A different interpretation of the evidence is offered by Pantou (2010), who presents an alternative, non-palatial model for political and social organization, in which power was heterarchically distributed between various groups at different sites: Dimini, Pefkakia, and Kastro Volos. Finally, Feuer (2011) continues to characterize this area as peripheral in a discussion of “being Mycenaean” where he argues that certain peripheral areas (such

⁸ The date of the Treasury of Minyas tholos at Orchomenos is roughly contemporary with the construction of Gla, which signals that the site remained of primary importance, even if a new center was established at Gla.

as Thessaly) went through a process of “Mycenaeanization”, in contrast to the Mycenaean “ethnogenesis” experienced elsewhere. I am skeptical of the utility of this argument about ethnicity, especially since growing bodies of evidence suggest we should allow for Mycenaean palaces to look and behave differently in different regions. Following Yoffee (2005: 20) I am much more interested in questions of what past polities actually *did* than what we decide to call them.

For Athens, there is general consensus that there was a Mycenaean center here, based on a variety of mytho-historical and archaeological evidence. Although a palace of the type found at other Mycenaean centers cannot be known, on account of centuries of later building, destruction, and rebuilding on its likely location, the Acropolis, the settlement pattern, fragmentary architectural remains, Mycenaean fortification, mortuary record in the area, and protected spring are all comparable to what is found at other palatial centers (Immerwahr 1971; Mountjoy 1995; Wright 1994; Iakovidis 2006). Indeed, one reconstruction of the western entrance to the Acropolis would make it almost identical to that of Tiryns (Mylonas Shear 1999).

Finally, there is the problem of comparing these Mycenaean centers, especially pressing since we tend to think of them as peer-polities (Cherry and Davis 2007: 120). Beginning with size and layout, we see a vast discrepancy (Fig. 5.2). Gla and Thebes dwarf all other known Mycenaean centers. Moreover, Thebes is the only site where substantial amounts of Linear B have been found, though isolated examples are also known from inscribed stirrup jars (ISJs) at Orchomenos, Gla, and Eleusis (Killen 2011: 94), and an inscribed stone weight at Dimini (Adrimi-Sismani and Godart 2005). Recently, our picture of Mycenaean Thessaly has been changed by the discovery of Linear B tablets at Kastro Volos, found in the course of cataloging pottery from

Theocharis's 1956-1961 excavations (Stamatopoulou 2011: 77-78; Skafida *et al.*, forthcoming). While this is perhaps not unexpected, its location at Kastro Volos, while other vestiges of palatial administration are present at Dimini, again raises the question of the location of palatial authority, and may add to Pantou's (2010) notion of more distributed, rather than centralized administration.⁹

The discrepancy in the amount and type of textual evidence found at these centers is due partially to the scale and quality of archaeological investigations, as is the amount of evidence for craft production, import consumption, and architectural variation and elaboration. In all of these categories Thebes outshines the rest, though the aforementioned conditions must be kept in mind. But size is not all that matters here, and these other sites are discussed as palatial settlements for good reasons. Two features indicating the presence of a palatial authority, the megaron and impressive funerary or fortification architecture, are found at Dimini, Gla, Thebes, and Orchomenos. While a megaron is not known at Athens, this seems to be the result of obliteration, rather than absence.¹⁰ It seems plausible, therefore, that Mycenaean palatial settlements existed at all of these sites. From the settlement evidence discussed below, there were also a number of second-tier centers (some of which are named in the Thebes tablets, some of which seem apparent based on the size and location of the settlement); a third tier is represented by

⁹ The distance between Dimini and Kastro Volos is only 3 km, and Pefkakia is only about 1 km away from Kastro Volos (Fig. 5.1). This might be compared to the proximity of sites in the Argolid, where Mycenae, Midea, Tiryns, and Argos are all within 15 km of one another, though the closest of these (Midea and Tiryns) are still at least 6 km apart.

¹⁰ Iakovides (2001: 192) has argued for evidence of a megaron in the form of a Mycenaean column base, though this is far from definite. The Mycenaean fortifications are certainly there (both on the Acropolis, and on the north and especially the south slope) and Mycenaean tombs surround the Athenian Acropolis. Also the area of the Pelargikon attests to the existence of a lower town or "Unterburg."

smaller settlement remains; and some scholars would suggest a fourth tier of hamlets or farmsteads, based on ceramic scatters (e.g., Cosmopoulos 2006: 205).

We can be fairly confident about this general picture of Mycenaean settlement in central Greece, in spite of the concerns with understanding the first-order Mycenaean centers surrounding the Euboean Gulf. Problems in the excavated evidence, over-reliance on literary traditions, and expectations about what a Mycenaean palace *should* look like abound, and tend to distract from synthetic regional or macro-regional studies. But we must work with what we have, and I follow Fossey (1988: xiv) here in arguing that it will “not advance our discipline if we take too frequent a refuge behind a plea of insufficient evidence, thus shirking our responsibility to the material while avoiding exposing ourselves to question and dispute.” Throughout the study area it is possible to draw upon excavations, texts, regional settlement evidence, and wider sets of Aegean and Mediterranean relations to understand the networks that these problematic palatial settlements built, and from there how they functioned in relation to one another and their broader contexts.

The Linear B Archive at Thebes

Textual evidence that explicitly mentions connections between sites is a natural starting point for building a network. Significantly, the adaptation of the Linear A writing system to Mycenaean Greek represents a technological innovation that had monumental and state-forming implications for the condensation, articulation, and conceptualization of networks in the Greek world. Writing allowed the Mycenaean elite both to expand and to inscribe their authority over wider territories in a way immediately visible to officials and known to the wider populace. It also created a form of surveillance that had potential

implications for everything from agricultural practice to the daily lives of individual craftsmen, herders, or farmers. While writing was only directly accessible to a small sector of society, it must be considered that its significance was understood and felt across nearly all social strata as an elite and exclusive medium of communication. Writing served as a legitimization of palatial authority through its exclusivity of use and reification of what had been, should have been, or would be done. So while monumental architecture and conspicuous consumption served as the most visible reminders of social stratification, the actual *practices* of administration were likely felt at multiple scales; while most people probably lived and died without seeing the palace or *wanax*, they were aware of their obligations to the state.

In Chapter 2 (pp. 34-37) I discussed the geographical relationships implied by the Linear B tablets at Thebes as part of a wider discussion of conceptions of regionality in antiquity. I pointed to the occurrence of toponyms and their use in constructing scholarly notions of hierarchy and hegemony for the territory surrounding Thebes, following Del Freo (2009) in highlighting the variety of relationships these tablets reveal, which include naming other regional authorities, as well as tributary areas. I disagree, however, in the interpretation of some of the hierarchical relationships, and believe it was not as straightforward as some interpretations of the tablets suggest. There is little to indicate direct Theban *control* of Euboea, for example, though it may well have been under Theban *influence*. The paltry offerings from Amarynthos and Karystos (one pig from each) hardly suggest a serious tributary relationship. I also noted the existence of longer-distance relationships between Thebes and other Mycenaean sites, which I discuss further below. These tablets have great significance in terms of territory and interconnectivity for

Thebes, as well as for Theban regional authority and the nature of palatial administration (Table 5.1).

Linear B	Location	Interpretation
<i>te-qa</i>	Thebes	Palace
<i>e-re-o-ni</i>	Eleon (modern Arma)	Second order center
<i>e-u-te-re-u</i>	Eutresis	Second order center
<i>ku-te-we-so</i>	Unknown – likely close to Thebes?	Second order center; suggested that it is close to Thebes based on location of other second order centers
<i>ke-re-u-so</i>	Kreusis	Port site on the Corinthian Gulf; possible second-order center
<i>a₃-ki-a₂-ri-ja</i>	Unknown – likely a coastal site on the Euboean Gulf	Related to later Greek term used to refer to sandy shores; perhaps Glypha/Aulis?
<i>po-ti-ni-ja wo-ko</i>	Potniai (modern Tachi)	House/shrine of the potnia; unit of wool sent here
<i>po-to-a₂-ja</i>	Mt. Ptoon	Group of men sent here
<i>ra-mo</i>	River “Lamos” flowing from Helicon (Modern Archontitsa)	Unknown quantity of wool sent here
<i>a-ma-ru-to</i>	Amarynthos	1 pig sent to Thebes; shipment of wool to Amarynthos
<i>ka-ru-to</i>	Karystos(?)	1 pig sent to Thebes
<i>[? ki-ta-]ro-na</i>	Kithairon(?)	Something toward Mt. Kithairon
<i>wa-to</i>	Western Crete	On inscribed stirrup jar; attested in Knossos tablets as near Chania
<i>o-du-ru-wi-jo</i>	Western Crete	On inscribed stirrup jar; attested in Knossos tablets as near Chania
<i>i-si-wi-jo-i</i> (anthroponym)	Isos (Pyrgos, near Anthedon)	Men from Isos as recipients of wine
<i>mi-ra-ti-jo</i> (anthroponym)	Miletos	Several tablets record allotments of barley
<i>ra-ke-da-mi-ni-jo</i> (anthroponym)	Lakedaimon	Records quantities of wheat coming in? and wine being sent there

Table 5.1 Connections with Thebes based on Linear B documents (data compiled from Del Frio 2009; Dakouri-Hild 2010a; Palaima 2011)

Del Freo (2009) and Palaima (2011) have both recently reviewed regional implications of the Linear B tablets, for Boeotia and Attica and Euboea, respectively. The toponyms and select anthroponyms that have implications for Thebes' regional and interregional relations are listed in Table 5.1. Del Freo (2009) uses the Linear B evidence, along with what is known about later place-names and evidence of Mycenaean settlement (drawn from Fossey 1988) to identify where in space these toponyms may have been located and what their relation to Thebes and the surrounding territory may have been. As noted above, he uses this evidence to argue for a three-tier settlement hierarchy, with the palace on top, followed by a few second order centers (Eleon, Eutresis, and *a₃-ki-a₂-ri-ja*), followed by a variety of smaller sites (Del Freo 2009: 65-67). This is comparable to what is known from the much more complete Linear B corpora and the archaeological record from the kingdoms of Knossos and Pylos (Bennet 1985; 1995). It is also noteworthy that the Linear B archives of Pylos record some 240 toponyms (Bennet 1995: 594), while those at Knossos record about 100 (Bennet 1985: 233). Again, though, it must be stressed that the Thebes records come from only piecemeal excavations of the site, whereas Pylos and Knossos were excavated much more comprehensively. There may very well be more extensive records that simply have not been found. Of the texts that are known, and the archaeological sites to which they can be related, Del Freo (2009) proposes that their distribution across the Boeotian landscape suggests a territorial division between Orchomenos and Thebes, as attested in later periods.

Given this picture of the nature and scope of the Linear B records at Thebes, what do they tell us about the individuals operating and living under the Mycenaean palace at Thebes? First, the Linear B tablets alone attest a wide range of interactions across local, regional, and interregional scales. They also attest some sort of administrative concern

with a wide territory, though this does not necessarily imply a hegemonic relationship. Aravantinos *et al.* (2001) argue that this administrative concern is evidence that Thebes controlled Euboea, as well as the harbor at Aulis, and had an extended sphere of influence that included Attica and the Saronic Gulf, as well as Lakonia, though Palaima (2011: 56) rightly notes that the occurrence of toponyms or *ethnica* does not prove or disprove control over these particular places. The relationships shown by these documents are given in Table 5.1, which can be mapped to create a Theban palatial administrative network. When this network is overlain onto boundaries based on the cost of passage across the landscape from each of the Mycenaean palaces, the places mentioned as regional connections fall neatly within the territory ascribed to Thebes on a purely topographical basis (Fig. 5.3).

As noted above, significant amounts of Linear B come only from Thebes in central Greece. However, it may be useful to model direct connections between palatial settlements and other major settlements in the area – this type of relationship could be presumed without textual evidence, though Linear B from Thebes and other Mycenaean centers suggests that we should connect the palaces to at least three second-order centers, which in turn would be connected to the smaller-scale sites near each one. While this overall connectivity is discussed below, the Linear B tablets illuminate a centralized picture of regional palatial connections, which are crucial for the operation of the palaces in their wider contexts. Linear B evidence also suggests that all palatial centers were involved in a wide variety of agricultural and craft-production networks, the dynamics of which are discussed next.

Agricultural and Craft Production

Economies of production are treated in some depth in the Linear B tablets from Pylos and Knossos, which has allowed researchers to reconstruct the palatial involvement in different types of agricultural and craft production fairly thoroughly. Halstead (e.g., 1992; 2007) has been particularly active on this issue, and his interpretations are widely accepted, not least because they emphasize the complexity and networked nature of production. While the Thebes tablets are less complete, so less clear, all signs point to the same type of centralized authority, which took in enough agricultural produce for the palace to operate, and controlled certain aspects of craft production associated with high status. Linear B tablets generally describe a number of regionally produced goods coming into the palaces, including leather, livestock, timber, grain, olives, and wool, among other things.

Going beyond textual evidence, several aspects of production can be accessed through the archaeological record and simple geography. It is no coincidence, for example, that Mycenaean centers are exclusively located on large fertile plains, almost to the extent that where one of these exists, there is likely to be a sizable Mycenaean site on it. The distribution of such plains around the Euboean Gulf was discussed in Chapter 4 (Fig. 4.17), and is made especially apparent by modern records of arable and agricultural land (Fig. 4.18). Thebes and Orchomenos/Gla are by far the most well endowed in terms of agricultural land, while other locations, such as Agios Ilias (Psachna) in the Psachna plain, or Lamia at the head of the Malaic Gulf might beg the question, “why is there *not* a palace here?” It is not that simple, of course, but the fact is that wherever there is a Mycenaean palace or other major site, there is immediate access to a large agricultural plain. This relationship is highlighted in the case of Gla. First, the Kopaic basin was

drained at the beginning of LH IIIB to create the largest continuous swath of agricultural land in all of Greece (Knauss *et al.* 1984; Knauss 1987). Second, whether we see Gla as a mega-fortress overseeing a network of smaller fortresses, a redistributive center, or a palatial center in its own right (to name only a few interpretations), there can be no mistake that it owed its existence to the control it was able to exert over this newly acquired land. Finally, the fortress system surrounding this plain, and the ultimate destruction of the infrastructure that created it, suggests that whatever force was responsible for the destruction of the palaces (or at least this palace) was well aware of the importance of agriculture, specifically as a practice and symbol of state integration.

Networks of agricultural production as they tie in to the palace are complex. It is clear that Mycenaean economies were not redistributive in a strict sense, but rather operated by systems of taxation that would support the palace. This system was still quite integrative, though, drawing in animal and vegetable products from throughout the hinterland and surrounding territories (Fig. 5.4). In some cases, the influx of products to the palace clearly represents a form of taxation, but in other cases may represent an exchange-based relationship, as may be the case of Amarynthos and Karystos, for which the volumes (one pig each) in transit are very small.¹¹ Nonetheless the immediate surroundings of the palaces were the most integrated into this agricultural system, as evidenced by the relative proximity of second-order centers in the territory of Thebes, and the greater prominence of nearby places in the Linear B tablets. What we have, then, is a fairly integrated local network of agricultural production, partly overseen by the

¹¹ Of course, we do not have long-term Linear B records, and the records concerning Amarynthos and Karystos may record only the latest installment of a regular offering. There is clearly some sort of exchange, however, as another tablet (Of 25) records six units of wool (c. 18 kg) going *to a-ma-ru-to* (Del Freo 2009: 42).

palace, and partly controlled by the palace through taxation or exchange, used to support the palace and its related industries. Such accumulations were also used for state-sponsored public activities, such as feasting, itself an exercise in integration, group formation, and placemaking. Moreover, palatial architecture, especially the presence of store rooms in close proximity to the megaron in several of the palaces, suggests that there was at least some symbolic aspect to certain types of agricultural storage, most likely involving oil and wine. In sum, it is not necessary for Mycenaean agricultural systems to be fully redistributive, in order for them to be highly integrated and crucial for the maintenance of symbolic and economic authority.

Certain aspects of craft production are tied explicitly to the palace. At Thebes, these include wall-painting, jewelry production, certain types of stone-working, ivory and boar-tusk working, potting, and glass production (Dakouri-Hild 2005: 181-186). At Dimini (a contender for Iolkos) there is also evidence of jewelry manufacture, ceramic production, and metal and ivory production (Adrimi-Sismani 2007: 164). Most of these production processes are multi-scalar by nature, involving materials and knowledge that coalesce in the palaces from a variety of locations. The influence of Minoan wall-painting on Mycenaean industries is well known (Chapin 2010: 230) and Brysbaert (2008a; 2008b) has suggested similarities in production techniques between Thebes, Gla, and Orchomenos, raising the possibility of itinerant craftsmen operating regionally. Brysbaert (2008: 2761) also notes a general decline in quality from LH IIIA to LH IIIB contexts, suggesting, perhaps, that Minoan craftsmen or influence may have been directly involved in the earliest Palatial wall paintings, and not in the later ones. Moreover, the use of Minoan aspects of material and visual culture by the Mycenaean elite played an important role in state formation (and maintenance) processes, and the production of

similar such objects in palatial contexts seems to have been a major priority for the individuals controlling the palaces.

Of course, Minoan-Mycenaean connections are only one aspect of these networks. Raw materials, especially metals, had to be procured, often over long distances, as did other resources such as ivory and obsidian. Gold most likely came from Macedonia or Thasos, perhaps through a connection with the site of Thessaloniki Toumba, which exhibits evidence of gold melting and production (Vavelidis and Andreou 2008). The nearby site of Methone, just south of Thessaloniki on the Haliakmon delta, also has ample evidence for early gold-working, as well as some 20 Mycenaean tombs (Papadopoulos, pers. comm.). Lead Isotope Analyses (LIA) of silver from several locations in the Mycenaean world (Mycenae, Vapheio, Athens, Menidi, Perati, and Thorikos) were used to argue that the Lavriotiki was almost the exclusive source for this metal during Mycenaean times (Stos-Gale and Gale 1982), though later analyses suggest that northern Greece, namely the Chalkidiki, was a major source as well (Stos-Gale and Macdonald 1991: 272-279). This has major implications for interactions between the Mycenaean “core” and the northern Aegean (Papadopoulos 1996b: 173-174; 2005: 589), reinforced by the presence of Mycenaean pottery at Torone (Cambitoglou and Papadopoulos 1993; Morris 2009/2010). While, to my knowledge, no silver or gold from the regions surrounding the Euboean Gulf (excluding Attica) has been subjected to Lead Isotope Analysis, both land and sea routes from the Argolid to the Chalkidiki lead directly through here, and would have brought populations in these areas into contact with the Mycenaeans in the Argolid from the Shaft Grave Period onward.

For copper, the Lavrion and Cycladic sources seem to have been used more in earlier periods than later (Bassiakos and Tselios 2012); it is likely that these, as well as

Sardinian sources, would be exploited by Mycenaeans abroad. They may have been, but several authors now agree that all oxhide ingots in the Mediterranean with a date of 1250 BCE or after likely came from Cyprus (Knapp 2012), and some even suggest that they all came from a single ore source at Apliki (Gale and Stos-Gale 2012). Lo Schiavo (2012: 147) expresses doubt that all oxhide ingots from Sardinia came from Cyprus, though some certainly did. The use of LIA in provenance studies is a thorny issue, to say the least, and a matter of long-standing debate in which “archaeologists” and “science-based archaeologists” are bitterly divided (e.g., Knapp 2000; Gale 2001). While specifics are frequently a matter of disagreement, broad trends, such as a marked rise in Cypriot copper production in the Late Bronze Age, and its impact on the Aegean, can generally be agreed upon. That being the case, it seems more likely that copper arrived at central Greek palatial workshops first from Lavrion and the Chalkidiki, and later from Cyprus.

Wood for fuel and construction were universal needs, but particularly relevant to the palaces for both construction and craft production. While wood that could be used for fuel was fairly widely available, larger trees for monumental construction and ship-building had to be sought in the more thickly forested areas, described in Chapter 4 (Fig. 4.18).

While it is interesting to point out the diverse geographical connections necessary for palatial production, this does not say much that is not apparent through relatively simple reasoning. We can, however, know something about the nature of these networks, based on what happens after the collapse of the palaces at the end of LH IIIB2. Contrary to conventional notions of decline in long-distance relationships after the collapse of the palaces, long-distance interactions are largely maintained, especially in the Euboean Gulf (Crielaard 2006; Parkinson 2010). This suggests that the aspects of palatial production

that relied upon them were mediated by regional connections, a fact not surprising given the inland location of all of the palaces. But it also gave the coastal settlements through which imports had to pass a stake in these networks, which they exploited following the LH IIIB destructions. So while consumption and certain aspects of production were highly restricted by the palaces, they depended on their regional networks for raw material procurement. The distributed nature of craft production explains the continuation of some long-distance contacts following the collapse of the palaces, in contrast to the coincident loss of writing and other trappings of centralized palatial authority. Given this view of the distributed character of agricultural and craft production, which palaces nonetheless strove to control at least partially, let us turn to the consumption of exotic goods, with which elites aimed to retain an exclusive relationship.

Import Consumption and Palatial Authority

Data on all “international” imports to Mycenaean Greece were usefully compiled nearly two decades ago (Cline 1994). Our picture has not been significantly changed by the excavation of new material since then (Cline 2007; 2010a), and Cline’s catalog has been put to a variety of uses, most recently by Parkinson (2010) and Burns (2010a). The data show a distinct shift in the amount of imports from the LH IIIA to LH IIIB periods, with Cretan sites, Knossos and Kommos, having distinctly more imports than the mainland sites of Mycenae, Tiryns, and Thebes in periods before LH IIIB, followed by the opposite pattern in LH IIIB (Table 5.2) (Cline 1994: 89-90). This pattern could be the result of a Mycenaean takeover at Knossos (Cline 1997), and it at least seems to represent a reorientation of eastern Mediterranean trade networks toward the newly founded Mycenaean palaces of the mainland, and away from Crete.

Site	LH I-II	LH III	LH IIIA	LH IIIA-B	LH IIIB	LH IIIC	Total
Knossos	35	4	6	-	1	2	48
Kommos	10	15	94	39	23	-	181
Mycenae	14	6	8	6	45	4	83
Tiryns	-	5	1	-	25	3	34
Thebes	-	2	-	1	38	-	41

Table 5.2 Total imports at select Aegean sites with Late Bronze Age dates (data from Cline 1994: 16-19, Tables 6 and 7)

Significantly, however, Kommos, in southeastern Crete, seems to remain well-connected, suggesting that certain hubs remained important for long-distance trade, despite changes in political structures; this appears to be a diachronic trend at Kommos, which has demonstrable Phoenician connections in the Early Iron Age as well (Callaghan *et al.* 2000). In the interpretation of these data, Cline (2007: 191) has pointed out that most of the 38 orientalia from Thebes come from a single context – a hoard of cylinder seals from the so-called “Treasury Room” (Porada 1981) – suggesting that they should be taken as anomalous. This is possible, but, again, we must keep in mind that only small, fragmentary sections of Thebes have been excavated. If anything, we should expect much more such material from Thebes, given the wealth of imports found in only a few excavated contexts.

The chronological scope and origins of excavated material from Thebes are also telling (Table 5.3). There is no significant quantity of imports until LH IIIB, coincident with the expansion of the palace, the appearance of Linear B, massive expansion in the fortification of the site, and dramatic increase in settlement remains on a local and regional scale. The provenances of these imports are also significant, though require thoughtful consideration. While their origins include different parts of the ancient Near East, including Egypt, Syro-Palestine, Cyprus, and Mesopotamia (as well as Anatolia

[Porada 1981: 46], though Cline does not mention this), this does not mean that they came to Thebes directly from these original locations.

Origin	I-II	III	IIIA	IIIA-B	IIIB	IIIC	Total
Egypt	-	1	-	-	-	-	1
Syro-Palestine	-	1	-	1	8	-	10
Cyprus	-	-	-	-	11	-	11
Anatolia	-	-	-	-	-	-	-
Mesopotamia	-	-	-	-	19	-	19
Italy	-	-	-	-	-	-	-
Total	-	2	-	1	38	-	41

Table 5.3 Imports found at Thebes by period (data from Cline 1994: 30, 46, 58, 66, 77, 83)

Parkinson (2010) has attempted to deal with this issue in a broader sense by grouping imports into how many incidents of contacts they represent, adding a temporal dimension by looking at interactions per decade. From the 41 imported objects at Thebes, he sees a minimum number of seven interactions (Parkinson 2010: 23). This data suggests infrequent, yet important and meaningful long-distance interactions that intensify quickly in the LH IIIB period, corresponding with what we know about the strength of weak ties in the general behavior of complex networks (Chapter 3).

Aside from the “international” trade described by Cline (1994), there are numerous indices of long-distance interaction that merit further discussion. These are various raw materials and artifacts that come from distant locations in the Aegean or Near East, including metals, ceramics, and stone (especially obsidian). Local and regional aspects of craft production have been discussed above, and the imported objects bespeak networks that go far beyond connections between point A and point B (Table 5.4). Dimini-Iolkos also has a wealth of imports representing important long-distance

connections. Again, these are almost exclusively in the domain of the palace, whether found at the palace site itself or in the two tholoi associated with it.

Artifact Type	Material	Provenance
Inscribed Stirrup Jars	Ceramic	Chania, Crete
Seals	Lapis Lazuli	Cyprus; Afghanistan
Chipped Stone	Obsidian	Melos
Jewelry	Gold, silver	Lavrion, Chalkidiki, Macedonia, Thasos? Siphnos? Egypt?
Vase	Glass	Egypt
Scepter Head	Ivory	Syria/Palestine
Various	Bronze	Tin: Afghanistan? Turkey? central Mediterranean?; Copper: Cyprus, Lavrion, Chalkidiki

Table 5.4 Evidence for LH IIIB long-distance interactions at Thebes

Knapp and Cherry (1994) have proposed a variety of ways in which we might view trade in the eastern Mediterranean Bronze Age, none of which must be seen as mutually exclusive. These include centralized control, localized control, freelance trade, and gift exchange. Evidence exists for all of these practices, in different ways, and they should be seen as co-constitutive types of long-distance interaction, rather than options from which we must select. For example, centralized control is dependent on localized control, since it is unlikely that the *wanax* made all trade-based decisions by himself. Gift exchange can be seen as either an incidental, specific phenomenon, or the terms in which the trade of particular goods are cast (Cline 1995). And the cargoes of shipwrecks, such as Cape Gelidonya (Bass 1967) and Uluburun (Bachhuber 2006; Pulak 2008), contain materials from multiple locations, which have been used to argue for a variety of the above-mentioned modes of exchange. The various provenances of these goods suggest that trade was most likely the domain of freelancers, who peddled cargoes from multiple destinations, probably to multiple ports. This scenario seems far more likely than

formalized gift exchange, or centralized or localized control. While the nature of the linkages between different sites and regions is of great interest, a network approach allows us to focus first on the linkages themselves; the types of interaction can then be useful in describing how these networks play out. As described above for imported goods related to craft production, long-distance networks did not break down following the palatial period, which highlights their mediation through coastal sites that become prominent in the Postpalatial Bronze Age, rather than dependence on the palaces themselves. Although exchange in these objects was mediated through both regional networks and freelance traders, consumption of particular exotica was certainly in the domain of the elite, and was carefully controlled to project exclusivity and access to the outside world (Burns 2010a). Tensions caused by this exclusivity, among other things, may have contributed to the ultimate collapse and rejection of the Mycenaean palace system.

Inter-State Relations

A final aspect of discussion of the Mycenaean palaces in central Greece must engage with their relationship to other complex polities, both Mycenaean and Near Eastern, an issue on which network thinking can certainly shed light. Mycenaean polities possess sets of shared features that developed out of relations such as competition, warfare, competitive emulation, symbolic entrainment, and the exchange of goods (Renfrew 1986: 8-10). Trade is apparent through the presence of pottery from other regions, not least inscribed stirrup jars (Haskell *et al.* 2011), and warfare is often referenced in discussions of the martial character of Mycenaean figural art and violent interpretations of palace destructions. Symbols of authority also cross great distances in

the form of the megaron, cyclopean masonry, tholos tombs, and frescoes. Given the numerous material and conceptual links evident in the archaeological record, it may seem curious that the Linear B tablets have very little to say about relationships between polities, though extra-regional interactions are not really the domain of Linear B, which focuses mainly on production and consumption within individual palace systems. At the same time, however, the toponymics and onomastics of many Linear B documents suggest that a certain amount of multiculturalism was present in Mycenaean society in the form of resident foreigners as workers or settlers and deities with non-Greek names (Nikoloudis 2008a). The nature of interactions between Mycenaeans and “others” is far from clear, although the occurrence of them is certain.

In the wider world of the eastern Mediterranean, a crucial question concerns how the Mycenaean polities of central Greece interacted with the states of the ancient Near East. Hittite texts making apparent reference to the Mycenaeans of Mainland Greece with the term Ahhiyawa, argued to be a form of “Achaea,” has led to much debate over whether this interpretation of the term is correct, and, if so, what type of relationship it implies (Güterbock 1983; Latacz 2004). This issue is generally referred to as the “Ahhiyawa question”, or the “Ahhiyawa problem” (for recent reviews see Fischer 2010; Beckman *et al.* 2011). The identification of Ahhiyawa with some part of the Mycenaean world is generally accepted as affirmed (e.g., Beckman *et al.* 2011: 6). Whether this refers to a specific polity within the Mycenaean world or the Mycenaean world collectively remains less certain. Arguments for a Mycenaean capital at Thebes (Latacz 2004) have been strongly contested (Kelder 2010: 88-93) in favor of Mycenae itself, based on the evidence for its long-distance connections (Kelder 2010: 93-99). An immediate problem with all of these arguments is that the Linear B evidence contradicts

any kind of argument for political integration across the Mycenaean world. As an alternative, there is no reason why Ahhiyawa cannot be a cultural designation, in much the same way that we think of Mycenaean as a cultural, rather than political designation. And when references are made to a king of Ahhiyawa there is no problem accepting this as a reference to a king within the Mycenaean cultural sphere. Homer does the same thing, referring to numerous different leaders of the Achaeans as kings. Given the fragmentary nature of the textual record in general and the few texts where Ahhiyawa appears, it would seem that a general, rather than specific, interpretation of the term makes more sense. On the present state of the evidence, there does not seem to be a Theban or Mycenaean hegemony across the Aegean, which would also favor Ahhiyawa as a cultural designation, rather than a political one.

People from the Aegean (most likely Cretan) also appear in Egyptian records as *keftiu*, though this is less problematic than the Ahhiyawa issue. Finally, we know that Mycenaeans were involved in trading relationships around the Mediterranean, though especially with Cyprus and the Levantine coast, based on the presence of Mycenaean pottery in these areas, probably as a mid-range commodity (Smith 1987; van Wijngaarden 2002).

A final word with regard to palatial interaction with other parts of the Mediterranean should be said about the appearance of foreigners in later mythological traditions. Mainly this comes in the form of unanswerable questions. What does it mean that Kadmos, the supposed founder of Thebes, was a Phoenician with major Cretan connections (his sister, Europa, was brought to Crete by Zeus and was the mother of Minos)? How significant is Herodotus' statement that Kadmos brought writing to Greece? Is this a distant reference to Linear B, and Kadmos bringing it to Thebes from

Crete? (This seems unlikely.) Or is this an anachronism concerning the adaptation of the Greek alphabet from Phoenician in the 8th century? These are long-standing questions (Edwards 1979; Beekes 2004) and there are obviously not clear answers. Yet there is certainly an association with the eastern Mediterranean, Crete, and the introduction of new elements of civilization. That these are preserved in mythology and later history is not a coincidence, even if they are unlikely to preserve information about real and specific events.

Territorial Analysis in Central Greece

The diffuse complexity of Mycenaean palatial interactions in the Late Bronze Age tends to overshadow what is going on in the rest of the world at this time. The dynamic power-relationships expressed in monumental architecture, wealthy grave goods, and written administrative systems illustrate a variety of interactions, not least because of the tendency of archaeologists to focus on the types of material evidence associated with these issues. This section turns briefly to local and regional interactions that are not directly associated with the palaces. Issues discussed below include settlement patterns, territories and boundaries, production networks, and regional mobility.

Settlement Networks

The settlement patterns for the various regions discussed above are documented to varying degrees. For all of the successes of archaeological survey in the Mediterranean, and all of the growth it has seen over the last few decades, data comparability remains a major issue (Alcock and Cherry 2004), even more so at large geographical scales. The applicable datasets are discussed in Chapter 2, so need not be rehearsed here, but the

general patterns observed for the regions surrounding the Euboean Gulf are fairly well in line with those observed by Hope Simpson and Dickinson (1979). That is, there is a dramatic increase in site numbers between LH IIIA1 and LH IIIA2-B (Fig. 5.1).

The distribution of settlement for the regions surrounding the Euboean Gulf has been documented to varying degrees, and problems in the comparability of data would make generalizations based on specific site numbers of little utility. It has long been established that site numbers increase in almost direct proportion to the intensity of a survey (Cherry 1983: 410, Fig. 1). As discussed in Chapter 2, a variety of types of survey have been undertaken in all of these regions, each operating with different methods, let alone criteria for site definition. At any rate, numbers of sites alone are not meaningful without some consideration of how they function in relation to one another. This relies largely on modeling local networks, shown in their wider regional context in Fig. 5.5. None of these sites are likely to exist in isolation, and major settlements are likely to have had explicit links to palatial centers, along with sites of particular geographical significance, such as ports or bottlenecks. Moreover, small sites also need to be connected to one another in order to generate sustainable populations. It can thus be assumed that each site is connected to at least three neighbors, plus a site higher up on the settlement hierarchy, whether a second-order center or a palace itself. While we cannot see the exact nature of these relationships archaeologically, their existence, based on this model of necessary contact and proximity, has great implications for the major social changes seen at the end of this period. Moreover, these small-scale links tend to reinforce the territorial relationships discussed next.

Territories and Boundaries

As Cherry (2010: 107-108) points out, we live in a world of states, where territories are clearly demarcated by lines on maps, and strict national laws and international agreements denote what can and cannot be done within and between these boundaries. This should not be seen as analogous to any part of the ancient world. Boundaries existed, to be sure, and territories were present and contested, won and lost, but these must have been more fluid and relative than we tend to render them through the methods discussed below. It may be more useful to think of territories in terms of networks, as people would seem far more likely to conceive of territory and distance based on links that actively create relationships between places, rather than boundaries that merely contain such places. That said, geographical methods of modeling territory provide an important backdrop to these linkages, and can offer suggestions for filling in the blanks when archaeological evidence is lacking, as it often is.

There are a variety of possible ways to model the territory of ancient polities. Thiessen polygons have long been popular for the Mycenaean world (e.g., Bintliff 1977: Fig 4; Galaty and Parkinson 2007a: 2). These demarcate boundaries that are equidistant from all input points and are used to model territories over which polities, represented by these points, would have an influence (Fig. 5.6). This is a simple enough operation, based solely on Euclidean distance. It can be improved by introducing topography, in order to create territorial allocations based on the time or effort required to cross the landscape. This allows the generation of a model that takes into account actual geography, which we saw in Chapter 4 plays a very real role in demarcating regions that are quite resilient over time, despite social and political upheaval. Such a model is most helpful when viewed in light of our knowledge of particular historical circumstances and known connections

between places. Creating such a territorial allocation for the Mycenaean palaces can thus produce a meaningful, if not entirely unexpected model (Fig. 5.7).¹² At first glance, these boundaries are almost identical to the Thiessen polygons of Fig. 5.6, yet there are subtle differences that correspond with what we know about regional networks, as seen in Fig. 5.3. The most meaningful distinction is the boundary between Thebes and Orchomenos, which puts Larymna, which would have been an important outlet to the Euboean Gulf for Gla and Orchomenos in Orchomenian territory in a cost-based allocation, and in Theban territory in the Thiessen polygons.

Cost-based territorial models also correspond with what we know about regional divisions from the textual and archaeological record. On the one hand, we have the Linear B tablets from Thebes, which, for this territory, could not fit better with this model. The sites that are mentioned as falling under Thebes' sphere of influence all fall within its geographically modeled territory (Fig. 5.3). On the other hand, there are many prominent, nearby sites that are not mentioned, which are right on the border between Thebes and Orchomenos, suggesting that they fall within an Orchomenian sphere of influence, not least because the chronology and *raison d'être* for at least some of these seems to be linked to Gla and the drainage of the Kopaic Basin (Hope Simpson and Dickinson 1979: 241).

The situation is less clear for the other territories surrounding the Euboean Gulf. While no Linear B archive exists for Orchomenian Boeotia, Thessaly, Euboea, and Attica, their territories are well defined and have been generally consistent in historical periods. As discussed in Chapter 4, these regions are demarcated by mountains and the

¹² See Bevan (2010) for a similar use of cost surfaces as applied to inter-polity relationships in Minoan Crete.

sea. Several ceramics specialists have marked general trends in pottery found at Mycenaean sites throughout these regions in LH III, though, as is the case in the rest of Greece, styles become homogenized in the LH IIIB period. Despite increasing stylistic uniformity, however, most pottery seems to be locally (or at least regionally) produced (Sherratt 1980; Mountjoy 1993; 1999), suggesting a relatively high level of connectivity within regions, along with increased inter-regional interaction in LH IIIB. Sites on a regional scale can thus be interlinked based on similarities in production, which again correspond to known and modeled territorial demarcations. This is obviously a general picture, determined chiefly on stylistic grounds and seen through the lens of modern notions of regions and what should be considered together. The overall patterns nonetheless seem convincing.

A Braudelian Perspective: *Histoire événementielle*

Following Braudel (1972) we should also attempt to view things at various temporal scales. Much of the discussion in this chapter has focused on processes that occurred over the span of about 200 years. While particular events are difficult to pinpoint in the archaeological record, many events, such as earthquakes, conflagrations, and other destructions, are observable and warrant some consideration, particularly when they are likely to have had a major impact on longer-term processes. What follows are some event-based interpretations of aspects of the archaeological record, given with regard to the wider geographical, chronological, and relational contexts discussed above.

An Orchomenian Palace at Gla?

Orchomenos was a developing center in the early Mycenaean period. It also has several of the vestiges of Mycenaean palaces, including a megaron (Spyropoulos 1974) and tholos tomb (the Treasury of Minyas), which was stylistically (and probably chronologically) quite similar to the Treasury of Atreus at Mycenae (Cavanagh and Mee 1998: 63; Alcock and Cherry 2006). Giving due recognition to the significance of Orchomenos, there is no question that the drainage of Lake Kopais and construction of the fortifications at Gla represent a building and engineering effort greater than anything known in the Mycenaean world at the time (for a summary, see Iakovides 2001).¹³ The drainage of Lake Kopais alone involved the diversion of four rivers through the construction of polders, embankments, and canals, many of which involved cyclopean revetments; building the dykes on either side of the canals involved moving an estimated 2,000,000 cubic meters of earth and 250,000 cubic meters of stone (Knauss *et al.* 1984; Knauss 1987). The magnitude of such efforts suggests that Gla must be considered much more than a military or agricultural redistributive center; it seems far more likely that it was built as a relocation of Orchomenian palatial authority, within their newly acquired agricultural plain, well fortified against its powerful neighbor, Thebes.

The earliest pottery at Gla can be dated to LH IIIA2/B1. LH IIIA2 forms have parallels in LH IIIB1, and, in any case, are found in contexts dominated by LH IIIB1 forms. Iakovides (2001: 142-145) thus dates the construction to the LH IIIB1 period, or around 1300 BCE. Occupation was continuous until the citadel's destruction in LH IIIB2,

¹³ In terms of hydraulic engineering the Tiryns dam comes close, as a monumental earthwork c. 100 m long and 10 m high, faced with cyclopean walls. This dam was used to divert three watercourses into an artificial canal c. 1.5 km long, in order to divert the streams south of Tiryns (Balcer 1974; Zangger 1994).

shortly before 1200 BCE (Iakovides 2001: 145). The palatial characteristics are several, beginning with the monumental circuit wall, far larger than that of any other Mycenaean site, and containing four gates on the west, north, southeast, and south sides. These gates open toward Orchomenos, Anthedon, Mt. Ptoos, and Thebes, respectively, and it is noteworthy that the last two, facing Theban territory are the most heavily fortified. The northernmost part of the site, the melathron, is the most palatial in character, with two megara, whose presumed use is for the top officials at the site (Iakovides 2001: 40). Iakovides specifically writes that this installation was not designed for a *wanax* and his retinue, though there is no reason why this must be the case, considering the little we know about Orchomenos and the fact that access to the melathron was actually much more restricted than Iakovides argues. Visitors would have had to come first through the agora area and then enter another set of gates, before approaching and gaining access to the terrace on which the melathron was built. If anything, access was more restricted than at the more canonical palaces at Pylos and Mycenae. Finally, the numerous frescoes add to the palatial character of the site, and fragments of Linear B suggest that there is much more to this site that has received relatively little archaeological exploration (Iakovidis 1989; 1998; 2001).

Mounting Tensions and Palace Destructions

Palace destructions offer additional glimpses into particular events. Based on their contexts, I suggest that those at Orchomenos, Gla, and Thebes may be the direct or partial result of conflicts between two polities represented by these three centers. Gla was destroyed in LH IIIB2, along with the drainage works in the Kopaic Basin. This wiped out both the palace and the usability of the agricultural plain. Spyropoulos (1974) notes

that the palatial structure (an isolated megaron-type building) at Orchomenos was also destroyed at this time. Thebes seems to have suffered a variety of destructions, variously dated to LH IIIA2-B1, LHIIIB1, and LH IIIB2 (Dakouri-Hild 2010: 698). Fortification is likely to have happened at Thebes after the first of these.

Thebes and Orchomenos are much closer to each other than any of the remaining palatial centers in question, and are also separated by some of the richest agricultural land in all of Greece – a major resource. This proximity would have been a source of stress between these two polities, which fits with the archaeological record of destructions at both sites, and is suggested by later literary traditions. Moreover, the drainage of Lake Kopais and construction of the citadel at Gla drastically changed the relationship between the Orchomenian and Theban polities. But I believe that this goes beyond the general perspective of proxemics. The wider context of these destructions and fortifications can be observed throughout the Mycenaean world. Palaces in the Argolid, too, seem to have pursued major fortifications programs in LH IIIB. The scale of these projects and the large amount of time they would have taken to complete suggest that they were built as a response to mounting tension between Mycenaean polities, rather than a present conflict. The subsequent destructions at the end of LH IIIB are more likely to have been the direct result of such conflicts. It may be the case that a series of confrontations occurred between Thebes, Orchomenos, and Gla, which entered the mythological record and were much transformed to include stories of Herakles flooding the Orchomenian plain by diverting the Kephissos. But sites were not necessarily completely destroyed at the end of LH IIIB and several were reoccupied after a hiatus. What is important, however, is that this marks the final end of the palaces *per se*. While later occupation and building occurs, specifically palatial architecture, art, and burial come to an end, along with any traces of

central administration (Linear B). Of course, these need not be attributed to inter-polity conflict, but they do represent a rejection of the palatial system, which was certainly a collective response to dissatisfaction with state authority in Boeotia.

The pattern in Thessaly may reveal a less outright rejection of the Mycenaean palatial system than that apparent in Boeotia. This may also suggest a less highly centralized nature of palatial authority, as suggested by Pantou (2010), and reinforced by recent findings of Linear B at Kastro Volos (Stamatopoulou 2011; Skafida *et al.*, forthcoming). For instance, certain palatial aspects of material culture, most notably burial customs, persist well into the Early Iron Age. Athens, too, bears little evidence of destruction, and has a strong LH IIIC occupation, as discussed in Chapter 6. Unfortunately, the archaeological record at Athens, obscured by later building (Wright 1994), does not demonstrate direct evidence of centralized authority, so it is impossible to tell whether it was purposefully destroyed and rejected.

The Mycenaean palaces in central Greece all come to an end very suddenly and, for the most part, very conclusively. This seems to have happened through a relatively rapid series of events that likely included, an (over)extension of state authority by taking on monumental defensive building projects in the face of inter-polity tension, the culmination of such tension in armed conflict, and a rejection of palatial authority by those living under it, as evidenced through the total disappearance of Linear B, palatial architecture, and other accouterments of centralized administrative hierarchy. These events dramatically changed the nature of networks on all scales, necessitating a restructuring of social relations around the Euboean Gulf. The result would be quite different than the palatial system examined in this chapter.

What do Networks Tell Us?

Archaeological and textual evidence from the Palatial Bronze Age suggests that Thebes, and probably the other palaces, can be seen as scale-free, highly centralized networks. After steady growth in socio-political complexity in the formative Mycenaean period, the palaces emerged very quickly, as elites rapidly took advantage of long-distance exchange and new administrative technologies to consolidate and expand authority, reifying it both architecturally and practically through the development of the new administrative system, partially borrowed from Crete. This rapid, deliberate growth in connections in effect kick-started a scale-free network, where unconnected nodes (in this case sites) attach preferentially to the most highly connected places, the palaces, largely based on territorial claims.

Part of the emergence of the scale-free network in the transition from LH IIIA1 to LH IIIA2/IIIB, which applies to both social inequality and settlement size, can be traced through the small worlds principle and the strength of weak ties, where the introduction of only a few new nodes, through the cooption of previously autonomous regional centers, lessens the network distance between any other two nodes in the system. This helps to explain the relative homogeneity that permeates much of Mycenaean material culture beginning slowly in LH IIIA and reaching an apex in LH IIIB. The links between palatial centers both within and outside of the Aegean are felt regionally and locally as well, and are manifest in such things as architecture (Crowley 2008: 266), ceramic styles (Mountjoy 1990: 245) and burial forms (Cavanagh and Mee 1998).

Through the introduction of more long-distance contacts, which can be seen as “weak ties” because of their less frequent interactions, new ideas concerning the nature of elite, and ultimately palatial, authority were introduced first from Crete, then, following

the cooptation of Minoan overseas networks, from the Near East, whose symbols of authority were deployed exclusively by the palace, even if they did not come to the palaces as the result of state-controlled trade.

The Linear B tablets make it clear that the regional systems over which the palaces presided were focused on providing agricultural produce for the palace, as well as caught up in other aspects of craft production. This system allowed for the consolidation and, to some extent, the redistribution of such products, especially through state-sponsored feasts (Wright 2004a). These types of consolidation and consumption are the practices and products of a highly centralized network, focused almost entirely on the palace, in which the office of the *wanax* was supreme. Returning to the principles of network thinking described in Chapter 3, such centralization leaves the whole system fairly vulnerable to collapse (compare Figs 5.8 and 5.5), which explains the disappearance of Linear B and the breakdown of the palatial system as a whole following the destruction of the palaces in LH IIIB2. It also suggests that a collapse of overseas trade networks was *not* a prime mover in the end of the palaces, though no doubt it could have been a contributing factor.¹⁴ I argue in the next chapter that these long-distance connections do not break down, and that some of the material and settlement changes seen in LH IIIC are the direct result of efforts to re-engage or maintain them. Moreover, the collapse of centralized systems at the end of the palatial period resulted in greater regional diversity as new centers emerge in new locations, with greater focus on the sea and less centralized practices of production and consumption.

¹⁴ Cline (2007: 199) would give more weight to the collapse of overseas trade. While he is by no means advocating for a monocausal explanation, his argument is belied by Parkinson's (2010) demonstration that trade networks outside of palatial centers are maintained in the Postpalatial period, as discussed further in Chapter 6.

CHAPTER 6

Questioning Collapse: Peer-Polity Emergence in the Postpalatial Bronze Age

For in ancient times, the Hellenes and those of the barbarians living near the sea on the mainland or in the islands, when they began to find their way to one another by sea, turned to piracy. The men leading them were not unpowerful, seeking profit for themselves and providing for their poorer followers.

Thucydides (*History of the Peloponnesian War* 1.5.1)

The end of the Bronze Age has been the subject of much misguided attention in the literature concerning the Late Bronze Age eastern Mediterranean. From Thucydides onward, the absence of definable political systems and intimations of marauders at sea have had negative connotations. The collapse of palatial civilizations in the Aegean, Anatolia, Levant, and Egypt has too often led to a search for monocausal explanations that range from climate change to military innovation to marauding “sea peoples” sailing from coast to coast, razing complex societies with abandon (e.g., Weiss 1982; Drews 1993; Kaniewski *et al.* 2011).¹ Such notions are outdated and largely debunked (e.g., Dickinson 2010: 484), but we have yet to achieve holistic interpretations of this period that are not burdened by value-laden notions of strict decline. It has been well noted that

¹ The sea peoples are a complex issue, with a large literature that assigns them many different roles (Oren 2000; Mountjoy 2005; Cline 2009; Cline and O’Connor 2003; 2012). They have been over-relied upon in terms of their explanatory power, yet at the same time should not be dismissed entirely. As I argue later in this chapter, this period shows a general pattern of increased maritime mobility throughout the eastern Mediterranean, which likely contributed to notions of sea peoples.

“ancient states and civilizations do not collapse at all, if by *collapse* is meant the complete end to those political systems and civilizational frameworks...” – this necessitates a change in focus to *reorganization*. (Eisenstadt 1988: 242). While there is no denying that palatial authority and the attendant administrative systems surrounding the Euboean Gulf collapsed around 1200 BCE, this change should not be seen as a *societal* collapse. The Mycenaean world endured, with elements of continuity (and change) visible into the Early Iron Age and even the Classical period. Much more interesting questions concern *how*, and *why* things changed during the Postpalatial Bronze Age (c. 1200-1050 BCE), a period that lasted nearly as long as the palatial period (c. 1400-1200 BCE) (Table 1.1), but which has received only a fraction of the scholarly attention. The transformations seen within Mycenaean society during the Postpalatial period, along with their wider Mediterranean context, are the subject of this chapter. I argue that, in the absence of palaces, Mycenaean networks were reorganized, both topologically and geographically, that this period is of major significance in the dynamics of social complexity seen in the Euboean Gulf, and that the developments seen here are by no means a unique instance of societal reorganization.

The subtitle of this chapter refers to peer-polity interaction (Renfrew and Cherry 1986), a concept encountered before, which will remain relevant in subsequent periods as well. In the palatial period, Mycenaean palaces controlled polities from the top of a settlement and social hierarchy that was strictly delimited on local and regional scales. Things change significantly in the Postpalatial period, as polities of substantial size and influence remain (e.g., at Athens, Kynos, Kastro Volos, Mitrou, Lefkandi, and Viglatouri), although levels of social inequality and territorial control change dramatically. We will see in the course of this chapter that the top tier of the settlement

hierarchy is occupied by many more sites, separated by much less distance, than in the palatial period. Thus, the peer polities that emerged then had much more in common with later Greek *poleis* in terms of their territorial extent, interaction with the natural environment, and overall spatial scale than did the palaces. That is, social, economic, and political systems were much less centralized than in the Palatial period, though social organization is clearly present. In this way the peer-polity emergence seen here, and the networks that can map and explain these processes, prefigure the much more commonly discussed Archaic Greek city-states “pulling each other up by the bootstraps” (Renfrew 1986: 11).

One of the more interesting patterns seen in the Postpalatial period has to do with where and how new sites come to prominence through processes directly associated with the Euboean Gulf. In several cases, namely in East Lokris and Euboea, it is clear that the absence of a palatial presence in the previous period contributed to the emergence of successful polities in these regions in the Postpalatial period. I argue that this success was achieved through the cooption of networks previously dominated by the palaces and by not having to deal with the fallout of palatial collapse in the same way that, for example, Boeotia did. So while I do not reject the term “collapse” entirely – in the cases of Orchomenos, Gla, and Thebes it was very real – I posit that it is misleading to talk about it as a pan-Mycenaean phenomenon. It is rather the *reorganization* seen throughout different areas of the Euboean Gulf that is historically contingent, archaeologically observable, and relevant to the study of complex societies.

This chapter begins with a discussion of the disciplinary and historical implications of going “back” to prehistory (i.e., the loss of writing systems). I then discuss changes in settlement locations, networks, hierarchies, and complexity, as well as

some of the problems that persist in the study of such themes. A section on craft production follows, emphasizing its connective capacity in terms of both production and consumption. The chapter concludes by contextualizing the situation in the Euboean Gulf within the wider framework of contemporary developments in societal reorganization in the eastern and central Mediterranean.

Back to Prehistory

As discussed in Chapter 2, the Postpalatial Bronze Age and Prehistoric Iron Age sit somewhat uncomfortably between Aegean prehistory and classical archaeology. This is ironic in the case of Aegean prehistory because these Postpalatial periods lack writing, while the preceding Palatial Bronze Age should be seen as protohistorical, in the simple sense that written records were kept and provide us with an additional type of information. It is therefore odd that explicit treatment of the Postpalatial period is sometimes left out of surveys of Aegean prehistory (e.g., Cullen 2001), discussed in terms of decline (Deger-Jalkotzy 2008), or given rather brief treatment in the context of sweeping surveys of the Bronze Age (Dickinson 2010; Jung 2010; both in Cline 2010). Yet scholarship concerning the period is making great headway in its own right in surveys of the LBA-EIA transition (Dickinson 2006: 58-78) and edited volumes (Deger-Jalkotzy and Lemos 2006), as well as international symposia and their subsequent publication (Deger-Jalkotzy and Zavadil 2003; 2007; Deger-Jalkotzy and Bächle 2009). It should be noted, however, that this is largely a phenomenon of the last decade.

That the Euboean Gulf is a location of particular significance for this period is well recognized (Snodgrass 1994; Crielaard 1999; 2006; Dickinson 2006: 69). Part of this importance has to do with holdover from the previous palatial period, where the Gulf

itself served as a major conduit for people, goods, and ideas being consumed by palatial centers. While the palaces themselves collapsed at the end of LH IIIB, many of the long-distance connections, especially with Cyprus and the wider Aegean, were maintained, and even intensified going into the Postpalatial period; moreover, material culture shows a great deal of continuity after the palatial collapse (Rutter 1992: 61).

There is, however, a major change in the nature of certain types of evidence, and in the organization of the communities that have left it. This change is reflected in the periodization. The Postpalatial Bronze Age is frequently folded into the “Dark Age” of Greece, along with the Early Iron Age Protogeometric and Geometric periods (e.g., Dickinson 2006; Bintliff 2012: 209). When these periods are treated together, the tendency tends to be to move very quickly through the LH IIIC and PG periods (perhaps with a pause on Lefkandi) and skip ahead to the “Eighth-Century Renaissance.”² This trend is largely the result of pejorative notions of prehistory and “Dark Age” that are applied to this epoch (Papadopoulos 1996a). This also lends credence to the myth of a distinct break in history (in the broad sense), which of course is a fallacy. While the Mycenaean palaces certainly came to a violent end around 1200 BCE, this cannot be seen as some sort of cataclysm that wiped out entire populations and drove all people to overhaul their ways of life. Settlements were maintained, or founded anew, agricultural and artistic practices continued, and new hierarchies emerged. In fact, the material record has many elements in common with the preceding palatial period, excepting architectural scale, archival writing, and extent of geographic distribution. A key difference is the loss of writing, both in terms of the nature of Postpalatial society and the way we understand it.

² Or, perhaps more appropriately, eighth-century revolution, (see Chapter 8 for a full discussion).

In network terms, the loss of writing immediately suggests a decrease in centralization and overall social integration. Even if central places at the top of the settlement hierarchy were reconstituted, as in the example of Tiryns (Maran 2001), the absence of writing would have precluded the type of administrative integration seen in the palatial period. The loss of writing also meant the elimination of a whole group of specialists, namely scribes, as well as an entire institution of knowledge transfer, through which the construction of authority was maintained.

From a disciplinary perspective, the title of this section suggests we have gone “back” to prehistory, though literary specters continue to loom large. Scholars have long assumed and interrogated a relationship between the Bronze Age and the Homeric texts. The decipherment of Linear B revealed that the social structures of the palatial Mycenaean world had little to do with those apparent in Homer, even if some (especially material) cultural continuities are apparent (Chadwick 1958: 131-133). Yet there have been a range of views expressed on the extent to which Homer should factor into our interpretation of the Bronze Age, from general acceptance (Vermeule 1964: x) to more nuanced views that Homer created both unintentional and deliberate distance from the events the poems purport to describe (Bennet 2004: 90-92). Most significant is the question of whether the poems are likely to be more relevant for some periods than others. Sherratt (1990: 815-821) has suggested that they may be particularly meaningful for the Postpalatial period, on account of the diffuse social structures and archaized aspects of material culture presented in the *Iliad* and *Odyssey*. While they may be relevant, Homeric suggestions concerning political institutions such as *basileis*, and social institutions such as oral poetry and organized athletic competitions, must be viewed carefully as, at best, they offer only glimpses of relevant materials and structures

within an amalgam of elements, likely pulled piecemeal from several centuries of tradition. Ultimately Homer contains a conflative temporality, where memories of the palaces – maintained (or imagined) on account of the very present monuments and landscapes of palatial society – became entangled with what came after as oral traditions were formed and reformed over a period of several centuries. The poems of Homer are about a glorious, heroic past, deliberately set apart from the world of the poet himself, which makes finding a role for Homer difficult at best.

While one broad goal of this study is to bridge gaps between periods that are traditionally separated,³ we must also avoid folding periods together that have very meaningful differences. The Postpalatial Bronze Age lasted around 150 years (c. 1200-1050 BCE; Table 1.1), nearly as long as the preceding palatial period (c. 1400-1200 BCE).⁴ Moreover, the subsequent prehistoric Iron Age lasted another 250 years (c. 1050-800 BCE). Altogether, there is a span of about 400 years that we risk merging uncritically if we simply consider it a “Dark Age”. What is most interesting about this and the following Prehistoric Iron Age is not that they lack writing between two proto-historic periods, but how they develop over time. First, writing is rejected in the Euboean Gulf, following the collapse of the palaces. This must be seen as a choice. There is an instructive, if not directly analogous example from an earlier period in the Aegean, when Linear A disappeared. On Crete, Linear A was replaced by Linear B because of a major reorganization among the ruling elite of Knossos (Bennet 2008: 21-22). This was a case of “out with the old” followed by adapting the old into something new, while the

³ These include the Mycenaean period, the Postpalatial to Early Iron Age “Dark Age”, and the “revival” in the Geometric period (c. 1400-700 BCE).

⁴ See Chapter 5 for further discussion of the rise of the palaces and the chronology, with the first Mycenaean palace institutions emerging in LH IIIA1-2, and flourishing in LH IIIB. I use Palatial and Postpalatial period to refer to the Mycenaean chronology, unless otherwise noted.

disappearance of Linear B is much more stark – precisely because there was no new palatial system to make use of writing. This represents a choice on the part of new leaders and groups in the Euboean Gulf, rather than some sort of inevitability. It seems unlikely that all scribes would have been killed in the course of the palatial destructions around 1200 BCE (though if they were this would represent an even more extreme rejection of writing as part of the palatial administrative system). Without the palaces there was no demand for a writing system, and thus no desire to use one on the part of people possessing this knowledge. This corresponds with what Houston *et al.* (2003: 435) call the sociolinguistic explanation for script obsolescence, where the loss of writing is linked to social changes wherein a script's associations of prestige become less. Using case studies from Egyptian, cuneiform, and Mayan script, they note that “any particular form of writing will almost inevitably disappear” if its functions lose their practical or cultural value (Houston *et al.* 2003: 444). This loss of value was certainly the case for Postpalatial Greece. It was not until over four centuries later that writing was redeployed though a completely different set of interactions and contexts. The events and processes that unfold in between are complex, and certainly not teleological. While writing is one of many significant cultural elements in the overall remit of this study, it must also be recognized as a disciplinary crutch that has been obscuring as well as historically significant.

Coastal Living in the Postpalatial Settlement Pattern

The Postpalatial settlement pattern in the Aegean is typically seen in terms of contraction, decline, and population movement (Dickinson 2006: 58-67). Hope Simpson and Dickinson (1979: Maps 4 and 5) catalog only about 30 sites that date to this period in

the regions surrounding the Euboean Gulf, in contrast to over 150 from the preceding LH IIIA2-B palatial period. A more recent count (Crielaard 2006: 275) puts the number of LH IIIC sites much higher, at over 50, though there is still an overall drop from the preceding period (Fig. 6.1), a pattern that holds elsewhere in Greece as well (see Wright [2004b: 120-123] for a study of Late Bronze Age settlement patterns that takes into account detailed intensive survey data, as well as extensive survey finds in the northern Peloponnese).⁵ I have included 64 LH IIIC sites in my assessment (Fig. 6.2).

Four characteristics of the Euboean Gulf's settlement pattern during this transition stand out immediately:

1. There is a massive drop in the number of sites found on the fertile agricultural plains that formed the center of the settlement pattern and hierarchy in the palatial period.
2. A higher percentage of sites, including nearly all of the largest and well-connected centers, are located on or very near the coast.
3. LH IIIB pottery is found at nearly all sites where LH IIIC pottery is found, marking a great deal of continuity (Fig. 6.1; see Figs. 5.1 and 6.2 for site names).⁶
4. The most significant sites and regions of the Postpalatial Bronze Age emerge exactly where the palaces mattered the least (e.g., in Euboea and East Lokris).

The following sub-sections address the reorganization of settlement networks and changes in social complexity – including the nature of inequality and practices of social

⁵ The site counts given here are approximate, due to the areas of interest for the respective studies from which these counts are drawn. Crielaard (2006), for example, is generally counting sites only on the Euboean Gulf, whereas Hope Simpson and Dickinson (1979) include all of Greece, from which I have included sites within all areas of relevance. While I attempt to include all known sites of relevance in my period-specific analyses, cross-period generalizations must be made more loosely.

⁶ By this I mean continuity in location, not necessarily in type, scale, or relative importance of the site. There are observable patterns with respect to this as well, but these are less immediately apparent and are discussed further below.

integration, as well as some remaining challenges to the study of Postpalatial settlement patterns.

Reorganization of Settlement Networks

The palatial centers at Thebes, Orchomenos, and Gla left something of a vacuum with their fall from power. While Thebes and Orchomenos were occupied in the Postpalatial period, habitation seems to have been on a much smaller scale and there is no evidence for the centralized administration seen before. This change is also borne out in the settlement pattern of the surrounding area.⁷ In the palatial period, the exploitation of large agricultural plains was highly centralized. Palaces depended on extracting resources from the plains themselves, as well as the subsidiary centers and sites within and around these plains. These second-order centers and smaller sites on the main plains (the Theban Plain and Kopaic Basin [which had been re-flooded]) were widely abandoned in the Postpalatial period. Thebes' nearest neighbors became Hyle and Eleon, 12 and 15 km away respectively, which would have remained occupied on account of their strategic locations and defensibility, rather than through the maintenance of relations with a greater power at Thebes. To the west, the pattern is even more apparent (Fig. 6.1), where the sites that seem to have been important administrative connections for Thebes (see Fig. 5.3), were either not reoccupied, or reoccupied on a much smaller scale (e.g., Eutresis, where only very little LH IIIC material has been found). This suggests (1) that Thebes' status at the center of a regional settlement hierarchy was no longer relevant, and (2) that

⁷ The current state of archaeological knowledge concerning settlement patterns in the Postpalatial period is constantly changing. In the Euboean Gulf, this has been particularly true over the last decade (see Chapter 2). The interpretations put forward here are thus based on the information currently available to me, and will no doubt need to be amended in the future. That said, while new sites will certainly be discovered and more information will be revealed about known sites, the scale of macro-regional analysis here does allow for real patterns to be identified, on which substantive interpretations can be based.

the agricultural and inter-regional connections facilitated by these sites did not remain important in their own right. In the palatial period, settlements at Eutresis, Plataea, and Erythrai were strategically positioned on major land routes and in proximity to important agricultural areas. Kreusis and possibly Halike were important ports on the Corinthian Gulf, facilitating connections to the Peloponnese, western Greece, and perhaps the central Mediterranean. Chorsiai would have filled a similar role for Orchomenos. The cut-off in occupation at these strategic locations suggests that such places and the connections they offered were no longer seen as a priority for people in the Postpalatial world. This pattern is not because of an ideological shift toward isolationism. The overwhelming move in settlement toward the Euboean Gulf itself suggests that connections were being actively sought, specifically through this body of water. It is no coincidence that the consumption of eastern exotica was one of the exclusive markers of power in the palatial period, and that the conduit through which such objects arrived became the focus of even greater attention in the succeeding period. Import consumption remained highly sought after. And in the absence of a palatial monopoly on such consumption, a multitude of smaller-scale leaders (whom we might call “big men”⁸) turned their attention to the coast, hoping to plug into these eastern networks.

In addition to the change in the location of sites, there is also a marked rise in the size and apparent importance of certain coastal sites on the mainland side of the northern

⁸ This is not an entirely satisfactory term. It became popular in anthropological literature following Sahlins’s (1963) characterization of Melanesian social organization, most notably concerning how status and leadership roles were acquired (that is, earned through acts), rather than hereditary. Earle (1987: 288) differentiates between bigman societies, chiefdoms, and complex societies based on scale of sociopolitical organization, stratification, and centrality of decision-making. In this study, I consider all of the societies being examined “complex” and view Earle’s criteria as things that always operate on a sliding, mutable scale. It is how these fluctuations work, rather than what we call them that is of interest. I use the term “big men” to describe local leaders whose status was created and maintained through various practices of self-aggrandizement, rather than to describe a type of society.

Euboean Gulf and in central Euboea. The sites that experienced greatest growth are Kynos, Mitrou, and Lefkandi. While there are LH IIIB remains at all of these sites, we see significant expansion in LH IIIC, a pattern that is also apparent at a number of unexcavated sites in these areas (Dakoronia 2003: 38; Sherratt 2006a: 304-305; van de Moortel 2009: 360-365). Kalapodi, while inland, is located on a major land route and also grows in significance during this period (Felsch 1996; 2007). All of these sites have been subject to recent programs of fieldwork, which, over the last decade, have greatly changed our knowledge of the Euboean Gulf and central Greece in the Postpalatial Bronze Age (Lemos 2012).

In keeping with this pattern, there are also sites on the Euboean Gulf that seem to have been important in the palatial period, which wane in significance in the Postpalatial period. Larymna, for example, was built in LH IIIB as a maritime outlet for Orchomenos/Gla. It is fortified, and there is little to no agricultural land in the area, suggesting that it was built for a specific purpose – to serve as a port for a larger polity – then more or less abandoned (Kramer-Hajos 2008: 129). Something similar may have happened at Glypha, located just across the Euripos from Chalkis. There are traces of LH IIIC settlement at Glypha, but the LH IIIB occupation was much more substantial, including buildings, walls, and numerous ceramic, glass, and metal artifacts; Cyclopaean walls have been reported, too, but this may be an overstatement (Demakopoulou 1988). This apparent decline in activity at certain sites in LH IIIC may reflect a power-shift away from places previously controlled by Thebes (Glypha could very well be Mycenaean Aulis, and was at least a major coastal settlement located at a natural

harbor).⁹ In general, then, sites and regions that seem to have been peripheral in the palatial period are those of greatest importance in the Postpalatial period, with East Lokris and central Euboea standing out in particular.

Given these shifts in the locations of settlements, as well as the reasons for growth and decline in particular areas, we can infer some significant lifestyle changes during the Postpalatial period. The first and most obvious is that populations were no longer living under the control or influence of the palaces. This is likely to have effected major changes in ideology, not least in terms of the role of the individual and conceptions of territory. In the absence of centralized authority, new types of political organization emerged. While this might be seen as a shift from authoritarianism to egalitarianism, the evidence suggests rather that new, different hierarchies emerged. Social complexity did not go away, and the significant sites mentioned above still required organizational efforts for building projects, resource procurement, and, not least, maritime activities. While centralized hierarchies no longer existed on a regional scale, local hierarchies began to emerge, with more similarly-sized centers, possibly controlled by non-hereditary¹⁰ leaders in regular contact and competition with one another (Whitley 1991: 184-186; Dickinson 2006: 110-111). These types of communities and the interactions between them can be described in terms of peer-polity interaction, which explains the shared symbolic culture and evidence for regional interactions; peer-polity interaction may also explain the relatively common destructions and upheavals seen at sites during

⁹ There are many bays at Aulis (Fig. 4.5), and the toponym would not need to move very far to get from Glypha to the location of Aulis of the Classical period and later.

¹⁰ There is actually very little evidence to suggest whether leadership was acquired or inherited, one way or the other. The assumption is the former, since this period is generally viewed as a decline in complexity. Yet there is always a risk in such assumptions. There may have been, for example, a loose hereditary system that was not strictly followed, and also depended on the acquisition of status.

the Postpalatial period. Dakoronia (2003: 38) reports at least three destructions (two by earthquake and one by fire) at Kynos, and Lefkandi suffered similar misfortunes (Sherratt 2006a: 305-307). While earthquakes, which have been proposed for Kynos, may make sense as isolated explanations of destruction, these sites must be regarded as highly connected, both by land and by sea, and earthquakes feature far too frequently as default explanations for destruction; there is little definitive, published evidence that points to earthquake-related destructions at Kynos. Other, sometimes violent, explanations for destructions must also be considered.

The drops in population and overall site numbers in the LH IIIC period would have in fact necessitated more connectivity between sites than was seen in the previous palatial period. Communities had to interact to remain viable, for simple purposes of resource diversification between different microecologies, social storage, and inter-community marriages. If we repeat the nearest-neighbor model used for Palatial-period interactions, where each node (site) attaches to a minimum of its three nearest neighbors, we see links form that are on the whole more coastal and involve greater distances (Fig. 6.3). In terms of how these connections happened, Dickinson (2006: 66) has highlighted the importance of movement on multiple scales, stating that “mobility might well be considered the most significant feature of the Postpalatial Period, for it not only represents a continuing destabilizing factor, it underlines the limits on the coercive power of those trying to re-establish authority.” While his approach is not explicitly multi-scalar, his view on mobility is applicable to local, regional, and interregional activity in this period.

The ideological aspects of coastal settlement and increasing amounts of maritime travel cannot be understated. While trade in the palatial period did not directly involve

the ruling elite (that is, they did not seem to have gone on trading expeditions themselves), it was controlled by them as exclusive consumers, and likely involved either the agents of the palace or an entrepreneurial merchant class. Most people had little to no contact with boats or the sea. With the settlement shift to the coast, however, and aspects of maritime activity becoming less exclusive, the sea must have loomed ever larger in the eyes of all people. In the sense of Yi-Fu Tuan (1977), this represented an ever-present space of growing importance, through which people accessed places of special significance (other settlements, sanctuaries, etc.). What is crucial here is that the experience of moving through the sea, and encountering particular places (many taking on new meaning in this period), would have affected understandings of interaction and what it meant. If people viewed the Euboean Gulf (and the sea more generally) as a conduit that shrinks distance, this perspective would have engendered notions of both opportunity and anxiety at the possibility of interaction. This may be reflected in figural representations found on painted pottery from Kynos and Lefkandi (Dakoronia 2006; Crouwel 2007; 2009). Sherds excavated from Kynos show a variety of maritime scenes (Dakoronia 1990; 1999; 2006). Fig. 6.4 shows fragments of a krater with two boats, most likely engaged in combat, as figures on the two boats face each other with weapons ready; on a fragment from lower on the vessel a large fish attacks a fallen mariner, while others leap out at those still on the boats. Fig. 6.5 shows a less fine, though similarly styled and equally combative fragment. This reflects a culture for which maritime activity and conflict were in common thought, at least for the craftsmen producing these depictions – as well as their consumers – which is a major departure from the previous

palatial period.¹¹ Moreover, the sea is presented in terms of danger, both from other people and the natural world.

Returning to the issue of networks and neighbors, if we create links between each Postpalatial site and a minimum of its three nearest neighbors (Fig. 6.3), very different patterns emerge than those we saw in the palatial period (Fig. 5.4). It is no surprise that Postpalatial networks are much more coastal, based on the locations of the sites, and I have already argued for the sea as an increasingly important way of making these connections. Other patterns may be reflected in site locations and their proxemics. In Boeotia, interactions intensify around the central Euboean Gulf, especially near the Euripos. Another hub emerges around the Bay of Atalanti, with Kynos and Mitrou on either side of it. Kalapodi appears as an important inland node on the confluence of important land routes from Boeotia, Elis, Phthiotis, and Lokris. The Malian and Pagasitic Gulfs are seemingly less well connected at this time, especially with sites further inland, and the nearest-neighbor connections drawn from these sites are often much longer-distance than others.¹² A natural interpretation of this pattern would be to suggest that it would lead to less frequent contacts between these sites, which seems to be borne out in the material culture of this period. While LH IIIC pottery styles are present at all of these sites, there is much greater regionalism visible than in the LH IIIB period, and, aside from these coastal locations, Thessaly diverges more than other regions from the *koine*

¹¹ Short-distance seafaring in the Euboean Gulf is also known from the Middle Bronze Age, in the form of a flat-bottomed boat found at Mitrou, which would have been used exclusively for local activity in shallow water (van de Moortel 2012). While from a different period, such boats are still in use throughout the Aegean today, and represent a different, more day-to-day type of activity than that seen on the ship kraters (Figs. 6.4 and 6.5)

¹² This pattern may also be the result of lack of fieldwork (especially survey) in the area.

that several authors identify in the Euboean Gulf beginning in this period (Desborough 1964: 146; Lemos 1998; 1999; Thomatos 2006).

In LH IIIC Euboea begins a new florescence of connectivity that will continue (with interruption) until the Archaic period. In the north it is connected to the mainland by just a few nodes (Fig. 6.3), through small settlements at Oreoi, Lichas, and Yialtra. Kerinthos stands almost alone on the Aegean coast of Euboea, at some distance from any other sites. While Kerinthos is apparently isolated, it is worth noting that this is one of the few good harbors on this coast, with another located at modern Kyme;¹³ both would have been valuable stopping-points for sea traffic. Moreover, this is one of the least well-explored parts of the island, and there may well be other sites in the area that are simply not known.

Central Euboea witnesses perhaps the largest change at this period, and is quite similar to East Lokris in this respect. There are no known Mycenaean palatial centers from the LH IIIB period, though important sites certainly existed at Chalkis,¹⁴ Amarynthos, Aliveri, and Psachna. All of these, however, are regrettably under-explored, and known principally from discoveries of chamber tombs and occasional small-scale tholoi (Papavasiliou 1910; Hankey 1952; Sackett *et al.* 1966; Krapf 2011). All of these sites remain occupied in the Postpalatial period and indeed grow, though at Lefkandi the pattern is accelerated and it quickly becomes the preeminent site in the region (Sherratt 2006a: 304-305). In addition to sites located on the Euboean Gulf itself,

¹³ The harbors on the Aegean coast of Euboea have been studied in detail by Fachard, who is in the process of preparing an article on the subject.

¹⁴ Bakhuijsen (1985: 6) argues that Chalkis was not occupied until the Iron Age, though this point is contradicted by his map indicating a Mycenaean cemetery on the next page. The cemetery evidence and rather wide distribution of find spots for Mycenaean sherds (Sackett *et al.* 1966: 57-60) suggests that there certainly *was* a Mycenaean Chalkis, though it is impossible to know much about it, since most settlement remains have been obliterated by later building.

the Oxyolithos/Kyme area is clearly a participant in these networks. Like Kerinthos, this area is a seemingly isolated locale on the Aegean coast of Euboea, but is also at one end of several major land routes that connect the Aegean to the Euboean Gulf. The importance of this area in the Palatial period is demonstrated through the find of 19 copper pillow-type ingots just off the coast of Kyme, in 1906 (Svoronos 1906; Sackett *et al.* 1966: 75-76, fn. 125; Lolos 2001; Paschalidis 2007: 436). There are also scattered chamber tombs and small tholos tombs along the corridor between Oxyolithos and Aliveri. If the Kyme area were an important place for importing copper in the palatial period, it likely remained so afterward, and has always been an important outlet to the sea – it is currently the only ferry station on the north coast of Euboea.¹⁵ From an archaeological perspective, there are numerous built tombs in the area that date to the Mycenaean period, though little LH IIIC pottery has been identified (Sackett *et al.* 1966: 73-77). However, at the site of Viglatouri, which the excavator identifies as Mycenaean and Geometric Kyme,¹⁶ remains of a substantial settlement have been found that demonstrate continuous occupation from the Early Bronze Age to the Geometric period (Sapouna-Sakellarakis 1998: 61).

¹⁵ The Kyme area has also been an important wine-producing region throughout its history. Certain Eretrian deme names (Oichalia and Oenoe) recorded in the Classical period are related to wine production (Fachard 2012: 66-68).

¹⁶ The existence of an ancient site called Kyme in Euboea is highly questionable. The earliest textual reference to the site comes from Stephanos of Byzantium's *Lexicon*, written in the sixth century CE. This is possibly a misunderstanding of Strabo's reference to the Italian Kyme, founded by Euboeans. Ancient sources referring to Kyme in relation to Euboea exclusively discuss the Italian Kyme (Cumae), founded by Euboeans from Chalkis. The earliest attestation of a name close to Kyme on Euboea is Koumi, though not until in the 19th century. See Brodersen (2001) for an argument that Euboean Kyme is an urban myth that is the product of a flawed lexicographical tradition. In the Classical period the name of the Eretrian deme in the area was Oichailia, probably related to wine production. Despite these problems, the notion of an ancient site called Kyme near its modern location in Euboea remains completely entrenched in the scholarship, even among specialists (Sampson 1981; Sapouna-Sakellarakis 1998; Lane Fox 2008), though all at least acknowledge this problem (in varying degrees of detail).

Lefkandi itself seems to rise quickly, perhaps on account of its location on the fertile Lelantine Plain, nearby clay sources, and shifting political frameworks. Its relative insignificance during the palatial period, and advantageous location on the Euboean Gulf, near the Euripos, may have allowed it to coopt long-distance trade networks, while at the same time growing local production to support a larger population. The site is also located on the principal land route that connects areas east of it to Chalkis. While the more northerly route is possible, it necessitates passing between Mts. Dirphys and Olympus, which would have been much more difficult, though doable in a long day's walk (Figs. 4.11 and 4.12) (Fachard 2012: 103-105). By sea, Lefkandi, with its double bay, could accommodate a great deal of maritime traffic, and was within easy sailing distance of the mainland, making it an important go-between located just before the bottleneck of the Euripos, and at the same time able to exert influence and reducing the risk of getting "trapped" within it, as maritime activity was becoming increasingly competitive and violent.

Finally, we come to Attica. The near absence of Postpalatial sites along the Euboean gulf between Vlastos and Agios Sotiros is surprising, especially since there are several in the Palatial period (Figs. 6.1, 6.2). This absence results in the nearest-neighbor analysis effectively separating Attica from the rest of the study area (Fig. 6.3). While we should not interpret this to mean that Attica was a closed system, it may still reflect a relatively larger degree of isolation from the rest of the Euboean Gulf region. This is not to say that southern Attica was isolated in the Postpalatial period. In fact, it seems to have prospered. This region has the highest density of sites of any area within the study region, and the cemetery at Perati reflects major connections with the outside world (Iakovides 1980; 2003a; 2003b; Nightingale 2009). This may be explained by the settlements of

southeastern Attica making use of its extensive resources at Lavrion, after they fell into local control as the result of a palatial collapse. At the same time, however, we must acknowledge that the circumstances of collapse (including whether it actually happened) are not well understood, due to the lack of an excavated palace at Athens.¹⁷ That said, we can see the same Postpalatial settlement pattern observed elsewhere, as most settlements move toward the coast. Moreover, we should note that, unlike many of the regions described above, southern Attica enjoyed equal access to the Saronic Gulf to the west. Finally, the distance involved with maritime interactions in the Euboean Gulf may have made such things difficult, not least because the nearest site on Euboea is Aliveri (some 50 km away from its nearest neighbor in Attica). Attica's apparent isolation from the Euboean Gulf is reflected in the settlement pattern and the regionalism seen in its ceramic styles (Mountjoy 1999), which has more in common with Rhodes and the central Aegean than the Euboean Gulf. This reflects different external interactions, where Attica has much greater similarity with the Cyclades in terms of its material culture, and is involved in long-distance trade networks and stylistic trends separate from the rest of the Euboean Gulf. These local, yet at the same time well-connected-over-distance aspects of production may have led to a sort of efflorescence in terms of pottery styles before becoming a major influence throughout the Aegean in the subsequent Protogeometric period (cf. Lemos 2002: 199), when the rapidly spreading innovations of the Attic Protogeometric style suggest that Athens is much more connected to the settlements of the Euboean Gulf, especially central Euboea.

¹⁷ See Chapter 5 (p. 138) for problems in understanding the palatial settlement at Athens, largely destroyed and obscured by later building.

Practices of Social Integration

Taking the view that Postpalatial societies experienced dramatic and intentional reorganization, rather than simply decline, it is necessary to consider how social integration took place, both through the routines of everyday life, and in the construction of authority through would-be elites. There is obviously a marked difference between this period and the preceding Palatial period in the construction and legitimation of authority. Such practices were smaller in scale, and more locally than regionally oriented, though certain of these, especially feasting, have direct antecedents in the Palatial period (and even earlier).

Feasting is a relatively recent “hot” topic in Aegean prehistory and in anthropological archaeology in general (e.g., Dietler and Hayden 2001; Wright 2004a; Hitchcock *et al.* 2008). It is relevant here in two ways: first as a well-evidenced type of group formation process, and second as a practice that demonstrates strong continuity through the periods addressed in this study. Wright (2004a: 134) notes that feasting can be traced through the Postpalatial, LH IIIC period, and Sherratt (2004) has linked aspects of ritual feasting seen in Homer to Mycenaean antecedents that were preserved through the Postpalatial period and Early Iron Age. Within the Euboean Gulf itself, the presence of kraters, cups, and bowls as the most finely made and heavily decorated aspects of ceramic assemblages suggest that the practices with which they were associated (communal drinking and feasting activities) remained at the forefront of integrative social acts.

Kalapodi is of particular significance for such ritual drinking and dining as practices of integrative and competitive social interaction, involving elites from the surrounding regions (Livieratou 2011: 150). Kramer-Hajos (2008: 141-143), drawing on

faunal analyses by Stanzel (1991), argues that these practices were linked to the worship of Artemis, based on the presence of large numbers of deer bones, tortoise shells, and high-quality pottery of the aforementioned types; and Niemeier (2009) has recently identified the site as the oracle of Apollo at Abai. It is most likely that both deities were worshiped at Kalapodi. Regardless of the object of worship, Kalapodi represents a reorientation of regional, large-scale feasting events, moving away from settlements of political importance to seemingly neutral ritual sites along important routes between coastal and inland areas. This is a trend that continues at Kalapodi through the Early Iron Age and should be seen as a precursor to the regional sanctuaries in the 8th century and early Archaic period, famously discussed by de Polignac (1995) with respect to the role of regional cult centers in the formation of the Greek city-state. Snodgrass (1986), too, has discussed such centers in terms of peer-polity interaction, though, like de Polignac, is talking about *polis* formation in the early Archaic period. For Kalapodi in particular, McInerney (2011: 99-101) has recently shown that the site was the main regional sanctuary in central Greece until it was eclipsed by Delphi, which caused and was the product of network shifts in the early Archaic period. Kalapodi seems to have filled a similar role for the late Mycenaean polities of East Lokris, and provided a venue for regional meetings between local elites, and a place to engage in competitive aggrandizement, consumption, and display. It is also noteworthy that it is in the Postpalatial Bronze Age, rather than the Geometric period, that regional sanctuaries first become significant as decentralized loci of religious practice; this is a marked departure from the politically and administratively centralized places of religious significance in the Palatial period.

On a local level, similar practices occur at Kynos, Lefkandi, and Mitrou. At Mitrou, feasting practices have definite antecedents in the LH IIIA2 period (Vitale 2008), suggesting that these practices were already going on in the palatial period. At Lefkandi and Kynos, drinking vessels stand out with respect to quality and decoration, suggesting that these are aspects of material culture deployed by a subset of society with special access to the “finer” things for a specific purpose. It is likely that group eating and drinking events were this purpose. People came together to eat, drink, and socialize, and a “big man” or an important group of individuals acted as the host(s). In this way social bonds are reinforced through everyday practices, made formal on such occasions. Most importantly, this serves the purpose of bringing together people on a local scale in particular places of significance. Communal feasting is certainly an aspect of continuity from the Palatial Bronze Age. While there is a definite reorientation of practice away from explicit state sponsorship, the core idea remains.

The wider world beyond these central places involves rural populations, which would have had to reorganize following the collapse of the palatial systems that (ideally) had provided some sort of insurance in times of crisis.¹⁸ Unanticipated climatic variability may have led to palaces not being able to make good on such policies, and is one potential factor in the upheaval of the palatial system (though variability is a feature of Mediterranean climate in general) (Rohling *et al.* 2009: 2; Drake 2012: 1870). Yet without some sort of centralized system for dealing with risk, farmers would have had to turn elsewhere. Risk-buffered farming is designed to do just this, and also necessitates

¹⁸ The nature of Mycenaean palatial involvement in everyday agricultural practices is by no means cut and dried, as discussed in Chapter 5. Halstead (2007) has characterized the role of the palace in terms of mobilization. The palace does not redistribute resources, but it does demonstrate a certain ability to mobilize them, usually upward to allow the palace to function, but potentially outward as well, in times of trouble.

greater connectivity on a regional scale, between individuals and groups. The need to diversify between different crops and different environments (different microecologies) to mitigate risk is at the core of Mediterranean subsistence, and, for Horden and Purcell (2001: 123, 178-182), is a major factor in connectivity. The highly varied landscapes of Greece, East Lokris and Euboea in particular, may have actually provided a greater ecological advantage to these areas than they held in the palatial period, seemingly driven by large-scale agriculture on sprawling plains. For the case of Neolithic Greece, Halstead (2006: 26-31) discusses the dependence of neighbors on one another in times of harvest for labor, and always for protection, exchange, and marriages. This shows up in later periods, too, as risk-buffering strategies were often developed to adapt to new structural conditions in, for example, the Hellenistic period (Gallant 1989: 393).

The other side of this coin, of course, is conflict between individuals and groups, also a characteristic of emerging peer polities. That conflict, especially maritime, had become a significant feature of life in the Postpalatial period is evident in the figural representations noted above (Figs. 6.4 and 6.5), as well as increasing numbers of warrior depictions from a variety of LH IIIC sites (Crouwel 2007; 2009). Inter-community conflicts can also be inferred from the choice of defensible site locations. While these are not the difficult-to-access refuge settlements of Crete or elsewhere in the Aegean (Nowicki 2000; Wallace 2010: 95-100), nearly all of the sites discussed here (e.g., Mitrou, Kynos, Kastro Volos, Lefkandi, Viglatouri, Athens) are either located on hilltops or peninsular (Fig. 6.6), suggesting that defensibility remained a key concern, along with access to the sea.

The social changes at the end of the palatial period, and their attendant shifts in settlement patterns, required new strategies of making connections between individuals

and communities. In terms of basic subsistence and survival practices, risk buffering drove connections between neighboring families and groups, in order to gain access to food and other goods, as well as labor and mates – hence the need for connections with at least three neighboring communities espoused in the nearest-neighbor analysis. Beyond these bare requirements for survival and sustainability, social practices would have developed to bring people together – in this case they did not stray far from their palatial predecessors, and certain individuals would have emerged as an upper class, whether through charisma, greater access to resources, or martial prowess. At any rate, the importance of certain integrative practices was not lost, and these local leaders likely emerged immediately after the palatial collapse, if they were not already in place (indeed, they may have played a role in the palatial collapse). Thus hierarchy as constituted and maintained through social integration was not new in this period, but rather reoriented. What is perhaps most novel is the emergence of ritual/feasting regional centers, like Kalapodi, that are not tied to particular sites and anticipate later developments in Greek politics and religion.

Problems in Understanding Postpalatial Settlement Patterns

The marked drop in the number of sites from the palatial period to the Postpalatial requires explanation. As indicated above, this cannot simply be attributed to civilizational collapse – there is far too much continuity between periods, as well as evidence for *reorganization*, rather than simple decline in the societies surrounding the Euboean Gulf. This has been discussed above in terms of the continuity, disappearance, and reorientation of sites and regions, and will be discussed below in terms of production. But

first there are some issues concerning the nature of the evidence that need to be confronted.

The first issue that affects our understanding of this period simply has to do with the amount of attention it has been given in the scholarship. Very few Postpalatial Bronze Age sites have been excavated, and those that have often lag behind in publication, probably because this period is often seen as an addendum to the Mycenaean palatial period, rather than something of significance in its own right. While I argue that the reorganization of society seen here is significant and fundamental for later periods, it is much easier to dismiss this period in terms of decline, not least because it remains relatively under-researched and poorly understood. Very few of the sites in this region with substantial levels from this period have been excavated, and these have only been published to varying degrees (Table 6.1).

A second problem relates to the overall picture of site distribution, in particular the distribution of certain types of sites. It is surprising that some of the most important sites are known almost exclusively from *either* settlement *or* cemetery evidence. Only a handful of graves are known for LH IIIC Lefkandi, most of which are intramural (Popham and Musgrave 2006). The settlement at Xeropolis is almost solely responsible for our assessment of the importance of Lefkandi in the Postpalatial period (Evely 2006).¹⁹ Kynos, too, is known primarily from its settlement (Dakoronia 2003; 2009), though there is a nearby cemetery at Rema Pharmaki (Kramer-Hajos 2008: 40). Indeed, there are several cemeteries between the coastal sites of Melidoni, Kynos, and Skala Atalantis and inland Kalapodi, which may be telling. This may reflect a desire to place

¹⁹ Somewhat ironically, this discrepancy is also observed, at Early Iron Age Lefkandi, but with the opposite pattern, where the cemeteries are widely known, excavated, and published (Popham *et al.* 1980; Popham *et al.* 1993; Popham and Lemos 1996).

Site	Type	Years of Excavation	References
Lefkandi: Xeropolis	Settlement	2003-2009	Evely 2006
Kynos	Settlement	1985-1995	Dakoronia 2003; 2009
Perati	Cemetery	1953-1963	Iakovides 1980
Mitrou	Settlement	2004-2008	van de Moortel 2009
Viglatouri	Settlement	1994-1997	Sapouna-Sakellarakis 1998
Dimini	Settlement	1977-1997; 2002-2007	Adrimi-Sismani 2007
Kastro Volos	Settlement	1956-1961	Threpsiadis 1956-1961

Table 6.1 Excavated sites in the Euboean Gulf region with substantial levels from the Postpalatial Bronze Age

cemeteries along well-traveled routes with ritual associations, rather than close to settlements. The opposite pattern is seen at Perati, where there is only a cemetery (Iakovidis 1980). Despite the site having been known for a long time, and several decades of archaeological exploration in the area, there is no known settlement that can be linked to this extensive and wealthy cemetery, where some 219 tombs are recorded; 60 of these had been looted when excavations began, and the rest were excavated by the Archaeological Service between 1953 and 1963 (Iakovidis 1980: 1; 2003: 125).

Finally, we turn to the drop in numbers of sites. This pattern obviously reflects a reorientation of settlement priorities and preferences in the Postpalatial Bronze Age, as discussed above. However, the apparent drop may also have something to do with our proxies for settlement, namely ceramics, which reveal information about consumption of particular materials, rather than settlement, *per se*.²⁰ It is possible that LH IIIB ceramics continued to be used well into the LH IIIC period. Without new products coming in from

²⁰ I do not mean to say that the drop in site numbers from LH IIIB to LH IIIC was artificial. It certainly was real. However, it is clear that it has been exaggerated, as is clear from the growing body of evidence from intensive survey work in recent decades, as well as renewed investigations at known LH IIIB sites, where LH IIIC material was simply not noticed or recorded. These issues having to do with modern archaeology, as well as (potentially) the past production and use of materials, have served to exaggerate the decline in site numbers.

palatial centers, there may have been a tendency to use older vessels, especially at centers that were occupied before the collapse of the palatial system, where these would have been widely available. A similar issue relates to our overall understanding of LH IIIC ceramic chronologies. These are now most commonly divided into Early, Middle, and Late periods, with Submycenaean following, despite the fact that no stratified deposit exists where Submycenaean falls between LH IIIC Late and Protogeometric (Papadopoulos *et al.* 2011), making this difficult sub-period better understood as an off-shoot style of LH IIIC Late.

Returning to site numbers, recent investigations have revealed that some of the most important LH IIIC sites now known were not identified as such in early surveys. Hope Simpson and Dickinson (1979), for example, did not identify LH IIIC remains at Dimini, Kalapodi, or Mitrou, though we now know that these are some of the most important Postpalatial sites in the region. In the last few decades the number of sites with identifiable Postpalatial remains has doubled, from about 30 included in Hope Simpson and Dickinson's (1979) count to my count of 64 in roughly the same area. I suspect that this number will continue to go up as this period receives more attention, but that the general patterns described above will hold.

In sum, then, substantial problems remain in understanding the character and distribution of settlement in the Euboean Gulf in the Postpalatial Bronze Age. Yet this region of Greece is increasingly recognized as crucial, evidenced in the recent attention it has seen concerning this period and the following Early Iron Age (Lemos 2012). It is hoped that this trend will continue and more substantial evidence will confirm or refute the interpretations outlined above.

Crafting in New Communities and Reconfiguring Production

Most of the settlement evidence discussed above comes in the form of pottery belonging to the LH IIIC style, related to, but distinct from, its palatial precedents. While the LH IIIA and LH IIIB ceramics of the palatial period demonstrate a high degree of uniformity across regions, LH IIIC ceramics display much greater regional variability (Mountjoy 1999). The degree of uniformity in palatial Mycenaean fine wares was the result of two related factors. First, this uniformity represented the emergence of regional production centers, some located at the palace itself (e.g., Thebes [Dakouri-Hild 2005: 185]). The degree to which these were under the control of the palace is not well understood (Galaty 2007: 86) and ceramic production is not widely represented in the Linear B tablets. That said, the uniformity in production on interregional, and especially macroregional scales, suggests some form of centralization, though this may well have more to do with consumption than production *per se*. Second, it is clear that certain ceramics were being produced to suit elite tastes that were relatively uniform across the Mycenaean world. This can be seen as the result of regional integration and interregional interactions between polities. In some ways, the pattern of uniformity seen in the Palatial period represents integrated views of production and consumption, which had grown through the Middle Helladic and early Mycenaean period. From this view the LH IIIC stylistic divergence might be seen as a regression; this is a characterization, rather than an explanation. I argue that the collapse of the palaces led to a dispersal of craft producers, formerly associated with the Mycenaean state, who worked and trained apprentices in new social contexts in which ceramic production happened on a local, though regionally aware, rather than regionally integrated scale. This explains, on the one hand, regional

divergences in style and, on the other, the surprisingly wide dispersal of locally-made Mycenaean wares during the Postpalatial period.

Local patterns of LH IIIC ceramic styles fit the settlement pattern groupings created by the nearest-neighbor analysis fairly well, lending strength to the hypothetical connections generated in the network model (Fig. 6.3). Production itself seems to have happened at the larger sites in the region, lending further weight to the idea of local-level centralization around sites such as Kynos and Lefkandi.

Population movement has long been used to explain the wide distribution of Postpalatial Mycenaean material culture during the Postpalatial period (e.g., Desborough 1972: 20-21; see also the recent summary in Dickinson 2006: 62-67). Such arguments are mainly based on the distribution of pottery. Rather than representing colonizing “Sea Peoples” who are referred to in Near Eastern texts, a production perspective suggests a different kind of relationship, where craftsmen, rather than whole populations, moved, along with goods and ideas. This perspective is diachronic and multi-scalar, depending on both historical factors and local/regional dynamics described above.

Producing Koinai

Stylistic groupings of pottery assemblages can also benefit from network thinking. Sherratt (2006b: 218-220) notes great similarity between LH IIIC ceramics from Lefkandi, Amarynthos, Eretria, Aliveri, and Psachna in central Euboea, as well as Kynos, Eleon, Anthedon, Lithosoros, and Kastro Volos on the mainland, and Agia Irini, on Kea (Table 6.2). Note that no Attic sites are included in this grouping, as one would expect from the settlement pattern. While these similarities should not be taken to mean that Lefkandi was *the* production center for this whole region, it does indicate enough

identical or shared elements of style to suggest frequent and consistent links through which ideas flowed easily. These are apparent in both stylistic features and (necessarily) sequences of production. Indeed, the presence of kilns at Kynos and Pherai indicate local production, though clearly with a stylistic repertoire shared throughout a much larger region.

The chronology of the extent of these similarities also has some explanatory power. Viewed graphically (Fig. 6.7), we can see an interesting pattern of dispersal. The

Site	Lefkandi Phases Represented	Degree of Similarity
Aliveri	1-3	Identical
Amarynthos	1-3	Identical
Eretria	1	Identical
Psachna	1-3	Identical
Eleon	1-3	Very similar
Dramesi	1-3	Very similar
Anthedon	1	Very similar
Lithosoros	1-2	Very similar
Schimatari	1-2	Very similar
Kynos (kiln)	2	Very similar
Kalapodi	1-3	Similar
Orchomenos	1	Similar
Eutresis	1	Similar
Kastro Volos	1-2, 3?	Similar
Pherai (kiln)	1-2	Similar
Agia Irini, Kea	2-3	Similar

Table 6.2 Chronological overlap and degree of similarity with ceramic styles from Lefkandi²¹

connections shown here are for heuristic purposes, rather than to suggest direct links between Lefkandi and all of these other sites; there were certainly go-betweens and other factors that will never be fully understood, and the real-world networks through which

²¹ Chronology given in Lefkandi phases 1, 2, and 3, corresponding to Early, Middle, and Late in the more general chronological framework for the period; similarity as described by Sherratt (2006b: 218-219).

these goods and ideas moved were much more complex and multivalent. What is significant here is the quantity of stylistic links for each period, as well as in what period new links are formed. The similarities of style during Phase 1 are telling, and would seem to indicate a holdover from earlier modes of production – none of these stylistic similarities are necessarily new, but they would have been similar due to the commonalities of the previous period, then spread through the dispersal of craftspeople to growing communities following the collapse of the palaces. This is indicative of already widespread styles coalescing in certain areas, rather than a particularly Lefkandiot style dispersing. The chronology is especially important for Orchomenos and Eutresis, which only have LH IIIC Early pottery (Lefkandi Phase 1), indicating holdout at these places of significance during the palatial period, before they were completely eclipsed by new centers reaching their apogee in LH IIIC Middle. The distribution of Phase 2 ceramics is more reflective of the prosperity that sites on the Euboean Gulf enjoyed in this period generally, and also shows the beginning and flourishing of stylistic links with more distant places like Kynos and Kea. Phase 3 is much less widespread, which could well indicate difficulties that sites such as Lefkandi and Kynos experienced in this final phase of LH IIIC: Sherratt (2006a: 307) notes that the architecture of Lefkandi in its final phase Lefkandi appears “ramshackle” and “run down,” though occupation was maintained; a similar pattern is found at Kynos (Dakoronia 2009).

It is in the LH IIIC Middle (Lefkandi Phase 2) period that a northern and central Euboean Gulf *koine* is most apparent, which fits well with the nautically themed figural representations of the period (e.g., Figs. 6.4 and 6.5) and overall greater connectivity and architectural elaboration demonstrated at the major sites. The crucial innovation in ceramic production in this period was the florescence of figural scenes, which quickly

spread to several locations, demonstrating stronger ideological and technological links (Thomatos 2006: 141-142; 2007). But this, like other aspects of complexity, came in fits and starts, and it is likely that the competition between emerging peer polities created losers as well as winners (in some cases both in the same place), evidenced in the violent destructions discussed above. The apparent center of this *koine* and most intense hub of interaction was the northern and central Euboean Gulf, which also experienced the most violent destructions during this period, seen most clearly at Kynos and Lefkandi. These destructions, however, cannot be compared to the systemic collapse of the palaces at the end of LH IIIB, as destructions are in almost all cases followed by quick recovery and continuity into the Protogeometric period. Indeed, it was most likely the local, yet competing nature of craft production in the Postpalatial period that led to the innovations we see in the Protogeometric. The “final flowering” of LH IIIC Middle, then, should be seen as part of a broader cycle of social complexity that ebbs and flows with the things around it.

Attica is not part of the above-mentioned *koine* throughout LH IIIC. Its attention, rather, seems to be turned toward the Cyclades (especially Naxos, but also other islands), the Dodecanese, and the west coast of Asia Minor (not least Miletos), rather than the Euboean Gulf. Desborough (1964: 146) called this an Aegean *koine*, though doubts about the appropriateness of this term have been raised by Deger-Jalkotzy (1998: 115), Vlachopoulos (2003: 231), and Thomatos (2006: 145-148). Whatever we call it, there are shared characteristics, likely brought on by higher degrees of connectivity between certain places. In Attica, these connections are most apparent at Perati, which has the largest corpus of excavated LH IIIC material by far, though other important assemblages come from Athens, Agios Kosmas, and Thorikos (Mountjoy 1999: 496-499). Viewed in

the context of the other long-distance relations demonstrated by the Perati material, mainly in the form of eastern exotica, it is clear that Attica's interactions were looking east, rather than north, into the Euboean Gulf, though by LH IIIC Late Attic pottery begins to have more in common with the Euboean Gulf (Mountjoy 1999: 53).

Metal Production and Consumption

In addition to the spread of pictorial pottery in LH IIIC Middle with its proliferation of combat scenes, metal artifacts seem to indicate the proliferation of a warrior ethos. This is seen most clearly in the importance of the so-called "warrior tombs" or "warrior burials" found throughout the Mycenaean world in the Postpalatial period (e.g., Cavanagh and Mee 1998: 89-97; T.J. Papadopoulos 1999; Deger-Jalkotzy 2006). Foremost among the various prestige goods that distinguished these graves were metal artifacts, including weapons, vessels, and toiletries, such as combs, razors, tweezers, and mirrors (Deger-Jalkotzy 2006: 152). These types of graves are found widely in Achaia, though they are relatively rare outside of the northwest Peloponnese and Epiros (Deger-Jalkotzy 2006: 154; Douzougli and Papadopoulos 2011). The Argolid and Boeotia, in particular, stand out for the lack of such burials. For Boeotia Deger-Jalkotzy (2006: 167-168) suggests that this is due to the history of research and lack of discovery, rather than lack of presence. On its own, this is a weak argument, but other categories of evidence suggest that the ideologies that produced warrior burials in Achaia could also be found in the Argolid and the Euboean Gulf region, especially since the Argolid and Boeotia are both quite well explored (much more so than Achaia, at any rate). It is possible that warrior identity was expressed through visual representations such as painted ceramics used in social settings, rather than funerary display. Moreover,

metal items are found at most of the excavated sites heretofore discussed. It holds up to scrutiny that, in the Postpalatial period, metal items were typically associated with prestige, and often had martial uses or associations. The production and consumption of such items can shed further light on social interactions, especially concerning how they were reconfigured in the LH IIIC period.

In the palatial period, Linear B records from Pylos provide us with a good example of the scale and location of metalworking in relation to the palatial economy. The Jn series of tablets mentions around 270 smiths, varying allotments of metal, and divisions of labor (Ventris and Chadwick 1973: 252-259; Smith 1993; Michailidou 2008: 534-535). Whitelaw (2001: 9) thus places metal production somewhere between the palatial and non-palatial sector. In this respect, it is not unlike ceramic production. Following the collapse of palatial administration, this aspect of craft production, like ceramic manufacture, would have needed to find new locations and reconfigure production in the absence of administrative structures. Self-organization, rather than central organization, has major consequences for connectivity, as local places create new networks, rather than feed into a central location. We have relatively few production remains from the Postpalatial period, but locations where these have been found suggest a relationship between craftsmen and mobility. We are looking at cases of either travelling smiths or smiths connecting to long-distance and regional networks of resource procurement and product distribution; it is probably a mixture of both. The crucial element here – one that is not present in the palatial period and does not apply to ceramic production – is that smiths would have had to be much more active in their connection to long-distance networks, in particular, with metal sources generally located at some distance from production sites. That said, recycling must also be taken into consideration,

and the presence of scrap found in bronze “hoards” suggests that this was an important activity (see Sherratt 2000: 87-88 on traveling smiths using recycled materials). The Cape Gelidonya wreck, which dates to the beginning of this period (c. 1200 or slightly later) and had LH IIIC pottery on board, also lends credence to notions of traveling smiths and recycling, given the mix of metal scrap and bronze-working tools found in the cargo, along with more conventional ingots (Bass 1967).

In the Euboean Gulf, Lefkandi has the most significant metal production remains dating to the Postpalatial period. This is unsurprising, given its key location, demonstrable relations with Cyprus, and history of excavation. Finished products, production slag, crucibles, and molds (Evely 2006: 288) were found at the site. Anthedon also has remains of bronze working (Rolfe 1890: 104-107; Catling 1964: 296-297). Finished products are fairly widely dispersed, but often difficult to pin down to LH IIIC specifically, as all but one of the Aegean sword-types that appear in LH IIIC also appear in other periods (Molloy 2010: 405). Moreover, these are often decontextualized, having been reported to come from tombs in generalized locations. Perati, unsurprisingly, provides the widest array of excavated metal artifacts from this period (Iakovides 1980).

The wider distribution of bronze artifacts throughout the Euboean Gulf region indicates the importance of metal consumption in this period. While we do not have the advantage of texts in Postpalatial times to shed light on the organization of production, the material record is not radically different than in the palatial period. Production evidence remains fairly scarce, though this is probably partly due to known practices of reuse and recycling (e.g., Budd *et al.* 1995), as well as research orientation. Metal production centers are often not found at the same location as the main settlements, and the relatively small amount of excavation focused on Postpalatial sites typically

concentrates on central locations. The overall regional distribution, represented mainly by daggers or Naue II-type swords found in tombs (Molloy 2005; 2010), suggests a well-networked community of metal producers within both the Aegean and wider Mediterranean.

The Bigger Picture

One of the problems of “collapse” perspectives in the Aegean is that they lose sight of the major changes in Mediterranean dynamics that take place between c. 1200 and 1050 BCE, especially in terms of expanding networks of interaction. While political upheaval took place throughout much of the eastern Mediterranean through the 13th century BCE, the aftermath saw continued strength in the Cypriot copper trade, local production of Mycenaean or Mycenaeanizing (LH IIIC) pottery in Cyprus, the Levant, Italy, Sicily, and Sardinia, and the rise of Levantine (later lumped together by Herodotus as “Phoenician”) city-states, out of which Tyre would eventually emerge as perhaps the greatest driver of long-distance interactions yet known. I argue that this expansion of mobility, driven mainly by an entrepreneurial merchant class, is precisely because of the vacuum left by authoritarian regional states. I have argued this in the case of the Euboean Gulf, but it also applies to the wider eastern Mediterranean. These dynamics shift later to accommodate the emergence of new powers in the Near East in the Early Iron Age. Meanwhile, changes in central Mediterranean societies led to the emergence of what would be the first sustained and society-changing ties between east and west. Let us now focus on how the Postpalatial Euboean Gulf tied into this wider, shifting Mediterranean framework (Fig. 6.8).

Social Reorganization in the Eastern Mediterranean

The Euboean Gulf (and the Aegean more generally) is by no means unique in the eastern Mediterranean in terms of its pattern of decentralization after 1200 BCE. This restructuring of settlement and social organization did not result in a collapse of interactions, but rather a necessary reconfiguration of the networks through which they operated. Geographically, they remained much the same, as favorable sea routes remain the same through time (Figs. 4.15 and 4.16), and maritime technology did not experience any great shifts from the 13th-11th centuries (Wachsmann 1998: 176). The significant pattern of decentralization seen throughout the eastern Mediterranean, in the Aegean, Anatolia, Cyprus, the Levant, and Egypt, led to the development of more distributed, frequent, and various types of interaction, ranging from the rise of merchant classes to population movements.

In the Aegean, the Euboean Gulf enjoyed a sort of privileged status, as other regions, such as Crete and the Cyclades, seem to experience depopulation and a certain attitude of fearfulness, with settlements shifting to difficult to access, defensible locations (Wallace 2010: 60-61; 2011: 59-60). By contrast, Achaia in the northwest Peloponnese experienced relatively little settlement reorientation, and also seems to have been looking west, given the large amount of LH IIIC Achaian pottery that has been found in southern Italy (Fisher 1988; Benzi and Graziadio 1996: 126).²² This suggests that the Corinthian Gulf was another geographical conduit, which should come as no surprise, given Corinth's later activity in the central Mediterranean. In addition, as Papadopoulos (2001:

²² For further references and discussion see Papadopoulos (2001: 444-448); for an earlier interpretation which emphasizes eastern Aegean, rather than Achaian sources for imports, see Smith (1987: 125). Most of this interpretation is based on stylistic analysis. Where analytical studies have been conducted, they suggest a wide variety of provenances, as well as local production. This variety is perhaps the most striking feature of the overall distribution of LH IIIC pottery in Italy.

444-445) points out, there was no palace in Achaia, and so no collapse, leaving networks established in LH IIIB virtually uninterrupted. Messenia, on the other hand, seems to experience general depopulation. Laconia, Arcadia, and the Argolid experience continuity, though in the context of political reorganization (Demakopoulou 2007; Dickinson 2006). The northern Aegean is more variable, on the one hand clearly tied-in to land-routes to the wider Balkans and continental Europe, as well as making use of its excellent metal resources (Fig. 4.19); on the other hand, certain areas seem to follow the defensive response pattern seen in the Cyclades, though usually while maintaining proximity to the sea or important land-routes (Wallace 2011: 60) – this pattern is not unlike that in the Euboean Gulf. But of all of these regions, the Euboean Gulf is the most consistent in its connections with the other complex societies of the eastern Mediterranean.

The downfall of the Hittite kingdom caused a major restructuring of social relations in Anatolia. Several sites along the Aegean coast maintained connections with the broader Aegean area, seen in the presence of LH IIIC pottery from Troy, Bademgedeği Tepe and Yeniköy, (both near Metropolis), Miletos, Tarsus, and Kazanlı, mostly locally manufactured (Fig. 6.8) (Mountjoy 2006: 107). The important point is that locally produced LH IIIC pottery was widely dispersed at a variety of sites. This may suggest a decentralization of trading activities and perhaps more mobile craftsman, hence local production being more common than imports. This interpretation of new networks forming, rather than a migration from the Greek mainland, is also consistent with the mortuary evidence from this area (Georgiadis 2009). Communities along the Aegean and Mediterranean coast of Turkey were now relatively independent. It is interesting that the sites which experienced greatest continuity from the preceding Hittite period – such as

Karkemish, where a Hittite dynasty was maintained, becoming a trading center and the capital of a significant Neo-Hittite kingdom in the Iron Age – seem to have experienced the least integration into the new networks forming in the eastern Mediterranean.

Cyprus is perhaps the most heavily researched, and most controversial, example of Aegean activity abroad, which certainly affected aspects of social organization. The period covered in this chapter (c. 1200-1050 BCE) straddles the Protohistoric Bronze Age and earliest Iron Age in Cyprus (1250-950 BCE).²³ Major sociopolitical changes take place on Cyprus during this period, largely as a result of the wider eastern Mediterranean context of the island. The question of Mycenaean colonization is highly controversial (see Knapp 2008: 250-251 for conflicting perspectives), though influence and contact is undeniable and perhaps best viewed in terms of hybridization (Knapp 2008: 286-290; 2009). The larger issue is the role of metals and the general pattern of destabilization. The importance of the copper trade cannot be understated. The Late Bronze Age political landscape seems to involve elites at regional centers competing for power and control, while the Early Iron Age trends gradually toward ruling lines controlled by particular individuals or groups, which is also the case in later periods (Janes 2010: 135). That said, arguments have also been made for centralized control of the island, based at Enkomi, in the Protohistoric Bronze Age. Whatever the case, Late Bronze Age systems were disrupted significantly by the destruction of Ugarit (c. 1185 BCE), which destabilized Enkomi, and a marked increase in Aegean presence, whether through colonization or politico-economic influence. This destabilization paved the way

²³ Under Knapp's (2008: 133) chronology this period begins with the Protohistoric Bronze Age 3 period (1250-1100), corresponding to the Late Cypriot IIC late to Late Cypriot IIIA ceramic periods used in the conventional chronology. The Earliest Iron Age (1100-950) corresponds to the Late Cypriot IIIB period (c. 1100-1050) and the Cypro-Geometric I period (c. 1050-950) (Janes 2010: 129).

for new groups and new practices of interaction to emerge, and would have also led to the reconfiguration of off-island networks, reflected in the increased presence of Aegean and Levantine material, and proliferation of Cypriot copper in the central Mediterranean (Lo Schiavo 2012).

The growth of entrepreneurial trade at the end of the Bronze Age undermined palatial economies on the Levantine coast as well, most famously that of Ugarit, destroyed in 1185 BCE (Routledge and McGeough 2009: 29). Following the collapse of this preeminent center, other areas of the Levantine coast (which had been well connected before as well) rose to greater prominence and eventually came to dominate eastern Mediterranean trade by capitalizing on opportunities left in the wake of other collapsing polities, namely Ugarit, Hatti, and Egypt (Bell 2009). Mycenaean clearly became involved here as well, although, as in Cyprus, the nature of the interactions evidenced by the presence of material culture is uncertain, and interpretations range from colonization to trade to general influence (Yasur-Landau 2010).

This brings us to our final Late Bronze Age mega-center. The Postpalatial Aegean overlaps with the end of the New Kingdom and Third Intermediate periods in Egypt. The “Sea Peoples” as a distinct entity are principally an Egyptian conception. The reliefs on the mortuary temple of Rameses III at Medinet Habu (r. 1186-1155 BCE)²⁴ already suggest an insecurity, which the ruler attempted to capitalize upon through self-aggrandizement. These events are part of a wider pattern of destabilization in Egypt, which might be traced back as far as the end of the 66-year reign of Rameses II in 1213 BCE. Six different kings ruled in the span of the 29 years that separate the two rulers. Rameses III’s rule was by no means a period of stability either. During this period the

²⁴ Regnal years for Egyptian Pharaohs and general chronology are based on Bard (2008: 41-44).

Egyptian “empire” or at least influence in western Asia was lost, internal problems were rampant (for example, in the form of the first recorded workers’ strike), and foreign invasions were increasing concerns. Economic instability built until civil war erupted, resulting in the division of Egypt and the end of the New Kingdom and beginning of the Third Intermediate Period, which coincides roughly with the end of the Postpalatial Bronze Age in the Aegean. The 21st Dynasty began with the reign of Smendes (1069-1043), who ruled from Tanis in the Delta (Bard 2008: 216, 265). By the time the *Tale of Wenamun* is recorded (likely during the reign of Smendes), Egypt’s influence in the eastern Mediterranean had clearly waned considerably, as Wenamun, a messenger of the king, is robbed, waylaid, and made to wait months for an audience during the course of his mission to procure cedar; his recorded stops at Dor, Sidon, Tyre, Byblos, and Cyprus, illustrate the increasingly diffuse nature of connectivity in the eastern Mediterranean as power relations had shifted between participants in exchanges.

Shifting Networks in the Central Mediterranean

There are three principal zones in the central Mediterranean that change significantly in terms of their eastern Mediterranean interactions in the late second millennium BCE. These have mainly been studied in terms of the presence of Mycenaean or Mycenaeanizing pottery, the amount of which has been rising steadily. Taylour (1958) recorded 17 sites and with ever growing datasets the number has risen to at least 78 (Vagnetti 1999: 156-161; see also Papadopoulos 2001: 440-441; Blake 2008). Smith (1987) has separated the LH IIIC material from the rest, which shows interesting patterning in becoming more widely dispersed than in previous periods. Aside from the presence or non-presence of imports, beginning around 1200 we see major shifts in the

societies of peninsular Italy, on both the Adriatic and Tyrrhenian coasts. On the Adriatic coast, a settlement on the Po emerged at Frattesina (Bietti Sestieri 2010: 186; Pearce 2007). In addition to imports of Aegean and Cypriot provenience, Frattesina was linked into more northerly networks supplying amber and metals, and to Etruria across the alps (Bietti Sestieri 1997; Vianello 2005: 91-93). This Adriatic development was connected to the Tyrrhenian coast through a pass that runs south through the Appenines to arrive in Etruria. Here, too, metals seem to be the main attractor, and exploitation of the region's ores (copper, silver, lead, antimony) intensified in the 12th century (Bietti Sestieri 1997). The stretch of Etruria between the Arno and Ombrone rivers was remarkably rich, leading to the regional referents Colline Metallifera and Etruria Mineraria. The region would become even more significant later when the rich iron sources of the nearby island of Elba began to be mined.

But southern Italy demonstrates by far the most Mycenaean infiltration. While LH IIIC pottery found here seems to come from a variety of locations across the late Mycenaean world, the most common forms seem to be from Achaia (Fisher 1988), though relatively few provenience studies have been conducted, and are too few and piecemeal to be statistically significant (Vianello 2005: 9-10). There is no discussion of pottery with origins in the Euboean Gulf, but this greater dispersal of LH IIIC material speaks to an increasingly connected Mediterranean, and belies notions of Aegean societal collapse following the disappearance of the palaces. Moreover, the Achaian situation may offer a parallel to certain areas in the Euboean Gulf. As I have argued, the most prosperous areas on the Euboean Gulf in the Postpalatial period seem not to have been under direct control of palaces during the palatial period (e.g., Kynos, Lefkandi), allowing them to come into their own when paths of interaction became more open,

accessible, and widely distributed between different types of actors, as was the broader case in the Mediterranean during this period.

Finally, Sardinia requires some additional attention as a rather more enigmatic Mediterranean entity at this time. This island also became a key player in the Tyrrhenian Sea and the wider Mediterranean at this time. There is a marked rise in Cypriot activity on the island (Lo Schiavo 2012), as well as Aegean interventions (Russell 2010: 114), though the nature of these is not clear. Cypriot influence appears mainly in the form of metals and metalworking implements, not least the preponderance of oxhide ingots. Aegean influence, as usual, is in ceramics. Sardinia was clearly valued for its copper resources, though the extent to which they were engaged in external trade before Cypriot interventions is difficult to say. It seems that, in this case, eastern interest sparked the formation of more local networks, involving the wider Tyrrhenian.

Metals and Society

“Metals make the world go round,” to quote the title of an edited volume on European Bronze Age metals trade (Pare 2000). All of these locations with metal deposits attracted attention from afar during the late second millennium BCE, attention that prefigured later, more intensive attention. This trend is not necessarily new – earlier Mycenaeans certainly had a strong interest in Cyprus and Anatolia, and at the very least dabbled in the central Mediterranean (van Wijngaarden 2002). In the central Mediterranean, however, minimalist interpretations (e.g., Snodgrass 1991; Blake 2008) have generally prevailed over ideas of “precolonization” (Popham 1994). Yet it must be taken into consideration that there is a strong correlation between find locations of Mycenaean materials (especially from Achaia) and later Greek settlement in Italy and

Sicily (Papadopoulos 2001: 441-448). Moreover, there is a strong correlation between metal-rich areas and strong Mycenaean interest. This is nothing new in the Postpalatial period, and has long been noted as a motivating factor for Mycenaean seafarers. What is new is the context of this quest for metals. It is not until the LH IIIC period that Tyrrhenian, Adriatic, and eastern Mediterranean networks open up in such a way as to allow sustained interaction that goes both ways. The growth of regional networks in the central Mediterranean and the freeing of eastern Mediterranean networks from palatial constraints allowed new, more permanent bonds to be formed, evidenced in the case of hybridizing Mycenaean and local production in Cyprus, the Levant, Italy, Sicily, and Sardinia. In this way, the development of local networks made it easier for Mycenaean and Cypriots to “plug-in” to them, and also created more diffuse distributions of material culture and influences, perhaps through certain entry points. This explains both how Greek-like material culture came to be produced in new locations and why in some cases it is found only as isolated examples. At the core of this bigger picture, however, are metals, more than any other commodity or motive for expanding interest.

The Euboean Gulf in the Multi-Scalar Mediterranean

The pattern of settlement, production, and interactions seen in the Euboean Gulf during the Postpalatial Bronze Age is part of a much larger process at work in the Late Bronze Age Mediterranean. Destabilization, mobility, and reorganization are the key features of this period for both the Aegean and the Mediterranean at large, as seen above. The value of a multi-scalar approach, however, lies in being able to go from the global to the local. The themes described in the previous section certainly obtain with respect to the local and regional networks of the Euboean Gulf. New settlements rose in the wake of

palace destructions, and new power relations were developed, often through sea-borne interactions between individuals, groups, and polities. In these newly competitive and decentralized spheres new political forms emerged under particular individuals and groups, whose local manifestations are present at sites such as Kastro Volos, Kynos, Mitrou, Lefkandi, Perati, and Athens, among others. At the same time, new regional interactions were negotiated, resulting in a major reconfiguration of ritual activity on a regional scale, namely at Kalapodi; in stark contrast to the palatial period such regionally-oriented group-formation practices were disassociated with a single political power. Also divorced from palatial oversight, movement and interaction required new agency on the part of individuals, which likely translated into the emergence of community leaders who competed with rivals by land and sea, and perhaps even took part themselves in long-distance voyages. The movement of craftsmen (and perhaps larger contingents) also became significant, as consumption of Mycenaean products became more global, even as it was becoming more localized.

In sum, the collapse of the palatial systems that dominated the Euboean Gulf created new opportunities and new networks. The northern and central Euboean Gulf went separate ways from the south, at least temporarily, yet this more fragmented picture is by no means isolationist. This was part of a wider phenomenon of network shifts throughout the eastern Mediterranean, which eventually tapped the expanding regional networks in the central Mediterranean. The result of this destabilization and reorganization were societies that were relatively locally oriented in terms of territory, but thrived on interaction at all scales and emerged as important predecessors to later Greek communities – in constant conflict and collaboration with neighbors in their wider regional setting, yet with interests and influences that spanned much of the

Mediterranean. Despite the collapse of the palatial systems, the picture is far from *societal* collapse, and leads us to question the common designation of this period as part of a dark age. In this chapter I have presented models and explanations for the *transformations* that characterized communities and networks in the Euboean Gulf in the Postpalatial Bronze Age, as certain communities emerged in the power vacuum left by the palaces to reconstitute local and regional interactions and coopt overseas networks, tying in to the wider Mediterranean, which was going through similar patterns of reorganization. In the next chapter I continue to explore this theme from the perspective of reorganization, rather than constraining notions of collapse or decline.

CHAPTER 7

Shots in the Dark: Technology and Society in the Prehistoric Iron Age

But then far-seeing Zeus made another race of men who came into being upon the fertile earth. I wish that I were not among this fifth race, but had died before or been born after. For now this is the race of iron.

Hesiod (*Works and Days* 173-176)

A sharp contrast between the Bronze and Iron Ages was already in mind for Hesiod in the eighth century BCE, when he saw the Bronze Age as the Age of Heroes, contrasted with the toil that characterized his own time. Yet despite the mundane views of iron expressed by Hesiod and prevalent throughout Classical and later history, it fundamentally changed the way societies operated. But this change did not happen overnight, nor was it an isolated phenomenon. The Early Iron Age was a time of experimentation and the exchange of ideas, more so than great technological revolutions, and it must be viewed in terms of a transition from, rather than a break with, the preceding Bronze Age. Like other prehistoric periods, the lack of writing in Greece at this time leaves us to depend on the material record, which unfortunately remains rather poorly understood in comparison to what came before and after (Dickinson 2006: 257-258; Bintliff 2012: 214).

Shifts in technology and society that began during this time would have major impacts much later. These shifts have to do with innovation, social inequality, and

interaction, and the precursors of later periods can be seen clearly in developments in the Euboean Gulf in the eleventh to ninth centuries BCE. Our understanding of the Early Iron Age, often marked with the pejorative term “Dark Age” has been revolutionized in recent decades. The overwhelming trend during this period is diversity, both on a regional scale within Greece and from the perspective of the wider Mediterranean. The experimentation and connections evident in the Euboean Gulf and its surrounding lands offer us increasing glimpses at the shots in the dark taken by its inhabitants in an age that, while far from dark, remains rather poorly illuminated.

In this chapter I argue that the major social and technological changes seen in the eleventh to ninth centuries BCE were crucial in the overall picture of Mediterranean dynamics, but did not fully emerge until the network intensification of the eighth-century “renaissance” (Snodgrass 2000[1971]: 416; Coldstream 2003[1977]: 109) or “revolution” (Morris 2000: 78). This is not to say that the Prehistoric Iron Age was at all stagnant. The presence of local leaders and regional practices are well evidenced and demonstrate a large amount of continuity from the preceding Postpalatial Bronze Age (Dickinson 2006). Moreover, interactions were maintained in the wider Mediterranean, which saw some of its most meaningful shifts at this time, as the connections explored in Chapter 6 became more persistent, rather than new and incidental. It is perhaps the spread of technologies or material practices and preferences on a macro-regional scale that is most significant, however. Network maintenance and glimpses of intensification in this period gave way to the much wider patterns of network intensification that are the subject of Chapter 8.

This chapter begins with some reflections on relationships between the Euboean Gulf and the rest of Greece, revisits the concept of “Dark Age” Greece, and highlights regional diversity as the overwhelming characteristic of Greece in the Prehistoric Iron

Age. I then turn to the specific character of the Euboean Gulf, discussing the settlement pattern and ensuing networks of the Prehistoric Iron Age (c. 1050-800 BCE).¹ Significant social changes go along with settlement pattern shifts, and the character of social complexity also undergoes several important changes, though in very different ways (again, highlighting regionalism and the necessity of a multi-site, multi-regional approach). In the Euboean Gulf, such shifts in the nature of social complexity are best seen at Lefkandi, though, increasingly, other sites reveal a wider and more diverse picture of settlement, hierarchy, and networking practices.

I then discuss the major technological changes in this period, and the production networks of which they are composed. The most significant of these technological changes is the transition from bronze to iron as the predominant utilitarian metal. Iron metallurgy arose from new sets of pyrotechnological innovations, and required new materials, connections, and skills. It is in this period that we see iron transition from a prestige good to a utilitarian one, as well as spread through much of the Mediterranean. But this was by no means the only innovation at this time. The ceramic industries of the Euboean Gulf were also transformed, both stylistically and technologically.

Finally, the wider Mediterranean context undergoes drastic shifts in the Prehistoric Iron Age. Changes that were set in motion in the Postpalatial Bronze Age expand here, as Phoenicians become more involved in the central and western Mediterranean. Tyre emerges as the first truly trans-Mediterranean center and, at least partly, paves the way for the Greek expansions that began in these centuries and culminated in the following.

¹ This includes the Protogeometric, Subprotogeometric, and Early and Middle Geometric ceramic styles, depending on the regional chronologies (see Table. 1.1).

The Euboean Gulf and “Dark Age” Greece

The Early Iron Age of Greece has long been viewed in much the same way as the Postpalatial Bronze Age, and the periods are frequently lumped together (e.g., Dickinson 2006; Bintliff 2012: 209). The Prehistoric Iron Age (c. 1050-800), in particular, has been viewed as a time of decline, stagnation, and isolation, sandwiched between the collapse of the Mycenaean palaces and the rise of polis culture in the course of the eighth century. There are several reasons for this view. The first is the loss of writing, which, as discussed in Chapter 6, removes an entire category of evidence upon which our understandings of the workings of society might be based. The second is a decline in the overall amount of evidence we have from this period in terms of the number and size of settlements. Third, there appeared to be a sharp decline in overseas trade. To many, this represented a critical break from preceding periods, and led to the characterization of this period as the “Dark Ages” of early Greece (e.g., Desborough 1972; Snodgrass 2000[1971]). Spectacular discoveries at Lefkandi in the 1980s, and other sites since then, have forced us to rethink some of these assumptions. The excavation of the monumental Toumba Building at Lefkandi, the wealthy graves within it, and the surrounding cemeteries turned scholarly attention to unprecedented evidence for overseas contacts with Cyprus and the Levant, as well as a high degree of social stratification within the site itself. Lefkandi, more than any other site, changed the way we think about the Early Iron Age; at the same time, however, it must be kept in mind that this is only one site, and its character is far from the norm.

Much has been written since the 1980s about dispelling the “dark age” moniker for Early Iron Age Greece. Papadopoulos (e.g., 1996a) has indicated the marginalizing

affects of such pejorative terms, and now most scholars writing on the period prefer Early Iron Age as the period designation (e.g., Morris 2000; Dickinson 2006). While Snodgrass (2000[1971]: xxiv) still maintains his 1960s and 1970s characterization of the period as one of decline, he, too, now recognizes that the term can be misleading, noting in the preface of the new edition of his survey of this period that he wishes he had used the term “Early Iron Age” at the time of writing. Still other authors write about “new light” on a dark age (Langdon 1997), highlighting recent discoveries that have changed our perception of this period (see also Morris 1992: 140). Others prefer to discuss this period as “pre-literate” rather than prehistoric (Whitley 1991). While the term prehistoric can, admittedly, have pejorative connotations as well, I use it in reference to the nature of the evidence for the period at hand, and the disciplinary context in which it is situated, rather than to put forward any qualitative judgment. Consensus now seems to fall with Papadopoulos’s assessment that “too much was happening in Early Iron Age Greece for it to warrant the term ‘dark age’” (1996a: 254-255; cf. 1993: 194-197; repeated in Dickinson 2006: 7).

Despite such generally positive changes in terminology, we remain in the dark about much of this period, due largely to the nature of the evidence. In a recent paper, Murray (2013) challenges the idea that we are simply “missing” sites from this period, due to poor understanding of the material and archaeological inattention (Whitley 1991: 7). Murray argues that statistics of site discovery before and after the spectacular finds at Lefkandi came to light in the 1980s suggest that our perception of decline in site numbers from the preceding Mycenaean period was not so skewed after all. Yet this is not the case if we consider the transition from the Postpalatial Bronze Age to the Prehistoric Iron Age, as defined here (see below). The overwhelming characteristic of this period, however, is

neither decline nor strict continuity, but rather variability. Regional differences are extremely apparent in this period, even within the Euboean Gulf, between, for example, Attica and Thessaly. And the Euboean Gulf differs markedly from the Peloponnese (which has its own regional variation) and Northern Greece. Crete is its own animal entirely.²

It is now clear that Lefkandi and Euboea are by no means the norm for Early Iron Age Greece. Indeed, Lefkandi has no parallel in scale, and other excavated, well-known sites (such as Nichoria, Zagora, or Emporio) present a much different, more localized picture of life in the Early Iron Age. Yet other regions of the Euboean Gulf, such as Thessaly, Lokris, and Attica, also stand out in this period, though for different reasons. There is significant variability between these regions, yet they remain joined by a common geographical factor, and linked to a wider Aegean network that seems to have some of its most significant hubs on the Euboean Gulf.

Settlement Hierarchies: Inter-Site Networks and Intra-Site Complexity

This section examines the regional and local networks that are evident in the archaeological record of the eleventh to ninth centuries BCE, encompassing the Protogeometric through Middle Geometric I ceramic periods (see Table 1.1 for chronology and abbreviations). Following the methods of Chapters 5 and 6, I model and discuss inter-site networks based on nearest neighbors. In addition, I supplement these

² For a brief overview of such differences, see Wallace (2011). The most comprehensive studies of regional variability in the Prehistoric Iron Age remain those of Snodgrass (2000[1971]) and Coldstream (2003[1977]; 2008[1968]), as well as the more recent work of Lemos (2002) for the Protogeometric period. Regionally specific studies are relatively rarer, though Wallace's (2010) work on Crete highlights its individual character in this period, expanding earlier work on the subject by Nowicki (2000) and Haggis (2001).

models with site-specific discussions of networking practices by individuals at particular sites in Attica, central Euboea, and Thessaly. Networks continue to be used as both model and metaphor for diverse and complex sets of interactions, based on a variety of archaeological evidence that crosses scales from individual to inter-societal, and from local to trans-Mediterranean. As indicated above, the overwhelming pattern is variability between regions, even more so than in the Postpalatial period, yet certain commonalities and connections are clear. The Euboean Gulf continues to act as a conduit for the individuals and groups living around it, despite the changing social structures that appear in the archaeological record. The main social shifts from the preceding Postpalatial Bronze Age include shifts in settlement locations, a general (though not universal) decline in architectural scale and settlement size, and changes in burial practices reflecting shifts in the nature of social complexity.

Connecting the Dots in the Early Iron Age Settlement Pattern

The settlement pattern of the Early Iron Age holds a few surprises. The settlement pattern is not wildly different from the preceding Postpalatial Bronze Age, yet there are important changes (Fig. 7.1; see Fig. 7.2 for site names). Beginning in the south, there is a drop in the number of sites in southeastern Attica, though an increase for Attica as a whole, with sites more evenly dispersed throughout the region. Boeotia experiences a definite drop in number of sites: Thebes, Orchomenos, and a handful of other sites remain occupied, but the decline in numbers that began in the Postpalatial Bronze Age continues in the Early Iron Age. An exceptionally interesting trend is the drop in site numbers in northeast Boeotia, around and north of the Euripos. Moving north, East Lokris continued to do quite well, as the Bay of Atalanti clearly maintained several significant settlements,

and the sanctuary at Kalapodi continued to be an important regional center. Thessaly, too, experienced growth in this period, highlighting its unique character. Also noteworthy is the appearance of Kephala on Skiathos, just outside the northern outlet of the Euboean Gulf. This may have been an important stepping-stone on the sea route to the northern Aegean (Mazarakis Ainian 2012b). Euboea itself seems to swell in importance in the Early Iron Age, a trend that began in the Postpalatial Bronze Age. The location of new sites is perhaps also significant. Rovies and Dafni are located just across from the sites of growing prominence on the Bay of Atalanti. The cluster of sites around the Euboean side of the Euripos also grows in number, even as the Boeotian side dwindles; this discrepancy may suggest that the Euboeans had, in a sense, out-competed the neighboring Boeotian sites at this strategic location. Finally, we should note the appearance of Plakari in southern Euboea, near Karystos. This is the first new site established in southern Euboea since the Middle Bronze Age.³

Sites vary greatly in terms of the quantity of material, level of study, and whether they represent a settlement, cemetery, or handful of sherds (Fig. 7.2). In total, 83 sites are mapped here, up from 63 for the Postpalatial Bronze Age (Fig. 6.2).⁴ This number is also

³ As discussed in Chapter 5, this gap in occupation is surprising, especially since intensive survey work has been undertaken in southern Euboea since the 1980s. In other periods southern Euboea is more closely linked to the Cyclades and Attica than elsewhere in Euboea, which also appears to be the case in this period.

⁴ This data is compiled from synthetic studies of Early Iron Age Greece (Lemos 2002; Dickinson 2006), and the Euboean Gulf (Crielaard 2006), as well as a variety of excavation and regional survey reports (see Chapter 2, pp. 34-41). Much of this information and more has been compiled by Murray (2013), who has kindly made her database available to me. The numbers and maps presented here do not reflect all known sites of this date, or all sites in Murray's database. Inclusion here depends on the nature, location, and context of sites. All sites that are demonstrably settlements are included, as well as cemeteries and occasionally sherd scatters without known settlements nearby. The criteria for selection are admittedly arbitrary, and have been adopted to include definite and likely individual communities, rather than simply find spots. There are almost certainly omissions, and the dataset will continually change. I believe, however, that the broad patterns will remain consistent with those presented here.

greater than other authors include in overviews of the period (Lemos 2002: 198; Crielaard 2006: 276; Dickinson 2006: 86), though Lemos and Crielaard treat the Protogeometric independently of the Subprotogeometric and Early and Middle Geometric, a break in ceramic styles, which seems socially artificial.

Due to the relatively small size of all sites of this period, there was a need for these communities to interact with one another for basic subsistence and survival. In the absence of regionally centralized authority, these interactions would have been largely irregular and subject to change and improvisation, much as they were in the Postpalatial Bronze Age. Following the nearest-neighbor model applied previously, a network of likely regional interactions is illustrated in Fig. 7.3, where each site is required to interact with a minimum of three nearest neighbors. The general pattern of modeled interactions is similar to that seen in the previous period (Fig. 6.3), though is most noteworthy in the intensification of interaction in particular areas, namely Athens/Attica, central Euboea, East Lokris/Phokis, and Thessaly.

In the Postpalatial Bronze Age, there was a clear separation between southern Attica and the rest of the Euboean Gulf, as Attica was more in touch with the Saronic Gulf and Cyclades⁵ – this pattern anticipated the networks modeled here for the Early Iron Age. Yet at this point, Attica's settlement pattern becomes more dispersed and its influence swells, likely on account of demand for its exceptionally high-quality pottery,

⁵ See Chapter 6 for a discussion of ceramic *koinai* in which the various regions of the Euboean Gulf were involved (see also Desborough 1964: 227-229; Mountjoy 1993: 100-103; Thomatos 2006: 145-148). The pottery styles of Attica have more in common with the Cyclades (especially Naxos) and the Dodecanese than with the central or northern Euboean Gulf.

and role as an innovator in the Protogeometric style (Snodgrass 2000[1971]: 43-44).⁶ In addition to the ceramic evidence, which is clear on the primacy and wide dispersal of Attic pottery, the settlement pattern and resulting model of regional interactions also opens up to join with Boeotia, Euboea, Agia Irini on Kea, and Zagora on Andros, though the Attic Protogeometric travels far beyond these near neighbors. Wealthy burials at Athens, on the Areopagus and at the Kerameikos, testify to connectivity – through trade in metals and luxury items – with northern Greece and the eastern Mediterranean; similarly well-endowed cemeteries from Vari and elsewhere in Attica suggest that this was a regional pattern (Snodgrass 2000[1971]: 406).

Elsewhere on the mainland coast of the Euboean Gulf settlement networks began to cluster more than they did in the previous period, which likely reflects the rise in prominence of certain areas and marginalization of others. The Skourta Plain provides an interesting case, where four small sites are known (Munn and Munn 1989; 1990; Farinetti 2011: 394-396), but are relatively isolated, both geographically – on account of their mountainous location and distance from other settlements – and in the network model, where they are relatively self-contained. Settlement in Boeotia also seems to drop off, as principal sites such as Thebes and Orchomenos remain occupied, but few others do. Indeed, Glypha and Oropos seem to have more in common with Euboea in this period, and were certainly closer in the network than to other sites in Boeotia; unfortunately the paucity of excavated material from this period at these sites allows us to say little else.

Settlement in central Euboea undergoes what is by far the most poignant intensification in this period, both in terms of the local developments discussed below,

⁶ See also Desborough (1952) for Athens as the origin of the Protogeometric style, a view which Snodgrass (2000[1971]: 43-44) softens, in which form it is largely maintained (e.g., Dickinson 2006: 131-132).

and the regional developments modeled here. The network growth that is the result of more sites coming into the model seems to follow the behavior of scale-free networks, where new nodes attach preferentially to those that are already well-connected. There is no question that Lefkandi is a hub of exceptional importance, with a network reaching far beyond the nearest neighbors modeled in Fig. 7.3. This was anticipated in the influence of its ceramic workshops in the LH IIIC period (Fig. 6.7), and is highlighted by the far-reaching connections to Cyprus, Egypt, and the Levant that made it exceptional in the Early Iron Age. New sites, not occupied during the Postpalatial period thus appear around it at Phylla, Nea Lampsakos, Kamari, Magoula (Fig. 7.2), and others grow considerably at the end of this period and in the next (e.g., Eretria – see Verdan *et al.* 2009).⁷

A similar pattern of clustering, again as the result of preferential attachment, happens around the Bay of Atalanti, where centers like Kynos and Mitrou exhibit direct continuity from the Late Bronze Age to the Early Iron Age. (Dakoronia 2003; 2009; van de Moortel 2009). Kalapodi, which also shows marked continuity in cult activity (Kaiser *et al.* 2011), carries on much the way it had in LH IIIC, and new sites appear in its general vicinity.⁸

Finally, the network that develops around the Pagasitic Gulf is particularly important. Here, at the northern end of the Euboean Gulf, several sites emerge as competing centers on this crossroads between the north and south Aegean. Thessaly itself, in particular the Bay of Volos, is at the outlet to the sea for the major land route

⁷ There is a strong argument to be made that Lefkandi was Old Eretria, though this will be discussed in full in Chapter 8.

⁸ The case of Kalapodi, even though an inland site, in fact highlights the importance of the Euboean Gulf, as its role as a regional sanctuary was eclipsed by Delphi after the Geometric period on account of networks shifts (McInerney 2011).

from the north, which we know was important for metals and other commodities, and there is a clear growth in settlement in this area in many places that are better known for their prominence in later periods. On Euboea, Likhas and Oreoi are important nodes along the narrow Malian Gulf that forms the exit to the Euboean Gulf, and further afield Kephala and Theotokou are well positioned to catch traffic from both the gulf and the exterior, Aegean route north (Fig. 7.2). The evidence of activity at Vasilika (new for this period) also suggests the increasing importance of an Aegean route, as does the maintenance of important nodes at Kerinthos and Kyme.

Overall there is a gradual pattern of re-clustering in particular regions surrounding the Euboean Gulf. The broader dispersal of settlement that was characteristic of the Postpalatial Bronze Age (and was the direct result of decentralization) gave way to greater concentration in areas of growing importance. The areas that seem to be the focus of this settlement intensification had already come to the front of the pack, so to speak, in LH IIIC, and in the Early Iron Age remained significant as other areas dropped off, and people moved closer to areas of greater interest. At certain of these sites, especially Lefkandi, Athens, and various places in Thessaly, new strategies of social differentiation were pursued that made use of both local efforts toward group integration, such as feasting and funerary practices, and exotica brought from long distances.

The Creation of Inequality through Individual Networks

Individual networks, or the topology of relationships between people, operate most intensely on a local scale, though make crucial use of regional and long-distance connections. In the Prehistoric Iron Age we can see how particular individuals used such networks in the creation of social inequalities. Patterns do not occur uniformly across

regions, and even vary on a site-to-site basis. Yet in many places we do see an intensification of socio-political complexity, contrary to intimations of decline (e.g., Snodgrass 2000[1971]: xxiv). A multi-site approach to understanding complexity in this period is thus necessary, not least because the body of evidence is not balanced across regions and the archaeological record for this period is more fraught (and likely more incomplete) than for others.

The burial record offers some of the most widespread and significant evidence for the Early Iron Age. Its prevalence in comparison to settlement remains has given rise to innovative, yet debated theories of social structure in this period, including Morris's (1987: 9, 94-96) argument concerning burial, which saw a dichotomy in society between the *agathoi*, who received formal burial, and the *kakoi*, who did not. This proposition was used to explain the overall decline in burial, as well as the apparent wealth of the burials that did exist, yet does not get us very far in explaining the apparent lack of settlement evidence. More importantly, burials from this period, especially elite burials and the grave goods that accompany them, allow us to reconstruct networking practices used by elite families (the deceased and those who interred them) to participate in local, regional, and long-distance exchanges, and to construct and legitimate social status and power. Morris (2000: 238) has noted the importance of drawing connections between "locality" and the east, and the past and the present. By taking a network approach that operates on multiple scales we can build upon this to include more explicit analysis of individuals, their networks, and the materials through which these were realized.

Athens

The cemeteries of Athens, especially the Kerameikos, have received by far the most attention of any in Early Iron Age Greece, in terms of both excavation and further interpretation, especially in the studies of mortuary practices (e.g., Krause 1975; Morris 1987; Whitley 1991; Papadopoulos 1993).⁹ Beyond the Kerameikos, significant Early Iron Age deposits have been found at the location of Plato's Academy, where ritualized drinking is apparent in EG I (Mazarakis Ainian and Livieratou 2010; Mazarakis Ainian and Alexandridou 2011); and in the Agora, where significant ceramic production remains have been found (Papadopoulos 2003), along with burials and possible signs of habitation (Mazarakis Ainian 2012a). The cemetery at Nea Ionia belonged to a separate, as yet unknown, settlement (Smithson 1961), perhaps a very small one.

Groups of wealthy graves of PG, EG, and MG I date are scattered throughout what is now downtown Athens (Fig. 7.4). The topography is difficult and a long-standing question: the most recent summary for the Early Iron Age is given by Papadopoulos (2003: 271-316). In general, the number of burials stays relatively constant from PG to

Period	# of Burials per Generation
Protogeometric	24
Early Geometric	22
Middle Geometric I	19
Middle Geometric II	27
Late Geometric I	71
Late Geometric II	114

Table 7.1 Number of burials per generation (30 years) for Athens (after Morris 1987: 73)

⁹ Excavations have been conducted by the German Archaeological Institute in Athens since 1913, following excavations by the Archaeological Society of Athens in the 19th century (Knigge 1991). Relevant publications include several volumes on graves that date to the 12th to 8th centuries (Kraiker 1939; Kübler 1943; 1954; Ruppenstein 2007).

MG I, before an increase in MG II and a dramatic rise in LG I and LG II (Table 7.1).

Morris (1987: 93-96) uses these numbers as a starting point to argue not for a substantial population boom in LG, but rather for formal burial being an indicator of social rank in certain periods (PG-MG). The general picture of wealth found in some of the PG-MG graves, along with their relative rarity overall, suggests that burial itself was a privilege accessible to only the upper class of society, and is a strong indicator of social inequality and the presence of an aristocracy. In the eighth century, a dramatic shift occurs, broadly coincident with the emergence of the polis and widespread colonization movements that would have had major impacts on notions of identity and society. Burial came to be accepted for all citizens, in an egalitarian effort that was at the same time aimed to legitimate other social inequalities (for example between Greeks and others, citizens and non-citizens). These points are well articulated by Morris (1987), and are generally accepted (Papadopoulos 1993; Bintliff 2012: 226) and have been reiterated (Morris 2000). There is thus little need to rehash the specifics of the argument here, but rather to turn to the presence and importance of networks in understanding such burial practices.

The most famous of the Early Iron Age burials of Athens comes from the slopes of the Areopagus and is commonly referred to as the tomb of the “rich Athenian lady” (Smithson 1968; Coldstream 1995; Liston and Papadopoulos 2004; Stampolidis and Giannopoulou 2012). Recent reexamination of this burial assemblage revealed that the woman was likely pregnant, which, Liston and Papadopoulos (2004: 30) argue, would have counted her among the “special dead” requiring an exceptional burial. The same authors also point out that, regardless of the validity of such a specific interpretation, the grave goods indicate the high status of this burial, which may be used to infer the wealth or status of the deceased, or at least of those aiming to associate themselves with her,

presumably family members. Pottery items found with the burial were of extremely high quality and date to the EG II period; these include a belly-handled amphora used as the funerary urn, a small neck amphora, several pyxides and model granaries, including a chest with five model granaries on top, probably a jewelry box; a variety of other types of finely made pots were also present (Smithson 1968: 83-109). In addition to the pottery finds, metal pins, bronze fibulae, gold rings, gold earrings, a necklace, faience discs, glass beads, two ivory stamp seals, and an ivory disk were found as well (Smithson 1968: 109-116).

In addition to the overt wealth the deposition of such objects was designed to project, their diverse origins referenced distant locations. Coldstream (1995) noted the similarity to other wealthy burials from Athens, as well as Lefkandi and Knossos. Feasting is also apparent as an important funerary activity, with animal bones associated with the burial representing over 70 kg of meat that would have been consumed at the funerary event (Liston and Papadopoulos 2004: 29). The spectacle of the funerary event must also be considered paramount to the assemblage, as we see in other places, such as Lefkandi.

Further discussion of the wealthy burials of Athens can be found in the literature cited above. For some, this was already a well-worn topic 20 years ago (Papadopoulos 1993: 175). The point of emphasis here is that the grave goods in just one of the wealthy burials from Athens demonstrate connections to a variety of distant locations. Faience and ivory likely had Egyptian origins, though these materials probably would have come to Athens via Cyprus or the Levant, which are also possible origins for the bronze. Other metals, namely gold, were also imported, possibly from the northern Aegean, Cyclades or Egypt. This discussion of provenance is extremely non-specific, and provenience studies

of this material have not gone beyond stylistic analysis. The point is, however, that these items were valuable in this local context, partly because they were distinctively non-local, and made reference to a wider, exclusive network of connections of which the rich Athenian lady and her peers were a part. This exclusivity was made even more explicit by two factors. The first and most obvious is that (if we accept Morris's [1987] thesis) most of the population did not receive any type of burial at this time. The second is evidenced by the funerary events and feasting practices for which we have good evidence. Here feasting practices were focused on the burial of a particular individual; they took place in open space, yet were a type of place-making activity that highlighted social inequalities by emphasizing (conspicuously) various types of consumption at a burial event. Evidence of Early Iron Age burial is most widespread at Athens, but emphasis on inequality is taken to much higher levels elsewhere, especially at Lefkandi.

Lefkandi

The discovery of the Toumba Building at Lefkandi, and the wealthy burials within it, turned on its head the assumption that the Early Iron Age was a time of isolation and egalitarianism (Catling and Lemos 1990; Popham *et al.* 1993).¹⁰ Lefkandi

¹⁰ Archaeological investigations at Lefkandi have occurred in several phases. It was included in the survey of Euboea conducted by the British School at Athens in the 1950s and 1960s (Sackett *et al.* 1966: 60-61, see also for earlier references), and excavations at Xeropolis began in 1964 (Popham and Sackett 1968). Beginning in 1968 and running throughout the 1970s, excavations took place at five cemeteries west of Xeropolis, published in *Lefkandi I* (Popham *et al.* 1980). The Toumba Building was discovered in 1980, when it was illegally bulldozed by a farmer wanting to use the land for a new outbuilding, and excavations resumed at this location and the Toumba Cemetery, immediately to the east. The Toumba Building is published in two installments as *Lefkandi II* (Catling and Lemos 1990; Popham *et al.* 1993). The Toumba Cemetery is the subject of *Lefkandi III*, though only the plates have been published since the excavation in the 1980s (Popham and Lemos 1996). Excavations at Xeropolis resumed in 2003, under the direction of Irene Lemos and annual fieldwork summaries have appeared in *Archaeological Reports* since then, along with other brief summaries of fieldwork (e.g., Lemos 2010a; 2012: 22-24).

was a significant site throughout the Bronze Age, especially in the Postpalatial period, though it deserves special attention with respect to the Early Iron Age. The site is best known for its cemeteries and the associated settlement at Xeropolis, approximately 500 m away from the cemeteries (Fig. 7.5). The most important discoveries for the Early Iron Age come from the cemeteries, especially the elite burials at Toumba (both within a monumental apsidal building and in a cemetery immediately east of it). Together these burials reflect sustained practices of social differentiation, as expressed through burial events and conspicuous consumption, rooted in places of particular significance. Such significance was derived from memory and repetition of the events that took place there and the social and material associations they bore.

The Toumba Building (Fig. 7.6) is a long, apsidal structure on an east-west orientation, with verandas on the north and south sides and a porch on the east. Fill from the destruction of the building dates to the Middle Protogeometric period, or 1000-950 BCE, and all evidence suggests that it was built in the same period (Catling and Lemos 1990: 92), then quickly turned into a mound¹¹ (Popham 1993: 98). At c. 50 x 14 m, the building is monumental in scale, with an area over twice that of any contemporary building; indeed, no building of comparable size is known for the next 300 years (Mazarakis Ainian 1997: 48-49). Following the construction of the building, turning the site into a mound was itself a monumental undertaking, and the excavators estimate

¹¹ The exact sequence of events for the construction of the Toumba Building, the burials, and the mound remains contested. It is known that everything happened fairly close together (nearly all ceramics are MPG), but the archaeological record cannot reveal for certain whether the building was made as a rulers' dwelling, then demolished to turn it into a tomb, or whether it was built specifically to be a tomb (Popham 1993: 97; Antonaccio 1995: 236-241; Mazarakis Ainian 1997: 54-57; Morris 2000: 221). Moreover, its resemblance to early temple forms (which do not appear until the eighth century) have also led to the possibility of more explicitly religious functions, though the rulers' dwelling/funerary architecture interpretation is by far the most common (see above references, as well as de Waele 1998; Pakkanen and Pakkanen 2000).

between 500 and 2000 person-days of labor went into its construction (Coulton 1993: 55-56). This investment suggests that the agency behind the creation of this monument exercised a significant ability to mobilize human and material resources. Its function, as essentially a funerary marker, further highlights its uniqueness, since building on this scale for a particular individual or group had not happened since the Palatial Bronze Age. Large-scale building projects in the Postpalatial Bronze Age, while present, were almost exclusively community-oriented projects, such as the settlement walls and basic structures (e.g., at Kynos, Lefkandi, and Mitrou).

Despite its unique size, the Toumba Building still had much in common with other structures of this period. It is comparable to “rulers’ dwellings” or large houses at Emporio and Nichoria (Mazarakis Ainian 1997: Tables III and X), both in apsidal form and internal divisions of space and features. A further parallel exists at Thermon, where the apsidal building, Megaron A, originally built in Mycenaean times, seems still to have been standing and in use for burials in the Early Iron Age (Mazarakis Ainian 1997: 44-45; Morris 2000: 222-228), when Megaron B was built (Papapostolou 2011). While these parallels exist, the short use-life and function of the Toumba Building – seemingly built to be destroyed and turned into a funerary mound – make it one of a kind.

In the center of the Toumba Building, two human burials and four horse burials were found below the floor. The human burials (Fig. 7.7) are a male cremation, often referred to as the “Hero of Lefkandi” (Popham *et al.* 1982b; Morris 2000: 195; Antonaccio 2002), and a female inhumation, sometimes viewed as a suttee (Popham 1993: 21), but more recently as a “princess” (in the non-specific sense of *princeps* Stampolidis and Giannopoulou 2012). Through these burials and their associated grave goods, as well as those in the adjacent Toumba Cemetery, certain networking practices

become apparent, whereby elite groups at Lefkandi engaged with both past and present material remains in an effort to construct power relationships and social inequalities.

The male cremation burial (or “hero”) was an individual likely between 30 and 45 years old at the time of death. Cremation remains were placed inside a large bronze amphora, most likely of Cypriot origin, dating to the 13th or 12th century BCE, though vessels of this type have also been found in 11th-century contexts on Cyprus (Catling 1993: 86-87). The bronze was thus a minimum of 50 years old at the time of deposition, and more likely between 100 and 300 years old. The amphora is decorated on its rim and handles, containing a single register of humans and animals – lions, bulls, and archers – on the rim, and double registers of lions and bulls on the handles. This iconography also has its most likely home in Cyprus, though there are certainly hybridizing elements that blend together Aegean, Cypriot, and Levantine elements (Catling 1993: 86-92), which should be no surprise given the cultural heterogeneity of Cyprus at the time of production. In the amphora was also found a linen robe or shroud and the cremated human remains, all covered by a bronze bowl. Other goods were found around the amphora, lending to the warrior or hero designation; these include an iron sword, razor, whetstone, and spearhead (Popham *et al.* 1982b; Antonaccio 2002).

The female inhumation was found in the same shaft as the cremation, immediately to the north (Fig. 7.7). She was laid out with arms and feet crossed, adorned with grave goods at least as significant as those found with the male: these include an electrum ring, bronze and iron pins, a gold brazier consisting of two gold discs over the breasts and a lunate piece of gold between them (Popham *et al.* 1982b: 171-173; Popham 1993: 20). A necklace of gold beads, faience, crystal, and a central gold pendant that has been identified as an Old Babylonian gorget, which would make the artifact between 600

and 1000 years old at the time of the burial (Popham 1994: 15; Morris 2000: 219; Lemos 2010b: 58). Next to her right shoulder, an ivory-handled iron knife was found, which immediately led to speculation over the possibility of this individual having been a human sacrifice or suttee (Popham 1993: 21).

Turning to the context of these burials, there are further meaningful markers. The first is the presence of four horse burials in a shaft dug at the same time as that for the human burials, immediately to the north (Fig. 7.6). These were almost certainly ritual sacrifices that were part of the funerary event that took place at the site. There are many examples of horse burials associated with elite funerary remains from the Mycenaean period (Cavanagh and Mee 1998: 115), some of which even come from the Euboean Gulf, from the Vrana tholos at Marathon (Marinatos 1972: 190). Horse burials were also common on Cyprus (Carstens 2005) with which Lefkandi was in demonstrable contact: the burials at Lefkandi are quite similar to the much later ones at Salamis (Blackwell 2010: 144-145), which recall Homeric practices from the funeral of Patroklos (*Iliad* 23.163-257).¹² While the horse burials at Lefkandi are unique in the Protogeometric period, horse sacrifices (like many Homeric features) had important antecedents in the Mycenaean period, which could very well have been referenced deliberately, after being preserved in collective memory. It may also have been a deliberate reference to traditions elsewhere, on Cyprus, as a further reference to long-distance networks. Regardless of these foreign associations, the status that horses afforded in early Greece is well known (Kelekna 2009: 175-180), and it is increasingly recognized that horseback riding was an

¹² Homeric practices recalled in Cypriot burials include horse sacrifice, placing honey and oil in amphorae beside the dead, human sacrifice, cremation and pyres, putting out the funeral pyre with wine (asserted from unburned vessels found above the urn used for cremation), wrapping cremated remains and placing them in a container, construction of a funerary mound, coating furniture in ivory and silver (Blackwell 2010: 145, Table 1).

aristocratic practice in Greece and the wider eastern Mediterranean as early as the 13th century BCE (Kelder 2012). The sacrifice of four of these animals was an act that underlines social inequalities at Lefkandi in the tenth century, and perhaps represents deliberate reference to practices from distant times or lands.

Over the burial shaft was placed an enormous ceramic krater, 80 cm tall and with a rim diameter of 88 cm (Catling and Lemos 1990: 25-26). This practice, too, has important ritual associations with Mycenaean roots, though also anticipates later aspects of funerary ritual. Burial events were important occasions for feasting, drinking, and offering libations, as well as sacrifice. Like other aspects of material culture at Toumba, this krater was monumental in scale; it would not be surpassed in size until the Dipylon Krater in the eighth century. In addition to its exceptional size, it, too, would have created visual associations with the east through the centrally displayed, orientalizing tree of life motif (Morris 2000: 228).

All of these elements point to a funerary event on a grand scale, and their significance – both during and after the event in question – is worth further exposition. Clearly the individuals buried in the Toumba Building were extremely important, and the group, presumably of family members, responsible for their burial was eager to link themselves to these individuals through a monumental building project, the deposition of foreign exotica and other prestige goods, and funerary practices performed at the location of the burial. The burial event itself probably involved feasting and drinking, a long-standing and cross-culturally attested integrative practice. In addition to the evidence of the monumental krater placed above the burial, most of the few vessels that can be associated with the use of the building (rather than the fill used to create the tumulus mound) may have had to do with feasting and funerary practices. For the central room

these include a skyphos, lekythos, cooking pot, and cups (Catling and Lemos 1990: 4). The evidence is admittedly fragmentary, though this seems the most plausible interpretation based on what is available.

The significance of Toumba as a place of memory continued long after this burial event. The excavators have suggested that the Toumba Cemetery (Fig. 7.8) was the burial ground of a royal family linked to the individuals buried in the Toumba Building (Popham *et al.* 1982a: 247). There is no question that the building and the burials within it were extremely important in the formation of the cemetery around it in subsequent periods. The burials of the Toumba Cemetery make explicit reference to the mound of the Toumba Building both in their placement around its eastern side and in their grave goods (Lemos and Mitchell 2011). Most of these burials date to at least 50 years after the burial event at Toumba, yet make reference to the alignment of the building by clustering around the entrance (which has no parallels here or elsewhere) and by mimicking the grave goods. All of the burials here are wealthier than those in the other five cemetery areas of the site (Palia Perivolia, the Skoubris plot, the Kaliotis plot, the East Cemetery, and the South Cemetery). It is clear that the Toumba Cemetery was the burial ground of the elite of Lefkandi, and that these elites drew upon the memory of the place directly in their own funerary practices, events, and materials. Direct references to the burials in the Toumba Building can be seen in the parallel practices that are evident in several of the 83 tombs and 34 pyres that were excavated in the Toumba Cemetery.¹³

¹³ This list of parallels presented here is unfortunately incomplete and will be until the publication of *Lefkandi III*. However, the plates of this volume were published in the 1990s (Popham and Lemos 1996), which allows one to see several of the parallels noted above. There is no doubt that the full publication of the Toumba Cemetery will shed far more light on the issues raised and conclusions reached here.

Among the most explicit references to the burials within the building are the horse burials contained in Tomb 68. This suggests continuity from the Mycenaean period, rather than the import of a separate tradition, e.g., from Cyprus. The Cypriot examples (Blackwell 2010) actually constitute good evidence for this, and likely speak to a common (Mycenaean) origin of this tradition, which then found elaboration in different eastern Mediterranean contexts during the Early Iron Age. Other such explicit references involve urn cremations and weapons burials in Tomb 79, Near Eastern heirlooms in Tomb 12B, a double burial with an urn cremation and inhumation in Tomb 55, gold discs and necklace in Tomb 63, and several other warrior burials containing weapons (Popham and Lemos 1996). While warrior burials are certainly not exclusive to the Toumba Cemetery, their placement suggests that these and other burials were deliberate references, rather than simply coincidental. Tomb 79 is also significant for its deliberate associations with eastern Mediterranean trading systems, leading to the characterization of its inhabitant as “a Euboean warrior-trader” (Popham and Lemos 1995). A major factor in this designation was the presence of 16 balance weights and fragments that have nearly identical parallels in LBA Cyprus and the Levant, which highlights the importance of tying the deceased to long-distance interactions and their continuity over time (Kroll 2008).

The Toumba complex at Lefkandi testifies to a degree of social inequality unprecedented for Early Iron Age Greece. In fact, it is totally unique in the Postpalatial Aegean, having more in common with the grave circles, tholoi, and wealthy chamber tombs of the Mycenaean period than the warrior burials of the Postpalatial period, though there are common elements here as well. These commonalities are significant, as they indicate that the Lefkandi phenomenon is an exaggeration of a preexisting theme, rather

than something completely new. In fact, it serves as a microcosm of the wider dynamics of social complexity seen from the Mycenaean period into the Early Iron Age, as social inequality on local and regional levels rose and fell, and expanded and contracted in geographical scale. The hero of Lefkandi and his consort, along with the presumed ancestors who strove to mark real or imagined ancestral links with them, emphasized their exclusive consumption of foreign exotica, as well as items of particular material value or technological novelty. The links Lefkandi forged with the east clearly served to make the central Euboean Gulf an important locus in the Early Iron Age, but must also be seen in the context of more local and regional interactions, not least with Athens, Thessaly, and northern Greece, where similar practices of social differentiation are evident in the mortuary record.

Thessaly

Southern Thessaly remains a clear example of regionalism in the Euboean Gulf, yet exemplifies the same broad trends seen elsewhere, in part because of its ties to other parts of Greece by both land and sea. The lack of definitive collapse in Thessaly in the Postpalatial Bronze Age is a noteworthy factor, and continuity is maintained into the Iron Age. The most overwhelming evidence for this continuity is in the mortuary record, where use of burial grounds is maintained from LH IIIB to the Geometric period, which we also see in Athens. In Thessaly, however, tholos tombs continue to be constructed, and Mycenaean tholoi continue to be reused (Georganas 2011: 627). The Protogeometric tholoi are the most interesting example of continuity and change. So far 55 are known from 23 sites (Georganas 2011: 628; see also Archoviti 1994: 135, Fig. 13; Georganas 2000), mostly dating to the Late Protogeometric period (950-900). These are usually very

small (2-4 m diameter), and built on or near a topographic feature of some prominence. Moreover, tholoi are often the only type of tomb found at the sites where they appear. Clearly these were meant to stand out in the landscape of both the living and the dead. However, these were family tombs, some in use for well over a century (Georganas 2000: 51). Finds from these tholoi are quite similar to those found in elite burials elsewhere in Greece, and include ceramic and metal vases, rings, fibulae, and beads, as well as swords, knives, and arrowheads in iron and bronze, and whetstones (Georganas 2000: 52). While formally different, there is very clear similarity to the burials at the Toumba cemetery of Lefkandi in terms of message and practice, where a connection was explicitly being sought with the ancestors, and elites were making deliberate reference to their inherited status and traditions. The individual tholoi served as markers and reminders of this in the landscape, and the presence of more than one at multiple sites may represent competing factions of elites. This brief example serves to illustrate how burial practices, while different in Thessaly, were used to the same ends as they were elsewhere as elites aimed to put on display their connections to farther reaching networks, in terms of both geography and family ties.

Technologies' Links and *Chaînes*: Innovations in Metal and Ceramic Production

Major innovations in metal and ceramic production technologies occurred in the Prehistoric Iron Age. These are, for metals, the inception and development of iron technology and, for ceramics, the development and spread of the Protogeometric style, which came with innovations in firing, decoration, and vessel forms. This section details how these processes of innovation worked by examining all aspects of production from a network perspective.

In any material-based industry, there are certain processes, from raw material procurement to the distribution of finished products, that must be accounted for if we hope to understand productive systems as coherent wholes. Attempts to understand technological processes in their entirety have a long history in archaeology, originally drawing on the work of anthropologists Marcel Mauss and Andre Leroi-Gourhan, though these have not been widely implemented in Aegean archaeology. The term *chaîne opératoire* was coined by Leroi-Gourhan (1964) and sought to detail with great precision the productive sequences and decision-making strategies of raw material transformations, past and present. Leroi-Gourhan looked at technology on two scales: the empirical evidence of individual technical gestures, and macro-evolutionary processes, drawing heavily on earlier work by Mauss (1935), whose concept of an *enchaînement organique* refers to the transformation of material resources to cultural objects through bodily gestures practiced in socially constructed milieus.

Mauss's and Leroi-Gourhan's work was brought to archaeology most forcefully by Pierre Lemonnier in his seminal work *Technological Choices* (1993), which proposed joining social logics seemingly unrelated to technology with the development of technological systems. More recently, Marcia Dobres (2000) has presented the *chaîne opératoire* as both an interpretive framework and an analytical method. She argues that we can only understand the dynamics of technology if we explicitly ask about social agency and the context-specific nature of the social relationships of material production. She defines technologies as webs of interweaving material, technical, and social elements. Dobres's focus is mainly on the microscale of how technology acts as a medium for defining, negotiating, and expressing personhood. However, the concept might also be applied to larger-scale social processes, such as the organization of

production and exchange systems within networks operating on multiple scales, from the local to the interregional. This is one of the ways in which Knappett (2011) has employed network theory, in a case study on Minoan pottery production. A network approach emphasizes the links and nodes that make up production processes as wholes, rather than privileging particular points in it, or the finished products that are often better studied from the perspective of consumption, as seen in the burial contexts above.

The Coming of the Age of Iron

The transition from bronze to iron as the predominant utilitarian metal represented a major sea-change in Mediterranean life. New networks of production formed to accommodate this new material, often on a more regional basis than in the Bronze Age, on account of the wider availability of iron ores. This led Childe (1942: 183) to refer to it as the material that “democratized” warfare, industry, and (perhaps most importantly) agriculture. These ideas were largely prefigured in the writings of Engels (1972[1884]: 220), where iron is “the last and most important of all the raw materials that played a historically revolutionary role.” All of these ideas, along with Thomsen’s (1836) three-age system, have important antecedents in antiquity, especially in the writings of Lucretius (*De Rerum Natura* 5.1293-1296), who discusses the gradual adoption of iron as a form of progress, both technologically and toward equality on the battlefield (thus, too, in democratic terms).¹⁴ Lucretius’ view is thus quite different from the misanthropic characterization of the Iron Age given by Hesiod, quoted at the beginning of this chapter, though perhaps benefits from the objectivity (or at least distance) of retrospect.

¹⁴ On Thomsen, see also Daniel (1943) and Heizer (1962).

The specifics of the bronze-iron transition in Greece (and the wider Mediterranean) became a topic of major interest in the 1970s and 1980s (Waldbaum 1978; Wertime and Muhly 1980). Periodic reviews of new evidence have appeared since then (Sherratt 1994; Waldbaum 1999), though an up-to-date, comprehensive overview of the technology and archaeology of early iron metallurgy in the Mediterranean remains to be done. Snodgrass (1980b) wrote the closest thing to such a synthesis over 30 years ago. Summaries for Greece specifically can be found in Snodgrass (2000[1971]: 213-295) and Dickinson (2006: 146-150).

While detailed reviews can be found elsewhere (e.g., Rehder 2000), something should be said of the technology of early ironworking, especially as it relates to the context of the eastern Mediterranean. First, iron smelting (the conversion from ore to metal) is more complicated than copper smelting. For example, copper is smelted in a liquid state, and melts at about 1083 degrees Celsius; the melting point of iron is 1530 degrees Celsius, but is extracted from ores in a solid state at around 1100-1250 degrees. After the initial smelt, the product (the bloom) must be worked to literally squeeze out excess slag, which creates a material called wrought iron.

Contrary to popular belief, wrought iron is not necessarily a functionally superior material to bronze. Bronze as it was manufactured through much of the Bronze Age is harder and stronger than pure wrought iron. It was not until the 12th century BCE that ironworkers in Cyprus and the Levant began to transform the properties of wrought iron deliberately to make it functionally superior to bronze (Tholander 1971; Pigott *et al.* 1982; Smith *et al.* 1984; Davis *et al.* 1985). It is possible for iron with a sufficiently high carbon content to be considered steel to be made in bloomery smelting, which would

require the smelter to select certain parts of an inhomogeneous bloom. The alternative is to harden wrought iron following the smelting and smithing of the bloom.

There are three processes used in the hardening of iron: carburization (which requires heating), quenching, and tempering; these processes are generally described as heat treatment. Carburization is essentially a diffusion process by which iron becomes alloyed with carbon. This process is also called case hardening, cementation, or forge hardening, and involves holding the iron at high temperature for several hours in a highly reducing atmosphere, such as a sealed container filled with charcoal dust. This does not, however, create a homogeneous product, as the steeling takes place only on the surface of the object (Craddock 1995: 252-253). Quenching occurs when an object is cooled very rapidly, typically by plunging it into water. Tempering is the process of reheating the iron, which relieves some of the strain of quenching, making the material less hard but also less brittle. Other materials, namely phosphorus and arsenic, can also have hardening effects on iron upon alloying. There is potential for debate over how well alloying was understood in antiquity, and how much it had to do with the selection of particular ores or particular parts of the bloom, which can be highly variable in terms of its content of carbon or other elements. The complexity of the technological process has led Rehder (2000:137-139) to question how widespread intentional carburization was in antiquity, and point to cold working (also used for bronze) as another hardening technique. Unfortunately the problems of preservation, especially on the edges of objects, make hardening processes difficult to detect. Despite such problems in recognition, deliberate heat treatment and carburization do seem to develop as hardening techniques as early as the 12th century BCE and are very important markers for the spread of specialized ironworking to Greece.

Snodgrass famously attributed the adoption of iron technology in Greece to a bronze shortage, caused by political upheaval throughout the eastern Mediterranean and the disruption of the tin trade (Snodgrass 2000[1971]: 237-239). This argument would be a plausible explanation if it were not so clearly contradicted by material evidence uncovered since the 1970s (Waldbaum 1999: 29).

First, tin sources, originally thought to be located only in Iran, Afghanistan and further east (ignoring those in Cornwall), have been located in the Taurus mountains of eastern Turkey, as have mining and smelting sites at Kestel and nearby Göltepe, which are dated as early as the Early Bronze Age (Yener *et al.* 1989; Yener and Vandiver 1993). While there were initial doubts about the viability of these sources, Yener (2000) has now demonstrated through scientific and experimental studies, as well as associated artifacts, that they were exploited for tin production from a very early date. It is important to note, however, that no direct evidence of exploitation exists for later periods. The mining evidence at Kestel is earlier than our period of primary interest, but shows that less obvious, likely unknown sources could have been producing tin, and we need not rely solely on interpretations involving the major deposits of Iran and Afghanistan.

Second, bronze remained in use and fairly widespread throughout the Early Iron Age, especially at some of the earliest sites to have significant iron remains, such as Lefkandi (Jones 1980) and Nichoria (Rapp *et al.* 1978: 175). Moreover, bronzes from these sites analyzed for composition show normal or occasionally high tin contents (Waldbaum 1989).

Third, some of the areas at which significant amounts of iron appear first in Greece are among the most connected in the eastern Mediterranean. Lefkandi, for

example, is demonstrably well connected with Cyprus and has significant amounts of iron present, as well as the remains of a bronze foundry (Popham *et al.* 1980: 93-95).

An argument for bronze shortage based on lack of raw materials and isolation that made a shift to ironworking an economic necessity is thus difficult to maintain. A more plausible explanation is that the technological knowledge of iron production was carried to the Aegean in the 11th century, not long after its innovation on Cyprus. It is likely that there were Aegean migrant populations living on Cyprus at this time (Iacovou 2005; Knapp 2009; see Chapter 6 for further discussion) and possible that eastern populations were in regular interaction with parts of the Aegean on a permanent or semi-permanent basis. It seems far more likely that it was interconnectivity – with technological knowledge flowing first through long-distance networks and weak ties, and later dispersing through regional networks – that provided the impetus for the growth of iron metallurgy in Greece. A more interesting question than how iron metallurgy began in Greece is how it developed, particularly with respect to the exploitation of ores that are not present on Cyprus,¹⁵ but are abundant in several parts of Greece.

Muhly (2008) reviews the evidence for iron and other metal deposits in the Aegean, drawing primarily on the work of Androutselis (1953) and Pernicka (1987). Muhly rightly points out that this is a much more complex matter than it initially seems, noting a fundamental difference between the occurrence of metal deposits, their present workability, and whether they would have been recognizable and workable in antiquity (2008: 67-68). This leads to a rather skeptical interpretation of the role of the rich iron

¹⁵ Muhly (2008: 71) writes that Cyprus has no iron resources, but I am sure he means no iron ores (though a complete absence seems unlikely). Iron resources are actually relatively abundant on Cyprus in the form of gossans, ochres, and umbers, as previously discussed.

sources of Greece in the developments of the Early Iron Age. In particular, he is critical of S. Morris's (1992: 131-132) assertion that rich metal deposits, including the iron ores of Laconia, Euboea, Thasos, and Western Crete drew Phoenician interest and stimulated economic activity on a pan-Mediterranean scale. While I agree with Muhly's urging for caution in interpreting the significance of ore deposits, I do not think that the Greek deposits can be dismissed as poor quality and a last resort for Early Iron Age smelters without further study (Muhly 2008: 69), especially since these are all areas that demonstrate high connectivity with the eastern Mediterranean. It seems most likely that after iron metallurgy took off in Cyprus, it was adopted in Greece, where exploitation of iron ores probably spread, then later moved westward along with other Greek and Phoenician colonial interests. From a Levantine perspective, Muhly asserts that if Phoenicians wanted high-quality ore they would have gone to Elba (Muhly 2008: 69). They almost certainly did, along with Greeks, but Greek and Phoenician occupation at Pithekoussai does not begin until the eighth century (Buchner and Ridgway 1993), and this does not preclude an earlier interest and exploitation in the Aegean in the 10th and 9th centuries. Furthermore, greater attention must be given to the extensive ore sources on Euboea itself (Bakhuizen 1976; 1977). These sources are easily visible in the landscape, on account of their purple color and metalliferous appearance, and would have been easily identifiable as soon as people knew what to look for (Fig. 7.9). A preliminary study of the composition of the lateritic ores of central Euboea (Fig. 7.10) suggests that they contained enough iron to make them workable in antiquity, as well as a nickel content which may have had hardening effects (Photos and Tylecote 1988).¹⁶ So while useable,

¹⁶ Under a permit from the Institute for Geology and Mineral Exploration (IGME), I sampled ore sources throughout central Euboea to determine their overall quality. It is also hoped that this information will be

they were not comparable to the high quality ores that could be found elsewhere in the Mediterranean. The hematite ores of Elba, for example, have much higher iron contents (these vary, but can be as high as 70%), which led very quickly to their intensive exploitation: an estimated 60 million tons of iron ore have been mined since their discovery (Tanelli *et al.* 2001).

It must be stressed that the distribution of early ironworking in the Aegean is very uneven, though the pattern here is also telling. The earliest sites with significant iron remains are mostly coastal and in areas of relatively high connectivity with the eastern Mediterranean and the rest of the Aegean. Some of the most noteworthy sites are Athens, Vergina, Knossos, Lefkandi, and Nichoria (Snodgrass 1989; Lemos 2002). The overwhelming majority of excavated iron objects come from mortuary contexts, which led Morris (1989) to suggest an alternative model for the increase in iron objects at this time, arguing that the increase in iron in mortuary contexts had to do with its status as a prestige, rather than utilitarian, material. While it is true that many of the buried objects, such as weapons, likely had symbolic significance, Snodgrass (1989: 29) makes the important point that evidence for carburization and heat treatment reinforce the argument that they were also made for utilitarian purposes, as in Cyprus, from a very early date. Moreover, taphonomic factors lead to iron preserving much better in burials than in other contexts.

Despite the seemingly important role of iron resources and metallurgy in Greece, very few archaeometallurgical analyses of early iron objects have been carried out. Jones

useful in a study I am undertaking of early ironworking remains from Eretria, in collaboration with the Swiss School of Archaeology in Greece, under a permit from the 11th Ephorate for Prehistoric and Classical Antiquities. Recent research on provenance determination of iron production remains makes this a particularly exciting time for the study of early iron metallurgy in the Mediterranean (Benvenuti *et al.* 2013).

studied material from Lefkandi, though these were only compositional analyses (Jones 1980).¹⁷ Other studies have been undertaken for Nichoria (Rapp *et al.* 1978; Waldbaum 1999), and Geometric material at Asine has been analyzed (Backe-Forsberg and Risberg 1986; 2002), though by that time ironworking was better established, as we know from the increased quantities of finished objects around the Aegean (Fig. 7.11). Recent work at Oropos has been very exciting in producing the earliest remains from iron smelting in the Aegean (Doonan and Mazarakis Ainian 2007). Slags and other evidence for metalworking have been excavated in contexts dated to the 8th and 7th centuries BCE (prior to this, finished objects are our only evidence of iron in Greece). Microstructural analysis revealed that the slags were a product of iron smithing, and at times contained inclusions of copper, suggesting side-by-side metalworking industries (Doonan and Mazarakis Ainian 2007: 364-365). Work at Oropos is also significant in its discussion of the social implications of metalworking, as well as its location on the Euboean Gulf. Slags have also been found at the Early Iron Age site of Kephala on Skiathos, at the northern end of the Euboean Gulf, though these await further technological and chronological study (Mazarakis Ainian 2011: 61).¹⁸ The amount of metallurgically analyzed material for all periods is quite low, and for the Early Iron Age almost non-existent (aside from the few exceptions mentioned above). Analysis of other early iron materials would be extremely helpful and should be a major goal of future research.

¹⁷ Thilo Rehren has studied other material from Lefkandi, though this has not yet been published.

¹⁸ Other sites with iron remains that have been metallurgically studied date to later (mainly Classical) periods and are located in parts of Laconia (Bassiakos *et al.* 1989) and Thrace (Kostoglou 2008), and at prominent sites, including the Athenian Agora (Mattusch 1977a), Corinth (Mattusch 1977b), Petres (Photos and Tylecote 1988), and Archamboli (Dimou *et al.* 1995).

In light of the distribution of early iron remains in Greece, we should emphasize three points: (1) parts of Greece were quite rich in iron ores; (2) iron ore is like any other rock without the technical knowledge to smelt and smith it; and (3) even if there were locally available ores, this does not mean that higher-quality raw materials would not be sought elsewhere. This third point has been suggested as at least a partial impetus for the intensification of Greek colonial activity in the Early Iron Age (Bakhuizen 1976; Markoe 1992; Ridgeway 1992; Tsetskhladze 1995), though it is much more likely that Greeks and Phoenicians looked west and north for other metals, and located new sources of iron in the course of a wider quest for metals.

Ceramic Production

Studies of Protogeometric and Geometric pottery have traditionally focused on developing typologies and sequences based on vessel form and decoration. This is not surprising given the tradition of connoisseurship with respect to later black- and red-figure Greek vases of the Classical period (see Whitley 2002: 23-25 for a discussion of the history of this tradition and its contemporary implications). In Protogeometric and Geometric contexts, these approaches attempt to identify and analyze distinctive styles, whether they are for certain regions or individual painters. This is perhaps more difficult when dealing with decoration that is abstract, rather than figural, as we have throughout most of this period. Still, however, it has been demonstrated that variation in vessel form and decoration, as well as fabric, can be used to discern regional traditions, and in some cases to identify individual painters or potters.

The Protogeometric was defined by Murray (1975) as the first truly Greek style: according to him, fundamentally Greek characteristics of freedom and balance are

manifest here, which would inform all the Greek visual arts through the ages. This is an interesting observation, but unfortunately misleading, as it is based on the notion of a complete break from the preceding Bronze Age. Excavations at Kalapodi, Kynos, Lefkandi, and Mitrou have demonstrated direct stratigraphic continuity from the LH IIIC to Protogeometric periods (Lemos 2012), as is the case at Iolkos (Sipsie-Esbach 1991) and other sites discussed above. It is likely that further excavations of settlements will affirm the lack of a distinct and widespread break. Moreover, there are definite stylistic continuities from the Mycenaean periods to the Geometric, which must be considered in light of widespread patterns of innovation and adoption across the Greek world.

Stylistic studies thus have much to offer studies of connectivity, as there is definite, widespread change from the Postpalatial Bronze Age. The rapidity and breadth of this change across the Aegean is an obvious indicator of contact between regions, as well as common stylistic attitudes that were adopted relatively quickly.¹⁹ The Protogeometric style is marked by the first use of the multiple-brush, used to create the mechanically-drawn concentric circles or semi-circles that are characteristic of this period (Papadopoulos *et al.* 1998). General elements of decoration involve dark paint applied on a lighter surface, whereon carefully placed bands emphasize the shape of the pot. Individual elements of the decoration are suggested to be unimportant, and it is rather their cumulative effect that concerns the artist (Cook 1997). In the Geometric period we see the further development of these tendencies. Geometric decoration – a continuation

¹⁹ This change is rapid, and widespread, but not universal. Discussion here focuses mainly on the Attic Protogeometric and its related styles (which are at the very least influential throughout the Euboean Gulf). At the same time, there are several areas of the Greek world where the ceramic styles of this period develop independently, or have no relation to what is elsewhere considered Protogeometric. These areas include the western and northwestern Peloponnese, inland Thessaly, and parts of Macedonia (Snodgrass 2000[1971]: 84-89; Papadopoulos 2004).

of, rather than division from, the Protogeometric – becomes more complex, and new diagnostic features, such as the meander pattern, emerge. We also see the gradual introduction and elaboration of figural scenes, often depicting funerary narratives on large vessels deposited in funerary contexts or used as grave markers.

Detailed stylistic analysis has led to thorough regional overviews (e.g., Coldstream 2003[1977]; 2008[1968]; Lemos 2002), which have been useful in attempting to trace the circulation of ceramics in wider Aegean and Mediterranean contexts. The areas that appear to have been most influential in this period are Athens and Euboea, the former recognized as a stylistic innovator and driver, and the latter seen (sometimes controversially) as the developer of a widespread *koiné* and trading network (Lemos 2002). Yet studies oriented toward technology and production are seriously lacking, with only a few exceptions (e.g., Papadopoulos *et al.* 1998; Papadopoulos 2003; Strack 2007: 17-24).²⁰

Beginning with raw material procurement, the record as it pertains to Euboean pottery is rather sparse. The presence of usable clay beds in the area of the Lelantine plain is claimed by Popham *et al.* (1980), yet there is no specific location given for these sources, or description of the landscape around them. There has also been little consideration given to tempers and their potential sources. Part of the problem is a lack of regionally oriented archaeological work in the area. Extensive programs of excavations have been carried out at Lefkandi in the 1960s, 1980s, and since 2003, but all of our archaeological knowledge for the regional context of the site is based on an island-wide extensive survey in the middle of the 20th century (Sackett *et al.* 1966). This is

²⁰ For a recent example from the Aegean Bronze Age, which integrates stylistic and scientific analysis with a landscape perspective, see Gauß and Kiriatzi (2011).

particularly disappointing because it is arguably the most important Early Iron Age site known to date, and there have been few systematic attempts to situate it in its regional context.

Understanding production processes is paramount to understanding the nature and scale of ceramic industries at this time in Euboea. This begins on a regional scale, and then moves to a more site-specific scale. Even a preliminary survey of the Lelantine plain could identify clay sources that were potentially used in antiquity. There is at least one clay source in the Lelantine Plain only about 2 km north of Lefkandi, which has been used intensively in recent times for brick and tile production (Fig. 7.12). Furthermore, intensive survey might reveal material or patterns in the archaeological record through which the nature of craft specialization in pottery-producing industries might be studied (cf. Costin 1991). For example, we know from ethnographic work in Egypt that it is not always the case that potters mine their own clay, as has been assumed for this period in Greece. The presence of people living in direct proximity to the clay sources might be indicative of such a separation of production processes. One site located close to the Lelantine clay beds is Phylla, Vrachos, where Protogeometric and Geometric pottery has been excavated, but these levels have not received much attention (Coulton 2002: 9).

Moreover, craft-producing areas tend not to be located in the core of settlements. The programs of excavation at Lefkandi to date have focused on its cemeteries and the center of the associated settlement site, Xeropolis. More careful analysis of settlement patterns on a local and regional scales through the generation of high-resolution data through pedestrian and geophysical survey may help to clarify this issue and locate production sites, whether near the urban core or in the hinterland.

The situation is improved when we attempt to address other aspects of the production process. Vessel manufacture included a mixture of hand-made and wheel-made wares, and forms were fairly uniform throughout the Aegean. Desborough (1952) argued that the Protogeometric style saw the invention of a faster potters' wheel in Attica, which then spread elsewhere in the Aegean, but this has since been demonstrated to be erroneous (Eitelfjorg 1980). Yet, even if not due to the development of a faster wheel, changes in ceramic manufacture, including to both fabric and form quickly became widespread.

In painting and decoration we see marked changes to the production process at this time. While paints do not appear to be wildly different than in previous periods, the innovation of the pivoted multiple-brush spread quickly, along with common patterns of decoration. This rapid dispersal through the Aegean world suggests a high level of interconnectivity, much more than if there were one center distributing the material. The multiple-brush in particular has been replicated successfully with experimental archaeology, which suggested that this innovation could be easily reproduced and dispersed throughout the Aegean with relative ease (Papadopoulos *et al.* 1998). It is also worth noting that this design is found on Phoenician and Cypriot Early Iron Age wares, making this much more than an Aegean phenomenon.

Production remains for pottery, like for metals, are relatively rare (Hasaki 2002: 323-331). Kiln fragments were excavated in the fill layers of the Toumba Building at Lefkandi, along with very large amounts of ceramics (Sackett 1993: 75-76). This lends some support to the idea that Lefkandi was a major distributive center in the Protogeometric period, yet does not preclude production at other locations on Euboea, and there were certainly other sites making pottery in the Euboean Gulf, even where there

were close stylistic similarities to the Lefkandi material. It remains a problem, however, that the absence of actual kiln sites has led people to equate style with provenance, and assume a stylistically similar body of material was produced at the same place.

We might also examine firing processes through materials science approaches that study firing temperatures or conditions, which have been successful in other contexts (Rice 1987: 80-110), even if they have yet to be applied to the study of Protogeometric and Geometric vessels from the Euboean Gulf.

Early Iron Age ceramic production remains have been excavated at Athens and Torone (Papadopoulos 1989; 2003; 2005). Analysis of production waste from pit- and well-deposits from the Early Iron Age potters' field in the Classical Athenian Agora has been unique in revealing aspects of experimentation in production. Here test pieces were used to experiment with the behavior of paints and clays under firing (Papadopoulos 2003: 7-9). These were typically made from failed vessels (pre-firing), and were removed with a hook or rod at different times in the firing session through a hole in the kiln. From these and other remains Papadopoulos (2003: 210) was able to reconstruct a three-stage firing process that included (1) firing under oxidizing conditions, (2) firing under reducing conditions and (3) reoxidization with a subsequent gradual decrease in kiln temperature. These remains date to the Protogeometric period, though there is also a kiln known at the site dating to the 8th-7th century BCE, indicating some continuity of use of space.

Further north, at Torone, an Early Iron Age kiln has been excavated, and pottery from a single firing has been subjected to petrographic and chemical analysis (Papadopoulos 1989; Whitbread *et al.* 1997). The results of this analysis showed that there can be marked variability in finished vessels that came out of the same kiln, and

many questions remained unanswered, or only hinted at after these analyses (Papadopoulos 2005: 512-513). The kiln itself, however, is a simple updraft type, which is the same basic model used throughout the later Classical period in the manufacture of black- and red-figure pottery. This consistency of kiln type demonstrates continuity in firing equipment from the Protogeometric period onward and suggests that innovation happened gradually, probably based on an ongoing process of experimentation, a glimpse of which can be seen in the above-mentioned test pieces.

A better understanding of production processes, and how this aspect of the *chaîne opératoire* was carried out, is necessary if we are going to attempt to address the broader social questions that archaeologists such as Dobres (2000) and Lemonnier (1993) have posed in the past. The ability to study aspects of technological choice and decision-making in production can be massively illuminating in the reconstruction of the social dynamics of craft industries. It is hoped that the future will bring data-sets (and the research questions that drive their acquisition) through which such studies may become possible. Unfortunately the potential of these approaches has been largely neglected in the tradition of classical archaeology (Jackson and Greene 2008), though important exceptions exist.²¹ In general, post-Bronze Age pottery specialists would benefit greatly from engagement with production studies that have been at the forefront of ceramic

²¹ While the Aegean Bronze Age is fairly well represented in studies of ceramic production (see Tite 2008; Gauß and Kiriati 2011), a general lack of technological studies is apparent for periods of Greek archaeology after the Bronze Age. Exceptions include the work of Papadopoulos (2003) for the Early Iron Age, as well as that of Arafat and Morgan (1989) concerning Late Archaic and Classical ceramic production in Athens and Corinth. And production studies from Roman period sites, such as Sagalassos, are particularly vibrant (Murphy and Poblome 2012). This general lack of study for the Classical periods can be explained by traditional emphasis on typology, decoration, and art historical approaches to the pottery of this period.

analysis in the wider archaeological community for some time (cf. Arnold 1985; Sinopoli 1991).

Cross-Craft Technologies, Innovations, and Networks

Ceramic and metal production sequences share a number of similar or overlapping processes, which stress the need to think of the wider social and technological contexts of these industries. A useful starting point is to identify such overlaps in the *chaînes opératoire* for each industry (Fig. 7.13). This is clearest in terms of raw materials procurement, where fuel, clay, temper, and other minerals are essential for both industries. In material preparation this is also the case, where fuel preparation and raw material purification through crushing, sorting, and washing involve either the same or similar processes. Ceramic molds or crucibles are also necessary for most types of non-ferrous metal production, which obviously involves all aspects of ceramic manufacture.

For the innovations of this period in particular, we might see pyrotechnology as a factor that relates developments in ceramic and metal production. The obvious phenomenon to point to is skeuomorphism, where the black gloss of certain vessels might be likened to the sheen of metal. While Protogeometric and Geometric pottery did not achieve the quality of gloss reached in later periods (though Athenian Early Geometric gets very close), aspirations to skeuomorphism nonetheless remain a possibility, especially with high-quality vessels that appear in the elite contexts discussed above. The other, perhaps more noteworthy development, is that this must have been a period of pyrotechnological experimentation, as smiths worked to make and harden iron, in addition to bronze, and potters achieved higher-quality fabrics and decoration. Working

with iron and the improvement of ceramic fabric both required higher temperatures than were in use in the Bronze Age, and it must be assumed that knowledge was shared between workshops at the local level, and spread very quickly on regional and inter-regional scale, perhaps through traveling craftsmen, as seemed to be the case in the Postpalatial Bronze Age.

In the various regions surrounding the Euboean Gulf, shared needs and technologies would have necessitated interaction between communities for the purposes of raw materials procurement, as well as the distribution of final products. These networks are difficult to trace specifically, and it is impossible to do so on the present evidence. Yet such things as the technological dispersal of iron technology and spread of Attic Protogeometric and Geometric pottery styles and innovations (Seroglou 2009), along with the generally wide distribution of Euboean ceramics, suggest that as these industries proliferated, they overlapped and interacted. Even more significantly, the innovations demonstrated in this period suggest that we take a much closer look at the technology of these materials, in order to understand how craft-knowledge and styles travel. Landscapes of production housed the local and regional practices by which ceramic and metal technologies were constituted (cf. Given and Knapp 2003). By viewing these from a network perspective, we can see that production centers were far from isolated on local and regional scales. While local and regional networks allowed the production process to take place, and led to the development of regional styles and preferences, long-distance interactions are evident in the sheer speed with which particular stylistic and practical innovations traveled.

Becoming the Mediterranean

The wider Mediterranean world undergoes major shifts in the nature of connectivity in the eleventh to ninth centuries (Sherratt and Sherratt 1991; 1993), which provides an important backdrop to the widening activities of certain places in the Euboean Gulf – especially central Euboea – both in this period and the subsequent one. In particular, the decentralization of networks throughout the eastern Mediterranean led to more outward-looking activities on the parts of individuals and particular city-states, while at the same time networks in the western and central Mediterranean expanded in a way that made a lasting merge possible between east and west. The foundations laid by decentralization were discussed in Chapter 6, and here I focus on the network growth that followed in their wake.

Sherratt and Sherratt (1993: 361-363) list a number of major developments that differentiate the first millennium from the second. These are worth paraphrasing here:

1. Mercantile city-states replace palace-states: temples become the center of communal consciousness and economic success, and merchant enterprise replaces state-driven exchange.
2. Iron production for utilitarian purposes undercuts centralized economies that flourished with the control of bronze-making materials. This was not a cause for the collapse of centralized economies at the end of the Bronze Age, but may have prevented (or at least hindered) their re-emergence.
3. New forms of political power arose in response to economic shifts.
4. Tensions grew between agrarian and commercial interests, partly because of the common (though not universal) separation of mercantile activity and political power.
5. Trading stations were often developed on the periphery of the urban world, though many were later converted into permanent colonies.

6. Concern for defining boundaries of political territories influenced the nature of warfare – naval power in particular grew in importance, on account of the growth of the importance of sea trade.
7. The increasingly important definition of political boundaries and the spread of literacy (in late periods) highlighted ethnic differences.
8. Such othering processes changed the nature of slavery, leading to large-scale slave trade.
9. The changing nature of tribute, trade, and military led to a greater demand for precious metals, first as bullion, and later for coinage.
10. While some of these processes had roots in the Bronze Age, they reached an unprecedented scale at the end of the second millennium, and increased throughout the first millennium BCE. Expansions of activity also created new geographical areas of importance (e.g., Italy), as a link between the Mediterranean and Europe.

All of these factors had major impacts on the Mediterranean sphere in which the Euboean Gulf was increasingly becoming a participant. Two specific cases deserve further explication here: the Phoenician westward expansion and Euboean activities in the eastern Mediterranean. The Euboean Gulf serves variously as a destination, conduit, and base for both.

Phoenicians Sailing West

The Phoenicians²² were without a doubt the most active drivers in the nascent process of Mediterraneanization, though are often overlooked in discussions of Greek

²² Phoenicians (Φοίνικες) is a general term applied by various Greek authors to the peoples living along the northern Levantine coast, though this is not what they called themselves – their name for themselves seems to be closer to the biblical Canaanites, though identity seems much more tied to particular city-states than any regional notion of ethnicity. Their principal cities were Sidon, Tyre, and Byblos. Homer also referred to these people generally as Sidonians. This is perhaps surprising, since at the time of Homer, Tyre seems to have been the most powerful of the Phoenician city-states, and, in general, seems to have been the most active overseas. See Aubet (2001: 6-13) for a discussion of terminology and etymology, and Bondi *et al.* (2009) for a more recent handbook on the Phoenicians.

colonization, as pointed out by Papadopoulos (1997; 2011). The Phoenician expansion westward began in the late second millennium BCE, though the most important developments happened in the early first millennium, initially as a precedent for Greek expansions, and later in cooperation and competition. Despite a general reluctance to assign prime movers to social phenomena (especially in this dissertation, which attempts to highlight the complexity of such things), metals are almost unquestionably the principal motivation for this expansion. It cannot be considered coincidence that nearly all areas of Phoenician interest (in Iberia, Sardinia, Etruria, the North Aegean, and Cyprus; see Figs. 7.14 and 4.19) are rich in metals, and, as discussed in Chapter 6, Phoenicians were able to plug in to developing networks that were already heavily involved in the metals trade. So while the Phoenician involvement in these regions had important antecedents in the Bronze Age, and likely made use of preexisting trade routes (Niemeyer 2008: 148), their ability to access local networks of knowledge and trade brought the quest for metals to a new scale.

While metals may be considered a prime mover in the broad sense, there are, of course, other relevant factors, not least in the Phoenician homeland of the Levantine coast. The group of city-states along the Levantine coast can be viewed as peer polities that arose in the wake of the collapse of several palace-states at the end of the Bronze Age (Ugarit, Alalakh, Hatti, and Egypt). Byblos and Sidon seem to emerge from this as the top contenders in the middle of the 11th century, as they are described in the *Tale of Wenamun*²³ – Byblos is the primary exporter of cedar, and Sidon is another destination of interest. The city of Tyre seems to experience a meteoric rise in the early 10th century,

²³ Though see Sass (2002) for other possible dates for the *Tale of Wenamun* (1075-925 BCE).

initially as a dependent then partner of Sidon, over which it would eventually assert hegemonic status. As one of the prominent scholars of the Phoenician expansion puts it, “from the tenth century BC onwards, the history of Phoenicia merges into the history of Tyre” (Aubet 2001: 31).

While Phoenician interest in the wider Mediterranean predates Tyrian preeminence, the floruit of westward expansion began in the 10th century, possibly due to the establishment of Tyrian control over the large amounts of land that once belonged to other cities, such as Sidon. The presence of a nearby – but distributed – hinterland perhaps would have led the state to turn its attention elsewhere, likely to places that had long gripped the attention of enterprising merchants. Moreover, a general feature of increasing social complexity seems to be an increased demand for commodities, whether in the form of raw materials (in this case metals) or foreign exotica. In the Tyrian case, where the economy was more commercially oriented than palace-driven, metals were pursued as the most flexible and valuable commodities available until their adaptation into coinage. The context on the Levantine coast led to the Phoenician (really Tyrian) expansion in the 10th century, from which we have signs of Phoenician activity in the western Mediterranean, as well as at Kition and Salamis on Cyprus and the Aegean, especially at Lefkandi and Athens (Negbi 1992) (Fig. 7.14).

The earliest Phoenician settlements in the western Mediterranean are dated by historical sources to the 12th century BCE (Aubet 2001: 161-163). These are Gadir, Lixus, and Utica. However, the earliest archaeological evidence is not until much later. Until recently, there was no solid archaeological evidence for Phoenicians in the western Mediterranean before the eighth century (van Dommelen 1998: 70; 2005: 118). However, recent work at Huelva has revealed Phoenician material in southwestern Iberia dating to

the ninth century, which has been interpreted as indicating “precolonial” activities (González de Canales *et al.* 2006; Nijboer and van der Plicht 2006). It is very likely that Phoenician traders were involved in other locations in the west as well, which would predate the foundations of permanent settlements at places like Morro de Mezquitilla, which may now also go back to the ninth century (Arnold and Marzoli 2009). In the central Mediterranean, the earliest dates come from Carthage, which has settlement remains from the late ninth and early eighth centuries, where, interestingly, there is Euboean material as well, especially from the so-called *Chapelle Cintas* from the tophet (Lancel 1995; Docter *et al.* 2005; 2008). In Sardinia, the Nora Stone has long been pointed to as the earliest Phoenician inscription in Sardinia, dated to the ninth century based on letter forms, though its lack of context makes this date extremely problematic (van Dommelen 1998: 72). More interesting and reliable are the finds from Sant’Imbenia, which has Phoenician and Greek pottery from the late ninth century, including a Euboean skyphos (Bafico 1998; Oggiano 2000; Rendeli 2012). On the other hand, sites from which we would expect a similar date, such as Motya, in Sicily, do not have clear evidence of Phoenician occupation until the end of the eighth century.

In the ninth century, trading expeditions clearly intensified, perhaps due to changing relations in the Levant. During the reign of the Assyrian king, Assurnasirpal II (883-859), tribute payments were recorded as coming from Phoenician city-states, which may have fueled Tyrian interests in metals (Niemeyer 2000: 103; Aubet 2001: 88-95). Such demand for tribute became more frequent in the eighth and seventh centuries, by which time permanent settlements had been established throughout the Mediterranean, which I will discuss in the following chapter.

The bases and complexity of the Phoenician expansion into the Mediterranean are discussed in detail by Aubet (2001) and more recently by Bondi *et al.* (2009). What is clear is that, long before permanent settlements were founded, Phoenician traders had inserted themselves in local and regional networks throughout the Mediterranean world, from Huelva and Gadir, west of Gibraltar, to Mesopotamia. This is also apparent in the fact that nearly all of the sites with early archaeological evidence for Phoenician occupation are very much “mixed” in terms of the origins of material culture present. In the west, Huelva contains not only Phoenician, but also Nuragic material. On Sardinia, Sant’Imbenia is an indigenous Nuragic context, into which Phoenician and Greek material was introduced. And there is a similar mixing of cultural elements from the earliest levels at Carthage. The metals trade and preexisting networks explains the initial interest in these areas, and Phoenician interest in the Aegean may be a parallel case.

Interest in the north Aegean would seem obvious, based on the rich metal sources of the Chalkidiki and Pangaion and later (eighth century) evidence in the form of Phoenician pottery comes from Methone (Besios and Pappa 1995; Besios 2010; Kotsonas 2012: 238), as well as Karabournaki (Tiverios 2004: 297). The most certain connection between early Phoenician sailors and Greeks is at Lefkandi, where they, like elsewhere, aimed to involve themselves in local networks, which at this point likely involved metals from the Lavriotiki and Chalkidiki. The connection to the Euboean Gulf is thus clear, and in some ways mirrors how Phoenicians were operating in other parts of the Mediterranean, gaining access to indigenous networks, seeking metals and other trade relationships without necessarily going directly to the sources.

Euboeans Overseas: The Aegean and Eastern Mediterranean

Several sites in the northern Aegean indicate connections with the Euboean Gulf (especially Euboea itself) from a very early date (Tiverios 2008: 1-17). Views of Euboean prominence in colonization movements, both in the northern Aegean and central Mediterranean have been challenged by Papadopoulos (1996; 1997; 2011). While Papadopoulos rightly urges caution, and points out the literary bias of arguments concerning early Euboean activity abroad, this should not be taken as a complete rejection of Euboeans playing a significant role outside of their island, and increasing evidence allows a more accurate reconstruction of the context and character of Euboean activities (Tiverios 2008: 12). I say *activities* here deliberately and avoid, at this stage, the terms colonization or settlement.²⁴ Yet many in the “pro-Euboean” camp come dangerously close to the “pots equal people” adage that has been roundly rejected and completely obviates the nuance and variability in the types of interaction the presence of Euboean materials in the north Aegean might represent (Papadopoulos 2011: 122).

The material evidence alone allows us to construct a network in the broad sense. Numerous sites in the Chalkidiki have significant quantities of Euboean pottery present. At Torone, an Early Iron Age cemetery has been excavated with high numbers of imported Attic and Euboean PG pottery, as well as apparent local imitations (Papadopoulos 2005). Mende and Koukos extend this picture, as do recent finds at Methone, though the most significant of these are Late Geometric. The overall picture of people from the Euboean Gulf in the north is not suggestive of colonization, but certainly of trade. In the earlier Prehistoric Iron Age Attic ceramics appear in greater numbers,

²⁴ The applicability of the term colonization is its own beast entirely. Here it should simply be taken to mean the establishment of permanent settlements in distant territory.

though eventually these give way to Euboean Subprotogeometric types, reflecting an extension of Euboean (Lefkandian) interests in the north (Papadopoulos 2005: 579-580). While this has traditionally been seen as evidence for Euboean colonization in the northern Aegean, along with an etymological connection: Chalkis → Chalkidiki (though both of these ultimately derive from *chalkos* [bronze]) (Snodgrass 1994; Tiverios 2008), these notions have been thoroughly critiqued for overreliance on literary sources and, more importantly, the fact that the presence of Euboean ceramics does not necessarily mean the presence of a Euboean population (Papadopoulos 1996; 1997; 2005: 571-595; 2011). Yet there is certainly a Euboean connection, through participation in a trade network that involved (at least in part) Euboean ceramics and metals from the Chalkidiki.

The same is true for elsewhere in the eastern Mediterranean, as a wide dispersal of Euboean pottery in Cypriot and Levantine contexts (Fig. 7.15), has led to discussions of “precolonization” (Popham 1994), particularly involving a group of pottery from Al Mina (Boardman 1959; 1990; Popham 1983; Popham *et al.* 1990). The quantification of pottery from Al Mina and other Levantine sites where Greek pottery has been found does not necessarily suggest that there was a permanent Greek population in these areas (Papadopoulos 1997: 196, Table 1), though it does reflect participation in a network of exchange that, on some level, links the production centers of the pottery to its find spot. At the very least, Al Mina was a major port of trade and hub of interaction between the Aegean and Levant (Luke 2003). That Euboean pottery is more widespread than other types of pottery, along with Euboea’s demonstrable involvement in Near Eastern trading networks, suggests that the Prehistoric Iron Age was a time of expanding horizons, in terms of both the extent and nature of trans-Mediterranean interactions. As with the Phoenician case discussed above, this does not mean outright colonization (again, not the

most appropriate term), but it does seem likely that Euboeans, like Phoenicians, were both on the move and hosts to a variety of trading activities and encounters in both the north Aegean and Eastern Mediterranean²⁵.

Consolidating and Expanding Networks in the Euboean Gulf and Wider Mediterranean

This is the first period where the entire Mediterranean comes together, in the sense where certain groups (Phoenicians) are involved in interactions spanning its entire extent. This is not to say that it suddenly changed notions of identity across the entire basin. But it was the first time that some individuals plying its shores could have reasonably conceived of it as a geographical whole, and begun to tell stories of its various parts from the Levantine coast to the Strait of Gibraltar.

This is the longest and perhaps most difficult period to deal with in this dissertation. From the Aegean perspective it is skewed, since evidence of widespread interactions is fairly localized in particular areas. But the involvement of the Euboean Gulf is crucial as certain hubs emerge at Athens and Lefkandi, which would have involved direct contact with Phoenician traders. These same traders likely would have been involved in networks that spanned distances far beyond the Aegean networks that transmitted stylistic preferences and technological knowledge. As in other periods, access to these networks was restricted to certain members of society, and used very deliberately in the creation of difference and to create and maintain social inequality on a local level. In this way networks were conceptually consolidated, even as they were geographically expanding, and laid the foundations for the major social changes that would follow in the

²⁵ Euboean activities in the northern Aegean and wider Mediterranean are discussed in greater detail in Chapter 8.

eightth century and after, when the few hubs of Mediterranean interaction related to the Euboean Gulf would explode into much more intense and widespread networks in a revolutionary way.

CHAPTER 8

Riding a New Wave: Mobility and Media in the Protohistoric Iron Age

Then the goddess, flashing-eyed Athena, said to him: "I shall tell you these things truly. I declare that I am Mentès, the son of wise Anchialos, and I rule over the oar-loving Taphians. And now have I put in here, as you see, with ship and crew, while sailing over the wine-dark sea to men of strange speech, on my way to Temese for copper; and I bring shining iron. My ship is put up beside the fields away from the city, in the harbor of Rheithron, under woody Neion."

Homer (*Odyssey* 1.179-185)

It was pointed out long ago that "the changes which came over the Aegean in the eighth century are so profuse that it is hard to enumerate them in any logical order" (Snodgrass 2000[1971]: 416). This is made all the more true by the relatively tight span of time in which many of the major developments seem to happen, around the middle of the century. It thus becomes difficult to put them in any order at all, or to draw causal relationships between one development and another. Yet it is also this coincidence that lends itself to an overall argument of rapid self intensification, which affects many seemingly divergent social phenomena, including settlement patterns, overseas activities, alphabetic writing, and figural art. One of the most profound changes (at the very least in our understanding of this period) was a media revolution: the advent of Greek writing, leading to the recording of oral poetry, among other things. Often looked to as an expression of *Zeitgeist*, the Homeric epics contain some remarkable insights into eighth-

century life.¹ Significant for us is Homer's striking ability to break down distance, typically through reference to far-flung peoples, places, and networks. In the passage quoted above, Athena, speaking to Telemachos on Ithaka, poses as Mentès, a native of the nearby island of Taphos and quintessential pirate. Yet she also refers to Temese, located in southwestern Italy, as a destination both familiar and foreign, and of interest for the metals trade. We are also presented with information about the local topography with which "Mentès" is credibly familiar. Homer (especially in the *Odyssey*) is full of passages like this, which collapse geographical scales, multi-material transactions, and inter-cultural relations into a single narrative moment, meant to awe the listener with the vastness of the world and the capacity of characters to act within it. While this scene is part of an epic narrative, it has roots in a reality of complex networks, increasingly contracted geographical and cultural distances, and dramatic social intensification across the Mediterranean.

Beginning in the eighth century, or Middle Geometric II (MG II) in ceramic terms (Table 1.1), the pace of social change in the Aegean rose dramatically, a trend that continued throughout the eighth century, and escalated further around 750 in the transition to the Late Geometric (LG) period. Unlike the previous chapters, which deal with longer spans of time, the period treated here is only 100-150 years, depending on the LG endpoint of 700 or 650. But the rapidity of development suggests that it is appropriate to discuss this as a renaissance or, perhaps even more accurately, a revolution. That this happens rather suddenly should come as no surprise, given the rapidity with which state formation (or, more generally, intensification of social complexity) can often happen. For

¹ The date of Homer is, of course, debated, ranging from the eighth century to the fifth, though there is little question that epic poetry had long been part of oral culture in Greece, and in the eighth century began to enter the literary record (see Morris and Powell 1997).

Minoan Crete a state-formation model of gradual evolution (Warren 1987) seems much less likely than one of relatively rapid development (Cherry 1983a; 2010: 138). This is not to say that gradual changes do not happen, but that major changes tend to happen quickly, as punctuated equilibria that affect multiple subsets of society at once. Seen another way, when two or more aspects of society change at the same time they have a much greater affect than even one dramatic change; this known as the “multiplier effect” in systems theory. This schema was used by Renfrew (1972: 36-44) to describe the emergence of civilization in the Aegean, and revisited by Snodgrass (1980a: 54) in the case of eighth-century Greece. Revolution over evolution also seems clear in the case of the Mycenaean palaces. As I showed in Chapter 5, there was a long “build-up” to state formation, but the intensification of complexity out of which the palaces rose all happened very rapidly. Fast and far-reaching shifts in social complexity are thus well known in the Aegean. And while what happened in Geometric Greece was perhaps the most lasting of these, it is least discussed in such anthropological terms. My own aims are to articulate *how* distinct social phenomena interact and how networks change and intensify to contribute to such a revolution in the eighth century.

This chapter begins by briefly reviewing the major changes in the archaeological record that have led to the characterization of this period in terms of renaissance and revolution. I then return to the subject of settlement shifts and regional networks, which had extensive implications for notions of territory, mobility, and social reorganization. Next I turn to more classically revolutionary subjects: the invention of the Greek alphabet and the return of figural art. I argue that these shifts in media – or the ways of signification and encountering the world – served to condense networks conceptually, even as they expanded geographically. At the end of this chapter I return to the wider

Mediterranean context of these developments. This is the first period where Greek settlements emerge as “frogs round a [Mediterranean] pond” (Plato, *Phaedo* 109b); the Euboean Gulf and its inhabitants played a crucial role in this emergence, yet their importance soon waned – an importance in many ways obviated by the very networks they had worked so hard to create. With the emergence of truly “Greek” notions of identity,² the centrality of the Euboean Gulf in Mediterranean networks waned not long after reaching its apex in the eighth century.

Renaissance and Revolution in the Eighth Century BCE

There is little need for a long excursus on the developments of the eighth century. They have been enumerated in detail for many decades (e.g., Hägg 1983; Snodgrass 2000[1971]; 1980; Coldstream 2003[1977]). Briefly, they are: (1) a rapid increase in the number of settlements; (2) the rapid growth in importance of regional sanctuaries, some of which would become panhellenic sanctuaries; (3) colonization – that is, the founding of new settlements (*apoikiai*) by individuals whose native cities were some distance away; (4) the proliferation of figural art in ceramics and miniature sculpture; (5) the innovation of the Greek alphabet, adapted from the Phoenician script; and (6) political developments that led to the emergence of the *polis*, the characteristic (but not the only)

² See Malkin (2011) for a discussion of the role of networks and colonization in identity formation. As an exercise, any description of “Greek” identity will be somewhat fraught. Identity must be understood as a plural, mutable, and multi-scalar concept. Thus, people can have local identities based on common daily practices or encounters with the landscape, or regional identities based on shared language, practices, etc. In referring to “Greek” identity, I mean that communities spread over very long distances shared aspects of culture, including language, religious beliefs and practices, and mytho-historical traditions. This is not to obscure major differences between different groups, but rather to say that notions of a “Greek” identity formed in the early first millennium BCE as interactions across the Mediterranean created greater awareness of cultural differences. Around the same time, similarities were reinforced through the participation in common practices, such as regional and panhellenic political and religious festivals, which were self-ascribed as exclusively Greek.

type of political entity in early Greece, although this had significant variation in manner of governance, size, and overall character.

The use of terms such as “renaissance” and “revolution” is thus understandable. Yet I would argue that “renaissance” – while the longer-established and more commonly used term – does not quite capture the character and impact of the developments listed above. “Renaissance” is used to refer to the restoration of political order and (relative) cultural uniformity across the Greek world, something that had been absent since the collapse of the Mycenaean palaces (Coldstream 2003[1977]: 20). Yet this assumes two things: (1) that the new developments listed above represent the renewal of something that previously existed and (2) that a characterization in terms of previous periods is more appropriate than focusing on what is new and different. While describing trends in social complexity as recurrent (in a broad sense) is certainly appropriate, the developments of this period are novel, rather than a renewal of older forms.³

To speak of the eighth century in terms of a cultural revolution captures much more the unique and world-changing implications of what happened during this period. “Revolution” has thus been employed more frequently in recent years, especially by Morris (2000: 261; 2009). There was certainly *not* a return to Mycenaean social and political formations. Mycenaean institutions of kingship were gone, along with the high level of centralization seen in the palace systems. These institutions had been replaced with looser, more diverse, and often more flexible social hierarchies, which would remain the norm in central and southern Greece throughout the Archaic and Classical periods as

³ By contrast, developments such as the re-emergence of writing and urbanism were taking place in southeastern Anatolia around the same time. These are in some ways comparable to what is happening in the Aegean, though may be better characterized as a “renaissance,” given the cultural history of the area.

well.⁴ Moreover, the memories of ages of heroes that are preserved in Homeric and Archaic poetry probably have more to do with the Prehistoric Iron Age than with the Bronze Age, though they are certainly an amalgamation of traits from different periods. The term revolution, commonly used in conjunction with technological change, seems especially appropriate here, since the major changes in media – in this case as technologies of communication and signification – explain the far-reaching effects of social developments in this period quite well. Indeed, it is precisely because of practices of network intensification that it is appropriate to talk about this period in revolutionary terms. While technological change swept through the Euboean Gulf, settlements clustered within it, and sailors went from being traders to settlers as interests in the outside world grew and became solidly entrenched in a wider Mediterranean network.

These changes were rapid and lasting, there can be no doubt; but we must use some caution, lest we come to the view that because much changed in the eighth century, everything changed in the eighth century. Scholarship on this period often avoids the topic of state formation. Most people would point to this time as fundamental in the formation of the *polis*, so state formation is at least implicit. Yet there remains wide regional variability in political systems (Morgan 2003), and we still seem to be in a gray area in terms of urbanization, social hierarchy, monumentality, and political organization. The archaeological record is not clear on such themes, and the literary record is equally questionable. This variability is what excludes the Greek case from comparative discussion of state formation, but also makes it, in some ways, interesting. Social

⁴ This is not to say that strict social hierarchies did not exist. They certainly did in some places, but are much more difficult to characterize broadly. Kingship as an institution was not more than incidental until the rise of Macedon in northern Greece. Leadership may be a more appropriate institution to speak of at this juncture, though the diversity and breadth of such an institution from place to place in the Postpalatial Bronze Age and Early Iron Age make it difficult to discuss in any holistic way.

complexity intensified in the eighth century, to be sure, but with atypical interests, which only later led to the monumental building, obvious social stratification, and clearly defined political systems that we typically associate with the archaic state (Yoffee 2005).⁵ This is not to say that state formation did not happen as part of the eighth century revolution: rather, it was happening – it was contingent on contemporary circumstances and manifest in ways that do not call out for obvious comparisons. This excursus is meant mainly as a caveat and to clarify what is meant by revolution. The Greek state or *polis* (or whatever we want to call it) did not emerge full-formed, but was the product of phases of rapid intensification in social complexity, much of which happened in the eighth century.

Despite this period being rather chronologically tight, there are some frustrating specifics concerning the sequence in which these developments happened. That is, everything seems to happen at once, so it is difficult to assign causality, where such an endeavor might have explanatory power. The revolutionary social changes of this period seem to be largely concurrent. From settlement multiplication to overseas expansion to technological innovation, the roots of the revolution began to sprout in MG II, then experienced explosive growth in LG I and II. This diachronic concurrence thus speaks to the presence of mutually constitutive, and mutually intensifying social phenomena, rather than any clear and direct causal relationships that might be discerned with a higher degree of chronological resolution. That is, it is the whole story that matters, rather than the sequence of its parts.

⁵ Though these characteristics, of course, can and do exist outside of “states.”

Crowding the Landscape: Settlement Intensification and Regional Dynamics

This section presents three crucial developments in terms of regional dynamics in the eighth century. First, the settlement pattern changes significantly, though there is marked regional variability. Second, settlement shifts in the Euboean Gulf, specifically in the case of central Euboea, shed light on shifts in Mediterranean dynamics (colonization) and possible historical events (the Lelantine war). Third, the sacred landscape was reconstituted in the face of changing settlement, affecting local, regional, and eventually panhellenic ritual practices and notions of identity.

Several interrelated trends in the settlement pattern set the eighth century apart from the preceding Prehistoric Iron Age. First, there is a sharp increase in the number of sites starting in MG II, but with a dramatic surge in the Late Geometric period (Fig. 8.1; see Figs. 7.2 and 8.2 for the names of these sites). The total number of sites in the regions surrounding the Euboean Gulf rises from 83 to 132, or a 59% increase. According to one very recent survey of the data, the overall number of sites in central and southern Greece increases from 655 in the Protogeometric period to 973 in the Geometric period or a 49% increase (Murray 2013).⁶ Murray's figures are based on different chronological categories than those used in this work: her database is divided into Protogeometric and Geometric periods, while I lump together PG-MG I and MG II-LG. That said, my chronological division employed here would be expected to level discrepancies between these two categories, rather than exaggerate them. It therefore seems safe to say that the regions of the Euboean Gulf experienced an intensification of settlement that was not

⁶ Murray (2013) has assembled a massive database (3733 entries) of sites dating to the Late Bronze Age and Early Iron Age, which she has kindly made available to me. The database was assembled through systematically recording and mapping sites recorded in survey and excavation publications, including the often difficult to access reports from rescue excavations, published only in Greek. Geographically, coverage extends from Thessaly southwards, including the mainland and Aegean islands.

only rapid, but even more pronounced than that found in the rest of Greece. This has many implications for models of interaction, yet regional variability remains key.

Within the Euboean Gulf two areas must be singled out for their veritable explosions of settlement: Attica and Boeotia. In Boeotia the number of sites more than triples, going from 13 to 44. In Attica, a similar trend is observed, as site numbers increase from 12 to 35 (not including the Skourta plain, on account of its relative isolation – see below). Such a rapid expansion of settlement must be explained. Bintliff (1999) has discussed this trend in terms of competition for agricultural land and steady expansion, beginning in the Geometric period and culminating in the Classical period. He also notes the similarity between Attica and Boeotia (Bintliff 1999: 24-25), and how Renfrew's Early State Module (1975: 12-21) can explain the rise of centers at Athens and Thebes: the growth of powerful centers within a region and interaction between centers and the surrounding communities eventually leads to increased integration. Of course, this also invokes peer-polity interaction (Renfrew and Cherry 1986), where interactions intensify through a variety of forms of competition, as discussed in the case of early Greece by Snodgrass (1986).

In my model based on networks of interaction and geography, the increase in number of sites would have involved increased interaction between them, simply on account of their closer proximity. Demographically, there also seems to be significant population growth, based on both numbers of sites and on the mortuary record (Morris 1987: 156), though perhaps not on the scale once thought (Snodgrass 1980: 23).⁷ On a

⁷ Morris (1987: 156-167) argues that the dramatic increase in numbers of sites and graves known from the Late Geometric period is partially the result of changing burial practices, where formal burial was no longer the exclusive domain of the upper echelons of society. This is not an argument against population growth, but rather an argument that more sites/graves do not necessarily indicate a directly parallel trend in population growth.

regional level, the involvement of more communities, may have, on the one hand, strengthened regional notions of commonality and identity and, on the other, made interaction over greater distances less necessary in order to make suitable marriages and exchange necessary goods. It would also have engendered the creation of hubs as central places where representatives from all communities could bring together goods and ideas. While centralization around major settlements, such as Thebes and Athens, was no doubt happening, this was very different than the type of political, command-oriented centralization that occurred in the Mycenaean period.

The close proximity of sites also would have influenced the way territory was conceived. Site catchments, or resource acquisition zones, can be modeled in various ways. They are worth considering here as territories with which communities would feel most familiar, and within which members of communities would conduct most of their day-to-day activities, such as agriculture, animal husbandry, and social interactions. Early models of site catchments (Vita-Finzi and Higgs 1970) suggested radii of 5 and 10 km for sedentary and nomadic communities, respectively, based on analogies from animal subsistence territories. Later, archaeological applications based on ethnographic analogies of rural villages proposed radii of 2.5 km (Flannery 1976). This settlement radius seems to apply to both Boeotia and Attica, as well as Euboea, in the Classical period (Bintliff 1999: 17-18; Fachard 2012: 76; Fachard 2013). In the Prehistoric Iron Age, there would have been little overlap of community territories in Boeotia, suggesting, perhaps, less stimulus for growth. An influx of new settlement, distributed relatively evenly across the landscape, would have created much more overlap in potential catchments (Fig. 8.3).

It is clear that the communities of Boeotia and Attica would have interacted much more intensely in this period than in the previous one, based on their roughly modeled

subsistence territories. It is significant that central Euboea was already facing such settlement pressure in the Prehistoric Iron Age, as were parts of Attica, and the plain of Atalanti, which may help to explain their growth and outward looking character in the Protohistoric Iron Age. Such proximity and potential for dispute over resource areas may also have historical implications, specifically in the case of the mytho-historical Lelantine War.⁸

Convergence and Divergence in Settlement Networks

The impact of the new settlement pattern on interactions between sites can be illustrated in network terms, where sites connect to a minimum of three nearest neighbors (Fig. 8.4). An immediate effect of the increased number of sites is that the average distance between sites and their nearest neighbors shrinks considerably. While certain sites in the network model still have to cross long distances to reach their neighbors (e.g., Zagora, Skiathos, Plakari), most, especially in Attica and Boeotia, have many more neighbors close by than they did in previous periods (Figs. 5.3 and 6.3). I argue that the overall change in settlement networks had three principal effects:

1. Human interactions intensified across the entire landscape, which was in part responsible for the rapid social change at this time, as communities, craftsmen, and traders came into more intense competition and ideas became increasingly mobile.
2. The nexuses of interaction that form in different parts of the Euboean Gulf can be characterized as “small worlds,” in that their most frequent interactions happen over short distances, but network distances are reduced quickly through the introduction of only a few new links to join different “small worlds.” The settlement networks modeled here show interactions only between neighbors, which must be viewed as frequent and habitual. In addition, weak ties linked

⁸ Discussed in detail below (pp. 284-293)

together emergent centers, which at this point could be described as nascent *poleis*.⁹

3. The regional networks that emerged within the Euboean Gulf led to social intensification in new areas, which in some cases led to disengagement with others. This reorganization of interactions led to the reformulation of local and regional notions of identity, expressed through aspects of visual and material culture.

Let us turn now to the individual regions surrounding the Euboean Gulf. Attica continues to flourish, as it did in the Prehistoric Iron Age. The aforementioned increase in number of sites led to a shift in the nearest neighbor model, which now suggests some division between eastern Attica and the area of Athens, with Mt. Hymettos acting as something of a divider. That said, the increasing importance of Athens as a hub and production center for Geometric pottery, along with the silver sources of the Lavriotiki, suggests that these areas were quite closely connected, though daily interactions, of course, would have been more frequent with proximal sites. The quadripartite interaction zone consisting of southern Attica, Kea, Andros, and Southern Euboea also continues to be significant, evidenced by the presence of Attic (and central Euboean) pottery at Aigia Irini, Zagora, and Plakari (Coldstream 2003: 209-211; Crielaard 2011a: 5). The growth of Athens itself is known from the increased amount of Late Geometric pottery (nearly all unpublished) from the slopes of the acropolis, and number of Late Geometric tombs (Fig. 7.4; Papadopoulos 2003: 298-299). Coldstream (2003[1977]: 109) estimated that the population of Athens increased threefold in this period, based on the rise in number of graves, though Morris (1987: 156-158) would attribute at least some of this change to burial practices becoming more democratic and less a privilege of upper segments of society. The appearance of new sites in the vicinity of Athens should not come as a

⁹ See Chapter 3 (pp. 78-83) for discussions of small-world networks and weak ties.

surprise either, and might be viewed in terms of the early development of demes. While Athens was certainly the largest and most powerful settlement in Attica at this time, there is no indication of it exercising direct political control over the region.

The northern limits of Attica remain poorly understood in the Protohistoric Iron Age, with only two sites present, at Parnes (75) and Kokkini (50).¹⁰ This is actually a decrease from the Prehistoric Iron Age, which may be the result of an overall desire to be closer to emergent centers (such as Athens), rather than located in the relative isolation of a mountainous borderland. It is hoped that future intensive survey work in the area will provide data to either confirm or contradict this picture.

As anticipated by site catchment models (Fig. 8.3) and general increase in the number of sites, the nearest-neighbor network model changes substantially for Boeotia in the Protohistoric Iron Age (Fig. 8.4). Perhaps surprisingly, this model links Boeotia to Attica only by the relatively isolated site of Kokkini, southwest of the Skourta Plain. The site of Oropos, while sometimes included in Boeotia (Fossey 1988), was considered disputed territory in antiquity (Strabo 9.1.22) and often lumped in with Attica in ancient geographers such as Pseudo-Skylax (Shipley 2010) and in archaeological studies (Cosmopoulos 2001). In this period, however, Oropos clearly demonstrates closer connections to Euboea, as its nearest neighbors are Eretria, Magoula, and Amarynthos; this model is borne out by several aspects of the material record, including settlement organization, cult practices, and craft production (Mazarakis Ainian 2007a: 28; see also other essays in Mazarakis Ainian 2007b). Of further interest is a theory advanced by Mazarakis Ainian (2002: 202-208) that Oropos is Homeric Graia; he argues that, as a colony of Eretria, Graia and Eretria made a joint foundation of Kyme (Cumae) in western

¹⁰ Numbers in parentheses following site names refer to the numerical notation in Fig. 8.2.

Italy, which contributes to the etymology of the word Greek/Greece as it developed with indigenous Italian populations and made its way into Latin: Graia → Graii → Graeci. This etymology, however, is tendentious: the more widely accepted version follows Aristotle (*Meteorologica* 1.14), who places the origins of the term in Epirus, with the Graikoi, who lived near the oracle at Dodona (Malkin 1998: 147-150).

Much of the rest of Boeotia is more westward-oriented, with the exception of Drosia (Agias Minas) (29), Glypha (32), and Vathi (Agios Nikolaos) (102), all minor sites across the Euripos from Chalkis. Anthedon has contacts with these, as does Ritsona, but most sites in eastern Boeotia connect to apparent hubs around Eleon (31) and Thebes. Smaller groups of sites in close proximity and presumably intense interaction form around Agia Marina (1) in northern Boeotia; Haliartos and Askra (33, 17, 18) to the east of Mt. Helikon; Thisbe and Chorsiai (97, 23) in somewhat isolation on the Corinthian Gulf; and around Orchomenos in northwestern Boeotia. There are two important points that arise from this patterning. First, the Boeotian communities on the Corinthian Gulf were for the first time self-sufficient in terms of having enough nearby communities with which to interact on a regular basis. While this does not mean they should be viewed in isolation (they should not), it does mean that they did not *need* to look toward inland Boeotia. Second, they were well positioned on the increasingly important Corinthian Gulf as inland Boeotia remained relatively self-contained. That the network model shows Boeotia as relatively self-contained is supported by Coldstream's (2003[1977]: 201) characterization of Late Geometric Boeotian ceramics as "a somewhat retarded style," which displayed Attic, Corinthian, and Euboean influences, but in a delayed and idiosyncratic way.

The next cluster in the model is even more strictly isolated, and encompasses East Lokris and eastern Phokis (Fig. 8.4). This is a rare region in the Euboean Gulf where the number of settlements actually declines in the eighth century, dropping from 13 to 10 (Fig. 8.1). While the decline is not substantial in and of itself, it is significant in light of the rapid rise in settlements in neighboring Boeotia, and in its spatial clustering around the plain of Atalanti, with outliers only at Kalapodi and Elateia (30). The number and proximity of these sites to one another, and their aggregate separation from sites in northern Boeotia and the vicinity of the Malian Gulf, would have led to the intensification of local interaction and decline in habitual interaction with the surrounding areas. Kalapodi, however, seems to continue in its capacity as an important regional sanctuary, though there is a significant shift in the character of ritual assemblages. While inter-communal feasting practices are evident at the site in LH IIIB, LH IIIC, and the Protogeometric and EG-MG I periods, by MG II and LG, cooking wares nearly disappear, even as the number of cups, kraters, and other drinking vessels grow – this is accompanied by an increase in the number of metal votive objects, and paralleled by contemporary sanctuary sites in Greece (Kaiser *et al.* 2011: 35-36). This pattern in material culture reflects a change in ritual behavior at the site, where drinking continues to be important, but competitive display takes on a new character, emphasizing the dedication of high-status goods, namely metals. While Kalapodi does not go on to become the type of panhellenic sanctuary seen at Delphi or Olympia, it nonetheless was an important locus of peer-polity interaction in central Greece, involving at least Phokians and Lokrians, and probably several others from farther afield. So while East Lokris and Phokis may appear as a closed network in Fig. 8.4, it is better viewed as a small world, where Kalapodi functioned as a hub through which weak ties were

maintained and cult practices common to the rest of the Greek world were kept “up-to-date” by participants who came there and also participated in other networks involving different sanctuary sites (for example at Perachora, Eretria, or Delphi).

Turning to the Malian Gulf, the pattern does not differ greatly from the Prehistoric Iron Age (Fig. 7.3), except in the separation in the network model from East Lokris and eastern Phokis (Fig. 8.4). Settlement remains from the Malian Gulf are almost entirely unknown from this period, and must be inferred from the fragmentary cemetery remains mapped here. This can probably be attributed to three factors: the presence of the modern city of Lamia over what is likely to have been the principal site in the region, lack of systematic exploration, and heavy alluviation in the plains that would have been ideal for settlement. The locations marked in the vicinity of Lamia are of cemeteries, but the presence of settlements within reasonable walking distance can safely be assumed.

The sites located on the Straits of Oreoi (Figs. 4.10 and 8.4) continue to reinforce the strategic location of this area. The rather linear arrangement of sites also makes interactions across water likely, for example with Theotokos Sepia (94) on the easternmost peninsula of Phthiotis. The relative isolation of Theotokou (95) in southern Magnesia and the new settlement at Skiathos (a transplant of the Prehistoric Iron Age site of Kephala [Fig. 7.3]) also suggest connections to Asmenion (19), which itself would be tied to the north-central Euboean interaction zone of Rovies (85), Limni (58), Dhafni (26), and Kerinthos (Fig. 8.4).

As the northernmost frontier of the Euboean Gulf interaction zone, the sites around the Pagasitic Gulf remain an important interface between northern and southern Greece by both land and sea. In terms of habitual interactions, they can be viewed as

relatively self-contained, though important connections are maintained by significant nodes at Theotokou (95) and Halos (34), which tie into the networks of northern Euboea.

The modeled connections of the northern Euboean Gulf do not differ markedly from those exhibited in the previous period (compare Figs. 6.3 and 7.4). Of course, this is because this model is dependent on the settlement pattern, which also does not vary greatly between the Prehistoric Iron Age and the Protohistoric Iron Age. However, wider sets of interactions are certainly visible in the material culture of Thessaly, especially around the Bay of Volos. Attic and Euboean influences are evident in the painted pottery; Thessalian sanctuaries exhibit Macedonian ornaments in bronze; and there are commonalities between handmade pottery found in Thessaly and Macedonia (Coldstream 2003[1977]: 206-209). Thus the material culture largely confirms the geographical position of Thessaly as an important interface between the Euboean Gulf and northern Greece.

Before turning to central Euboea for a more in-depth look at multi-scalar settlement dynamics, some consideration must be given to why this rapid change in settlement pattern occurs in certain areas, coincident with what might be considered a settlement shift on a much wider scale: the foundation of settlements overseas. Trade interests and population pressure are the most common explanations for the establishment of colonies overseas. Trade interest is an obvious prime mover. The Phoenician expansion for this reason is paralleled almost directly by the Greek case, and the far-searching quest for metals was nothing new in the Greek world (having roots in the Mycenaean period and beyond). But the scale of overseas settlement in this period was certainly something new. The expanding site numbers may suggest population pressure, but the regions of the Euboean Gulf whose site number expand most (Attica and Boeotia)

were not involved in colonization at this stage. Moreover, even these regions are not likely to have had populations that put serious pressure on the landscape until the Classical period (Bintliff 1997: 3).

It is worth reconsidering Camp's (1979) drought hypothesis in light of new paleoclimatic evidence. Camp noted that several wells in Athens were either re-dug or went out of use during the eighth century, which may indicate a drought and lower water table. Accordingly, he suggested revision of the land-hunger hypothesis for colonization, suggesting lower agricultural production as an impetus for settlement overseas, rather than simply population growth. Recent paleoclimatic studies have indicated a drying trend in both Italy and the Aegean beginning in the eighth century (Finné *et al.* 2011: 3158). This coincides roughly with a rapid decline in total solar irradiance on a global scale (Steinhilber *et al.* 2009: 3), which would have affected plant growth and agricultural output. The degree to which these factors would have influenced ancient agricultural practices is debatable, and Mediterranean climate is notoriously variable, so these factors need not indicate a drought in Athens or elsewhere in the Euboean Gulf. But such recent studies do force us to consider the possibility. At the very least, climatic *instability* forces societies to reorganize subsistence practices to account for changes. Moreover, climate change obviously does not happen overnight, so adaptations, while certainly present, must be considered gradual processes, even if they happen quickly in archaeological terms.

A mixed explanation may then be considered, where parts of Greece already involved in long-distance endeavors may have sought to solidify footholds abroad as a sort of insurance in response to climatic variability, while other regions (especially fertile ones such as Attica and Boeotia) expanded settlement in the agriculturally rich areas

around them. On the other hand, the settlement pattern shifts (local, regional, and trans-Mediterranean) may have had nothing to do with climatic concerns. Whatever the direct cause (or causes) of these marked shifts in settlement may have been, they effected the reorganization of networks on multiple scales, and were a part of the rapid and intense social changes that characterized the Protohistoric Iron Age.

The model of regional interactions presented in Fig. 8.4 suggests that the settlement pattern changes in Attica and Boeotia would have had major effects on the nature of habitual interaction. The presence of more sites brought communities into closer proximity to one another (Fig. 8.3), and resulted in both competitive and collaborative interactions over shorter distances. The settlement shift around the northern Euboean Gulf is less marked, yet is still affected by the network changes happening around it. While longer-distance interactions were certainly maintained, regional dynamics in this period resulted in the creation of several small-world networks surrounding the Euboean Gulf. This had the effect of the further development of distinct regional styles of material expression (Coldstream 1983), as well as notions of regional identity. The strong ties of regular interactions with near neighbors reinforced commonalities, even as the weak ties that formed connections to other parts of the Euboean Gulf and wider Mediterranean world prevented stagnation and reinforced differences, in turn solidifying notions of similarity within micro-regions. I turn now to what is perhaps the most dynamic micro-region during this period: central Euboea.

A Tale of Two Cities: Chalkis and Eretria at Home and Abroad

Throughout the eighth century a series of events took place in central Euboea that had far-reaching effects. The destructions at and eventual abandonment of Lefkandi, the

foundation and growth of Eretria, and increased activity at Phylla Vrachos suggest disturbance, and later literary testimony tells of a large-scale conflict between the Chalkidians and Eretrians, which involved allies from all over the Greek world and changed political relationships in various places in the Aegean, Sicily, and Italy. While many uncertainties surround the specific events on the Lelantine Plain in the eighth century, especially with regard to the literary tradition, they are worth revisiting in light of the archaeological, historical, and geographical context. Moreover, this provides an excellent case study in how multiple lines of evidence and multi-scalar networks converge in the Protohistoric Iron Age to offer nuanced and original insights on long-debated archaeological and historical questions.

The density of settlement in central Euboea, specifically around the Lelantine Plain, was greater in the Pre- and Protohistoric Iron Age than anywhere else in the regions surrounding the Euboean Gulf, with the exception of the vicinity of Athens. This can be explained rather simply by historical and geographical factors: the area had been a hub at least since the Postpalatial Bronze Age, partly on account of its location, which afforded control of access between the northern and southern Euboean Gulf, and its proximity to the fertile Lelantine and Psachna Plains. The territorial catchments and nearest-neighbor network model also suggest rather intense interaction between these two sites (Figs. 7.3 and 7.4). With such intense interactions sustained over long periods of time, cycles of cooperation and conflict should come as no surprise. Such is certainly the case provided by historical accounts concerning Chalkis and Eretria.

Historians have long grappled over the significance of ancient references to the Lelantine War.¹¹ The most comprehensive account comes from Thucydides (1.15), who records a conflict between Chalkis and Eretria over the Lelantine Plain, noting that each of these cities had allies from various parts of the Greek world. Though Thucydides does not name these allies individually, other authors provide more specific information (Table 8.1).

Chalkidian Allies	Source	Eretrian Allies	Source
Samos	Herodotus 5.99	Miletus	Herodotus 5.99
Corinth and Colonies	Plutarch, <i>Moralia</i> 293b	Megara	Thucydides 6.4
Thessaly	Herodotus 5.86	Boeotia	Herodotus 5.86
Athens	Herodotus 3.47	Aegina	Herodotus 5.80
Sparta	Herodotus 3.47	Argos	Herodotus 5.86
Erythrae	Herodotus 1.18	Chios	Herodotus 1.18
Chalkidian Colonies (Naxos, Catana, Leonini, Zankle, Rhegium, Cumae)	Various	Mytilene	Herodotus 5.95

Table 8.1 Hypothetical sides taken in the Lelantine War (after Hall 2007: 3)

It must be stressed that these alliances are purely hypothetical reconstructions, based on a variety of sources that come, in some cases, many centuries after the events to which they refer. For these and other reasons Hall (2007: 4-8) has been skeptical about what these references can tell us about a historical conflict, or if such a conflict ever actually took place, arguing that there is little to suggest that the tradition of the Lelantine War was based on actual events. Others authors have been more optimistic about both the utility of the historical record and its usefulness in reconstructing long-distance

¹¹ Modern scholarship on the subject has not been intensive, but interest has cropped up at various points over the last century (e.g., Burn 1929; Bradeen 1947; Donlan 1970; Bakhuizen 1976: 34-36; Lambert 1982; Parker 1997; Walker 2004: 162-171; Hall 2007: 1-8; 20-21)

interactions between early Greek polities (Coldstream 2003[1977]: 200-201; Walker 2004: 162). Despite such long-standing divergent viewpoints, the question of the Lelantine War is worth reconsidering here. The literary tradition concerning this conflict did not emerge *ex nihilo*. Moreover, the archaeological record, while not capable of “proving” the validity of historical records, is not in disagreement with them, and in this case even supports and adds nuance to what we can know about events on the Lelantine Plain. Finally, the physical geography lends further insight on historical events and the interpretation of archaeological remains. All of these factors should be viewed together in interpreting this storied landscape.

I make three interrelated arguments here: (1) that the site of Lefkandi is Strabo’s Old Eretria, and that inhabitants of Lefkandi moved to the location of Eretria gradually between 850 and 700 BCE; (2) that this move was the result of building tensions derived from shared circumstances on local, regional, and trans-Mediterranean scales, which culminated in a conflict between Chalkis and Eretria; and (3) that a reorganization of the local landscapes and long-distance activities alleviated this strain and led to divergent trajectories for these two Euboean city-states.

The idea of an Old Eretria is based largely on a statement by Strabo (10.1.10). Yet Strabo’s account would place Old Eretria at the site of Eretria, rather than the location of Lefkandi.¹² Others would place Old Eretria to the east, with Amarynthos (11) or Magoula (61) as possible locations (Boardman 1957: 22-24). Geography can lend some insight to this matter (Fig. 8.5). The Lelantine Plain is clearly visible in the modern topography, as some 30 square km of agricultural fields, well watered today, as in the past. Its fertility is

¹² Extended discussions of Old Eretria as Lefkandi can be found in Popham (1980) and Walker (2004: 73-89). Though Bakhuizen (1976: 7-13) argues that Lefkandi should be considered Old Chalkis. Powell (1991: 15-16), suggests that Lefkandi may have been Euboean Kyme, citing an unpublished talk by E. Touloupa.

apparent even in the middle of dry summers (Fig. 8.6). The Lelas Riverbed runs through the center of the plain, and Lefkandi sits on its eastern side; Chalkis is just outside it to the west. Other sites of strategic importance are positioned at its corners at Nea Lampsakos, Dhokos, Agia Triadha, and Phylla. The southwestern foothills of Mt. Olympos form its eastern border, and a narrow (less than 1 km) strip of the Eretrian Plain runs along the coast until it opens up to a fuller agricultural plain east of Eretria, situated some 10 km to the east of Lefkandi. Eretria is c. 8 km away from the eastern edge of the Lelantine Plain, making it well outside any territorial catchment for agriculture, at least as understood in other archaeological and ethnographic contexts. Anything to the east of Eretria would be even farther removed from the capacity to exploit and control such a territory, a point which leads to the rejection of Amarynthos or Magoula as potential candidates for an Old Eretria. Of course, distance alone cannot preclude territorial interest or control, but proximity matters, especially when a potentially competitive polity (Chalkis) is located much closer to the land over which there was a mutual interest. Another argument for the importance of proximity can be found in the Bronze Age, when the highly centralized Mycenaean palaces, which maintained hegemony over a great deal of agricultural land, often at some distance, were careful to station secondary centers in prime agricultural areas, as well as other points of strategic importance (Chapter 5, pp. 145-147). The crucial point is that interest in agricultural territory is not feasible in the face of competition without maintaining close proximity.

The occupational history of Lefkandi and Eretria lend the most credence to the argument that Lefkandi is Old Eretria. The following standard narrative applies: Lefkandi flourishes throughout the LH IIIC, Protogeometric, and Sub-Protogeometric periods, though with periodic destructions. Around 825 BCE there seems to have been a general

decline in population at Lefkandi, based on numbers of burials, and fewer settlement remains (though admittedly only a small section of the settlement has been excavated). At the same time, the first traces of settlement are found at Eretria, in burials with ceramics that suggest influences from both Lefkandi and Athens¹³ (Mazarakis Ainian 1987: 3; Verdan *et al.* 2009). Walker (2004: 92) follows Popham and Sackett (1980) in suggesting that the evidence from Lefkandi and Eretria indicates an attack on the former, followed by decline and a population movement to the latter, as Lefkandi remained an outpost positioned to exploit the Lelantine Plain. Occupation at Lefkandi seems to cease around 700, though a handful of Archaic and Classical sherds have been found on the site as well (Sackett *et al.* 1966: 61).

This sequence of events could very well be interpreted differently – one can always ask “what if...” – though the archaeological record is fairly clear. Yet more nuance might be gained by viewing this evidence in its broader temporal context. A number of destructions at Lefkandi from the LH IIIC period through Early Iron Age indicates a long history of conflict at the site,¹⁴ which could have built up to a larger-scale conflict that eventually entered historical memory as the Lelantine War. Unfortunately, we lack comparative evidence from Chalkis, due to the highly fragmentary nature of the archaeological record, largely destroyed and obscured by centuries of later occupation. It seems likely that people from Lefkandi began moving to Eretria as a satellite settlement, perhaps on account of population growth, decreased agricultural yield, or increasing competition over the Lelantine Plain. Eretria is well positioned on the west side of the

¹³ The Athenian connection is hardly novel at this point, as it is apparent throughout the Protogeometric period at Lefkandi.

¹⁴ On LH IIIC destructions see Sherratt (2006a); for an Early Iron Age history of conflict see Popham and Sackett (1980).

Eretrian plain, as close as possible to Lefkandi, while at the same time affording access to the coastal strip between the two sites. Moreover, Eretria offered intrinsic advantages, with a high acropolis and deep harbor. The cessation of settlement at Lefkandi in the Late Geometric period, and rapid expansion of settlement at Eretria is about as direct a suggestion for population movement from one proximal site to another as one can hope to see.

There are further similarities between the two sites that support this settlement history. The warrior burials in the West Quarter of Eretria must be seen as the most significant of these, and themselves have been pointed to as the heroized dead of the Lelantine War (Bérard 1970; Walker 2004). The triangular heroon is considered the culmination of this tradition, dated to the late eighth or early seventh century (Bérard 1970; Blandin 2007). The burials are similar in content to those of the Toumba Cemetery at Lefkandi. But they also are in an identical topographic position in relation to the main settlement (Figs. 7.5, 8.7, and 8.8). Both are on the western edge of the settlement, have conspicuous funerary markers, and face the rival polity of Chalkis. This suggests the deliberate introduction of place-making practices at Eretria, where the memory of the Hero of Lefkandi and his lineage at Toumba were preserved in the Geometric cemeteries in the West Quarter of Eretria. Both of these monuments represent efforts to memorialize and heroize warriors in the location most proximate to (Old and New) Eretria's rival and sometimes enemy, Chalkis, serving both apotropaic and community-defining purposes. At the same time a building of particular importance, the Geometric Temple of Apollo Daphnephoros (Fig. 8.9) recalls the long, apsidal plan of the Toumba building, though it obviously has a different function (Verdan 2010; 2013).

Between the settlement evidence and historical tradition of a war between Chalkis and Eretria, there is little reason to believe that there was not some sort of conflict to force the change in settlement location. Yet complications with the historical record remain. For example, we must consider that Strabo gives the location of Old Eretria at Eretria, and says that the site was destroyed by the Persians. This makes sense, but the distance he gives from Athens would put Old Eretria to the east, near the location of Amarnythos. We know well that Eretria had been in its current location at the time of the Persian War, so Strabo is already off the mark, and internally inconsistent, which should come as no surprise. Given his temporal distance from the events he purports to describe, source criticism would suggest a hierarchy of useful information, with the specific on the bottom (least likely to be accurate), and the general on the top. The general information is that there was such a place as Old Eretria. Another general piece of information is that it was destroyed in a war. The more specific information has to do with the exact location (Strabo says both at and east of Eretria) and the war in which it was destroyed. It is easy to accept that Strabo could be wrong about some of these things.¹⁵ Confusion, internal inconsistency, and outright error in ancient sources must thus be allowed for, especially when historical context, archaeological evidence, and geographic realities support different stories, as is the case here. Yet at the same time these stories may have roots in reality, even if certain details are better rejected. Ultimately, whether something called Old Eretria existed and where it was located is much less relevant than what the archaeological record tells us: that population at Lefkandi ceases after a long history of conflict at the same time settlement at Eretria intensifies. The new location offered

¹⁵ One needs only to look at modern historians of the subject to know how easy it is to confuse east and west: Map 3 of Lefkandi in Walker's (2004: 74) history of Eretria confuses the east and west bays on either side of Xeropolis.

several intrinsic advantages, as well as being farther from Chalkis, and positioned to exploit the Eretrian Plain, rather than Lelantine.

Given the plausibility of a Lelantine War in central Euboea, an important question relates to how this affects – and was affected by – a wider set of relations in the Mediterranean. Pithekoussai, on the island of Ischia just off the west coast of southern Italy is the earliest evidence we have for permanent Greek settlement overseas. Pliny (*Ab Urbe Condita* 8.22.5-6) relates that the settlement at Pithekoussai was a joint foundation between Chalkidians and Eretrians. Not long after this foundation the Chalkidians are said to have founded Kyme on the adjacent mainland (Fig. 8.10, Table 8.2).

Mother City	Colony	Location	Date	Reference
Chalkis and Eretria	Pithekoussai	Ischia, Italy	pre-750	Strabo 5.4.9
Chalkis/Pithekoussai	Kyme (Cumae)	Italy	c. 750	Dionysos of Halikarnassos 7.3.1; Strabo 5.4.4
Chalkis	Rhegion	Italy	c. 750-725	Herakleides Lembos <i>Politeiai</i> 55
Chalkis	Zankle	Sicily	730-720	Thucydides 6.4
Chalkis	Naxos	Sicily	c. 734	Thucydides 6.3
Chalkis/Naxos/Megara	Leontini	Sicily	c. 729	Thucydides 6.4
Chalkis/Naxos	Catane	Sicily	c. 729	Thucydides 6.4
Chalkis/Zankle	Mylai	Sicily	c. 716	Thucydides 6.4
Eretria	Kerkyra	Kerkyra	c. 750?	Plutarch <i>Quaestiones Graecae</i> 11
Eretria	Methone	Pieria	c. 733	Plutarch <i>Quaestiones Graecae</i> 11
Eretria	Mende	Chalkidiki	eighth century	Thucydides 4.123.1

Table 8.2 Earliest colonies of Chalkis and Eretria

Walker (2004: 142) argues that Pithekoussai was a joint foundation between Chalkis and Eretria, then war broke out on the Lelantine Plain, causing the Eretrians to throw out the Chalkidians from Pithekoussai; the Chalkidians then founded Kyme (Cumae). This had no relation to a Euboean Kyme, which may not have existed until the modern period (Brodersen 2001; see also Chapter 6, p. 185, fn. 16). After the earliest foundation at Pithekoussai, the long-distance interests of Chalkidians and Eretrians decline and diverge considerably, though they later remain interested in some of the same general areas, such as the northern Aegean (Table 8.2) though never in the same locations (Tiverios 2008).

Thorough accounts of Euboean colonial activities can be found elsewhere (e.g., Crielaard 1996; Tsatskheladze 2006; 2008). The important point here is the pattern – the split that can be observed between Chalkidian and Eretrian interests that parallels local developments on the Lelantine Plain, reflecting a reorganization of networks on the largest possible scale, based on a local breakdown of relations. Despite this conflict and split in interests, it is likely that reconciliation between Chalkis and Eretria was soon reached, as the overseas interests of Eretria seemed to shift to the north Aegean, most accessible through the Euripos, under the control of Chalkis. The explosion of colonial activities abroad in the Euboean case, and shortly after from other parts of Greece, is perhaps the prime example of global emergence from local interactions (cf. Malkin 2011: 210, drawing on Watts 2003: 64). Moreover, network growth continued in the west Mediterranean as “Euboeans” from Pithekoussai struck out to settle new locations. So it is not so much the agency of Euboeans in Euboea that affects expansion in the central Mediterranean after initial settlement, but rather network growth independent of any mother city, though ties to this mother city may still be felt and considered important in identity-forming self-ascription – that is, the creation and reification of identity markers

in a world increasingly filled with different cultural backgrounds and political affiliations. The resultant imbroglio of flows, ties, and material expressions has been preserved in the media revolution that coincided with this explosion of activity in both the Euboean Gulf and farther afield. A related factor is certainly the regional dynamics seen in reorganization of the religious landscape.

Sacred Landscapes as Hubs of Mediation: Local, Regional, and Panhellenic Sanctuaries

The growth of regional, and eventually panhellenic, sanctuaries in the eighth century form the final piece of network architecture through which the revolutionary developments of the eighth century flowed. Like colonization, this phenomenon is well known, and has been treated in detail in the seminal work of François de Polignac (1994; 1995), among others (e.g., Antonaccio 1995; Morgan 1995). Religious practice worked on multiple scales to construct networks, and their impact on political and territorial developments, such as the birth of the *polis*, can be seen clearly in the material record from local, regional, and panhellenic sanctuaries.

On a local level, tomb cult was a defining practice in the Early Iron Age. While ancestor veneration, and perhaps even worship, may have had Prehistoric Iron Age precedents at places like Lefkandi, the practice seems to become widespread in the Late Geometric period (Antonaccio 1995). In Attica and Boeotia, this seems to come out of an interest in the Bronze Age landscape (Antonaccio 1994). This interest in the past and the creation of places of memory and ancestral significance in the landscape should be seen in relation to the increasingly close proximity of archaeological sites to one another, and the need to establish territorial claims. I do not, however, wish to reduce this aspect of Greek religion to an economic argument. Bronze Age and Prehistoric Iron Age remains

indicate that there had long been an interest in the past – people built on the same places and in some cases re-used tombs, whether they belonged to relatives or not. Yet memories, real or imagined, would have been tied to these places, which would have been habitually encountered in the course of daily life. What we see intensify in this period is not necessarily engagement with these places, but *material* engagement with them. With the shift in settlement pattern, it became increasingly important to leave a material mark on places of collective memory and significance. This interest in the past (and creating pasts) coincides with, but does not necessarily result from, literary concerns in the same vein.

This period also sees shifts in the character of regional sanctuaries. From the Postpalatial Bronze Age onward, sites such as Kalapodi had functioned as regional mediators of interaction between emerging peer polities. While political relationships are clearly present, they are embedded in religious practice. Traces of cult activity have also been found at numerous other sites, but rarely in a volume that makes them stand out. This changes dramatically in the eighth century, as sanctuary dedications sky-rocket (Snodgrass 1980a: 53), even as the presence of luxury items (chiefly metals) in graves declines (Morris 1987: 141). This trend is certainly the result of increasing interaction between polities on a regional scale at sanctuary sites and competitive practices of dedication.

Such competitive practices are seen, *par excellence*, at places that would eventually become panhellenic sanctuaries: Olympia and Delphi. It is also this development, more than any other, that is the beginning of the end of the regional primacy of the Euboean Gulf, conditioned by the reconfiguration of Hellenic geography and networks in which, ironically, Euboeans played a major role. Regional sanctuaries

provide a context for this reconfiguration in that they served to intensify interactions through which stylistic and technological innovations spread, and hosted what was perhaps the most powerful symbolic currency then in use: bronze tripods.

In the Prehistoric Iron Age conspicuous consumption was largely tied to individuals, and operated on a local scale, seen in wealthy burials at places such as Athens and Lefkandi. The eighth century sees a marked shift in this behavior, largely in the dedication of large bronze tripods – symbolically charged items made of a valuable commodity – set up in highly visible, ritually and politically significant locations that did not “belong” to any individual or polity, but were places of mediation and competition between them. Papalexandrou (2005) has written extensively on the tripod as symbolic capital and its role in the “visual poetics of power” that played out in early sanctuaries, especially Olympia and Delphi. They also functioned as both symbolic and economic “stores” of value, in and of themselves and of bronze (Papadopoulos 2012). Moreover, a shift in the deposition of arms from local graves to regional sanctuaries has been taken to mean that military force shifted from the domain of the individual to the state: an important marker in the development of the *polis* (Snodgrass 1980: 52-53, 99-100; Morgan 1993: 27).

Extensive discussion of the role of regional sanctuaries in *polis* formation and the origins of Panhellenism can be found in the references mentioned above. Their importance here is as nodes in a network architecture that spanned local, regional, and eventually trans-Mediterranean scales. Local sanctuaries and tomb cults served to reinforce boundaries and demarcate territory through ancestral links to the landscape. Regional shrines served as places of common ritual practice, mediation, and competition between regional authorities. Throughout the eighth century, the networks of Olympia

and Delphi in particular grew, and they emerged as the first panhellenic shrines, the importance and role as mediator of which was highlighted through the introduction of formal competitions (both artistic and athletic) and oracular functions. Perhaps most importantly, they brought people together from across great distances in the name of a common cultural (Greek) background. This is another example of scale-free network growth, where nodes (Greek polities) preferentially attached to two of many possible regional sanctuaries (Delphi and Olympia), causing accelerated network growth. It is also an example of multi-directionality and pulsation in small-worlds scenarios, as habitual meetings in certain hubs brought people and images into contact with one another then sent them out again. That is, the network contracted on a single place, mixed everything up, then exploded outward again after network participants encountered any number of people, things, and ideas that they normally would not.

That this network contraction occurred at the same time as the first large-scale colonization movements is significant, though it is difficult to discern a simple causal relationship. The most likely explanation is that regional sanctuaries, such as Kalapodi, had been in use since the Postpalatial Bronze Age, though activities at them intensified and formalized in an increasingly mobile eighth-century world. Habitual encounters with difference created a need to reinforce commonalities, and the venues for this engendered competitions through which independent polities, represented by individuals, strove to “outdo” each other through acts of direct competition and conspicuous consumption. A clear example of how this took place in the Geometric period can be found in the form of dedicatory tripods with figural attachments in the form of horses, birds, and humans (Papalexandrou 2005); these fueled the quest for metals, and at the same time promulgated an iconography that was eventually adapted to other forms of figural art.

This is not to say that sanctuaries were the places that styles were created – this could and did happen in a variety of locations – but they provided the hubs that greatly reduced the physical and conceptual distance that images, motifs, and innovations needed to travel to reach anywhere else in the growing Greek world. It was in the context of this competitive and highly charged network, capable of spreading ideas over great distances very quickly, that a media revolution occurred, drastically changing the face of material, visual, and oral culture.

A Media Revolution: Words and Images on Things

It is not a simple coincidence that the eighth century saw the innovation of Greek writing, as well as the re-emergence of figural art on pottery. These developments are part of the same phenomenon that represents a new concern with display, self-presentation, and establishing permanence through recording on things the thoughts and expressions of an heretofore predominantly oral culture.¹⁶ This new sense of materiality had important identity-forming causes and effects in direct response to an increasingly interactive world, where people could have actively sought permanence through literal reification. The opportunities created by material engagements through writing and image-making represented both a media revolution, in terms of how words, images, and ideas were encountered, and a material revolution in terms of what people did with things. Such revolutions are not mutually exclusive. Creative imagery and enterprises became tied to objects in new ways in response to changing sets of relations both near

¹⁶ To be sure, writing and images do many other things as well, and there are aspects of performance, mythmaking, and creative expression, to name only a few themes. Yet the material and lasting aspect of writing and image-making are things that cannot be conveyed in the same way through speech, gesture, and other types of self-representation and display.

and far. This does not mean that the practices about which these objects give us clues – poetry recitation, mythological story-telling, social dining, drinking, and dancing – are new, simply that visual and material engagement and redeployment were being sought in new ways. Like other identity-forming practices at this time, such as the establishment of overseas, panhellenic, and regional networks, this was a material expression of both localized and distinctively “Greek” culture that came in the face of an increasingly “global” world.¹⁷ So while the alphabet, for example, had an unquestionably Phoenician origin, it quickly became a vehicle for distinctively Greek expression. The reemergence of narrative and figural art must be seen as part of the same creative impulse, rechanneled in material form.

From Potters to Poets: The Invention of the Greek Alphabet

The literature on the introduction of alphabetic writing to Greece is extensive.¹⁸ My aim is to discuss the innovative role of Greek writing in the eighth-century Mediterranean, in terms of its difference from other writing systems, rapid diffusion, and far-reaching effects. While this may put the proverbial cart before the horse, I am here more interested in what writing *does* than what it *says*, though these are certainly related.

¹⁷ By localized and distinctively “Greek” identities, I mean that multiple understandings of identity were (and are) in play at any given time. While writing was used to record different dialects, even using different alphabets, these had recognizably common characteristics, which would have been understood as having more in common with each other than with Phoenician or Etruscan written or material expressions. In this way, alphabetic writing was locally and regionally, but also culturally, specific.

¹⁸ Numerous overviews of the history of the Greek language and its dialects include discussions of its origins. The classic study of early Greek dialects and alphabets was by Jeffrey, recently updated with a supplement by Johnston (1990[1961]). There are several recent overviews as well. Horrocks’s (2010: 43–48) treatment of script invention is fairly cursory, though there are more specialized studies by Voutiras (2007) and Woodard (1997; 2010). Powell (1991; 2002; 2009) has dealt with script invention extensively, especially its relation to Homer and oral poetry. Recent work by Sass (2005) puts the invention of the Greek alphabet in its wider West Semitic context. Beyond script invention, serious consideration has also been given to the impact of literacy on a heretofore oral culture (Ong 1982; Havelock 1986; Thomas 1992).

As with other historical processes presented in this dissertation, this benefits from thinking in terms of human interactions, modeled through complex networks. Once again, the Euboean Gulf seems to be an important hub in the network through which this innovation was introduced and proliferated.¹⁹

Writing was a media revolution that fundamentally changed the way people interacted with each other and the world around them: it gave permanence and portability to speech through the introduction of a new medium – words inscribed or painted on things – to inter-personal and inter-societal interactions. This must also be seen as a technological innovation, as pointed out by Ong (1982: 81-82): “... we find it difficult to consider writing to be a technology as we commonly assume printing and the computer to be. Yet writing (and especially alphabetic writing) is a technology, calling for the use of tools and other equipment: styli, or brushes or pens, carefully prepared surfaces such as paper, animal skins, strips of wood, as well as inks or paints, and much more.” At the same time, however, describing writing as technology has its drawbacks, as it distances script from other ways of transferring meaning (Houston and Stuart 1992: 590). While writing involves the technical acts of other technological practices, it is ultimately a communicative, or semiotic, system. Thus, writing cannot be viewed in strictly technological terms, though technological metaphors, such as innovation, can still be useful in the same way they are so for describing inventive change in other systems of communicating meaning, such as through images. Ultimately, this discussion is about

¹⁹ The Phrygian writing system was invented around the same time, and has many shared characteristics with the Greek alphabet, including vowel-use (Brixhe and Lejeune 1984). Recent chronological developments at Gordion (Rose and Darbyshire 2011), however, call into question the standard argument that Phrygian is derived from Greek, and may suggest a Phrygian precedence of the alphabet, yet this is far from definitive (Brixhe 2002; Sass 2005: 146-149).

how these things work and develop as semiotic practices, which will vary based on form, context, production, and response (Houston 1994: 28).

The broader social implications of such an innovation are captured well in a recent book that traces the impact of writing as information technology from its invention to the present day. Gnanadesikan (2009: 1) begins by declaring: “this sentence is a time machine.” The statement, while deliberately provocative, captures the power of writing to transfer information through space and time, something we tend to take for granted. Such an innovation alters the nature of memory, knowledge, and the way the world is encountered and understood for those who engage with it. Communications technologies, which are ultimately semiotic systems rooted in materials, have dramatic impacts on the pace of social change in human societies. A view of this in the very long term can be instructive. The first writing appears in the second half of the fourth millennium BCE in Sumer, which soon after saw the emergence of the first state-level societies. In the c. 5500 years since then the scale and complexity of human societies have increased in a way that would have been inconceivable to people living at that time. In the 5500 years before the invention of writing relatively little changed in terms of the scale and complexity of human societies, at least when compared to what came after. This may be obvious, or even trite, but the long-term consequences of this revolution in human interactions are well worth considering.

Greek alphabetic writing was the first writing system that was not invented for the purpose of state or religious administration. It is also one of the first writing systems to give vowels separate phonetic designations, in order to encode all sounds in words, rather

than syllables or consonants alone (Powell 1991: 115-118).²⁰ In West Semitic alphabets, for example, words were written as a series of consonants, and it was left to the reader to fill in the vowels. This is not a problem if the reader knows the language, but it makes it more difficult for others to use and adapt such a system. Powell (1991) has argued that this innovation was made by a single man from Euboea, called the “adapter,” specifically for the purpose of recording hexametric poetry. While the motives and process of adaptation are likely more complicated than this, the desire to write in this way did not have economic or administrative roots, and it is likely that poetry played a major role. The evidence for the direct involvement of Homer remains thin, though parts of the argument are certainly valid. For example, one cannot write the word “AEIDE” (and many other Greek words essential for hexameter, containing many vowels or diphthongs in sequence) without vowels. In West Semitic “AEIDE” would become simply “D” (Powell 1991). At the same time, however, the word could have been written in Linear B as *a-e-de*, and many languages with lots of vowels have worked quite well with the Arabic script, which does not mark them.

The most important point is that the addition of vowels made it possible to write sound and speech, rather than words alone. This addition meant that this system could be easily adapted to write other sounds and speech to record different languages, as can be seen in its rapid diffusion around the Mediterranean. While flexibility is crucial here, this

²⁰ Powell’s (1991) view favors the invention of the Greek alphabet as a unique achievement and in some ways obscures the capabilities of other writing systems. Linear B is a syllabic script, which nonetheless demonstrates the full range of vowels and diphthongs found in Greek, in addition to consonant plus vowel combinations. Moreover, other writing systems, such as the Maya script can render anything an alphabet can, including vowel length, consonants, vowels, etc. It seems that the introduction of vowels was a practical matter in adapting the Phoenician script to record Greek, which had great consequences later on. For example, the adaptability of the system, encoding consonantal and vowel sounds separately, make it highly flexible, which accounts of its diffusion and further adaptation to record a variety of other languages. However, I doubt that this was envisioned by those who created the script, which at the beginning was only about recording Greek.

situation is not unique, as demonstrated by the trans-linguistic spread of cuneiform throughout the Near East. From an experiential perspective, the Greek alphabet also made a closer link between speech, song, and writing than had ever existed before, which likely influenced the rapidity with which literacy spread in a predominantly oral culture. Yet literacy, awareness of, and access to this new semiotic system did not happen instantly. Writing must also be understood in the context of contemporary and previous symbolic vocabularies, beginning in the Prehistoric Iron Age. The most significant of these are potters' marks.

Potters' marks are defined as painted, impressed, stamped, or incised marks put on the surface of a pot before firing, and are attributed to the potter him- or herself (Papadopoulos 1994: 439). Signs painted or incised after firing are typically not considered potters' marks, because their makers could be anyone. Yet as visual, abstract, symbolic referents such marks may do similar things. With potters' marks one can make a relatively safe assumption concerning the identity of the maker(s) of these marks and, to a lesser extent, their intended significance. The most common interpretation is that these were makers' marks, or intended to play some role in production or distribution, or both (Papadopoulos 1994: 473). Abstract marks and signs are not, of course, the same as writing, and certainly not the same as alphabetic writing. Cross-culturally, potters' marks are simple identity-tokens, though on a very basic level, corresponding to a person or entity; ultimately, the system of communication is quite limited, with a relatively small group of individuals to which they are relevant (Houston 2004: 227). Most importantly, they are non-linguistic. So while the medium of expression is the same as that of the earliest (known) Greek writing – pottery – these notational systems (potters' marks and writing) are quite distinct. The only possible link to writing that Early Iron Age potters'

marks may demonstrate is the desire of potters to inscribe meaningful signs on pottery. There is thus a great leap forward from potters' marks, which had been in use since the Bronze Age, to alphabetic writing.

The date of the introduction of alphabetic writing to Greece can be placed fairly securely in the eighth century BCE or, at the very earliest, the late ninth century BCE.²¹ The most striking feature of the earliest Greek inscriptions is their wide geographical distribution, which testifies to the rapidity with which this new technology moved through already established networks. Moreover, the invention itself happened very quickly, probably within the span of a generation. Indeed, a "highly episodic nature" seems to be a universal trait of script invention (Houston 2004: 238).

The earliest Greek inscription is found in Latium, at the Osteria dell'Osa cemetery at Gabii (Ridgway 1996; Johnston 2003: 263), though this consists of only a few letters and may also be an imitation of Phoenician letters (Sass 2005: 155-156). Roughly contemporary are two inscriptions from MG II layers at the Sanctuary of Apollo Daphnephoros at Eretria, one a Semitic graffito, and the other an ostrakon with "θo[ι]" written on the inside of an amphora fragment (Theurillat 2007: 335, 341, Figs. 2-4). Aside from non-alphabetic graffiti, there is nothing else of a date demonstrably earlier than the Late Geometric period (750-700/650 BCE). A substantial amount of inscribed material (66 graffiti, 27 with alphabetic script) is known from Eretria (Kenzelmann Pfyffer *et al.* 2005; Theurillat 2007). Jeffery (1980) published seven alphabetic inscriptions from Lefkandi, and several others have been found since. Elsewhere in the

²¹ Despite arguments for a date as early as 1100 BCE and the adoption of the alphabet in multiple phases and locations (Naveh 1982), the most recent comparisons of West Semitic and early Greek letter forms suggest a date after 825/800 and before 750 BCE, as the Semitic letter forms from which the Greek alphabet is derived change after this date (Sass 2005: 140). This fits the current archaeological evidence (physical inscriptions in datable contexts) rather well.

vicinity of the Euboean Gulf, Kalapodi has yielded a substantial number of early inscriptions (Palme-Koufa 1996), as has Kommos, a well known Cretan port with Phoenician connections (Csapo *et al.* 2000). One of the most famous early Greek inscriptions comes from Athens – the Dipylon Oinochoe, the first part of which is a hexameter saying that something (a prize, presumably the vase) will go to the dancer who dances the most gracefully (Powell 1991: 159). The most famous, of course, is the Cup of Nestor from Pithekoussai. Written in three lines of verse (the second and third of which are hexameters), this also has a playful, sympotic subject,²² declaring:

“I am the cup of Nestor, a joy to drink from.
Whoever drinks this cup, straightaway
The desire of beautiful-crowned Aphrodite will seize him”
(Powell 2009: 239).

Yet this is only one of some thirty graffiti and inscriptions known from Pithekoussai (Bartonek and Buchner 1995). Another large corpus of LG II material has recently been discovered at Methone, consisting of 191 inscribed sherds, 25 of which bear alphabetic letters, nine of which have complete or fragmentary inscriptions; the media and subject matter of the inscriptions are also sympotic (Besios *et al.* 2012).

How did the early alphabet become distributed so widely in the span of no more than two generations? Powell (1989: 349) lists some twenty locations²³ that should be included in the “first generation” of Greek alphabetic writing. To these can be added Methone and Al Mina, as well as Kition. While Powell’s “first generation” includes

²² Though Faraone (1997) would see this much more seriously as a conditional curse with magical connotations.

²³ Powell (1989: 349) lists, in this order, Selinous, Pithekoussai, Cumae, Ithaka, Crete, Kleonai, Corinth, Attica, Boeotia, Thera, Anaphe, Naxos, Amorgos, Samos, Smyrna, Kalymna, and Rhodes. Some of these, of course, are islands or regions, rather than sites, but it nevertheless serves to illustrate the geographical breadth of early Greek writing. Coldstream (2003[1977]: 296-302, 405-406) also provides a useful list.

Location	Description	Date	Category	Reference
Knossos	Cypriot bronze bowl with 12 letters	900	Phoenician	Coldstream 2003: 405
Phaistos	Graffito of Herpetidamos	pre-700	Cretan	Coldstream 2003: 299
Kommos	Graffiti, alphabetic inscriptions	C8	Semitic, Cretan	Csapo <i>et al.</i> 2000
Gabii	Alphabetic inscription	C8	Greek or Semitic	Ridgway 1996
Lefkandi	Graffiti, alphabetic inscriptions	MG II?; LG	Euboean	Jeffery 1980
Eretria	Graffiti, alphabetic inscription	MG II, LG	Euboean, Semitic	Theurillat 2007
Oropos	Inscribed stone weight	LG	Euboean	Mazarakis Ainian 2007a: 27
Methone	Graffiti, alphabetic inscriptions, hexameters	LG	Euboean, Semitic	Besios <i>et al.</i> 2012
Pithekoussai	Cup of Nestor, other Graffiti and Inscriptions	LG	Euboean, Semitic	Bartonek and Buchner 1995
Al Mina	Inscribed sherd	LG	Euboean	Boardman 1982
Kalapodi	Inscribed sherds	LG	Various	Palme-Koufa 1996
Rhodes	Cup of Qoraqos	LG	Rhodian	Jeffery 1990: 347
Athens	Oldest stone inscription; Dipylon Oinochoe	C8	Local	Powell 1989
Aegina	Inscribed plaque	C8	Local	Powell 1989
Ithaka	Kalikleas Dipinto; Hexameter inscription	C8	Local	Powell 1989
Boeotia, Athens	Inscribed bronze cauldrons	C8/C7	Euboean/Boeotian	Powell 1989
Smyrna	Proprietary inscription	C8/C7	Local	Powell 1989
Selinous	Tainia inscription	C8/C7	Corinthian	Powell 1989
Corinth	Graffiti deposit	C7	Corinthian	Coldstream 2003: 299
Cumae	Abecedaria, Lekythos of Tataie	C7	Euboean, Corinthian	Powell 1989
Kleonai	Geometric cup	700-675	Corinthian?	Powell 1989
Mt. Hymettos	Inscribed sherds; possible hexameters	C7	Local	Langdon 1976
Syracuse	Sherd with partial names	C7	Corinthian?	Powell 1989
Kalymna	Alkidamos Sherd	C7	Local	Powell 1989
Thera	Rupestal inscriptions	C7	Local	Powell 1989
Anaphe	Epitaph	C7	Local	Powell 1989

Table 8.3 Early Greek alphabetic inscriptions, divided into Phoenician, Euboean, and other Greek categories

everything with a plausible date before 650 BCE, a more refined chronology is illuminating. The very first generation of certain alphabetic inscriptions comes in the eighth century, and predecessors in the form of single letters or Phoenician script appear slightly before (Table 8.3).

The pattern is immediately clear: sites in or closely linked to central Euboea exhibit the earliest examples of alphabetic script, though the rapid and distant spread afterward represents its decentralized dispersal, made possible by the ease with which speech, and specifically sound, could be translated into writing. This fact may also explain the desire to innovate in epichoric scripts, which could reflect variation in local dialects, or but more likely has to do with learning, transmission, and practice within script communities. Individuals learn to write in certain ways, which reflect the scale and settings of such learning. The localisms that develop in epichoric, therefore, would seem to reflect the small worlds of regional interaction seen in other aspects of material and visual culture. So while broadly similar and recognizably Greek, such scripts reflect local and regional practices.

The spatial distribution of the earliest Greek writing shows central Euboea to be a major hub (if not *the* major hub) of crucial importance in the network through which the Greek alphabet became dispersed; recent evidence from Eretria, Lefkandi, and Methone seems to not only agree with, but strengthen this picture. Moreover, Herodotus (5.58) is quite clear about the Phoenician origins of the alphabet, brought to Thebes by Kadmos. This would put the innovation far too early (though there is, of course, Linear B at Thebes) and on the wrong side of the Euboean Gulf, but may represent a mixing of traditions in the mythological past. A look at the wider Euboean Gulf can also be instructive, as the earliest alphabets in Boeotia, Thessaly, Lokris, and Attica, show the

strength of weak ties that link these small worlds. This should not be entirely unexpected, as the settlement network model discussed above (Fig. 8.4) also suggests more regionally isolated patterns of interaction. Thus, the current evidence suggests that ideas may have traveled more quickly and more completely, for example, between Euboea and Pithekoussai than they did between Euboea and Boeotia, or Euboea and East Lokris, as Boeotia and East Lokris adapted, rather than simply adopted new innovations.

While there is debate over the primacy and impact of a “Euboic” alphabet, a network model can shed fresh light on this controversy, as it overlaps quite clearly with other traces of Euboeans in the Aegean and Mediterranean. Just as people do not attempt to suggest Phoenician dominance or even *ex oriente lux* models in the interactions that led to the innovation of the Greek alphabet, I would not suggest a model in the tone of *ex Euboea lux*, either in terms of founding settlements overseas or bringing the alphabet to other Greeks. Script invention is a complex process, and took place in a highly interactive world. Script communities involved local ways of learning and doing, which nevertheless spread quickly into new settings, before being adapted to suit the particular preferences of local and regional identities. The divergent trajectories of epichoric dialects are evidence enough for this (Jeffery 1990). Even if the initial stages of innovation took place in the course of interactions between Euboeans and Phoenicians²⁴ (whether in Euboea, the Levant, Cyprus, or Italy), the highly connected networks already in place fueled the process of innovation, which would have also served to intensify interactions.

The exact circumstances of *how* the innovation of the Greek alphabet happened can never be known, but the material evidence, along with the geographical distribution

²⁴ Phrygians must be added to this group as well, as early alphabetic innovators, as their alphabet emerged at the same time, if not before the Greek alphabet, also with Phoenician roots.

and chronological sequence are suggestive. First, we can assume that it happened in a location where Euboeans and Phoenicians were in close contact – any of the earliest loci of Greek script fits this criterion: Al Mina, Lefkandi, Eretria, or Pithekoussai, as both semitic and early Greek writing (at least in the form of graffiti) is present. A second criterion, however, has to do with dispersal. A network illustrating the spread of writing would put the most central hub clearly on Euboea, though really the innovation could have happened elsewhere, then moved to central Euboea and dispersed from there.

The social circumstances are of further interest. Gnanadesikan (2009: 208-214) provides a thought experiment of a Greek learning the alphabet in a Phoenician potter's workshop. She describes a Greek being instructed in the value and potential of the alphabet in recording information. This works well for the initial phases of the appearance of the alphabet, when we have only a name, word, or a few letters, but the LG transition to recording phrases, especially hexameters, highlights the true innovation of recording speech, which changed the way material culture could *actively* participate in social contexts, such as sympotic situations involving communal dining, drinking, and the recitation of poetry. Most importantly this represents a change in what writing *does* and who uses it – it is no longer a part of state or economic apparatuses, but used in small-scale, local practices of group formation and identity creation, in decentralized, multi-directional social networks. But writing was just one element of this media revolution concerning material expression.

Figures, Narratives, and Visual Culture

Geometric iconography²⁵ can be divided into two broad and overlapping categories: scenes of life and scenes of myth. Both involve narrative and play important roles in the construction of the social world of the observer, and must also be viewed as the products of the social world of the maker. What was the source of the rapid proliferation of figural art in the Late Geometric period? As with writing, we have a few earlier examples, in MG and even EG vase painting (Coldstream 2008[1968]). There is even the occasional horse or tree of life motif in the Protogeometric period. And figurines, while rare in the Prehistoric Iron Age, were always present in the Greek artistic repertoire. The proliferation of images after 750 BCE is coincident with other processes of intensification discussed above, and should therefore be viewed as part of the same broad set of social developments.

Contrary to views of mythological primacy, I argue that figural scenes on Geometric art are first and foremost about the contemporary world, especially circumstances with which its observers were likely to be familiar. Morris (1987: 194) suggests that interest in an Age of Heroes was the likely cause for the resurgence of figural art in the mid-eighth century. This is in partial agreement with Snodgrass's (1980a: 65-78) view that the heroic and contemporary both play a role in Geometric figural art. Snodgrass (1998) has also argued that even seemingly mythological scenes

²⁵ The classic studies of Geometric art, specifically pottery, were written by the late Nicolas Coldstream (2003[1977]; 2008[1968]). Iconographic discussion has long dominated attempts to identify relationships between images in early Greek art and Homer and myth, seeking to find particular Homeric or mythological episodes in art that are presumably contemporary with the earliest literature (see, e.g., Ahlberg-Cornell 1992; Carter 1972). Thematic studies, including the relationship of art to citizenship, the Near East, Homer, and cult, can be found in Langdon (1997). Snodgrass (1998) provides a counter to the Homer-focused scholarship of the past, that lends Geometric artists more agency in creating particular episodes, without needing to strictly adhere to, or even have knowledge of, Homer. Most recently, Langdon (2008) has shown how more commonplace topics of childhood, maturation, gender, and ritual feature in Geometric art, with an emphasis on rites of passage.

need not be directly linked to Homer, and that early Greek artists felt freedom to elaborate on well known mythological motifs. I would go beyond this point to suggest that even scenes that can be interpreted as mythological are meaningful for their relationship to experiences familiar from the real world. This is similar to Langdon's (2008) view that narrative and figural art in the Geometric period was meant to illustrate rites of passage, social inequality, and gender relationships, though I would add that this is only part of the picture of identity that these images can be used to draw. And while a concern with the heroic world had long been present, its coincident expression in art and literature suggest that they are part of a common interest in materiality, which may indeed have added to interests in myth and the past.

Among the many narrative scenes, there is a preponderance of certain types. Funerals, battles, dances, and processions abound, and images associated with travel, both maritime and terrestrial also stand out.²⁶ Well known examples such as the massive funerary krater and amphora by the Dipylon master are self-referential, rather than mythological in focus, in that they depict the type of event they are meant to commemorate. And it would be naïve to think that battle scenes referred only to epic, and not to the violent realities to which the proliferation of weapons found in male burials would attest. Ritual scenes such as collective dances record group-formation practices well attested for specific rituals in the later Greek world and for early agricultural communities in general (Garfinkel 2003: 85-97; Langdon 2008: 158). Such dances may have been part of the same sympotic events to which early inscriptions on drinking vessels refer.

²⁶ See, among others, Ahlberg (1971a; 1971b) on funerary scenes and battles, Coldstream (2008[1968]) on general trends, and Langdon (2008) on processions, dances, and ritual.

Numerous scenes involve travel by land or sea, with special emphasis on ships (Kirk 1949) and horses or chariots (Greenhalgh 1973; Crouwel 1992). The London Louterion discussed by Langdon (2008: 19-21) shows a man leading a woman onto a ship with many rowers on one side, and a group of two chariots and a rider on the other. This composition has been interpreted variously as a depiction of a funerary scene culminating in a ship race; a specific mythological scene, such as the abduction of Helen (by Paris, or her return with Menelaos) or Ariadne or Medea; and a more general scene of abduction as a metaphor for marriage in a male-dominated world (Langdon 2008: 32). Taking a step back from these specific interpretations to look at the contextual details can also be instructive, as the pot shows, at its most basic level, a preoccupation with locomotion, regardless of the presence of reference, allusion, or metaphor. Going back to the subject of abduction, movement – both by land and by sea, in chariots and ships respectively – is consistently linked to marriage, which would support the necessary interactions presented in the nearest neighbor model of inter-community relations, which I describe above (Fig. 8.4).

Finally, something must be said of figures and motifs that do not so clearly tell a story. There is a veritable explosion of images of birds and horses in LG art (Benson 1970). This is a multi-media phenomenon, also manifest in bronze cauldron and tripod attachments (Papalexandrou 2005). Horses and other animals appear frequently in master- or mistress-of-animals compositions. Their popularity is hardly surprising as high-status animals, long tied to elite culture in Greece and the eastern Mediterranean. Birds are more difficult to interpret. Are we to consider them representations of the departed soul of the deceased, since they appear so often in funerary contexts? Or are they the “winged words” of an *aoidos*, as they appear in the famous Pylos fresco (Lang

1969)? Or do they have something to do with ships, with which their imagery is so often intertwined(Kirk 1949)? Given the almost overwhelmingly funerary contexts of pots bearing these motifs, a funerary interpretation significance seems most likely.

The specific and general themes of Greek geometric imagery were created as an expression of collective, cultural identity in the face of an expanding world. That is, as the Greek world in general, and Greek craftsmen specifically, came into increasing contact with “others,” an interest in expressing aspects of one’s own culture grew. This involved religious beliefs and funerary customs; depictions of known, but especially significant events, such as the dangers of sea travel and battle; and aspects of elite life, such as hunting or horse-taming. At the same time, regional styles became increasingly divergent, as craftsmen and regional cultures had less reason to look inward, and more reason to express their own ideas in a world of increasingly apparent difference. The role of images in identity formation thus works on multiple levels, from the trans-Mediterranean to the local. Local identities were expressed through the depiction of particular cultural practices, though these were often common across a wider region. This served to reinforce what it meant to be “us” in a world increasingly encountering “them.” Moreover, images served to communicate such messages over long distances, and artists would find venues for competition at both ports and panhellenic or regional sanctuaries – hubs that served to disperse the fruits of their innovations.

Creative Dialogues between Writing and Painting

At the core of the media revolution in the eighth century is the increased capacity to transfer words, symbols, images, and meaning through space and time. Visual culture and the written word are not often treated together. There is, of course, a long tradition of

ascribing Homeric inspiration to various works of Geometric art, though this obscures and precludes the creative and expressive capacity of artists, poets, and craftspeople besides Homer (Snodgrass 1998; Langdon 2008). There is also a need to view writing as an aesthetic act in and of itself, and in its material context, where the written word can become an active participant in social practices. Such a view is complicated by scholarly divisions between art history, archaeology, epigraphy, and linguistics (Pappas 2011).

Inscriptions and images must be seen as active participants in place-making and space-making. The sympotic, ritual, and even daily-life contexts in which words or images appear on things were enhanced by their presence, and serve as material reminders of how and why certain social practices take place. Writing and imagery developed together in the Protohistoric Iron Age, first appearing in MG II, then becoming much more abundant in LG. They developed and proliferated as part of communal activities that consist of eating, drinking, poetry recitations, and competitive display. While such practices have a long history, a dramatic intensification is represented by this distinct material engagement. At the same time, such local practices derived inspiration from stories brought from far-off locations, cross-cultural encounters, hazardous journeys, and encounters with other people, cultural practices, and expressions.

The subject matter of early poetry and images is also multi-scalar, ranging from epic, long-distance journeys to the exigencies of daily life. Just as Homer and Hesiod stretch from the heroic to the mundane, early painting includes variety from shipwrecks to horse-taming to marriages and funerals. Havelock (1986: 110) sees the confluence of oral and visual culture in comparing early epic to later Greek writing: “The phrase *potamos megas* – ‘river big’ – expresses an oral vision... But *Olenos potamos megas esti* – ‘Olenos is a big river’ (Herodotus) – converts the vision into the likeness of an

objective statement.” At the same time, Coldstream (2003[1977]: 406) notes a parallel trajectory in the transformation of Phoenician letters into the Greek alphabet, where there is a shift to verticality and rectilinearity which is “in sympathy with the decoration of LG pottery.” Both of these perspectives seem to be a stretch. Yet there is a specific deployment of words and images on things that relates to a reification of both local and Hellenic culture in mostly elite contexts. There may also be a common, underlying desire to find order in an increasingly interactive and perhaps chaotic world. The implications of the active practices and underlying structures evident in this media revolution are many, and relate to aspects of Greek life from politics to poetry. Ultimately, however, written and visual culture reflect a world that is both more local and more “global” than anything we have seen up to this point.

The Corrupted Sea

“Progress is movement toward movement, movement toward increased movement, movement toward an increased mobility” (Sloterdijk 2006: 37). While Sloterdijk is presenting a formula for modernizing processes, this also applies to the revolutionary “self-intensification” of the Mediterranean in the eighth century. While I do not want to draw too many parallels to modernity, since I do not see the eighth century as breaking free of a preceding Dark Age, I have argued that the broad theme of intensification is valid, and that mobility, both physical and conceptual, plays an important role. Such mobility is dependent on networks, both in past practices and in our understanding of it today.

In concluding this chapter, I present the trans-Mediterranean networks in which the Euboean Gulf was involved, and provide a very brief snapshot of the cultural

geography that was encountered on a more regular basis than ever before. To examine this in detail would be the subject of an entirely different study.

The Protohistoric Iron Age saw the intensification, through permanent settlement and habitual use, of the first truly Mediterranean-scale networks. This was anticipated in the Prehistoric Iron Age with the beginnings of the Phoenician expansion in the ninth century (Fig. 7.14). By using the term “intensification,” in this case, I point to two things: first, the sheer number of new settlements established from distant points of origin and, second, their permanence and the regular interactions and flows of people, materials, and information that followed. Reviews of Greek and Phoenician overseas activities can be found elsewhere (e.g., Aubet 2001; Tsetschladze 2006; 2008).

Toward the end of the eighth century the city-states of Phoenicia, with the exception of Tyre, were overrun by the Assyrian expansion, and even Tyre was subjected to paying excessive tribute (Aubet 2001: 54-58). Part of this expansion may be attributed to the power vacuum in the Levant left by Egypt, which became increasingly fragmented in the Third Intermediate Period (1069-664 BCE) and in the mid-eighth century was facing a Kushite conquest from the south, in addition to its own internal struggles between separate polities (Bard 2008: 267). The tribute demands on Tyre likely magnified interest abroad in the metalliferous regions of the central and western Mediterranean with which it had already established connections.

In Cyprus, Phoenicians and Greeks both maintained major interests and contacts, and ethnically Greek and Phoenician people were certainly living on the island. Yet hybridity had by the eighth century been a long, ongoing process and the inhabitants of the island itself should be viewed as distinctively Cypriot, though (to put it crudely) with obvious Greek and Levantine influences. By this time Kition is typically seen as a

Phoenician colony (Smith 2009: 6-13), while the royal tombs at Salamis are suggestive of common ties with the world of Homer (Blackwell 2010). This mix of cultural elements and connections is hardly a surprise, as Cyprus lies geographically between the Phoenician Levant and Geometric Greek world of the eastern Aegean and western Anatolia.

By the time Greek and Phoenician settlers arrived in the central Mediterranean, Etruscans were already involved in a thriving central Mediterranean network that included Sardinia, trans-Alpine and trans-Appennine Europe and the Baltic, as well as the entirety of the Italian peninsula and the Adriatic (Haynes 2005). This network was already tapped by Phoenicians and (probably) some Greeks in the Prehistoric Iron Age and was tied together permanently in the eighth century. In Sicily the reaction to new arrivals is quite different, as the centralized, hierarchical settlements of the Late Bronze Age and Early Iron Age seem to retreat inland and become less socially stratified (Hodos 2006: 92).

North Africa saw the foundation of Carthage under the agency of Tyre, which itself became a powerful colonizing force in the central and western Mediterranean, though the height of this activity was not until after the eighth century. The key point here is its position as it relates to a wider central Mediterranean network, rather than a particular set of resources.

The foundation of permanent settlements created hubs that keyed into, but were outside of, the most active indigenous interaction zones. Thus Greek and Phoenician settlement overseas was by no means an attempt to cover or “colonize” the Mediterranean. My focus here has largely been on Greeks and Phoenicians. There is still a need for a better understanding of local processes and responses to these Mediterranean

expansions (Hodos 2006), as well as interactions between these two groups (Hodos 2009). Central Euboea, Pithekoussai, Al Mina, and Kition provide examples of such interactions, which for the first time created habitual engagements – material, personal, and conceptual – across the Mediterranean. And, from these locations, notions and material expressions of “others” were introduced into their own local and regional networks.

Network distances collapse in the eighth century BCE, with the addition of just a few permanent (or at least habitual) links between the Euboean Gulf and the central Mediterranean. It becomes possible to reach nearly any point in the Euboean Gulf from most places in the Mediterranean with only a few links, passing through increasingly multi-cultural hubs. At any given time, then, individuals living in Greece were just a few links away from native and immigrant individuals living in Italy or the northern Aegean. And through multi-ethnic places like Pithekoussai, or Al Mina, they were only another link or two from Sardinia, Iberia, North Africa, the Levant, and the wider Phoenician world. It is not the novelty of making such connections that was significant, but their intensification through the establishment of permanent communities, which were deliberately engaged in the wider networks of their new locations.

These observations are clear enough in network terms. Yet there are real costs to creating and maintaining these links in terms of travel, commissioning ships, and the perils of traveling at sea, which include storms, wreckage, and piracy, to name just a few. Such costs serve to further highlight the risk involved in creating and maintaining these networks, which entered the popular imagination (at least partly) through the media revolutions described above, as epic poetry involving travel, shipwrecks, and violence

was written down and images record the very real concerns of daily life, which often coincide with literary or mythological themes.

It is a fitting thought experiment to think of the Euboean Gulf as a Mediterranean microcosm. Through much of the eighth century, central Euboea seems to stand out among the other regions of the Euboean Gulf, at least in terms of its long-distance activities. This is also true of the regions surrounding the Euboean Gulf, as they play leading roles in regional sanctuaries, the innovation and dissemination of the alphabet, and developments in figural art (especially Athens). Thus, central Euboea is to the Euboean Gulf as the Euboean Gulf is to the wider Greek world, which was in the process of encompassing much of the Mediterranean. But toward the end of the eighth century, the expansion of Mediterranean and Hellenic networks resulted in a reorientation in which central Euboea does not stand out the way it used to, and the Euboean Gulf ceases to seem so unique. The Gulf remains important in the Mediterranean, of course, as does central Euboea in the Gulf, but the network changes in which these areas were so instrumental allowed other regions and waterways, such as the Corinthian Gulf, to grow in significance, for both geographical and cultural reasons.

In this chapter I have aimed to demonstrate the utility of networks in providing explanations for historical and cultural processes on the very cusp of history. We know that they happened from a variety of historical and archaeological evidence, but this is not enough to explain *why* or *how* they happened. Networks can be used to fill these gaps in our knowledge. Moreover, a diachronic approach shows how concurrent historical processes relate to one another to intensify human interactions in ways we might not otherwise understand. The intensification that happens in the eighth century, especially in the transition from the Middle to Late Geometric period, show how social phenomena

such as settlement expansion, colonization, inter-community competition, and technological and artistic innovation act as mutually intensifying processes across time and space. While, at least descriptively, these expanded networks and the “multiplier effect” of simultaneous social change are well known, it is only by viewing them together from archaeological and historical perspectives that new explanations of social and material engagements in the Protohistoric Iron Age can be achieved.

CHAPTER 9

Conclusions

Routes et Villes, Villes et Routes.

Lucien Febvre¹

Throughout this dissertation I have attempted to show how networks on multiple scales operate in real geographical space to effect changes in social complexity, conceptions of landscape, and engagements with the material world. As a whole, this dissertation presents an analysis and interpretative synthesis of social change in the Euboean Gulf from the Palatial Bronze Age to the Protohistoric Iron Age (c. 1400-700 BCE). I have argued that social complexity is dependent on multi-scalar networks, which are constantly in flux and involve the interaction of social phenomena that are not often seen as related (for example, settlement patterns, religious practices, and writing systems). Moreover, I have argued that such networks result in patterns of social change that are not gradual or uniform, but rather intense, rapid, and revolutionary. The results are patterns in the dynamics of social complexity that can be explained, but not necessarily predicted.

More specifically, I have argued that the Euboean Gulf was a location of particular relevance for dramatic network changes in the Late Bronze Age and Early Iron Age Mediterranean, which resulted in observable and impactful shifts in the nature of

¹ These words were written by Lucien Febvre as a comment on a draft of Braudel's chapter which contains the quote with which this dissertation began (noted in Braudel 1972: 276, fn. 1).

social complexity across multiple scales. During the Late Bronze Age, the centralization of networks in and around the Mycenaean palaces was cause of the rapid rise and fall of these institutions. The decentralization that followed resulted in the creation of “small worlds” that would characterize social interactions through the Protohistoric Iron Age. These interactions were the result of deliberate network-building practices on the parts of certain individuals and groups, as well as unintended social shifts that were both causes and effects of network changes on local, regional, and trans-Mediterranean scales. These vary dramatically through the Palatial Bronze Age, Postpalatial Bronze Age, Prehistoric Iron Age, and Protohistoric Iron Age as social, political, and technological networks go through patterns of expansion, contraction, and finally explosion into the first lasting trans-Mediterranean networks. The Euboean Gulf was crucial in building these networks; ironically these same structures eventually resulted in this region becoming overshadowed by other emergent geographies of mobility in subsequent periods.

The individual chapters of this dissertation contain their own conclusions, first in terms of building frameworks for disciplinary ways forward, theoretical outlook, and the role of geography in human interactions (Chapters 2-4); second, based on the analysis and interpretation of a synthesis of archaeological, textual, and environmental evidence from each of the periods under scrutiny (Chapters 5-8), which allow us to see cycles of social complexity at work.

Building Frameworks

This study of the Euboean Gulf illustrates how the dynamics of social complexity on local, regional, and trans-Mediterranean scales intersect and change through time. Such an approach is novel in the archaeology of the Late Bronze Age and Early Iron Age

Euboean Gulf. In Chapter 2 I highlighted aspects of disciplinary history that have served to divide the perspectives brought together in this dissertation. These perspectives are derived from classical and anthropological archaeology, as well as prehistoric and historical archaeology. I also examined how conceptions of regions, both in antiquity and in the context of modern archaeology, have affected our interpretations of how people define and interact across landscapes and seascapes. Finally, I described datasets used in understanding long-distance interactions. While all of these approaches and sources of data are interesting and useful independently, they are difficult to bring together in any analytically meaningful fashion. I have argued that bringing together such diverse disciplinary perspectives and datasets is an essential way forward in terms of advancing the discipline and our state of knowledge about particular areas and periods.

In Chapter 3, I presented the theoretical framework of the dissertation in the context of previous studies of interaction. By adopting an approach rooted in network theory that is explicit yet flexible, multiple types of data can be integrated to study social phenomena across multiple geographical scales. The diachronic perspective, which aims to understand how networks change through time, is necessary for understanding how social complexity emerges from these networks and how it changes over time.

In Chapter 4, I argued for the coherence of the Euboean Gulf as a maritime entity, which served to bring together networks of interaction both through the body of water itself and in the lands around it. This is not to say that the Euboean Gulf is the only venue for interaction, or even the most important. The land routes in the regions surrounding it also form important geographies of mobility. It is through this geographic space, which was relatively uniform over time, that people, things, and ideas moved in the diachronic patterns of interaction that are discussed in the second part of this dissertation (Chapters

5-8). At the same time, however, geography provides real barriers and boundaries to interaction, to which human societies inevitably respond. Geographies of mobility are thus both unifying and divergent, serving at the same time to bring people together and keep them apart. The degree to which this happens varies considerably across time and space. The disciplinary, theoretical, and geographical framework presented in Chapters 2-4 thus forms an essential backdrop to and framework for the archaeologies of complexity presented in Chapters 5-8.

Dynamics of Social Complexity

The long-term trajectories of human societies inevitably show them to be entangled in multi-scalar and multi-temporal dynamics of social complexity. That is, individual social groups (societies, polities, cultures) vary in complexity, though not in ways that are uniform or quantifiable in strictly finite ways. Yet variety is observable and comparisons are possible. As these variations happen across time and space, different social groups may go through similar types of processes of centralization and decentralization, fluctuations in connectivity, and variations in inequality. Interaction between such groups, whether they are locally proximate communities or on opposite sides of the Mediterranean, bring these cycles together. The exact nature of such interactions is rarely knowable, but they can be mapped through the use of networks in ways that are analytically and heuristically instructive, when viewed together with material, iconographic, and textual evidence.

The diachronic analysis of multi-scalar networks presented in Chapters 5-8 reveals that the nature of social complexity in central Greece varies dramatically in the Late Bronze Age and Early Iron Age. This is dynamic in the sense that interactions and

complexity intensify and shift in fits and starts. I do not mean that this is cyclical in terms of habitually returning to previous points, but rather that there are ebbs and flows, expansions and contractions, in which levels and types of social complexity go up and down, and intersect with similar processes playing out in other Mediterranean societies. Describing known information in network terms and applying aspects of network theory in an analytical and interpretive framework can result in new interpretations about *how* such dynamics operate.

The Palatial Bronze Age (Chapter 5) saw the rise and fall of the Mycenaean palaces, where institutions of kingship developed in ways that centralized many aspects of political, economic, and religious life. While such centralization resulted in monumental building at Thebes, Orchomenos, Gla, Athens, and Iolkos, it was also responsible for the rapid collapse that palatial systems experienced around 1200 BCE, as the removal of central nodes in palatial networks caused fracture in important aspects of social, political, economic, and religious life. The role of real geographical space is manifest in the role of the Euboean Gulf as the waterway that brought exclusive exotica to the palaces and through which long-distance interactions flowed. Geography also played a role in defining political territories, which are also defined in network terms. The Linear B archive from Thebes demonstrates political control of areas that fall neatly within and at the edge of territorial boundaries based on the cost-distance from Palatial centers. Networks and geography shed particular light on historical circumstances by showing that the relocation of Orchomenian authority (or at least interest) in the Kopaic Basin toward the end of this period would have disrupted such notions of territory, and was a likely cause of conflict with Thebes. Such a conflict would have happened in the broader contexts of accelerated monumental construction, destruction, and conflict across

the Mycenaean world, which may have represented the over-extension of centralized palatial authority; this was fundamentally rejected after (and probably during) the fall of the palaces. While such interpretations are not *provable* these conclusions are drawn from multiple lines of intersecting evidence to offer fresh and *plausible* explanations for the rise and fall of palatial authority in the Mycenaean world.

The Postpalatial Bronze Age (Chapter 6) was a time of *reorganization* rather than *collapse*. The Mycenaean palatial systems at Orchomenos, Gla, and Thebes fell hard, to be sure, but new social hierarchies formed, and new elites coopted the networks once dominated by the palatial elite. Settlement networks became more distributed and oriented toward the sea, and at the same time became highly interactive, as communities needed to form new links for the purposes of trade, agricultural risk-buffering, and social relations. New centers of particular significance emerged precisely in the places least affected by palatial collapse – central Euboea and East Lokris – though Athens and Iolkos did not seem to experience collapse in the same traumatic way that the Boeotian palaces did. Religious practice took a new direction as rural sanctuaries, such as Kalapodi, became important regional centers that structured relationships between communities. Moreover, the sea loomed larger than ever in daily life, becoming the subject of figural art and a venue for regional and long-distance trade in craft products, especially metals and ceramics. Similar patterns are observed throughout the eastern Mediterranean, as societies and inter-polity relationships were leveled and reorganized following the collapse of other palatial systems in Hatti, Ugarit, and Egypt, leading to increasing enterprise in overseas activity, accessible to wider subsets of the overall population. This period represents a departure from palatial systems, yet at the same time the formation of structures related to sea-faring, peer-polity interaction, and regionally organized religious

practice that would, in some ways, characterize the Greek world from this point forward. Far from being a time of collapse, this was a time of critical and lasting reorganization, in which the Euboean Gulf played a major role, exhibiting little of the decline intimated for other parts of Postpalatial Greece, but rather signaling significant reorganization and expansion.

In the Prehistoric Iron Age (Chapter 7) intersecting dynamics of social complexity are abundantly apparent. The Euboean Gulf retained much of the character it had in the Postpalatial Bronze Age, but there are definite discrepancies between here and other parts of Early Iron Age Greece, where diversity is the rule in terms of social complexity. While parts of the Euboean Gulf were clearly more “advanced” than some other parts of Greece, the “Dark Age” moniker of this period should be cast aside permanently. New technologies and production practices were introduced through and served to create new networks, even as older sets of relations with the eastern Mediterranean intensified. A cyclical pattern is observed where the parts of the Euboean Gulf that were on the rise in the Postpalatial period (central Euboea, Athens, Thessaly) became more centralized, as power relations were articulated through individual networks, which represent aspects of centralization around the bodies of powerful individuals, as shown in the burial record of the privileged. This trajectory is reminiscent of that seen in early Mycenaean society, though of course the material manifestations and end results were quite different. The wider Mediterranean continued on related trajectories, as Phoenicians and people from the Euboean Gulf (mainly Euboeans and Athenians) increasingly overlapped, and Phoenician traders began their expansion westward.

The final period addressed in this dissertation, the Protohistoric Iron Age (Chapter 8), was a dramatic revolution in terms of mobility, media, and the overall character of

social complexity. This was not a renaissance of the Mycenaean world, or cyclical in the sense of coming back to a beginning, but rather a rapid intensification of multi-scalar networks that fundamentally altered the nature of social complexity in the emerging Greek world. Several coincident phenomena contributed to the various types of network intensification seen in this period, all of which had roots in the first half of the eighth century, then exploded in a moment of punctuated equilibrium around the middle of the century. First, the landscape became more crowded as settlement numbers increased dramatically, resulting in the reformulation of small-world networks seen in previous periods. Clearer formations of local identities emerged from this, articulated through habitual interactions and manifest in the rise of local religious practices such as hero-cult. At the same time, regional religious practice continued at inter-community sanctuaries: places of mediation, competition, and convergence. Certain of these grew in importance to become the inter-community hubs *par excellence*, panhellenic sanctuaries. Increased interest in panhellenic identity can be attributed to the intensification of Greek activity overseas, in which Euboeans led the way, but were followed rapidly by others. The first permanent settlements in southern Italy and Sicily, as well as trading activities in the eastern Mediterranean, brought diverse populations that nonetheless shared “Greek” beliefs, practices, and language, into increasing contact with non-Greeks, whose differences reinforced the commonalities with groups that were culturally and geographically closer. At the same time that networks of interaction and identity were being renegotiated on local, regional, and panhellenic scales, a media revolution occurred, out of which the Greek alphabet spread quickly, along with a resurgence in particular types of images – figural and narrative art. These innovations in semiotic

systems also affected notions of identity, as they spread almost hierarchically through the Euboean Gulf, Greece, and into the wider Mediterranean.

The Protohistoric Iron Age was the first period to see networks across the Mediterranean sustained by permanent settlements and habitual interactions with culturally diverse populations. The result was a reconceptualization of various types of identity, manifest locally and regionally in scribal expressions of epichoric alphabets or styles of Geometric painting, and on regional and interregional scales in competitive dedications at sanctuaries. In this way multiple types of social phenomena, and interactions on multiple scales, come together to demonstrate how some of the most fundamental changes in Mediterranean history come to a head in the eighth century BCE. Even so, the very networks that formed within and came out of the Euboean Gulf (mainly central Euboea) resulted in the eventual obsolescence of this region in these networks, as new hubs emerged in subsequent periods.

One of the fundamental contributions of this dissertation is to show how the dynamics of social complexity flow within particular societies and geographies, mainly the Greek populations living around the Euboean Gulf, and intersect with other such dynamic processes, such as those operating in the eastern and central Mediterranean. The study of such interactions on multiple scales requires one to draw upon datasets that are diverse and difficult, but the result presents a coherent narrative of how and why such complexities are relevant to social change. Yet such a picture is far from complete, and could be meaningfully supplemented by a variety of future work.

Future Directions in the Euboean Gulf

The dynamics of social complexity discussed here are only a snapshot of how networks can be applied to the study of the early Mediterranean, in terms of both geographical and temporal scales. Chronologically, this period was selected as one that was formative for the Mediterranean, and represented the build-up and apex of the involvement of the Euboean Gulf in the wider world at this critical time. Equally relevant and instructive breadth could be sought on all sides of this project, chronologically and geographically. Tracing networks and patterns in the dynamics of social complexity could be applied in meaningful ways to periods of the Euboean Gulf's history both earlier and later than those dealt with in this dissertation. Manika remains a lingering giant in the Early Bronze Age, recognized for its size, long-distance connections, and unique settlement organization, yet it remains to be articulated *how* this site relates to its local, regional, and long-distance settings. Moreover, it remains to be explained *why* its importance wanes in the Middle and Late Bronze Age. On the other side of the chronology of this project, nascent *poleis* develop in tandem and diversify, as Athens, Thebes, Eretria, and Chalkis pursue paths to complexity that are similar, yet ultimately different in scope and scale. Meanwhile, Thessaly, Phokis, and East Lokris exist "on the margins of the polis world" (Morgan 2003: 2), though are categorically no less complex or interactive than the *poleis* that rise around the central and southern Euboean Gulf. The diverse and interactive trajectories seen throughout the Archaic and Classical periods and later are fascinating studies in and of themselves, let alone in terms of long-term cycles. In this same vein, the relevance of such an approach extends well beyond antiquity, most notably to Byzantine, Venetian, and Ottoman preoccupations with the Euboean Gulf.

In widening the geographical scope, the immediate draw is to apply the methods of local and regional analysis applied here to other nodes and hubs in the trans-Mediterranean networks dealt with here. These have been treated in passing (e.g., for Phoenicia and Italy), though a more in-depth analysis would serve to better explain, rather than simply describe the network changes in these regions, which had an undeniable impact on the Euboean Gulf.

Moving from long-term trends and broad geographical scales to more specific issues, there are major ways forward for local and regional research in the regions discussed here. This dissertation has brought together a large amount of archaeological evidence derived from very different types of investigations, from rescue digs to long-term excavations, to regional surveys conducted with a wide variety of methods and aims. While a variety of intensive survey work has been undertaken in Boeotia (indeed it is one of the crucibles of modern survey archaeology), little of this type of work has been conducted in Attica, Euboea, East Lokris, or Thessaly. Systematic regional efforts in any of these areas would help to better articulate our understandings of local and regional archaeological landscapes, in ways that could add nuance to and supplement the large-scale analysis presented here. One area of particular interest for further work is central Euboea. While this area has long been of archaeological interest, and Lefkandi and Eretria have both been subject to long-term excavation projects, there is much we do not know about the region, in particular the Lelantine Plain. Intensive regional survey in this area could help to elucidate the dynamics of small-scale settlement in this crucial region, which has been an important agricultural resource from prehistory to the present, and whose landscapes were contested at various points in history. Other contested landscapes, such as those on the borders of Attica and Boeotia are also well worth further

consideration. The area between Aliveri and Modern Kyme is another region of particular interest, as a corridor between the Aegean and Euboean Gulf that was intensely networked through time.

Finally, in an increasingly digital age, we find ourselves in a new phase of regional analysis, which makes use of increasingly large and diverse datasets. Various manifestations of this type of work have appeared for Boeotia (Farinetti 2010), East Lokris (Kramer Hajos 2008), parts of Euboea (Fachard 2012), and Attica (Fachard 2013). With the advent of online GIS and other interactive data-sharing, storing, and analysis mechanisms, there is a great opportunity for the types of integrative approaches advanced in this dissertation. For Late Bronze Age and Early Iron Age Greece Murray (2013) has made a major step forward in this direction. For central Greece, Sylvian Fachard and I are in the process of putting together an online GIS database for central Greece, though this necessarily depends on a certain amount of source criticism, collaboration with other scholars, foreign schools, and local archaeological authorities. It is hoped that such efforts can come to fruition in the near future.

Broader Implications

Beyond the specific conclusions reached in this dissertation there are several broader implications with respect to the study of complex societies. The first and most obvious are in method and theoretical framework. The combination of abstract, multi-scalar networks and geographical realities is a clear way forward for the study of interaction, complexity, and social change. More specifically, such perspectives might be applied in similar geographical circumstances to those found in the Euboean Gulf.

Around the Mediterranean there are several locations that offer such geographies, which

have also served as maritime conduits for social interaction through time. These areas offer the unique combination of landscape and seascape, where passage through is afforded only by a relatively narrow channel. So while these function as “choke points” for human interaction, they also open up into much wider worlds on either side, often characterized by very different micro-ecologies, human geographies, and opportunities.

Two clear examples of such places of confluence are the Hellespont and Bosphorus, which connect the Aegean to the Sea of Marmara and the Black Sea. The significance of these conduits is apparent in discussions of Troy and the foundation of Greek settlements in the Black Sea in the Archaic period, but could benefit from the diachronic network perspective adopted here, which aims to identify linkages and diversity, all in an interactive and dynamic framework.

Perhaps the most obvious example is the Corinthian Gulf. In some ways, this part of Greece picks up temporally where the Euboean Gulf left off. Corinth has a trajectory in the seventh century that is nearly parallel to that of central Euboea in the eighth. Its involvement in colonial foundations, interactions with the eastern Mediterranean, and pottery production is prolific. Indeed, the intersection between the networks and the dynamics of social complexity in the Euboean Gulf and the Corinthian Gulf would seem to complement each other quite well. It may even be the case that the waning importance of Euboea in the seventh century central Mediterranean is precisely because of the growing commercial interests of Corinth. This city-state was able to coopt networks related to both commercial trade with the central Mediterranean and increasing activity on the part of western Greeks in the vicinity of the Corinthian Gulf, which afforded direct access to the panhellenic sanctuaries of Delphi, Isthmia, and Nemea, and very near access to Olympia.

The final set of broader implications for this dissertation, mentioned only briefly here, involves cross-cultural comparisons. These have been integrated where appropriate, but often eschewed in the examination of the specific circumstances of relevance to the Euboean Gulf. However, there is much potential for a comparative project on how societies respond to consolidation, collapse, upheaval, and reorganization. Other Mediterranean societies of the Late Bronze Age and Early Iron Age invite immediate comparison. Social complexity in Cyprus, the Levant, Egypt, Etruria, Sicily, and Sardinia must be considered in light of a broader Mediterranean context. Yet completely unrelated societies also exhibit similar trajectories to those seen here. The Maya collapse and its aftermath is a prime example, where decentralization, increased interaction, competition, conflict, and travel (much even sea-going) provides an inviting parallel for the patterns observed in the Euboean Gulf (and broader eastern Mediterranean) in the early first millennium BCE. There are thus broader implications for the study of palatial, courtly societies as dynamic, yet inherently unstable, social phenomena that go through cycles of collapse, reorganization, and re-emergence in complex ways.

* * * * *

The conclusions presented here summarize the results and implications of the work presented in this dissertation. Inevitably there are things that have been overlooked and underplayed, both in these conclusions and in the seven individual chapters (2-8) which make up the substantive contribution of this project. Throughout this dissertation, I have attempted to show how disciplinary, geographical, and material convergences work to produce nuanced and original understandings of the past. This dissertation has been about complexity, though ultimately is an exercise in simplification. In such an exercise specificity is at times sacrificed for scope, and detail can be lost in attempts to see the

forest through the trees. Yet it is precisely the “big picture” grappled with here that can result in the identification of long-term trends across large geographical areas. I have emphasized these trends in this final chapter, and at the same time have aimed to propose multiple directions for further work and suggested broader implications for the study of complex societies both within the Mediterranean and further afield. To return to Braudel (quoted on p. 1), it is movements, relations, and routes that work dynamically to unify geographies through space and time, whether in the Euboean Gulf, the Mediterranean, or other lands and seas through which networks great and small have flowed.

FIGURES

Chapter 1 Figures

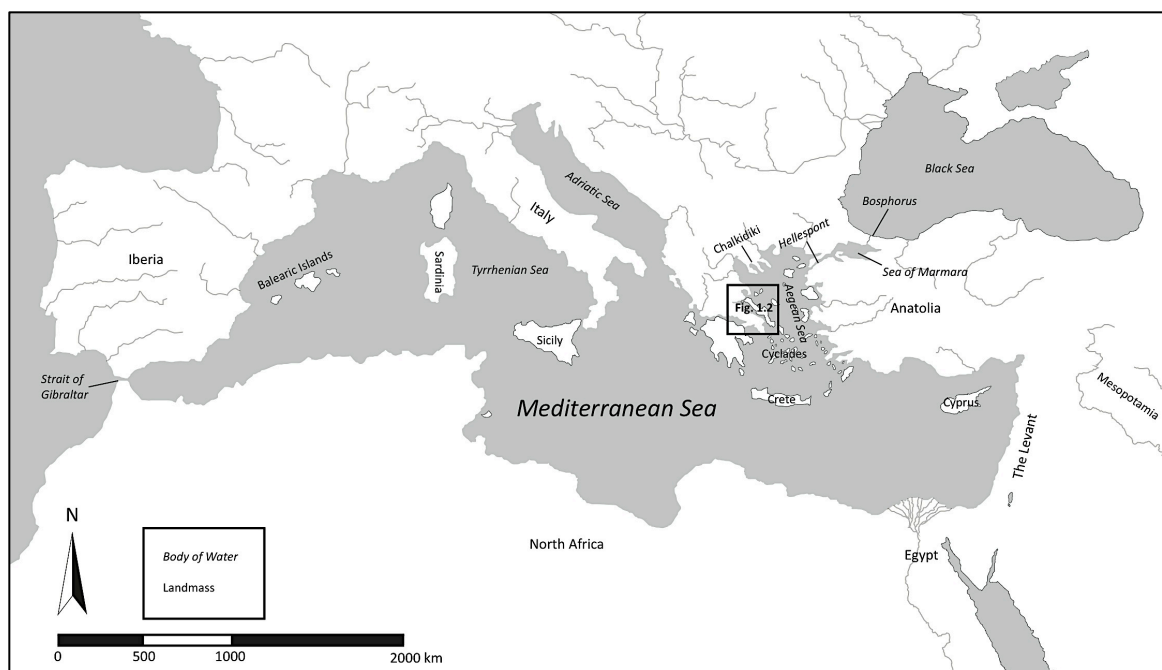


Fig. 1.1 General map of the Mediterranean

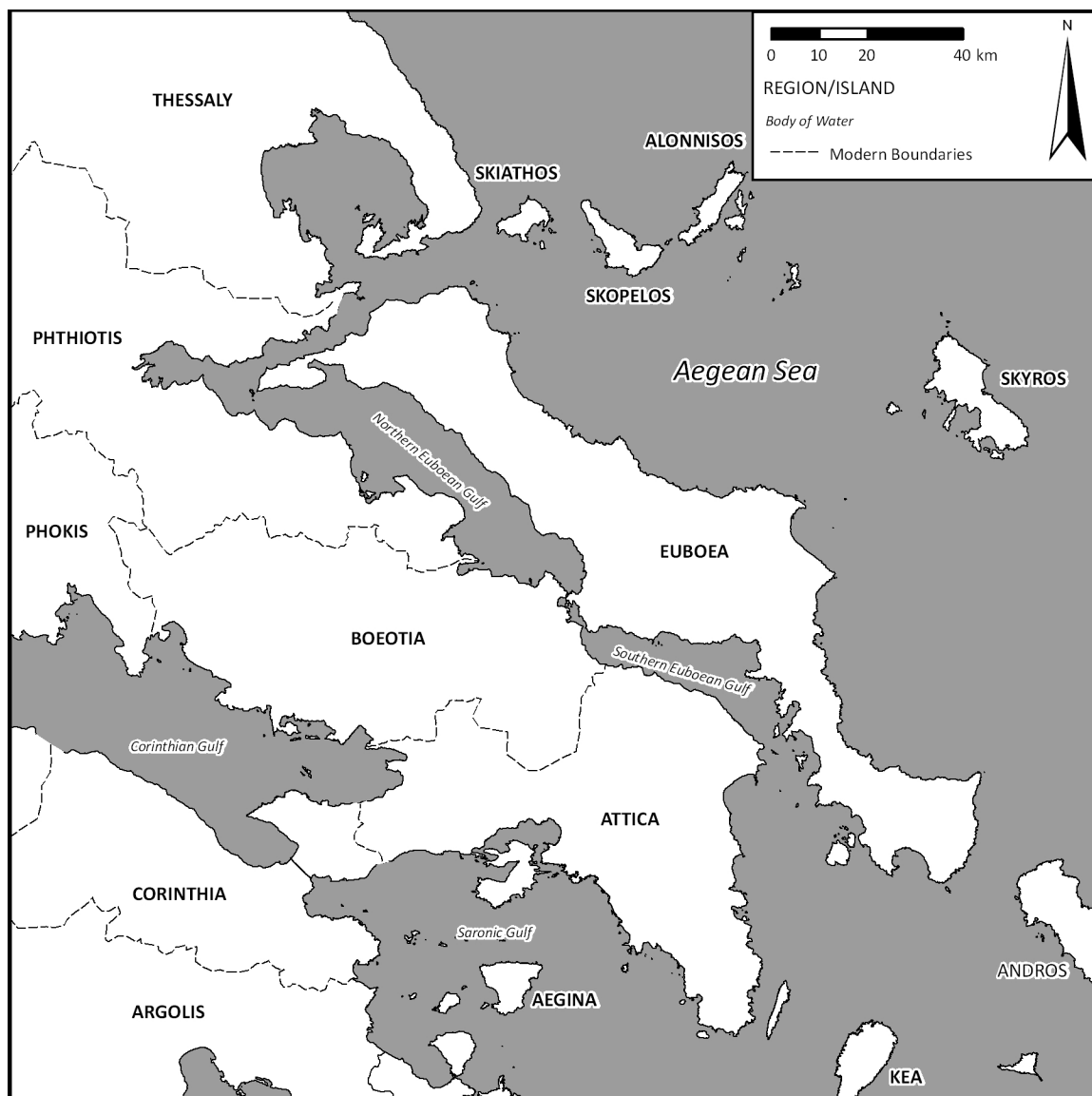


Fig. 1.2 General map of the Euboean Gulf

Chapter 2 Figure

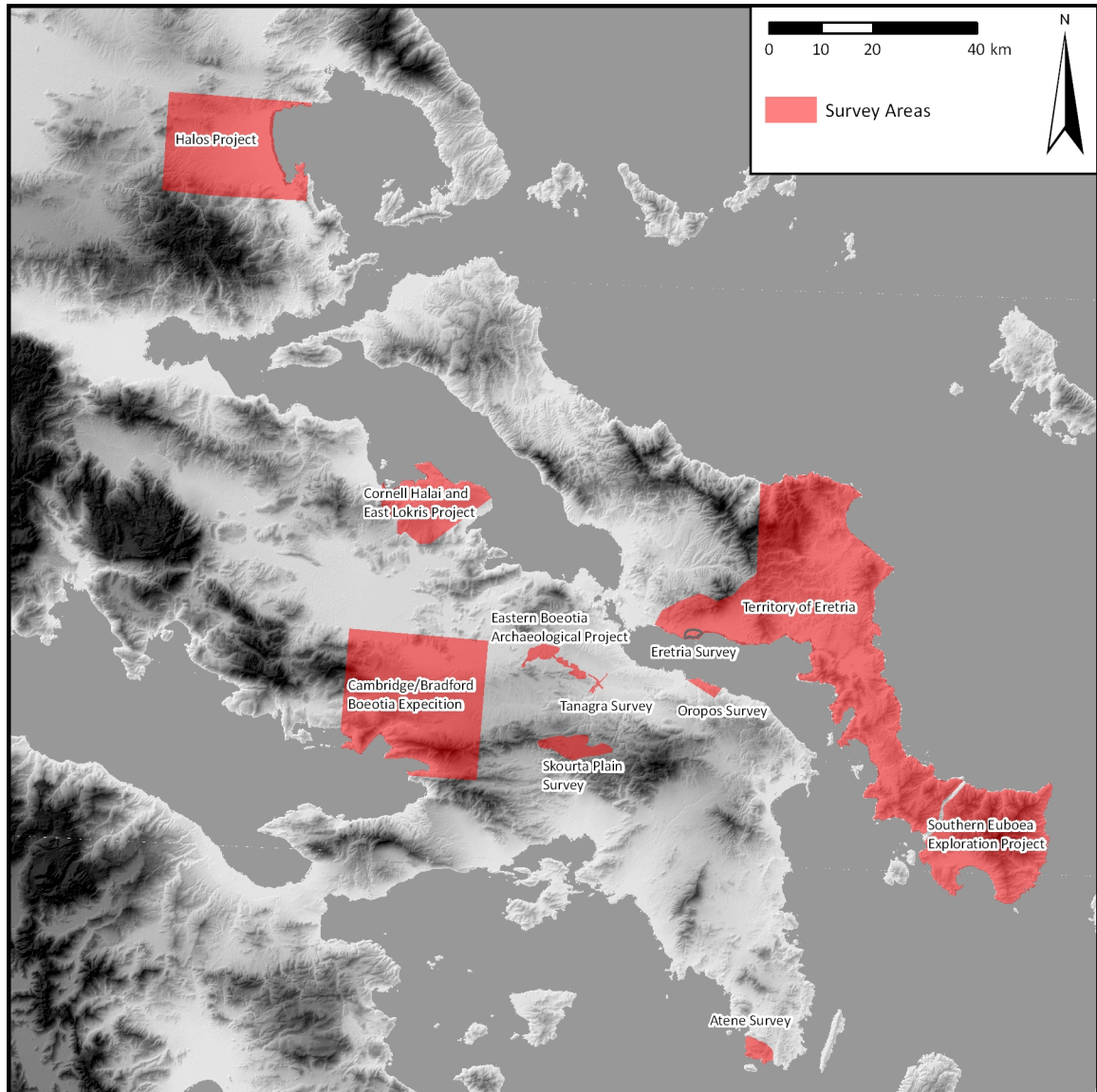


Fig. 2.1 Archaeological surveys conducted around the Euboean Gulf making use of intensive methods, though some combined extensive and intensive (see Table 2.1)

Chapter 3 Figures

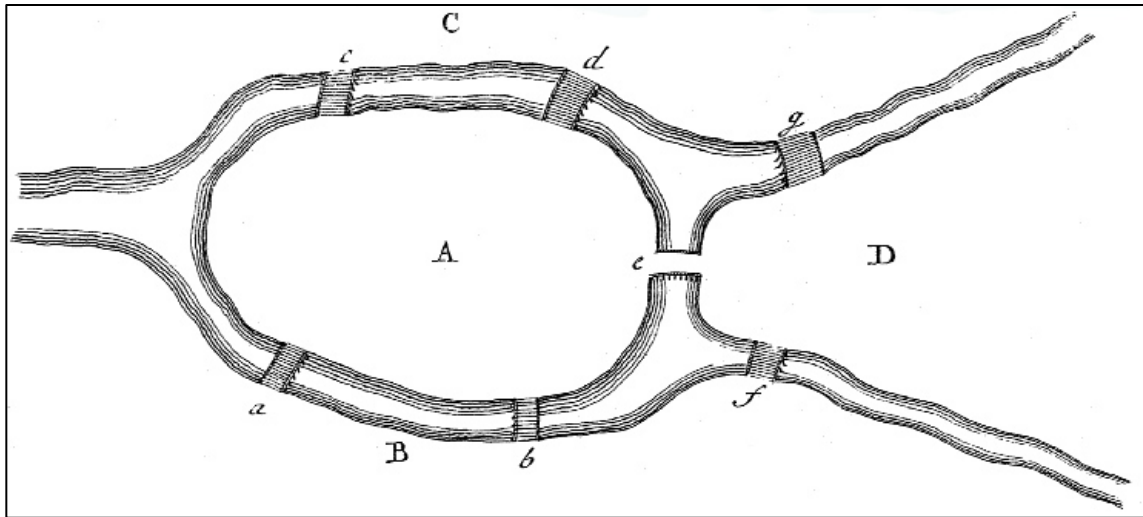


Fig. 3.1 Plan of the Bridges of Königsberg, with four landmasses (nodes A, B, C, and D) and seven bridges (links a, b, c, d, e, f, g) (after Euler 1741: 128)

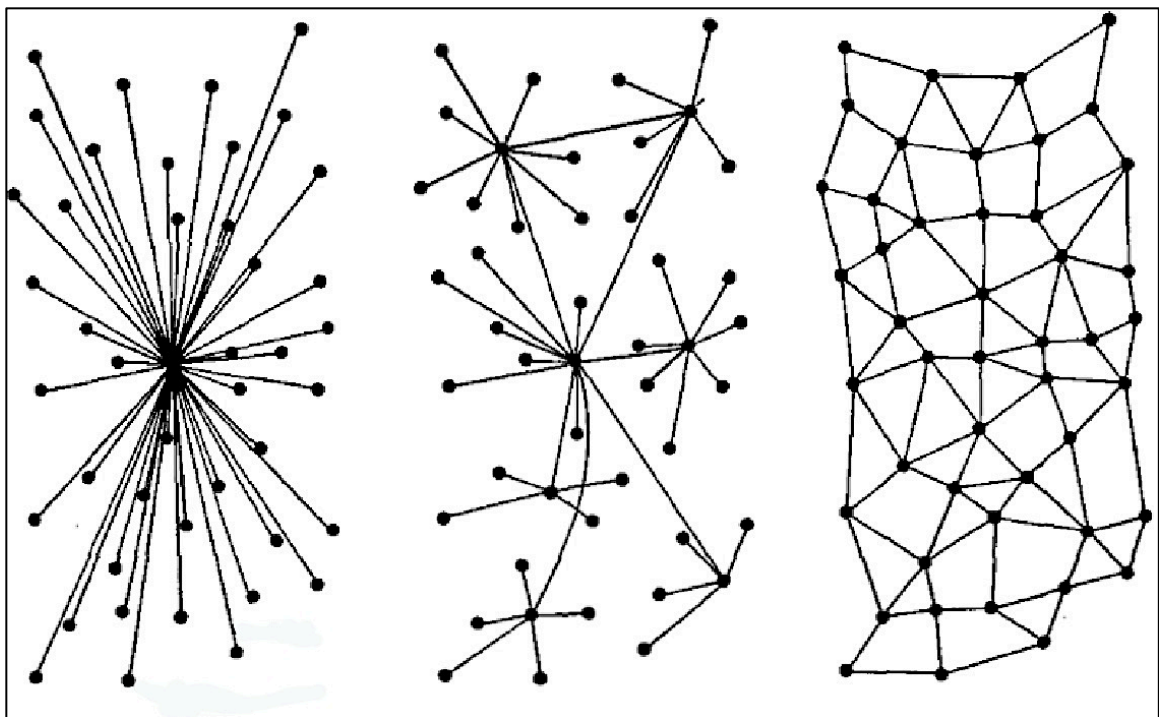


Fig. 3.2 Centralized (left), decentralized (center), and distributed (right) network structures (after Baran 1964: 1)

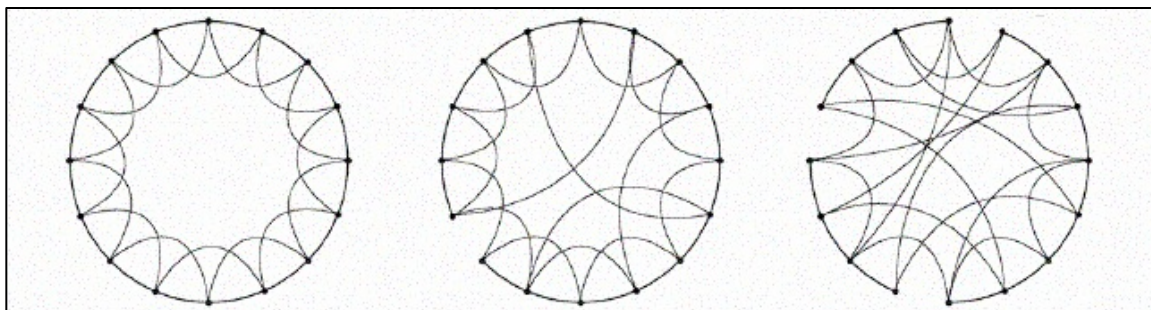


Fig. 3.3 Regular, small-world, and random networks (after Watts and Strogatz 1998: 441)

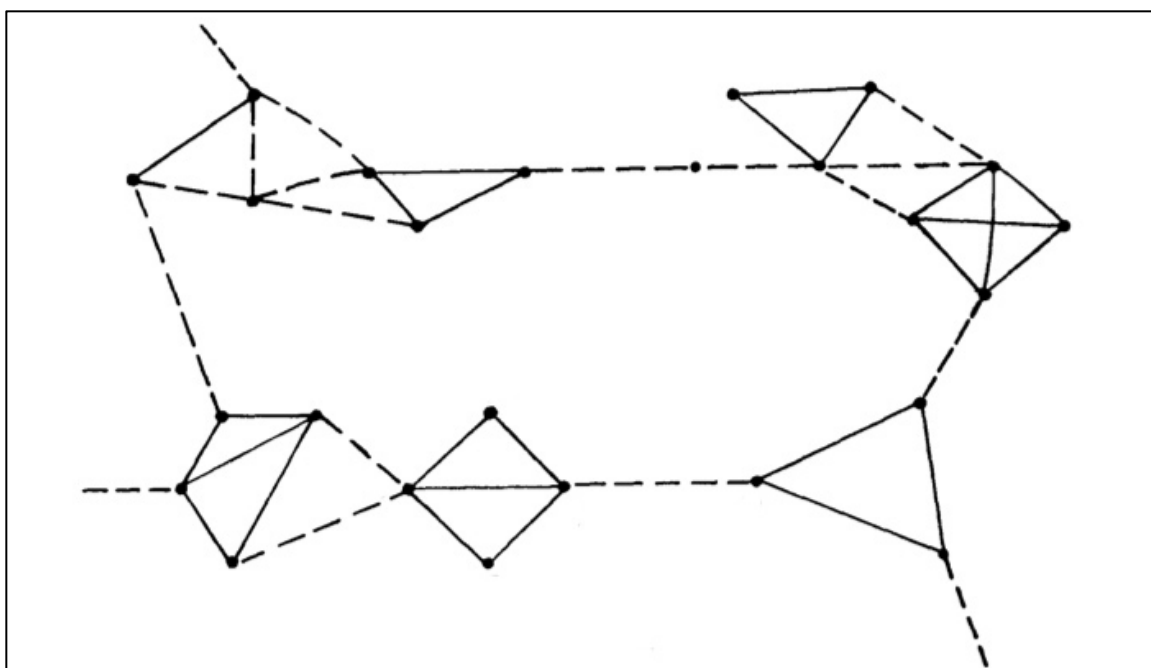


Fig. 3.4 Network pattern showing strong (solid, clustered) and weak (dashed, dispersed) ties (after Granovetter 1973: 1365)

Chapter 4 Figures

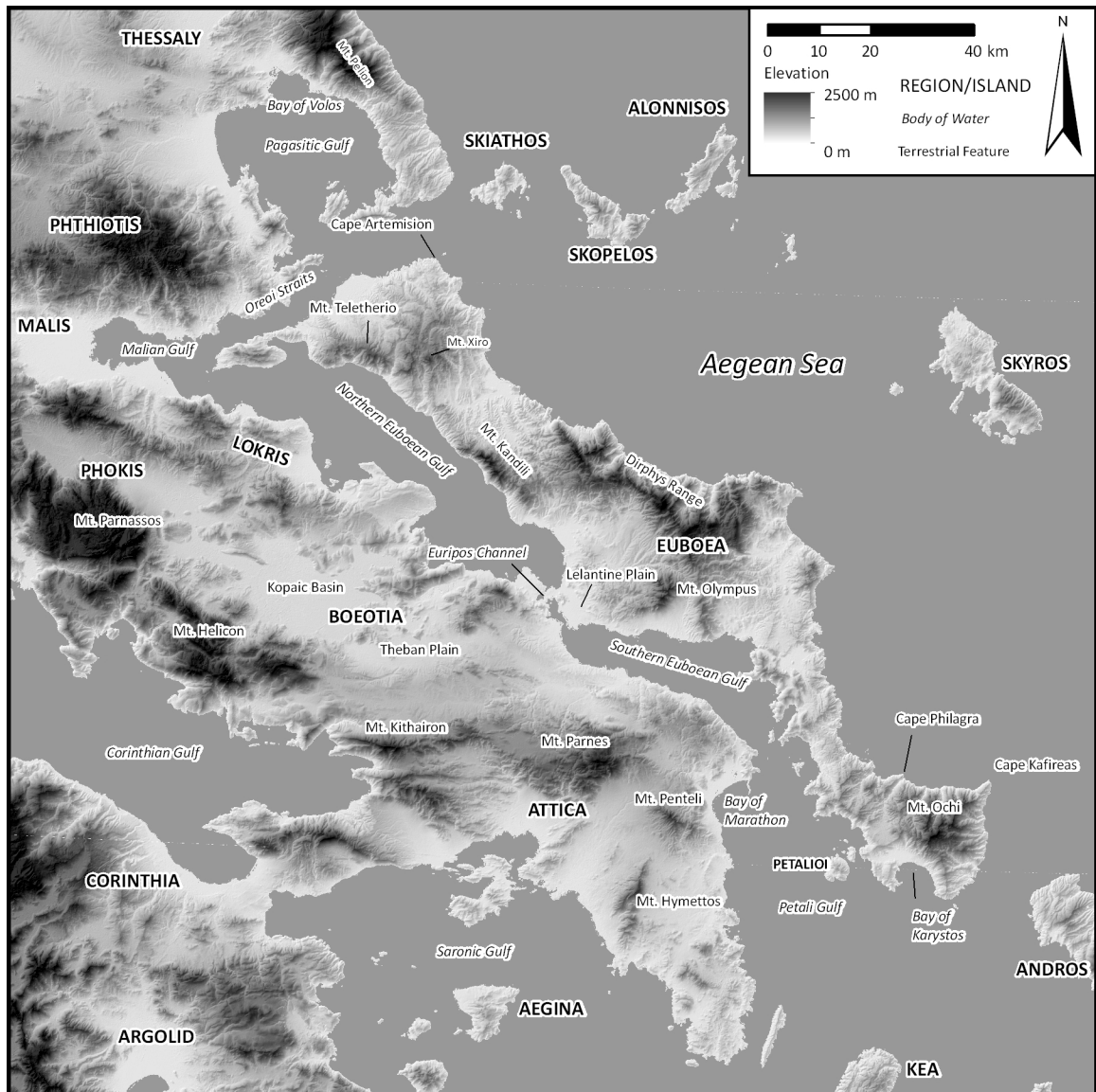


Fig. 4.1 Map of the Euboean Gulf with principal geographical features

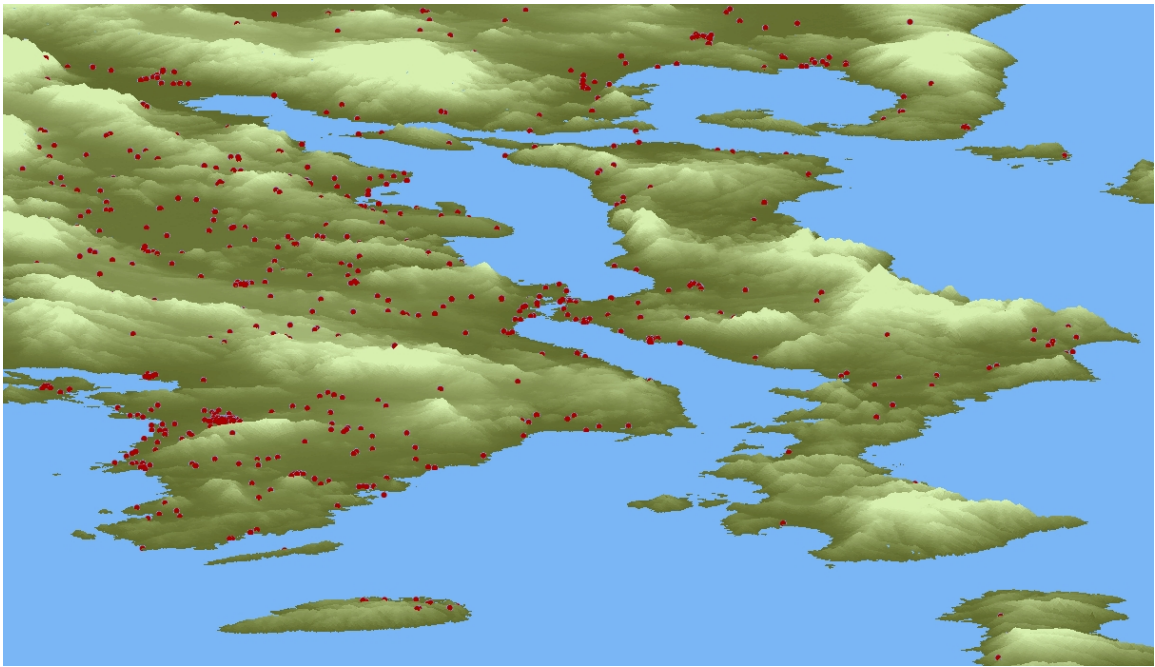


Fig. 4.2 Three-dimensional model of the Euboean Gulf, indicating topography and sites of all periods (Palatial Bronze Age to Protohistoric Iron Age)



Fig. 4.4 View across the Euboean Gulf, looking south over the acropolis and harbor of Eretria, with the Boeotian coast and Oropos in the distance

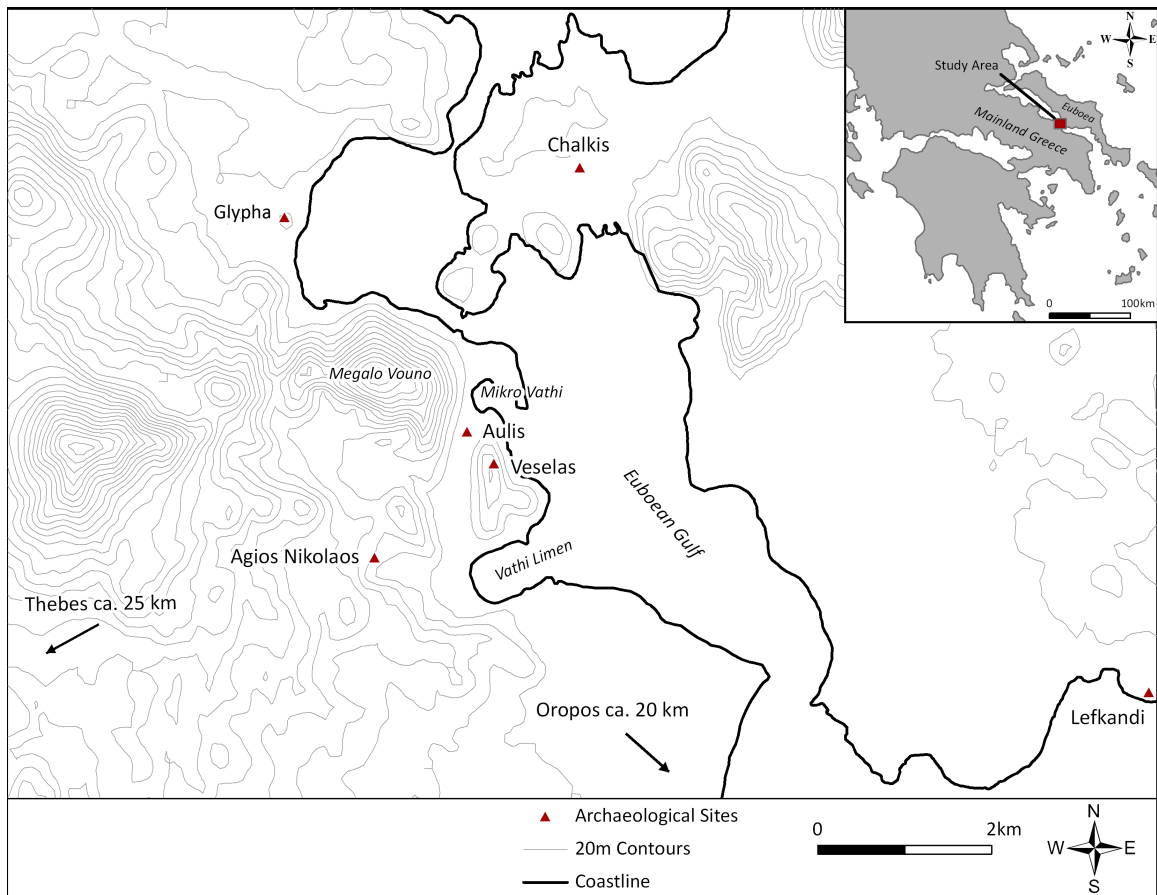


Fig. 4.5 Aulis and environs



Fig. 4.6 Current bridge spanning the Euripos at Chalkis

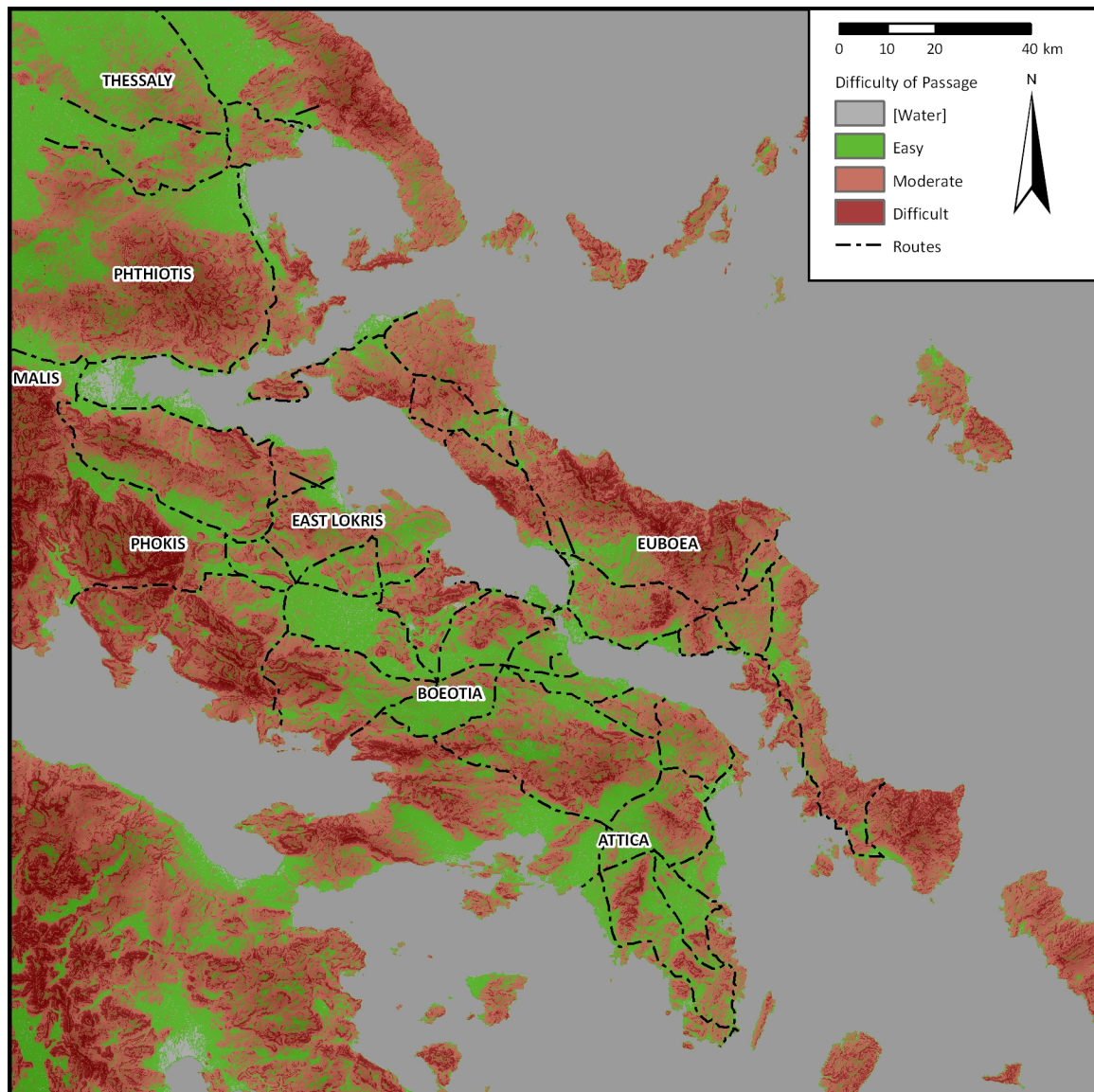


Fig. 4.7 Transportation corridors in the regions surrounding the Euboean Gulf, indicating cost of passage across the landscape and major land routes

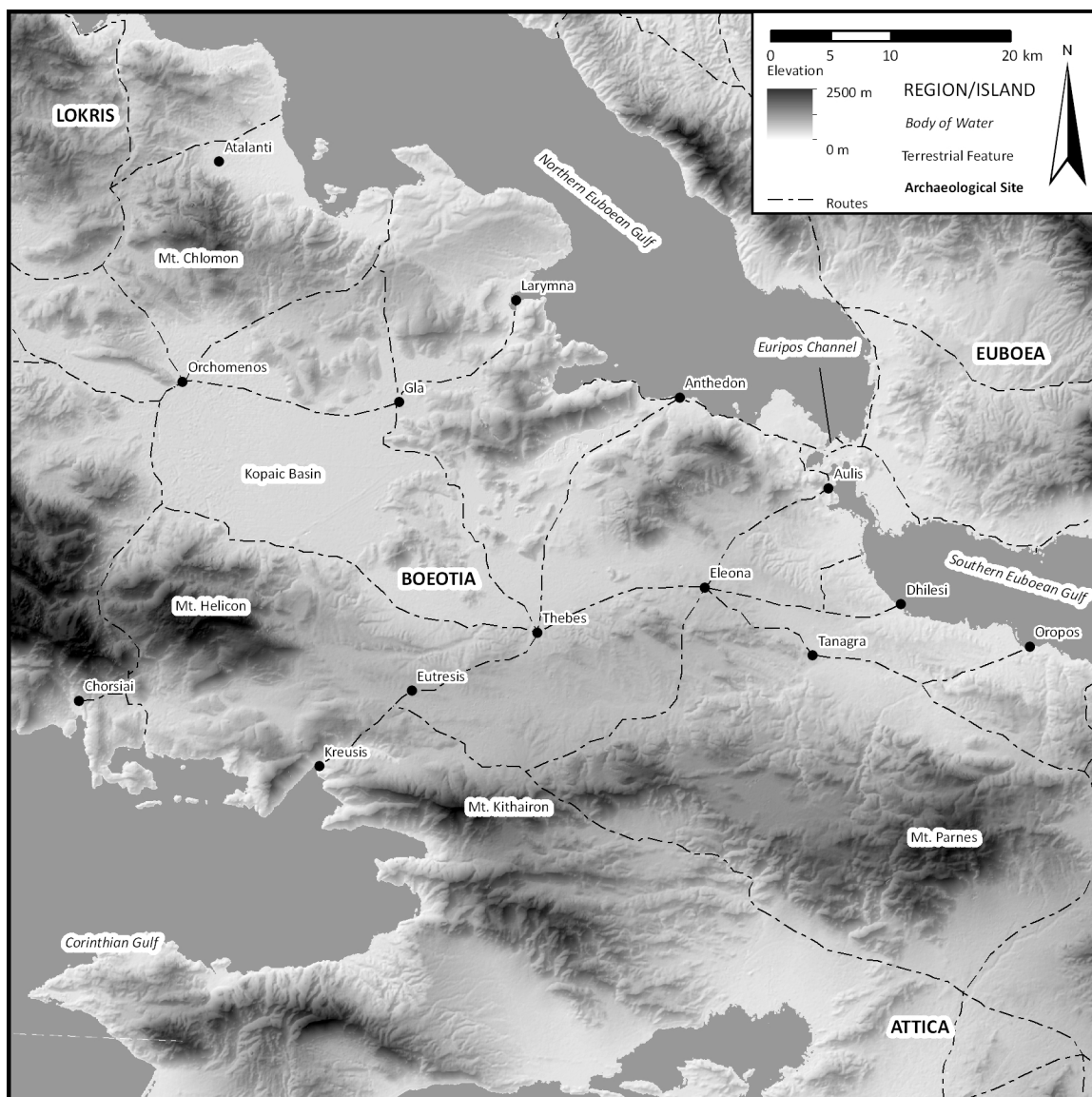


Fig. 4.8 Land routes, prominent sites, and topographic features in Boeotia

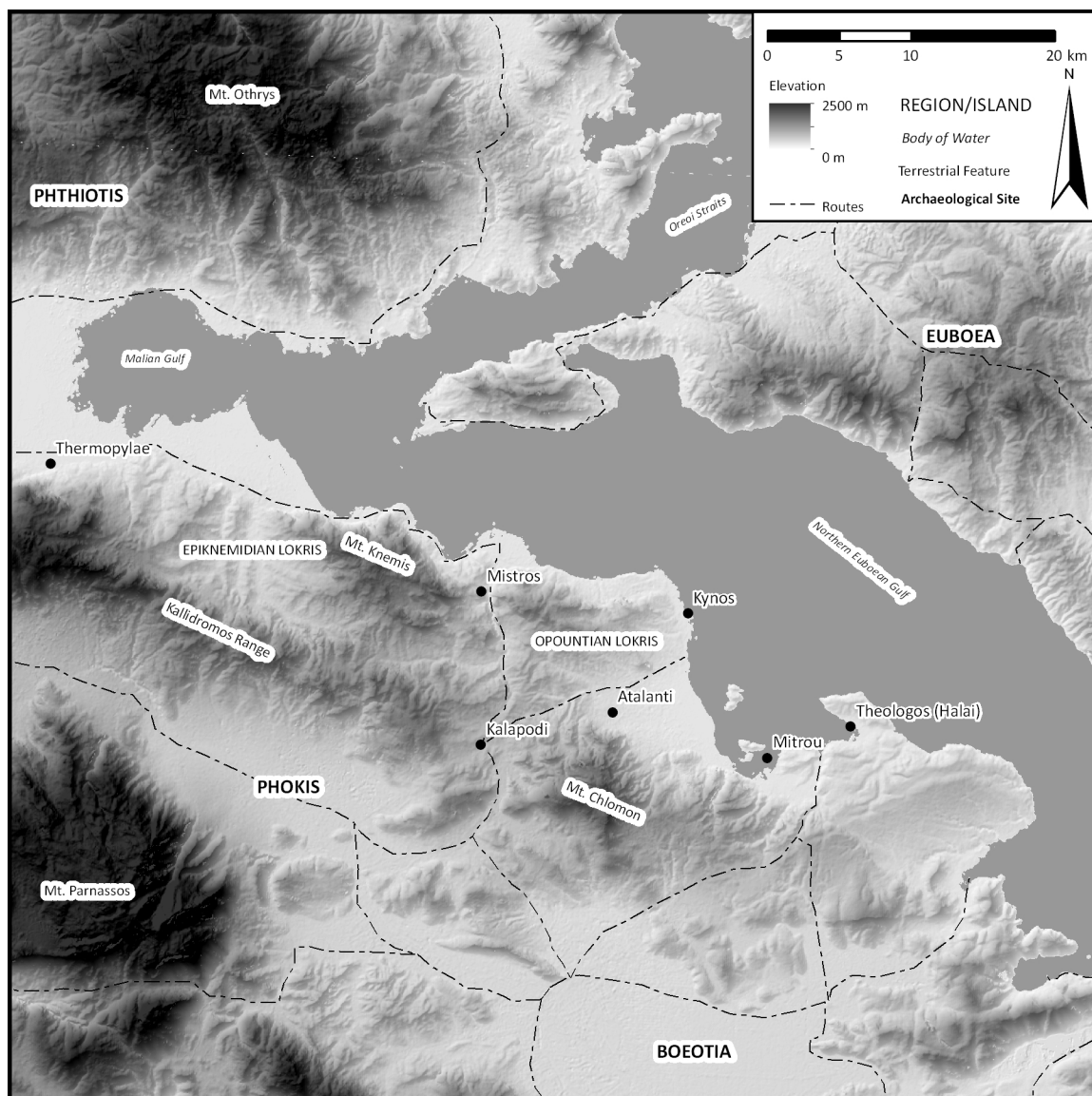


Fig. 4.9 Land routes, prominent sites, and topographic features in East Lokris

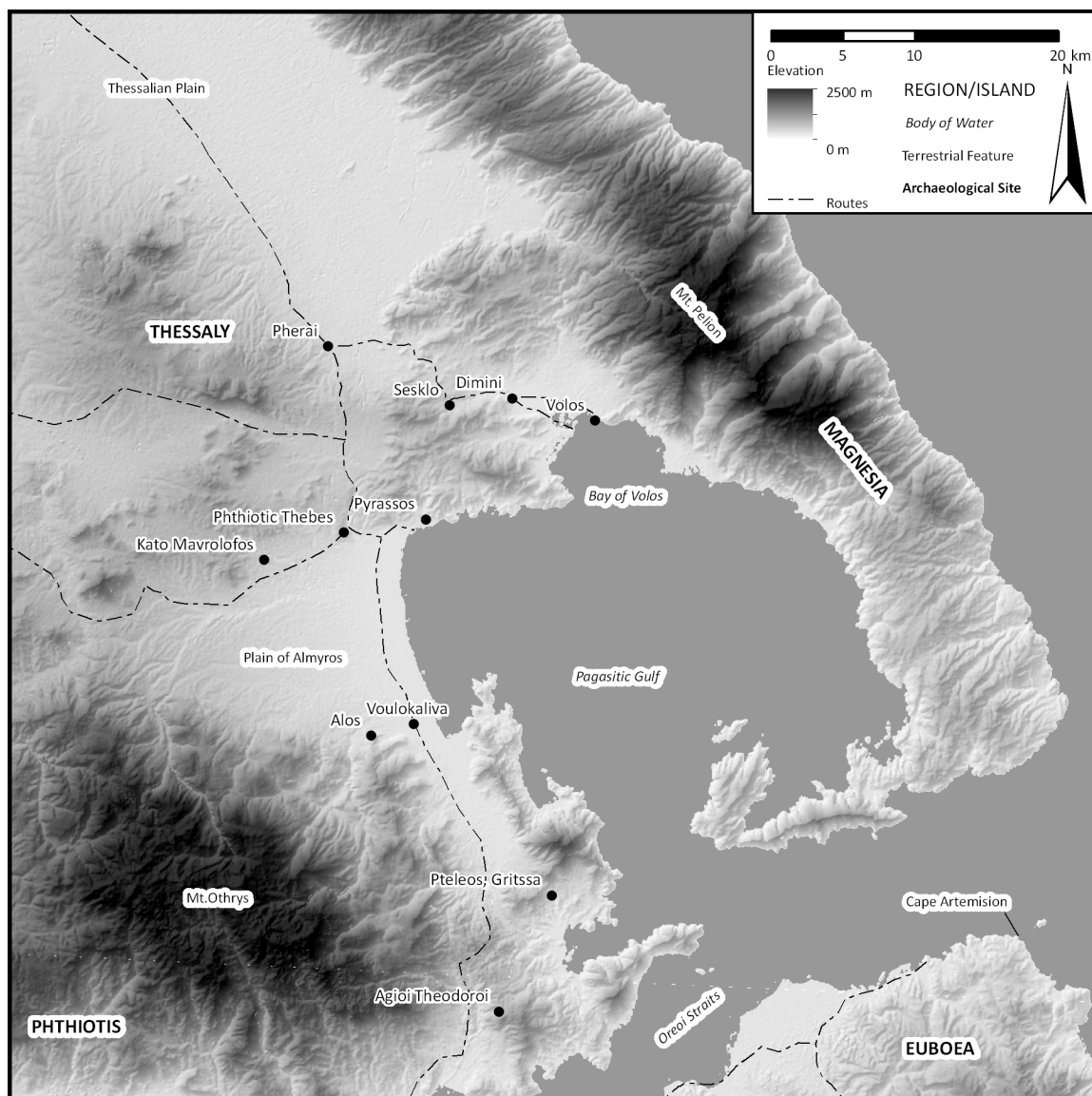


Fig. 4.10 Land routes, prominent sites, and topographic features in southern Thessaly

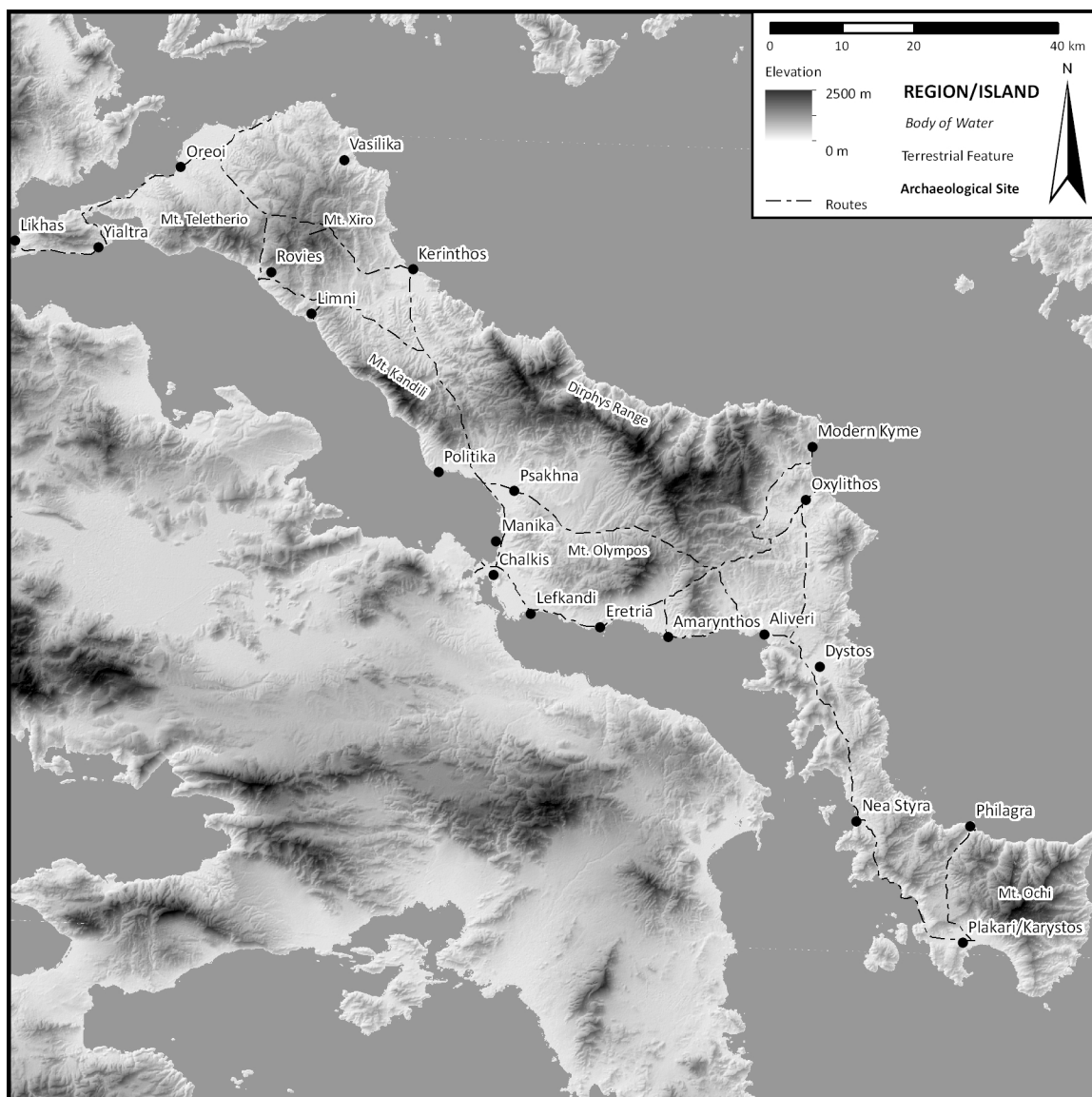


Fig. 4.11 Land routes, prominent sites, and topographic features in Euboea

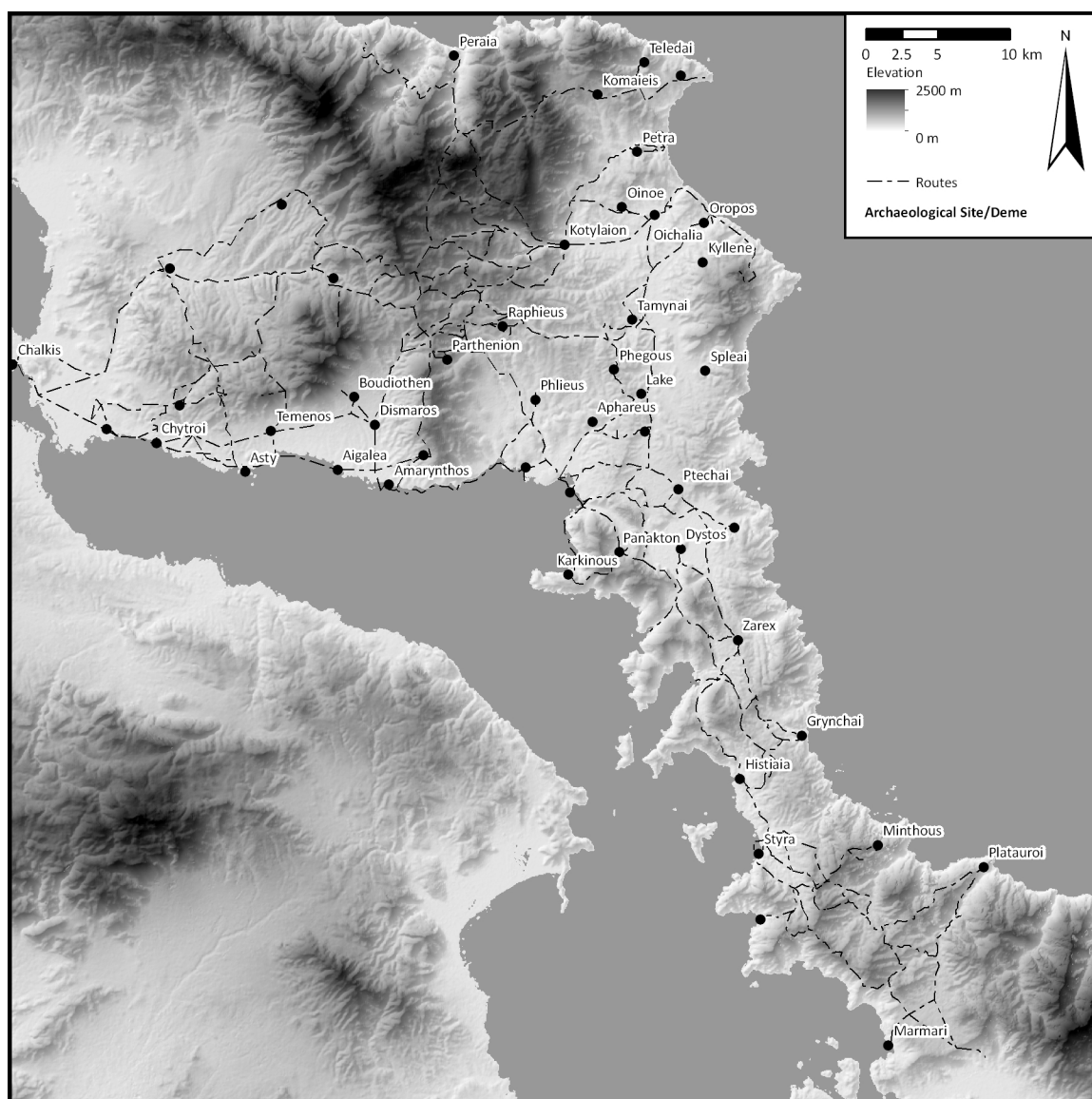


Fig. 4.12 Land routes between demes and other sites in the Eretriad (after Fachard 2012: 96-98)

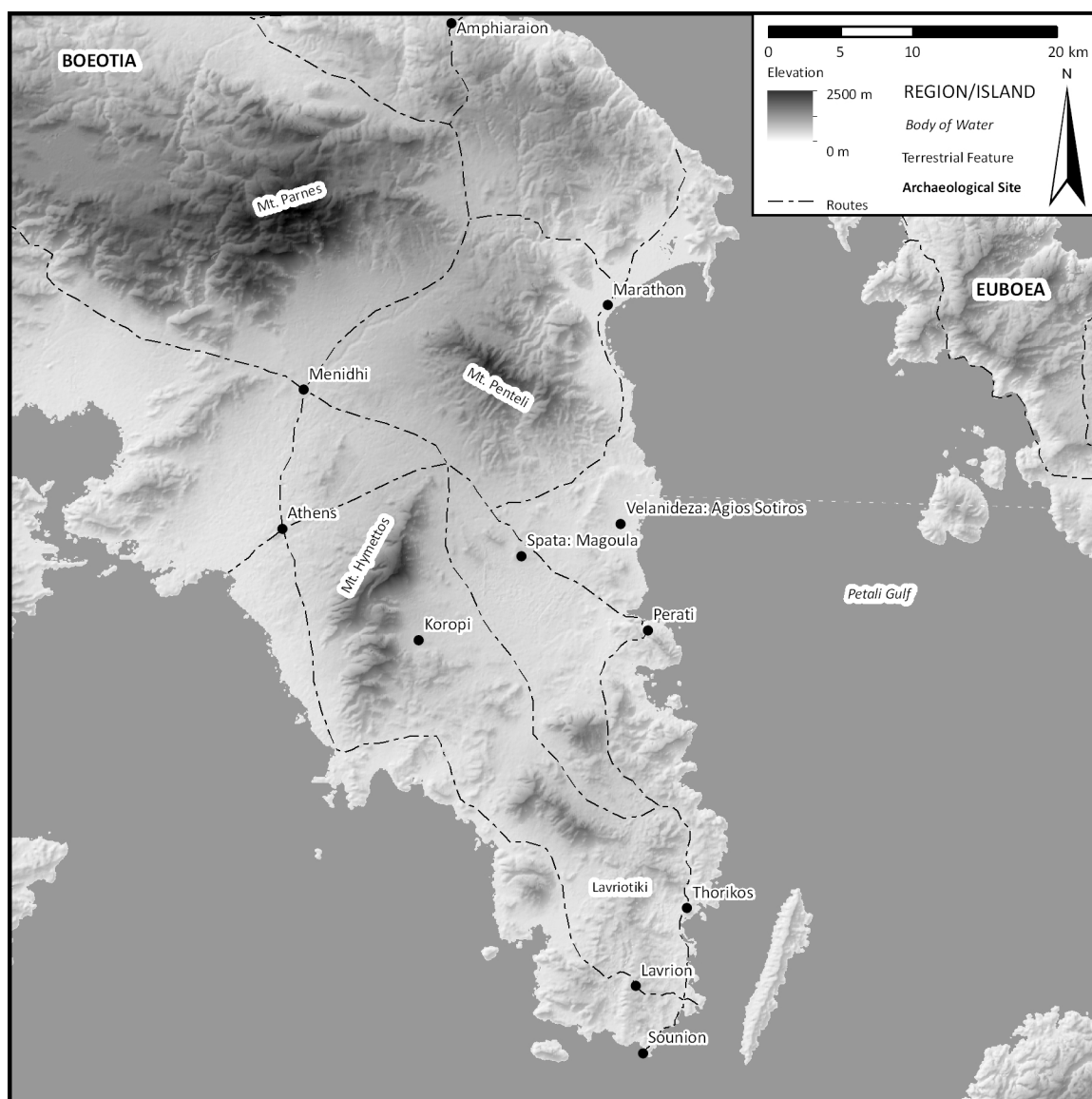


Fig. 4.13 Land routes, prominent sites, and topographic features in Attica

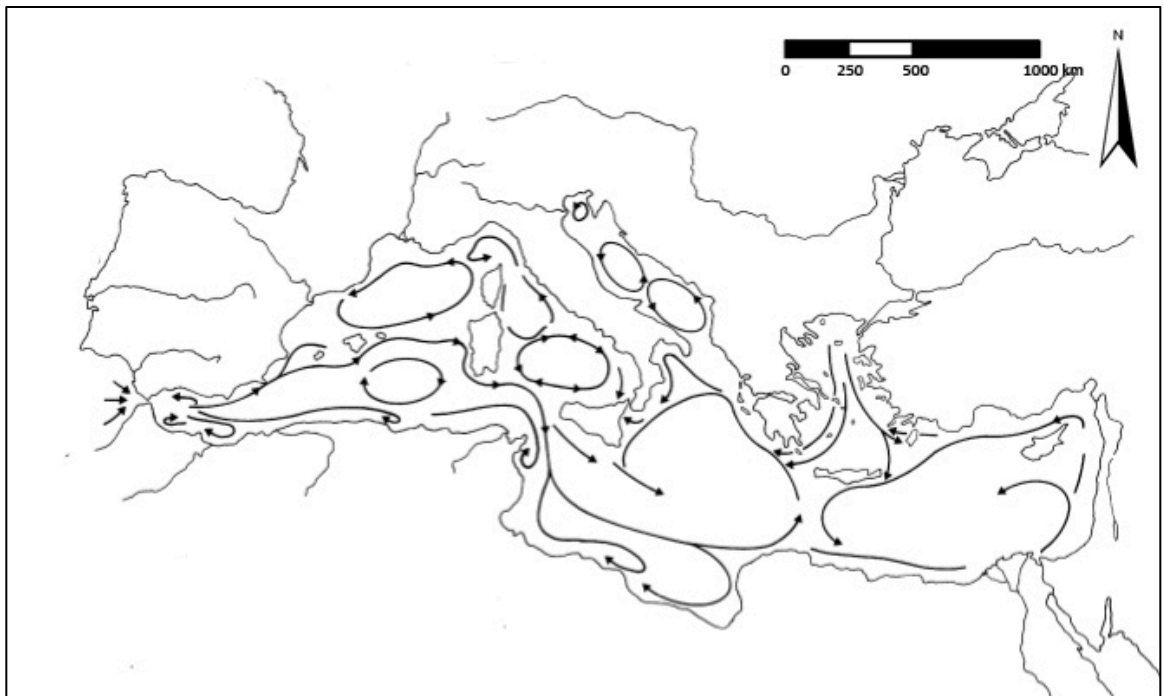


Fig. 4.14 Mediterranean currents (after Agouridis 1997: 4)

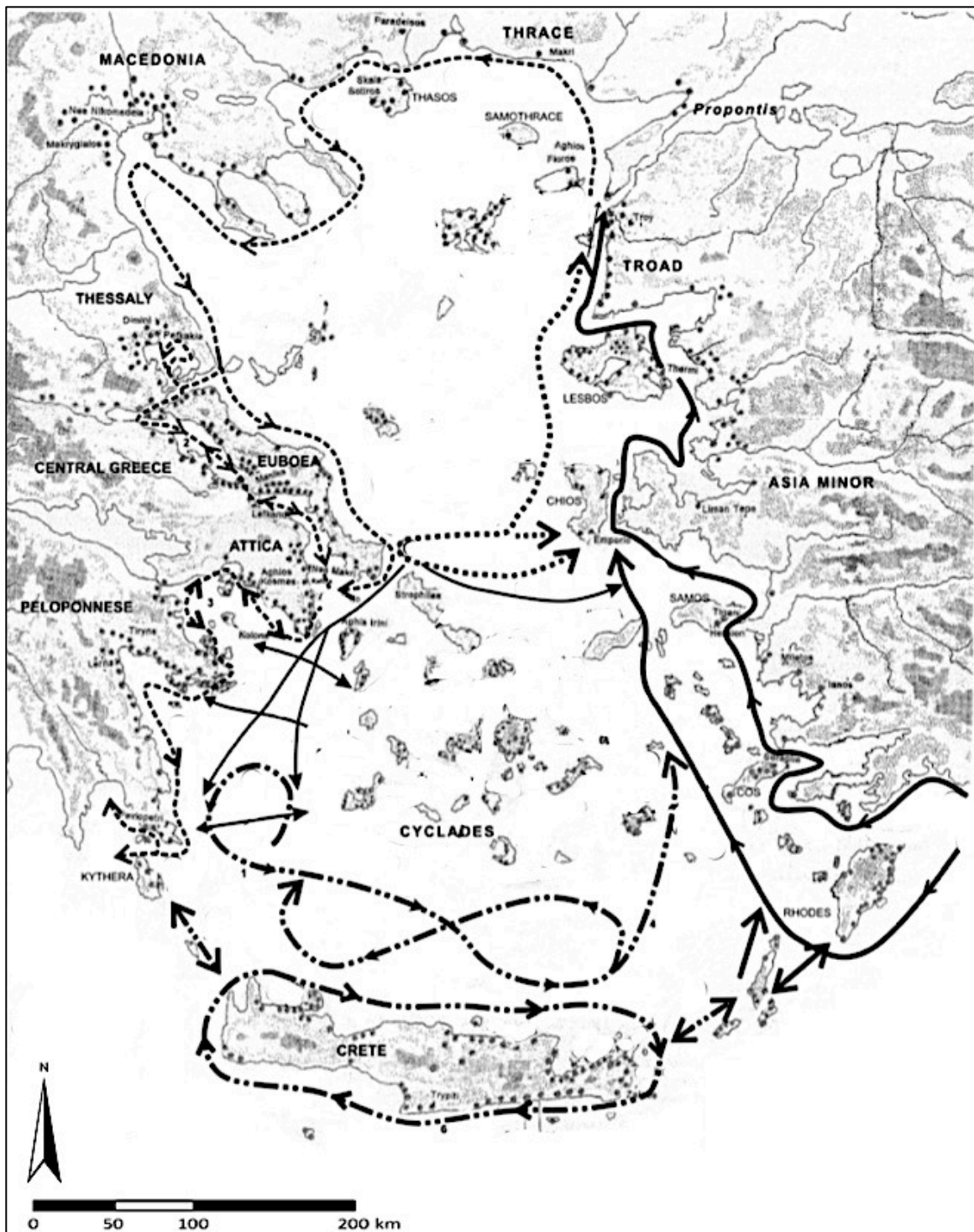


Fig. 4.15 Aegean sea routes (after Papageorgiou 2008: 2010 [simplified to indicate only major routes])

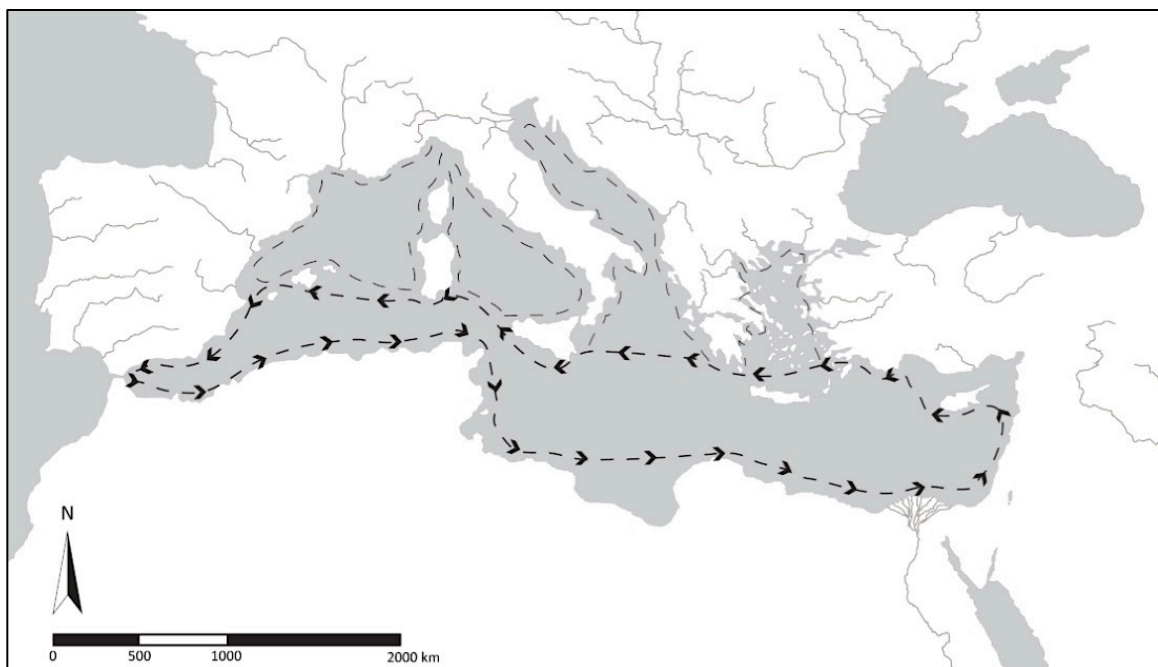


Fig. 4.16 Mediterranean sea routes, showing general paths (within sight of land) and dominant directional trends for long-distance travel (after Aubet 2001: 169, 188)

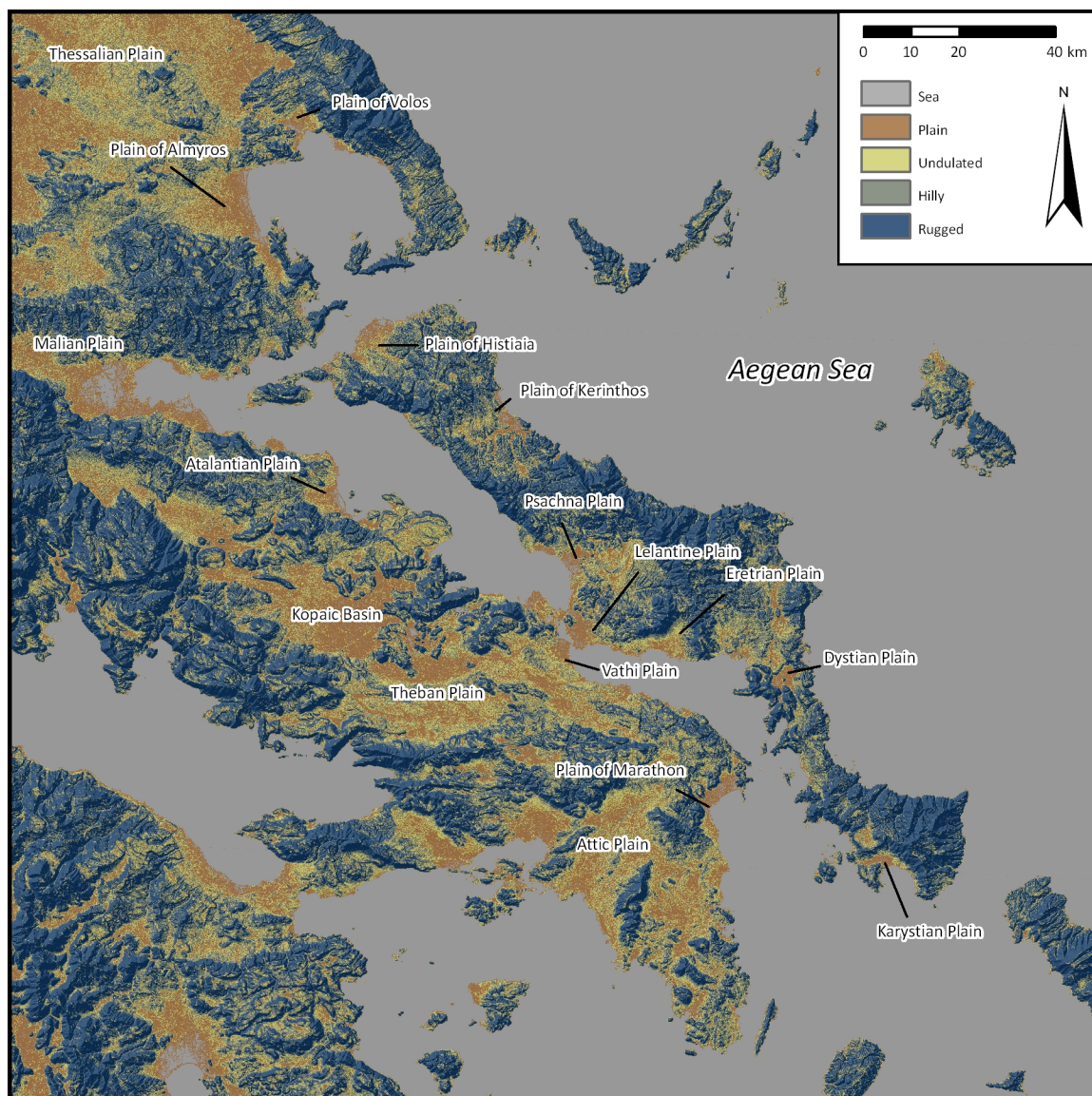


Fig. 4.17 Slope-based model of agriculturally viable land in central Greece

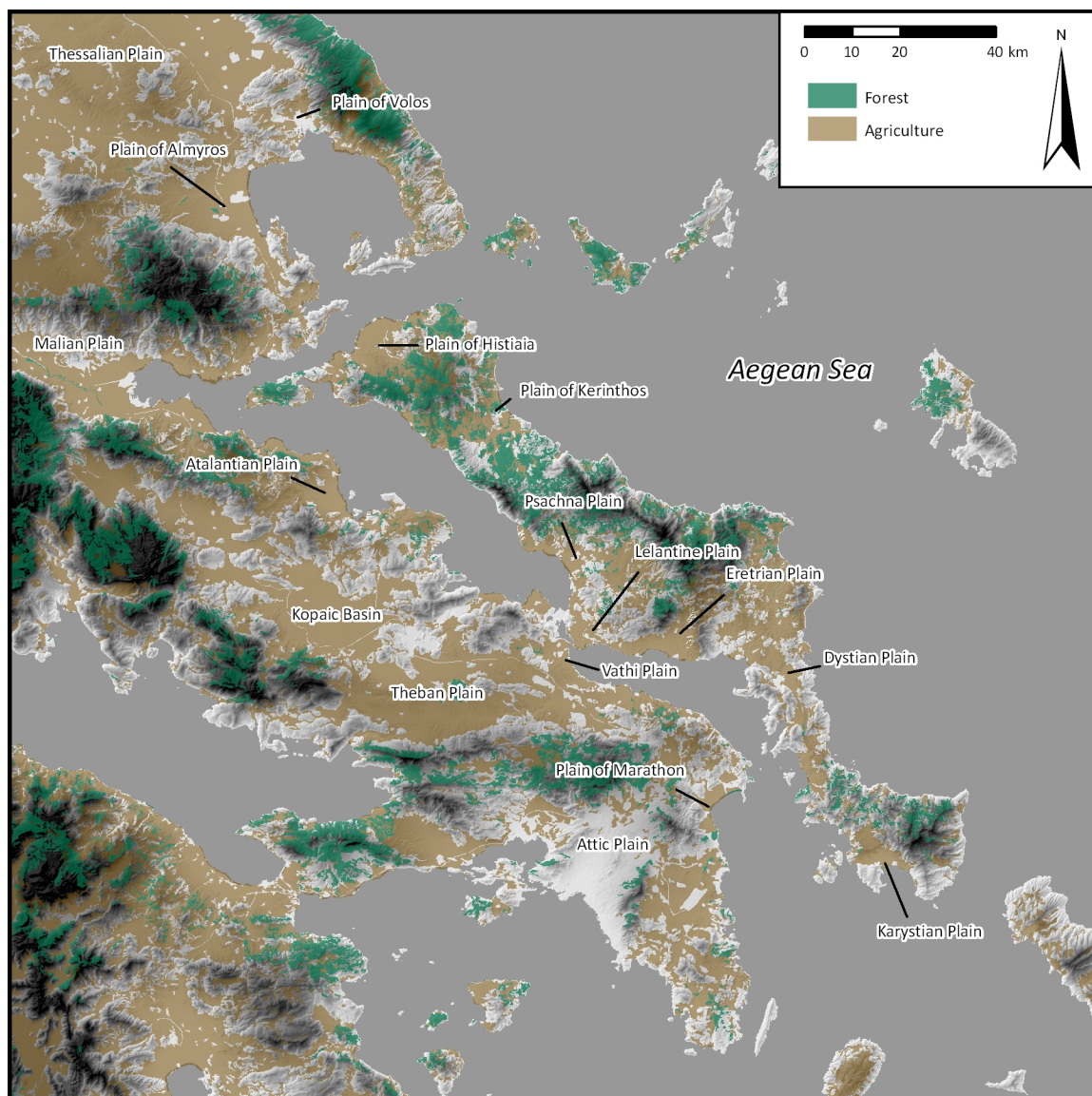


Fig. 4.18 Modern land use in central Greece

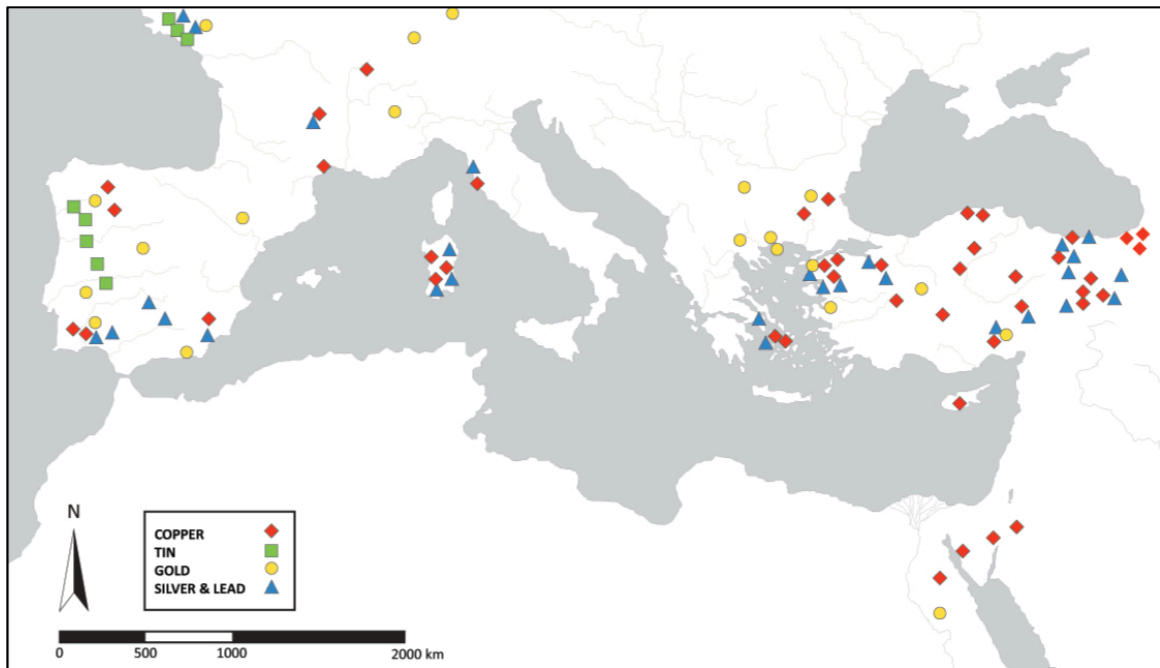


Fig. 4.19 Principal ore deposits around the Mediterranean (after Kassianidou and Knapp 2005: 219)

Chapter 5 Figures

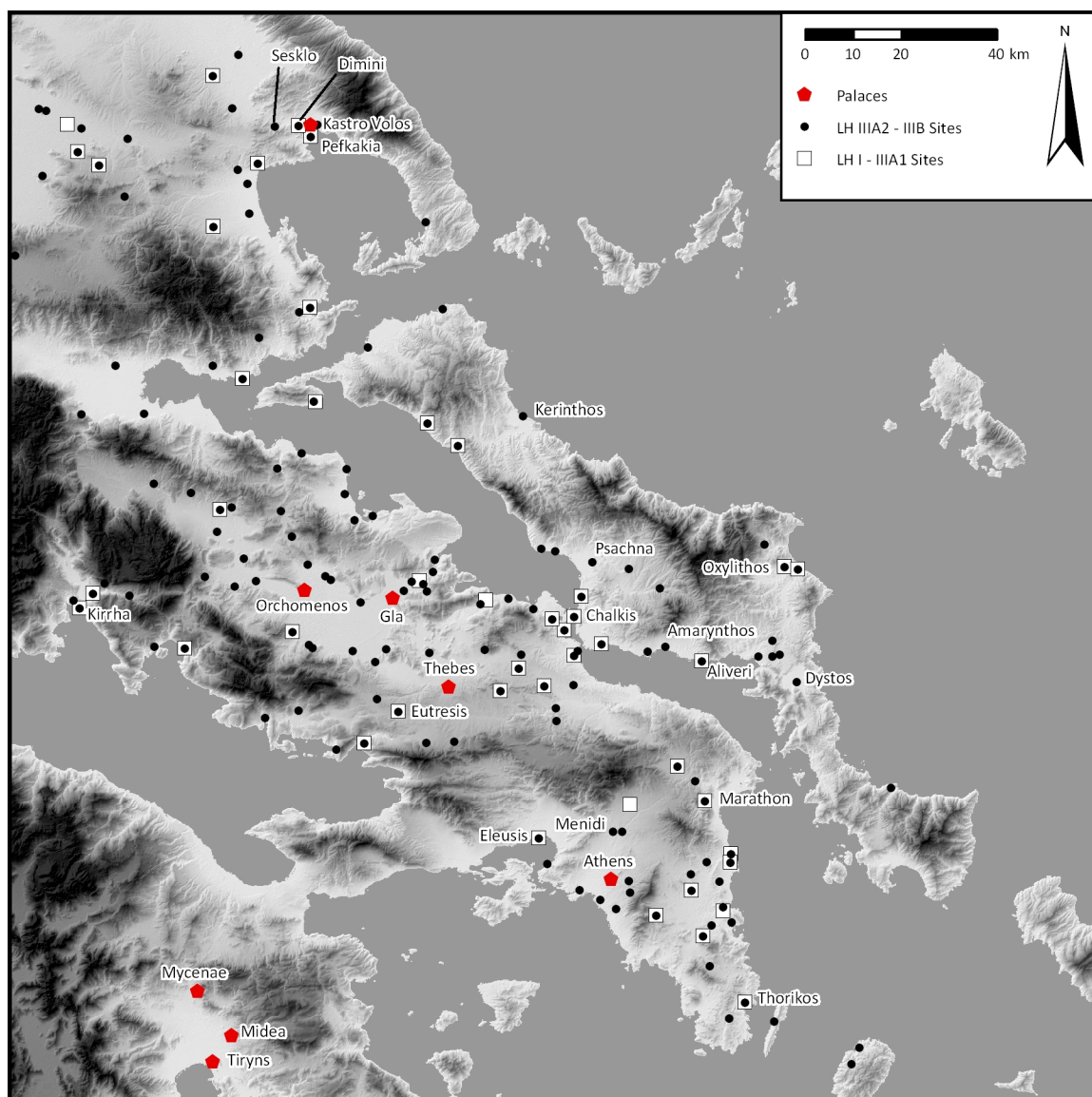


Fig. 5.1 Distribution of LH I-III A1 sites and LH III A2-III B sites, with labels for sites mentioned in the text

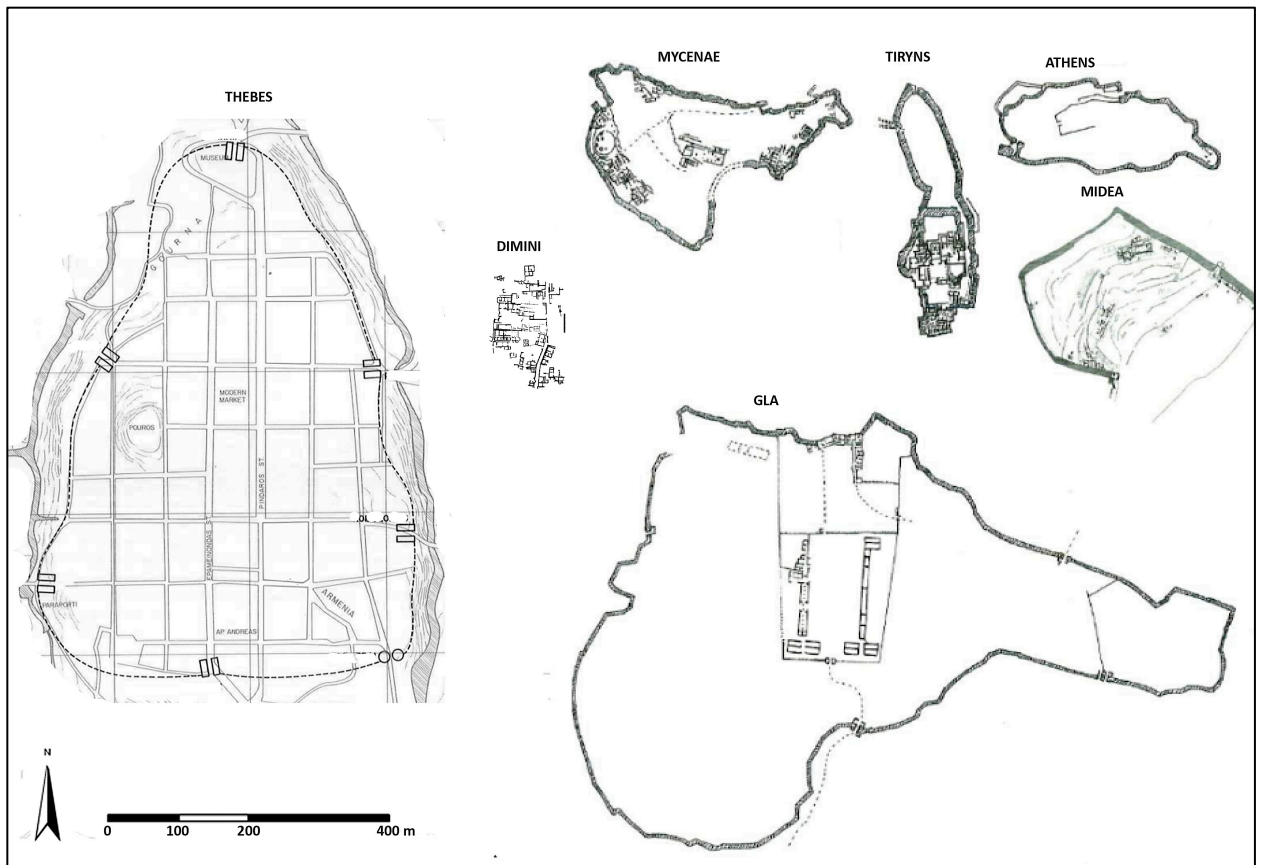


Fig. 5.2 Comparative size of LBA Mycenaean citadels (after Hope Simpson and Hagel 2006: Fig. 2; Adrimi-Sismani 2007: 162; Symeonoglou 1985: 33)

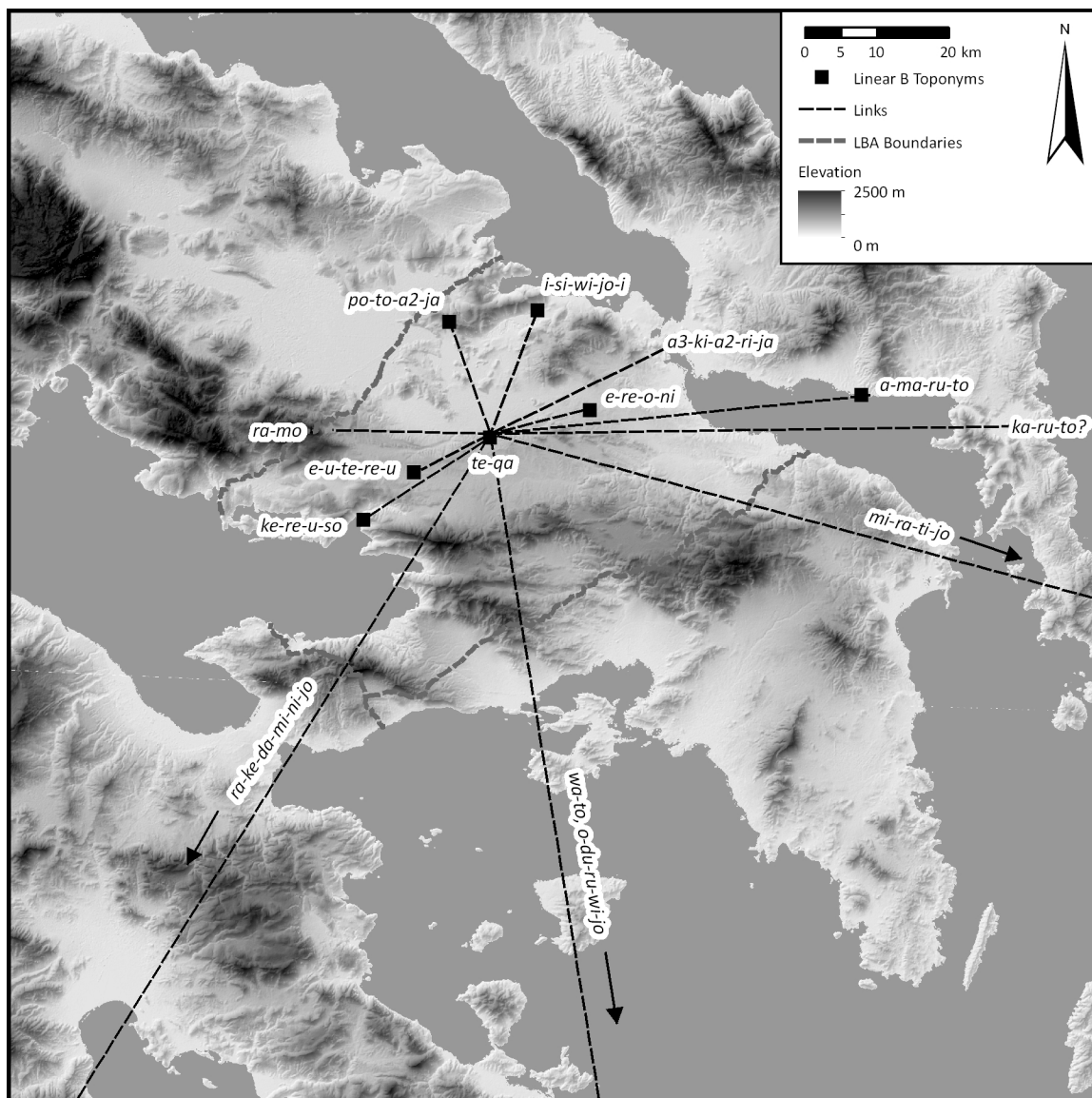


Fig. 5.3 Network of Thebes and its Linear B connections, with territorial allocation marked; definite locations marked with points, likely locations with labels only

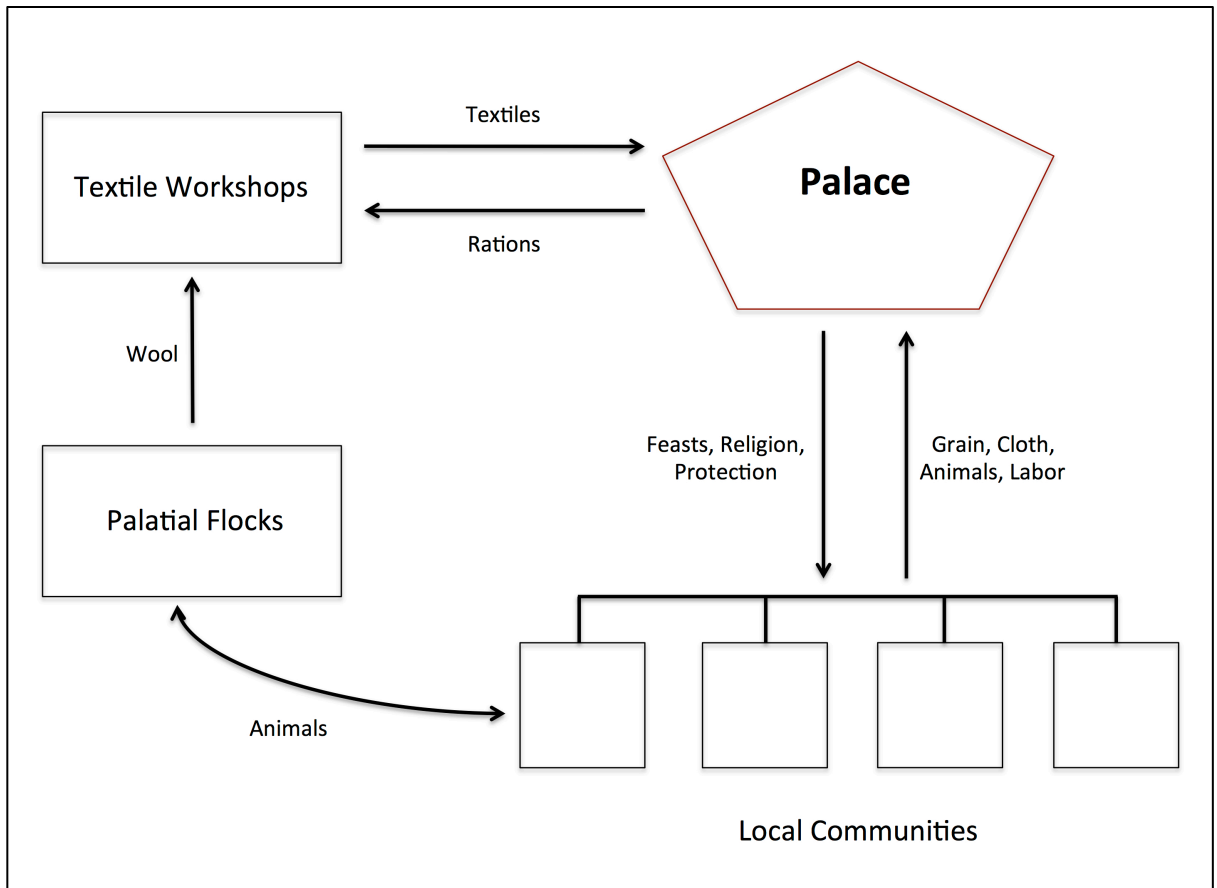


Fig. 5.4 Connected aspects of agricultural production (adapted from Nakassis *et al.* 2011: 182, Fig. 4)

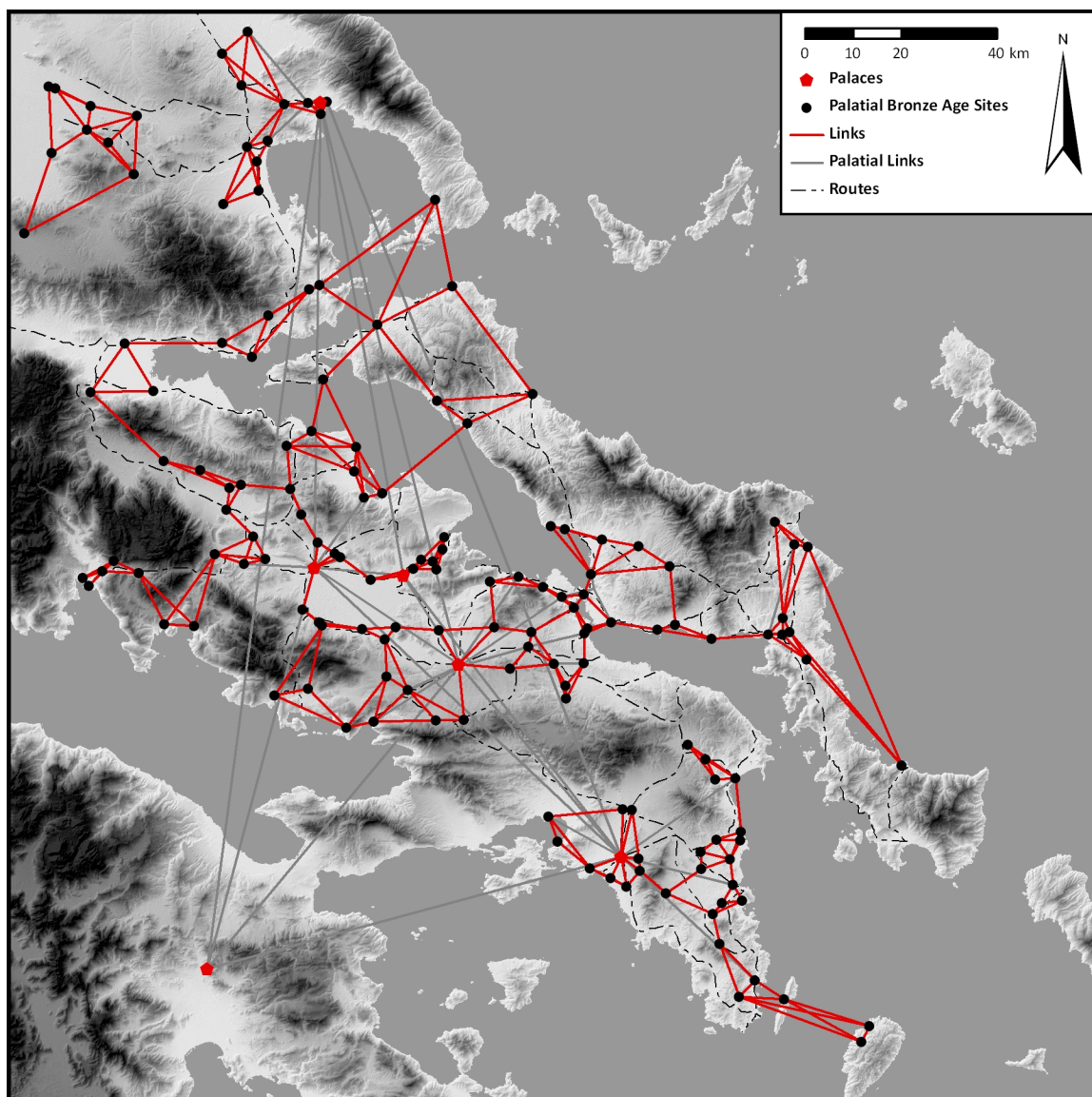


Fig. 5.5 Network of Palatial sites and nearest neighbors in the Euboean Gulf

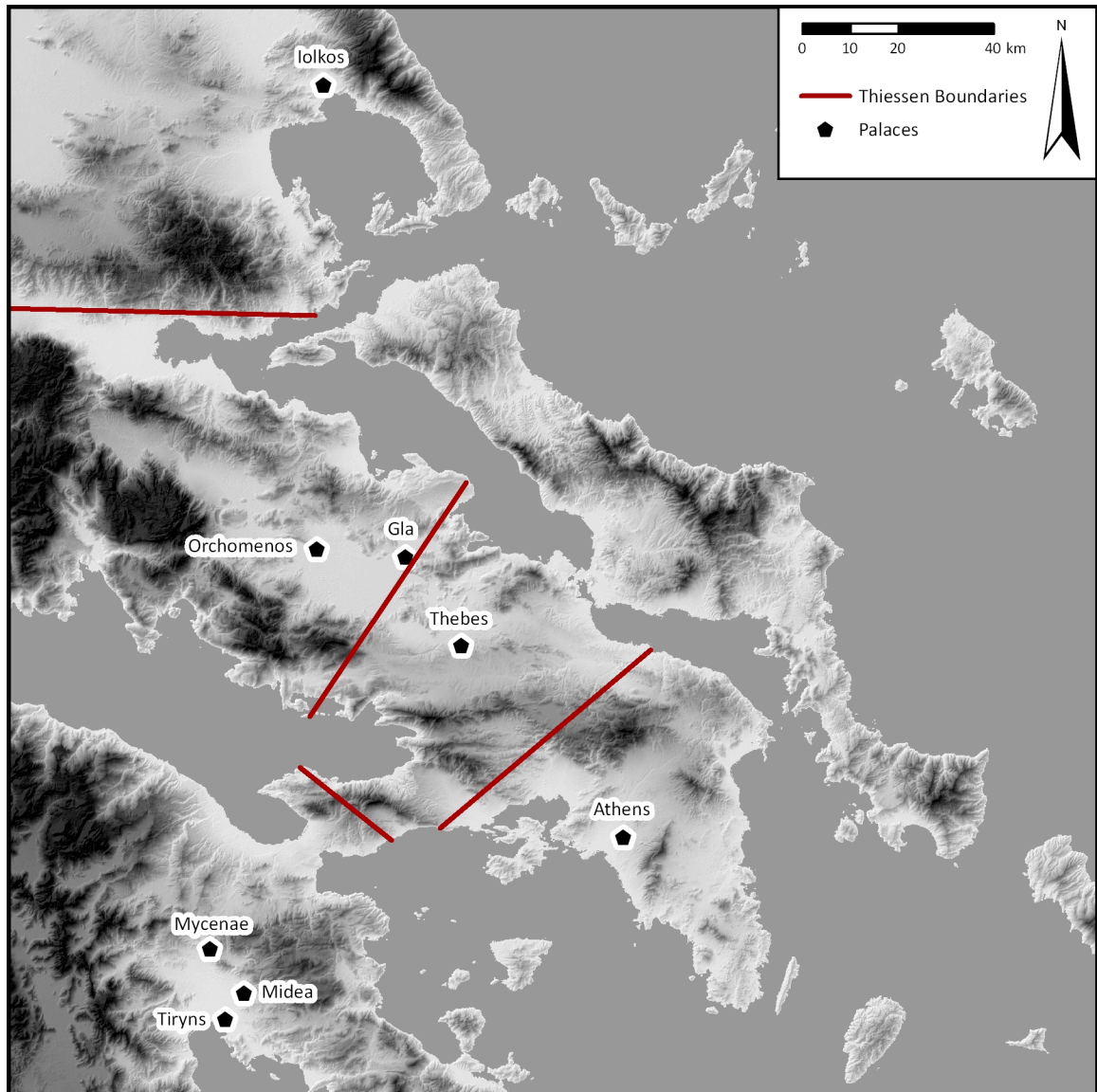


Fig. 5.6 Thiessen Polygons used to model territorial boundaries

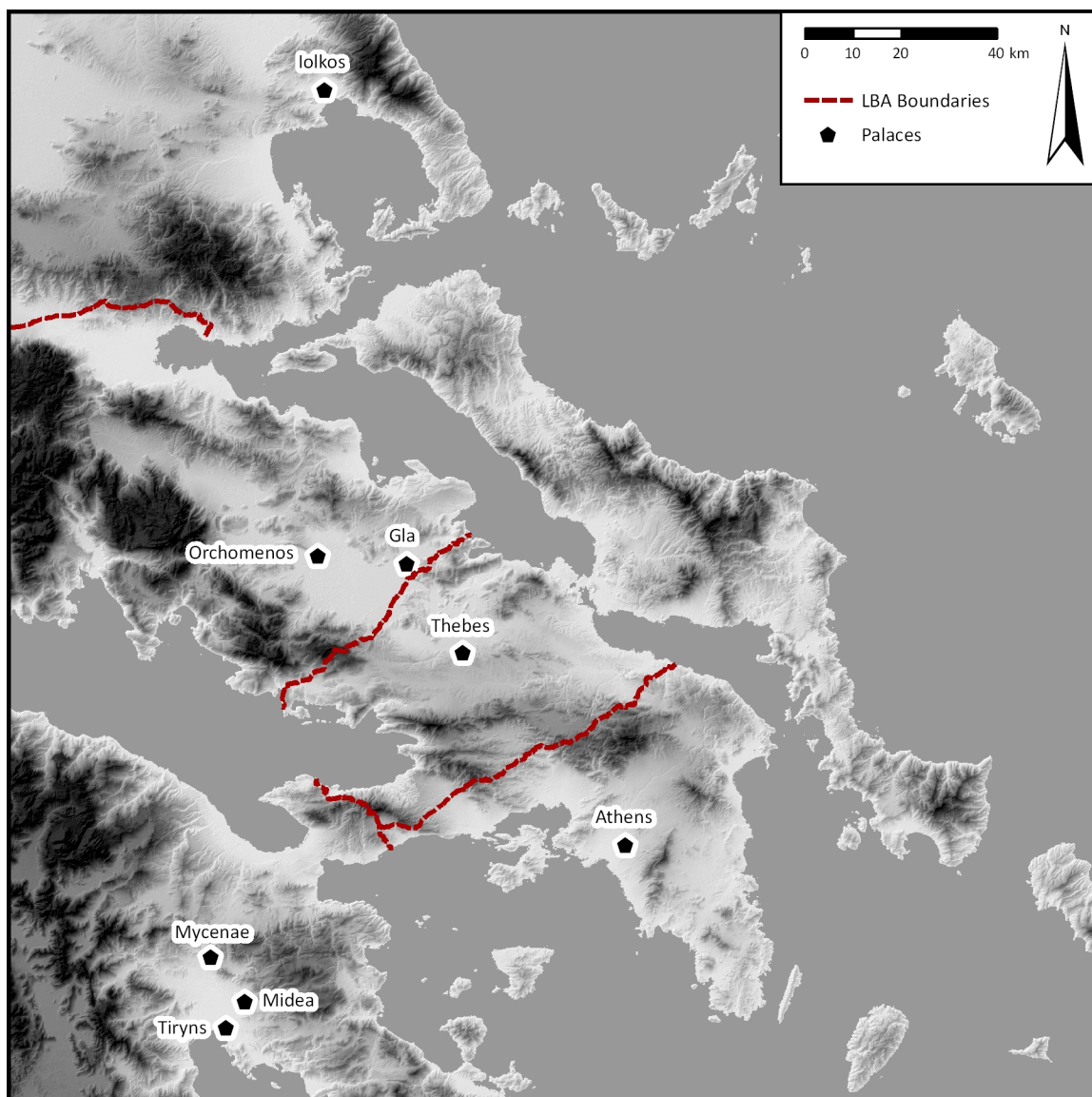


Fig. 5.7 Cost-based territorial allocation for Mycenaean centers

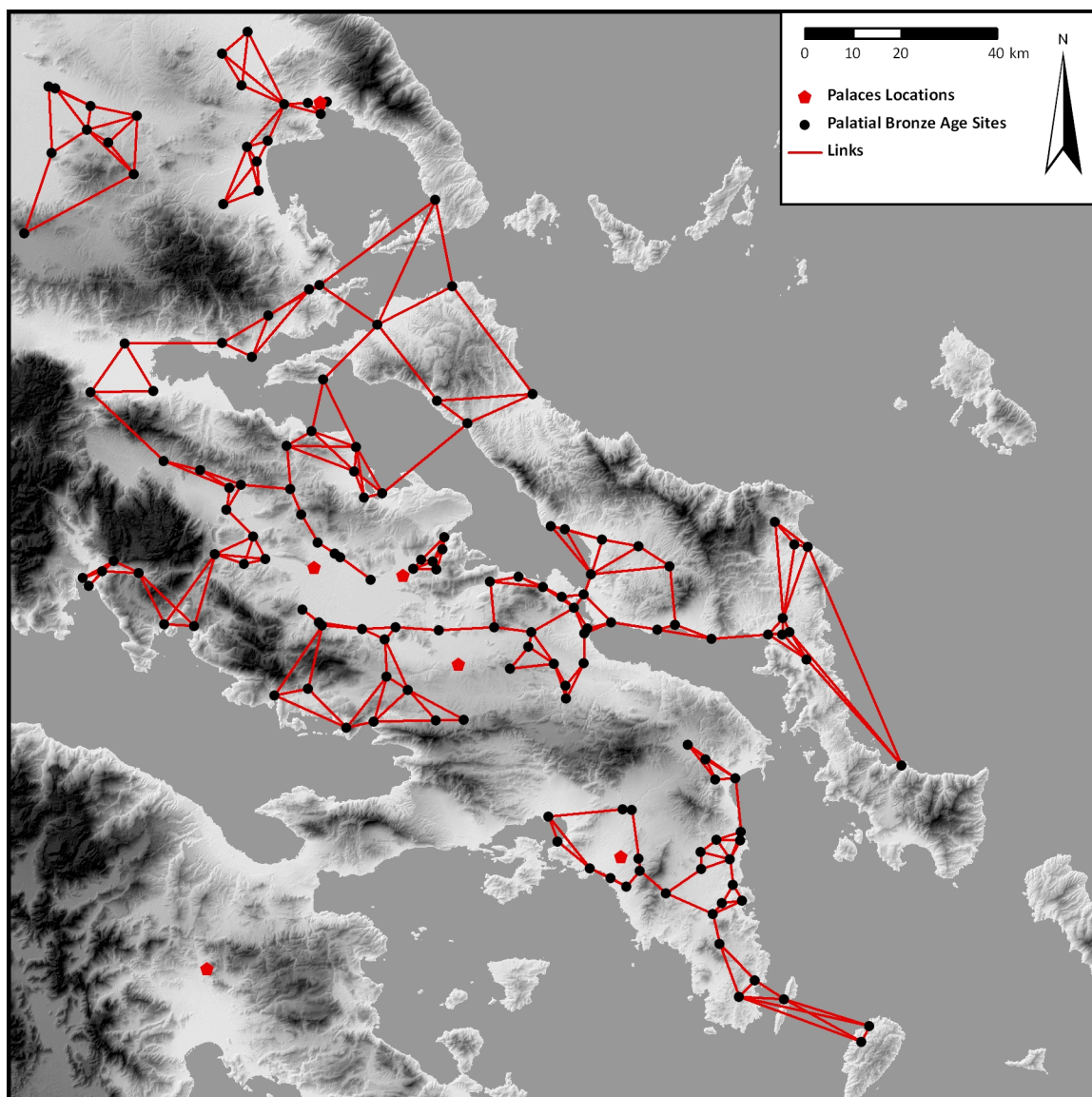


Fig. 5.8 LH IIIB networks without the palaces

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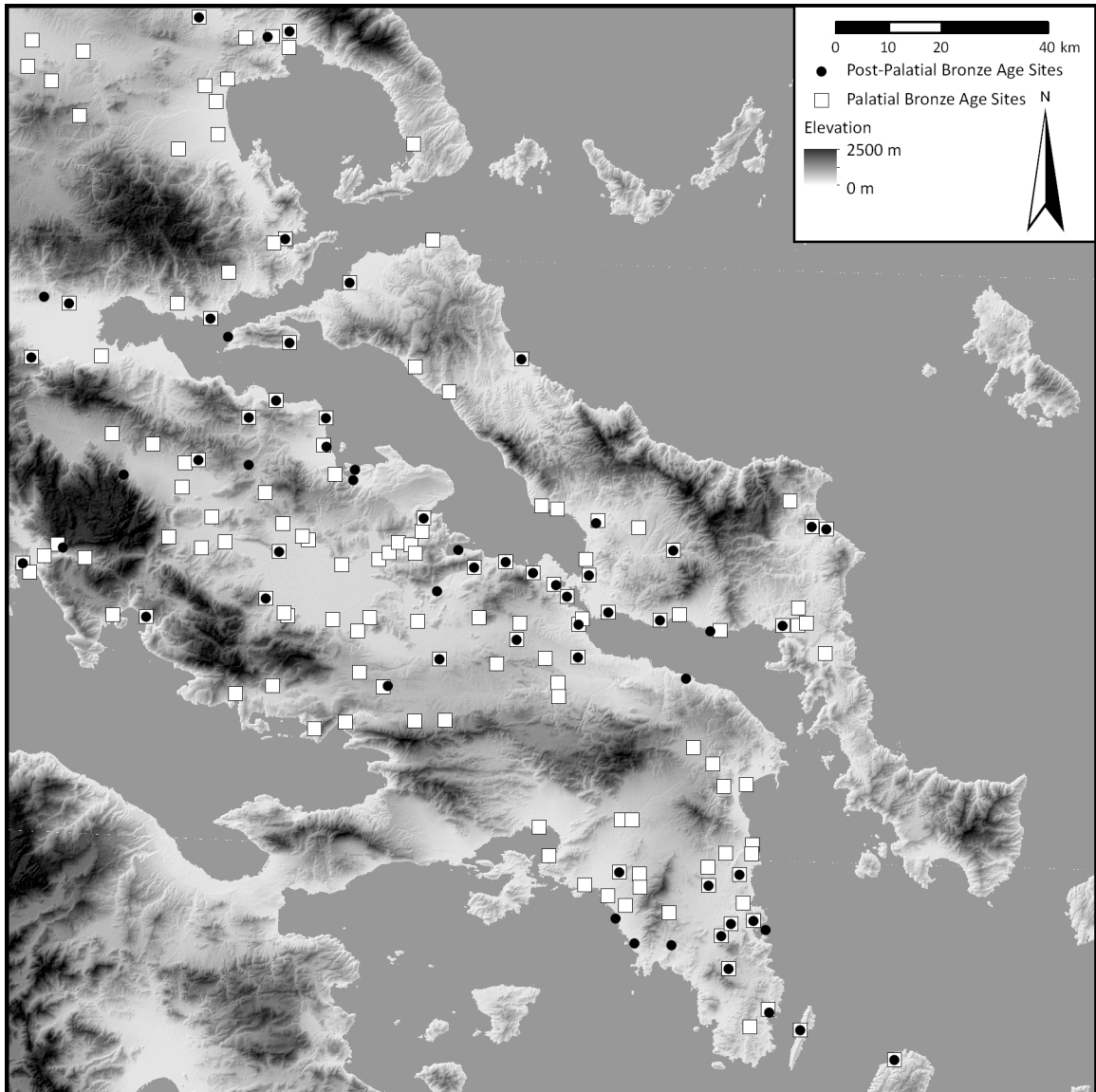


Fig. 6.1 A comparison of Palatial and Post-Palatian Bronze Age site locations

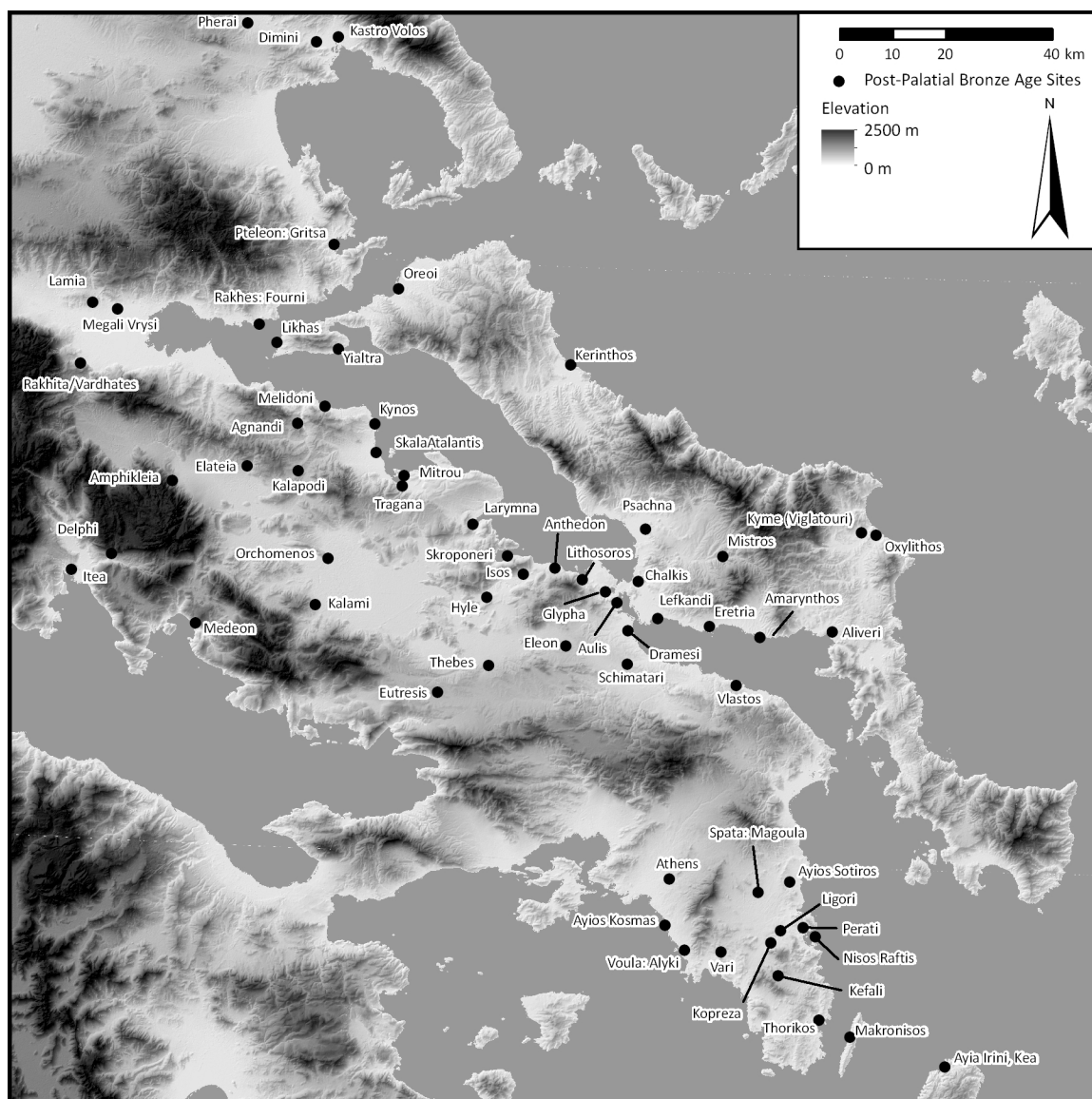


Fig. 6.2 Names and distribution of Postpalatial sites in the Euboean Gulf region

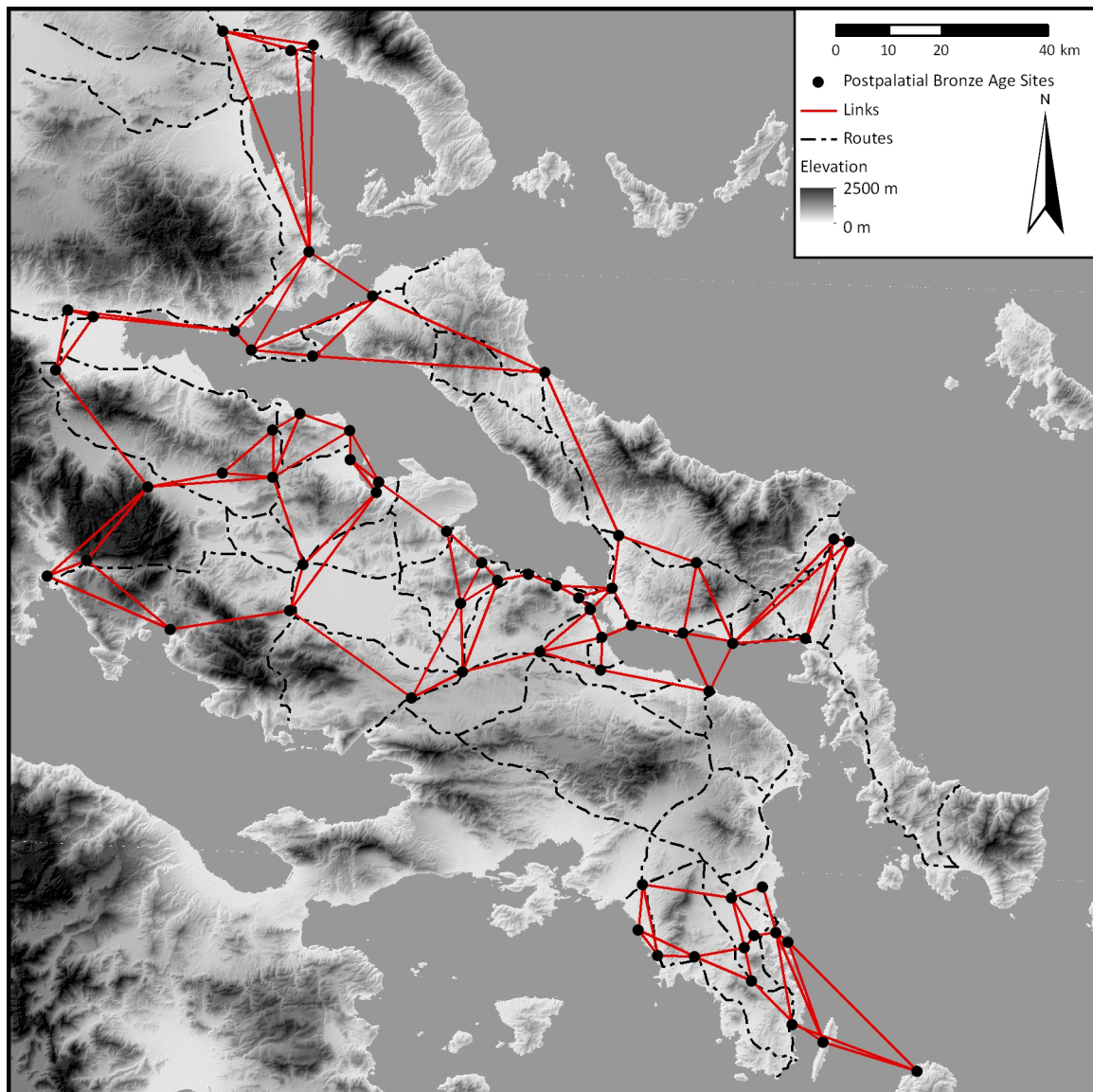


Fig. 6.3 Postpalatial networks based on assumed connections between at least three nearest neighbors and principal land routes



Fig. 6.4 Krater from Kynos showing a maritime conflict between two ships (after Dakoronia 2009: 278)



Fig. 6.5 Krater from Kynos showing a maritime scene with combative elements (after Dakoronia 2009: 278)



Fig. 6.6 Defensible site locations of (from top to bottom) Mitrou, Athens, Xeropolis, Lefkandi (courtesy ESRI), and Viglatouri (courtesy S. Fachard)

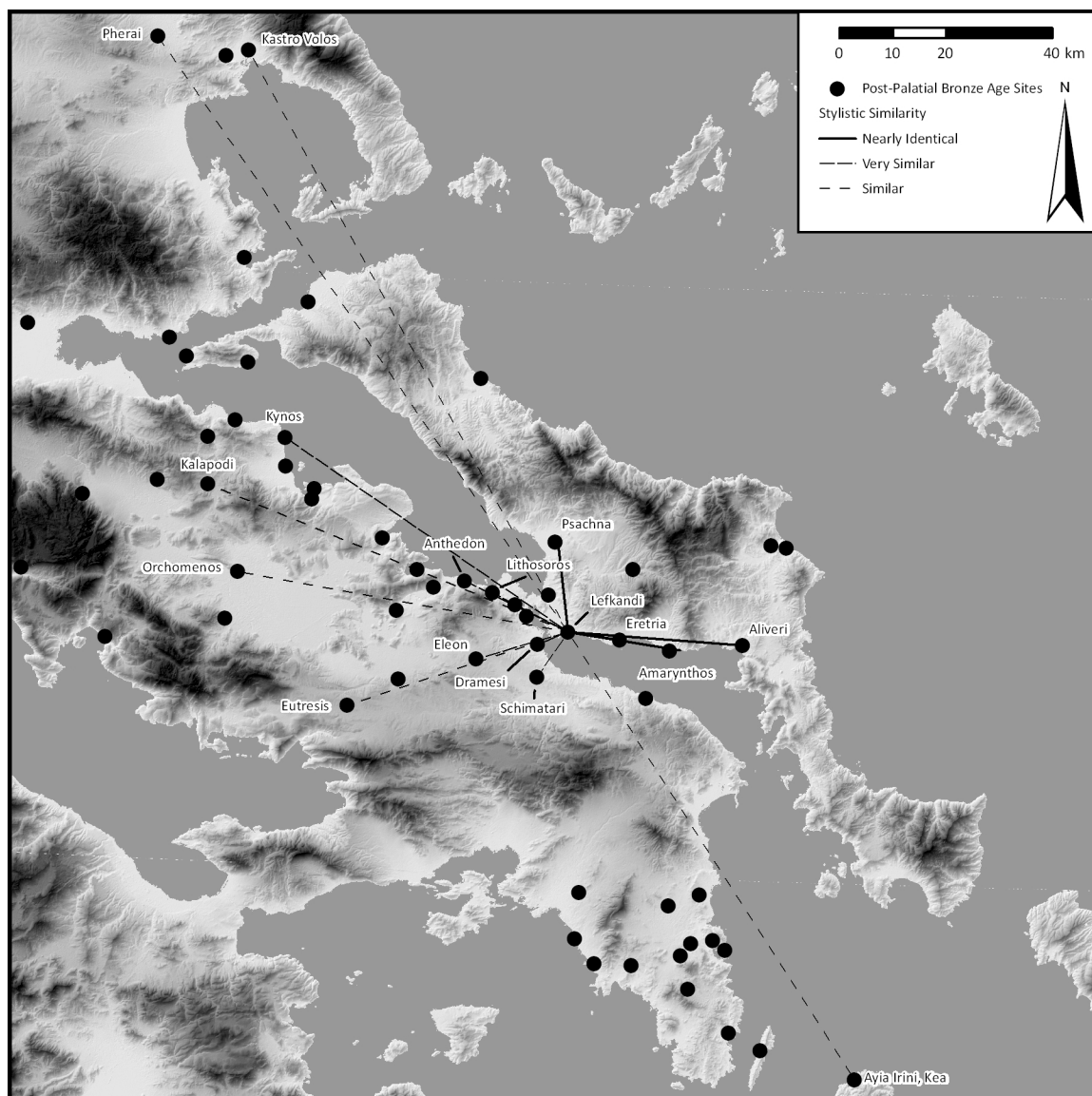


Fig. 6.7 Stylistic network showing links between Lefkandi and other sites in the Euboean Gulf *koine* (see also Table 6.2, based on Sherratt 2006b: 218-219)

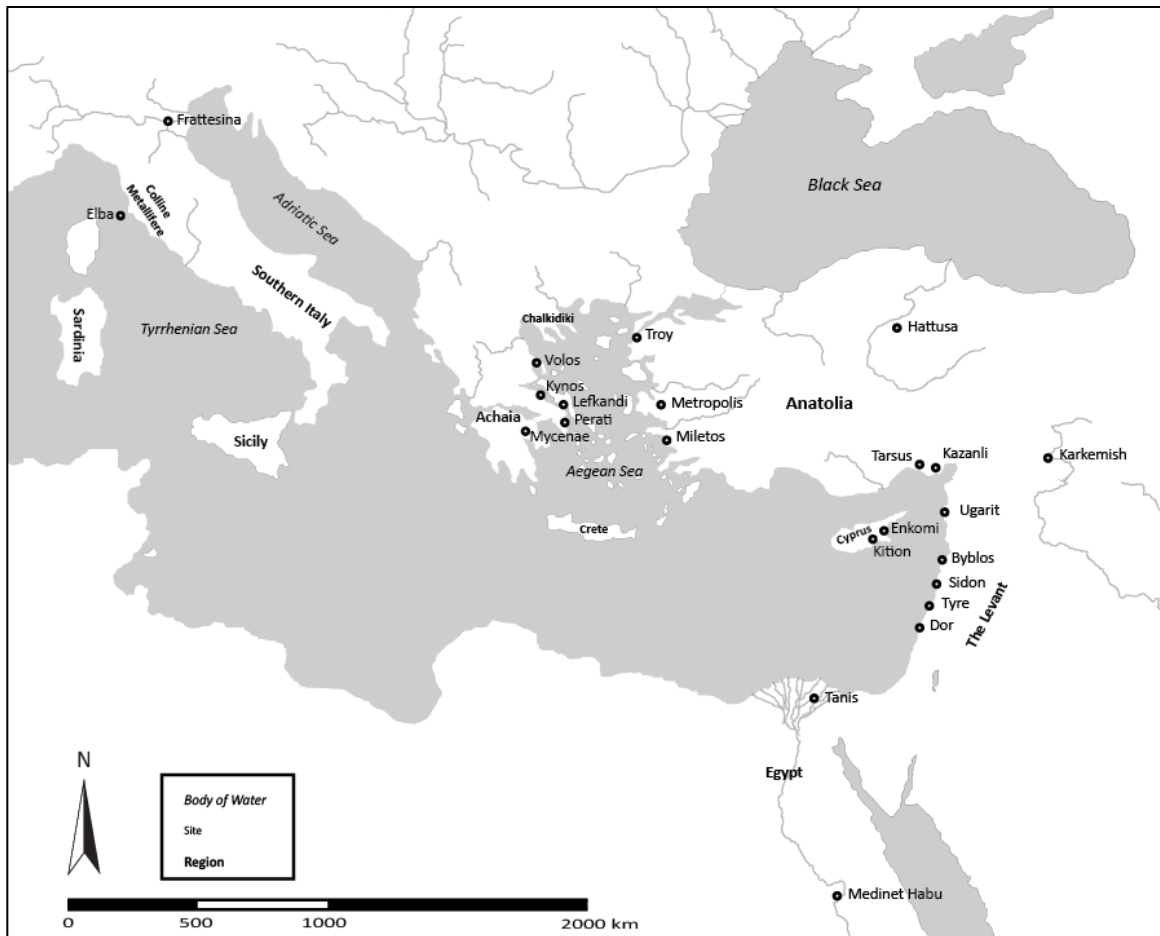


Fig. 6.8 Eastern and central Mediterranean regions and sites mentioned in the text

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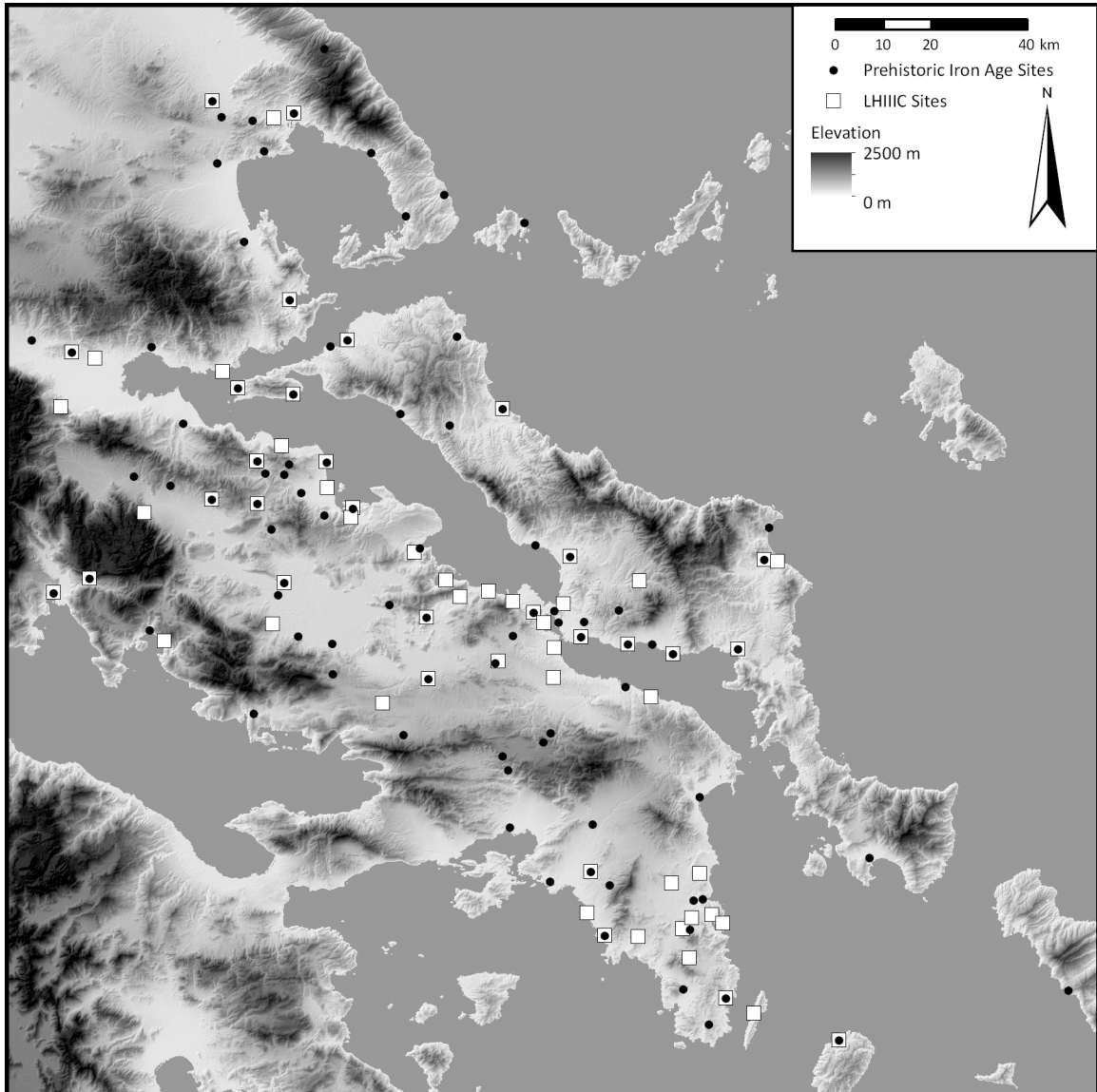


Fig. 7.1 A comparison of Postpalatial Bronze Age and Prehistoric Iron Age site locations

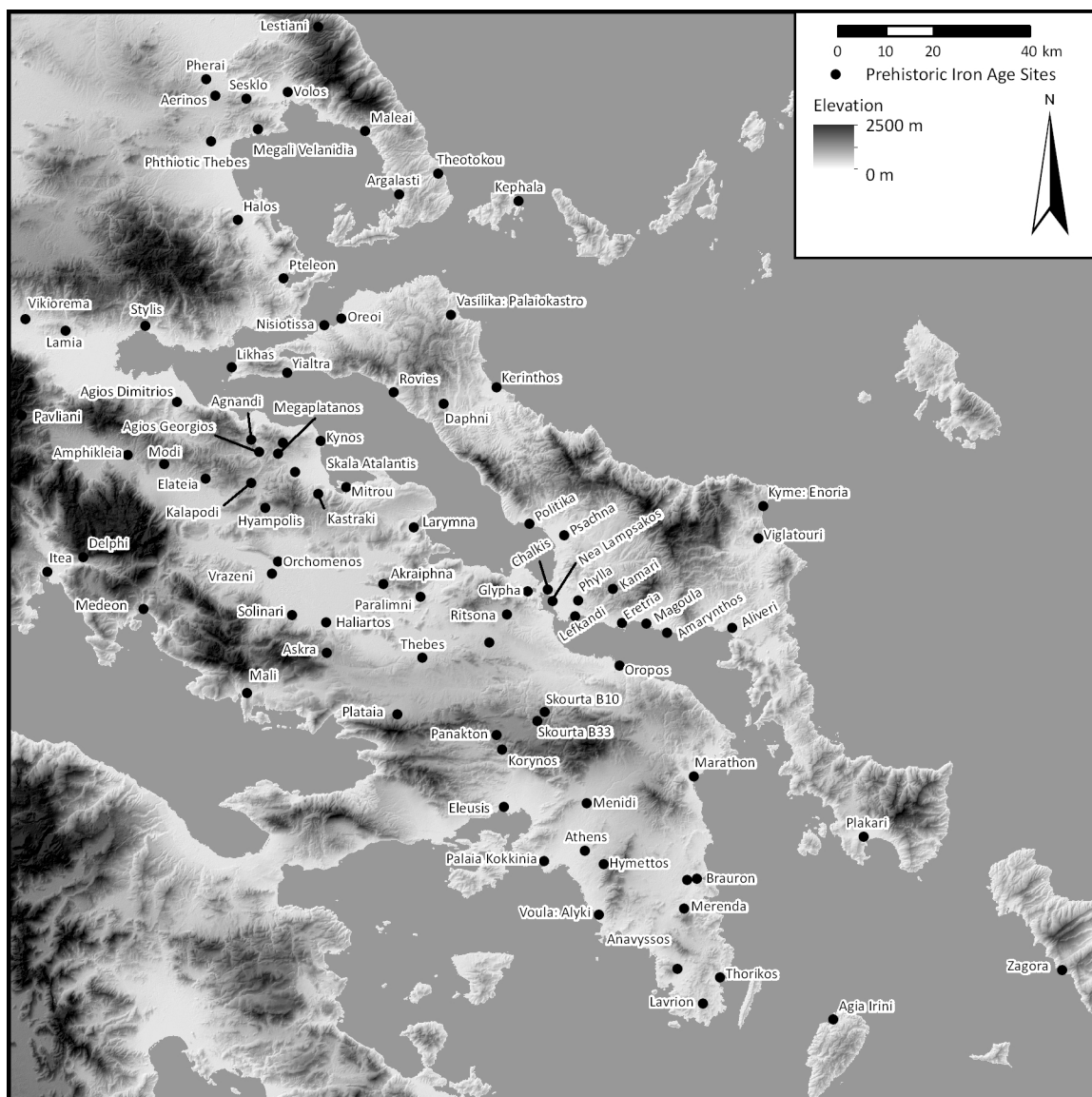


Fig. 7.2 Names and distribution of Prehistoric Iron Age sites in the Euboean Gulf region

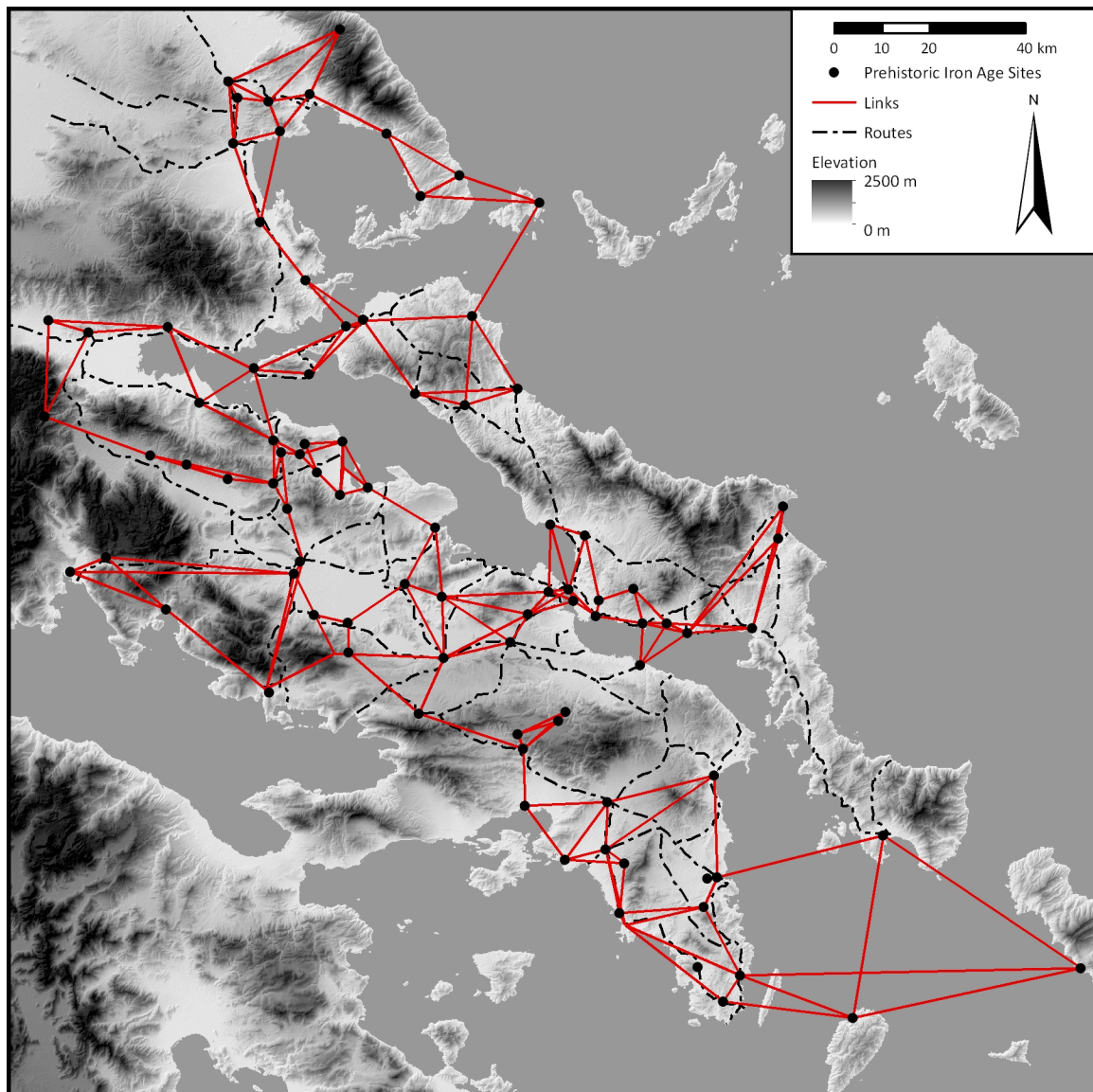


Fig. 7.3 Prehistoric Iron Age settlement networks based on connections between at least three nearest neighbors and principle land routes

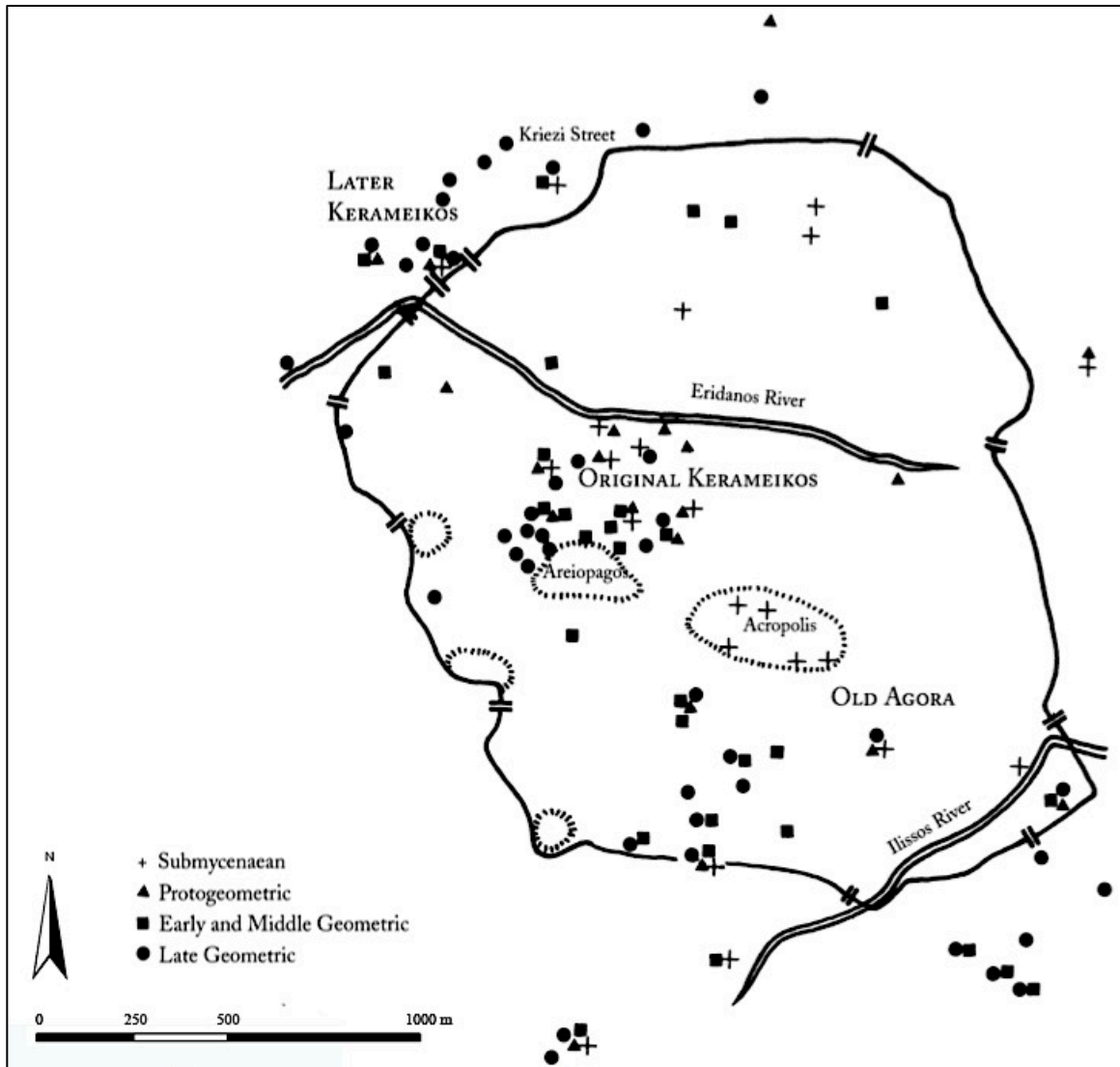


Fig. 7.4 Map of Athens in the Early Iron Age (after Papadopoulos 2003: 299, Fig. 5.15)



Fig. 7.5 Lefkandi cemeteries and settlement location at Xeropolis (background image after ESRI Topographic Basemap)

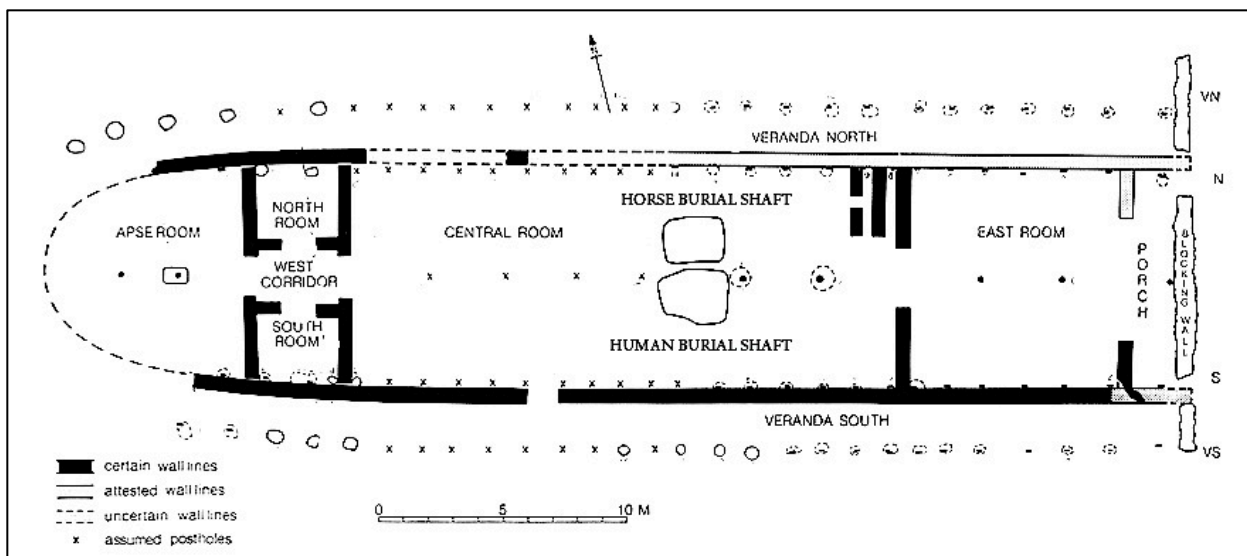


Fig. 7.6 Plan of the Toumba Building at Lefkandi (after Popham *et al.* 1993: Plate 5)

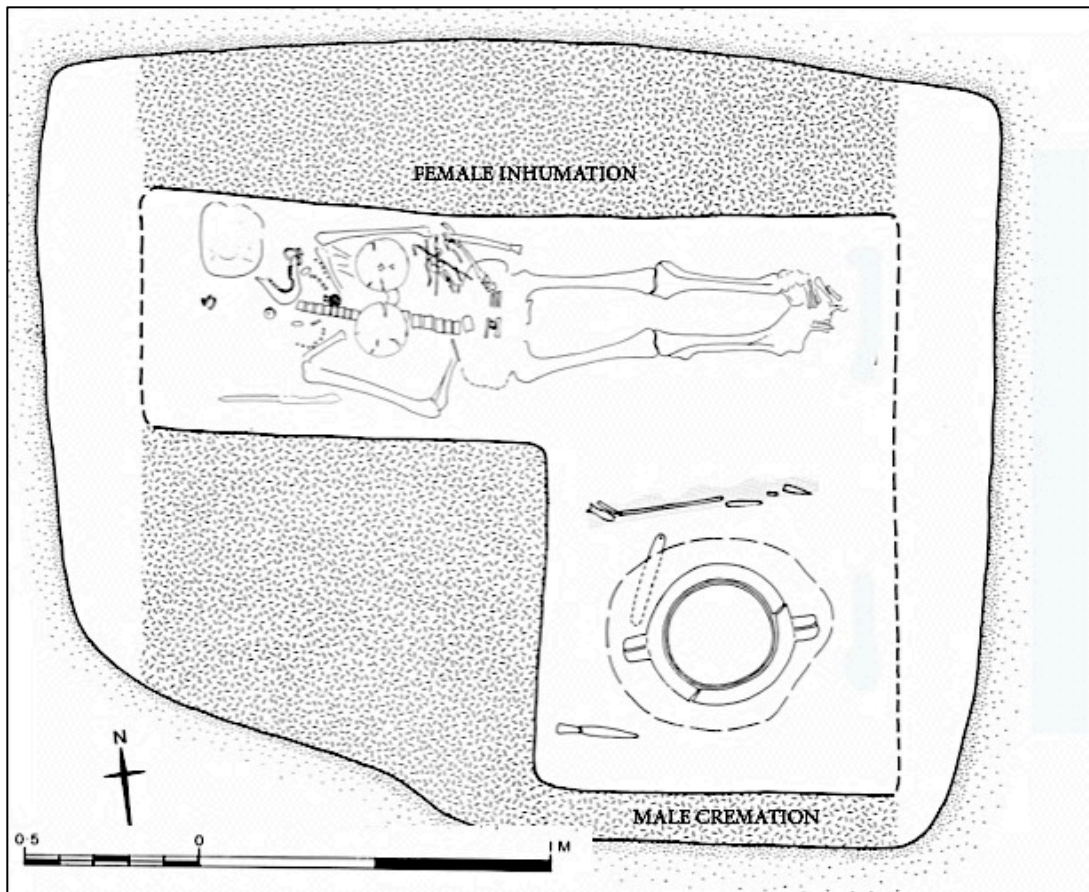


Fig. 7.7 Male cremation in urn and female inhumation from the Toumba Building at Lefkandi (after Popham *et al.* 1993: Plate 13)

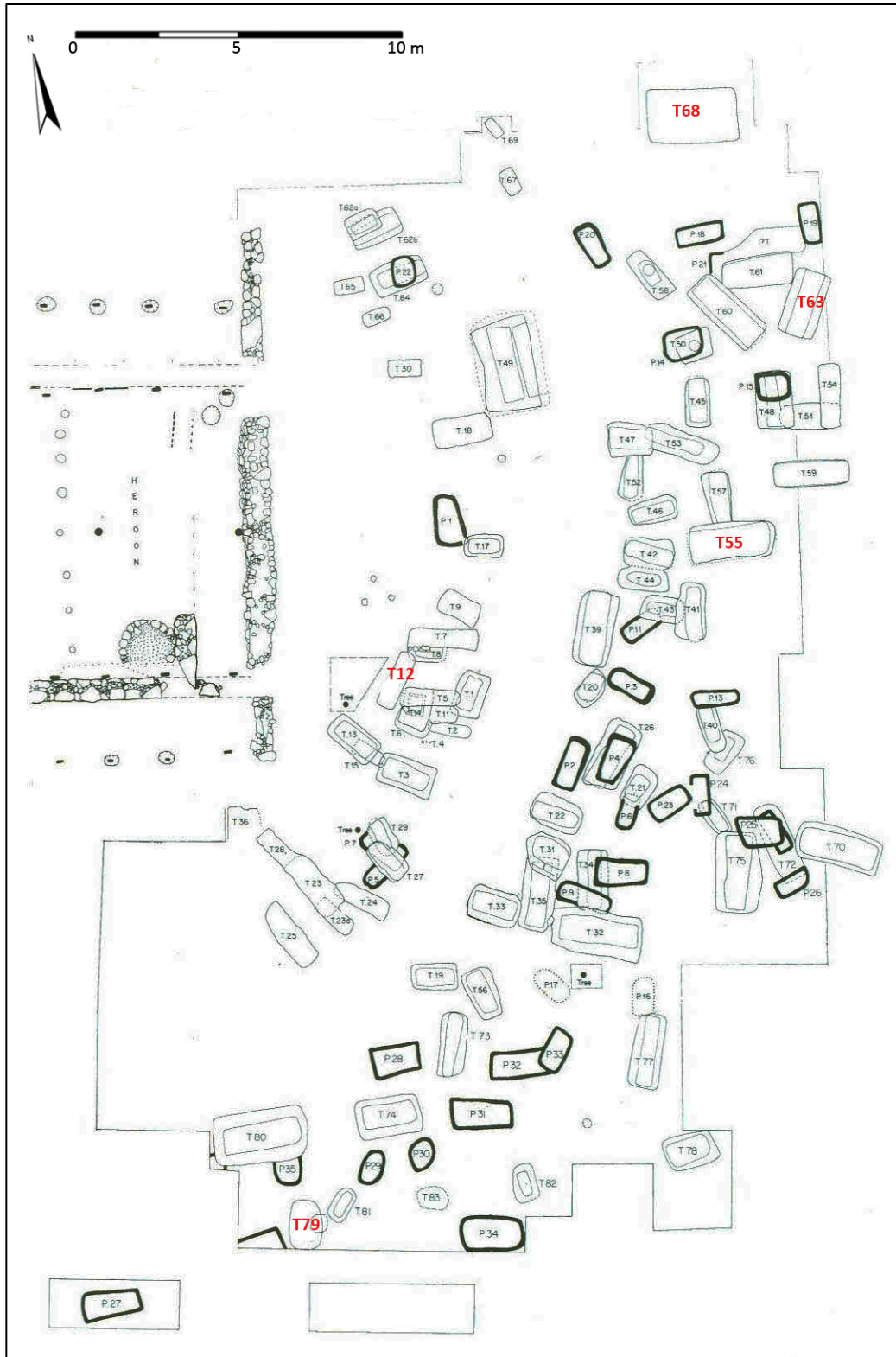


Fig. 7.8 Plan of the Toumba Cemetery at Lefkandi, with tombs mentioned in the text in red (after Popham and Lemos 1996: Plate 3)



Fig. 7.9 An iron deposit near Psachna, central Euboea

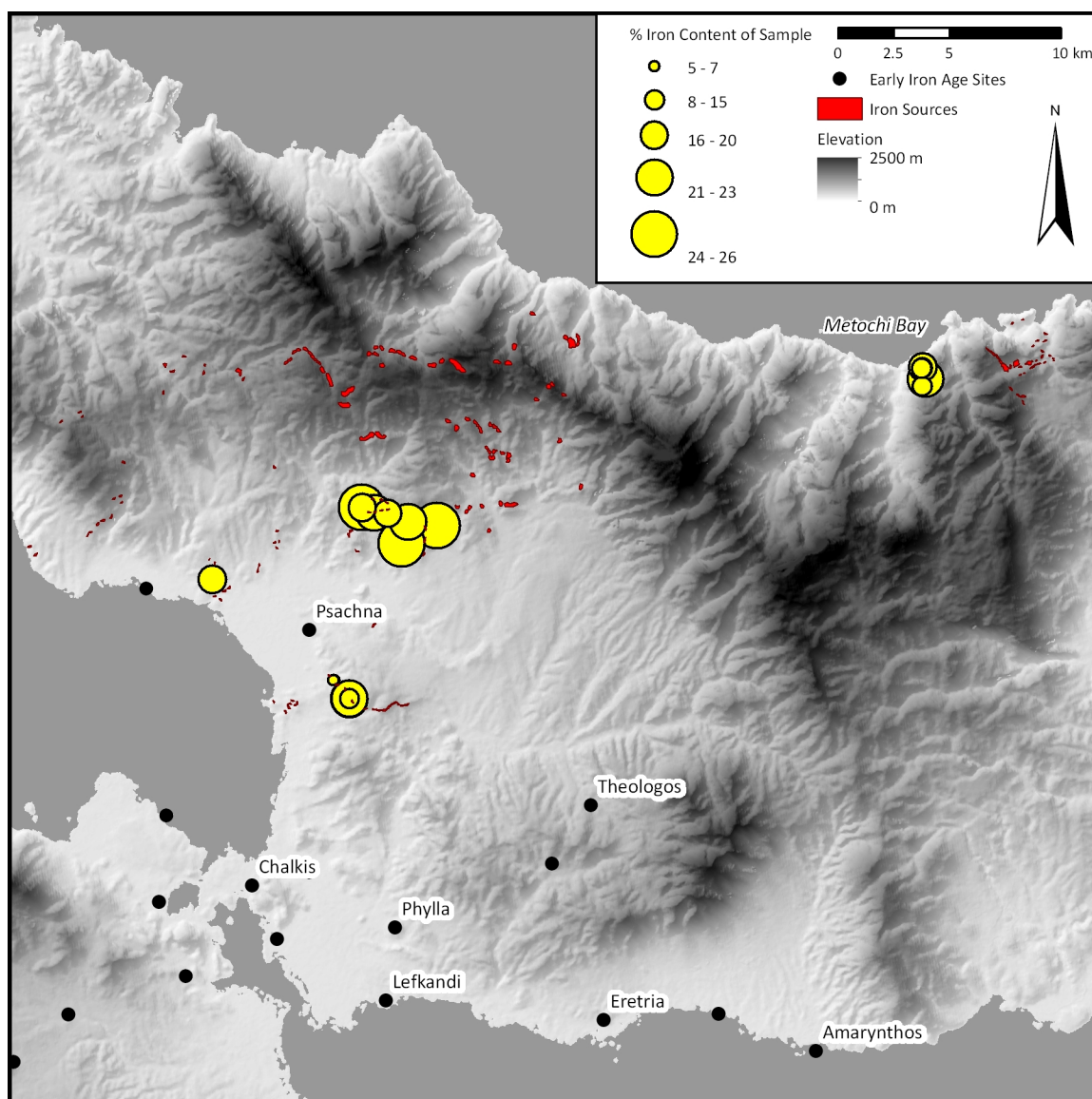


Fig. 7.10 Iron sources in central Euboea and percent of iron content for samples taken, based on Portable XRF analysis

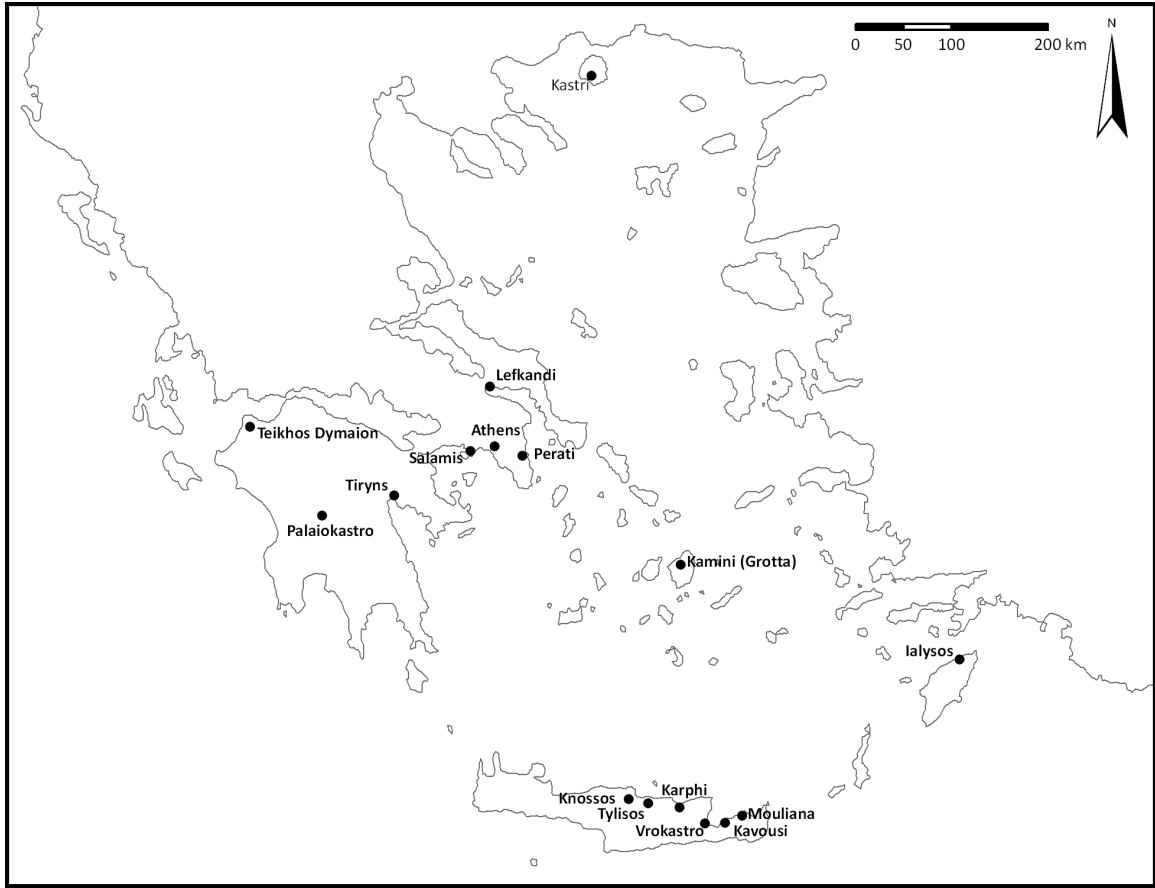


Fig. 7.11 Distribution of iron objects in certain and probable pre-1000 BCE contexts (after Dickinson 2006: 148)



Fig. 7.12 Clay source used for modern brickworks near Phylla in the Lelantine Plain

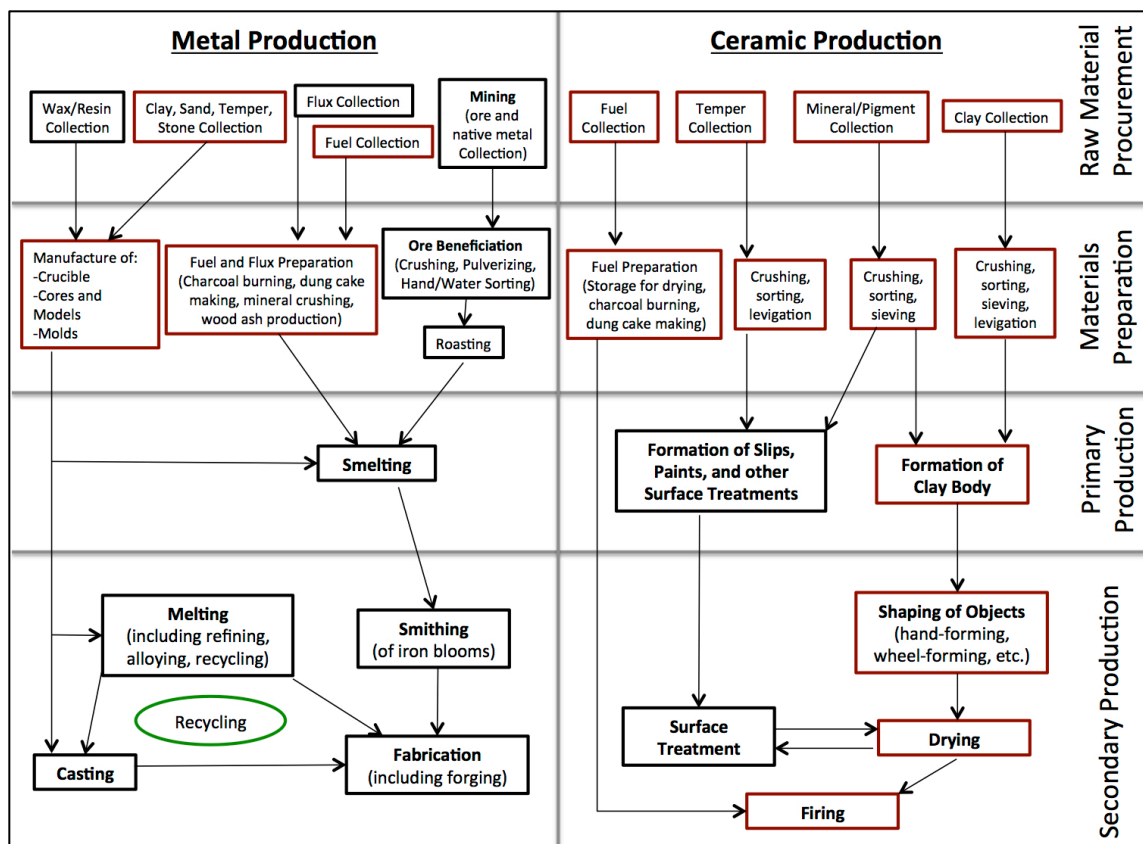


Fig. 7.13 *Chaînes opératoire* for ceramic and metal production, with shared aspects of the production process in red (adapted after Miller 2007: Figs. 2.6 and 4.3)

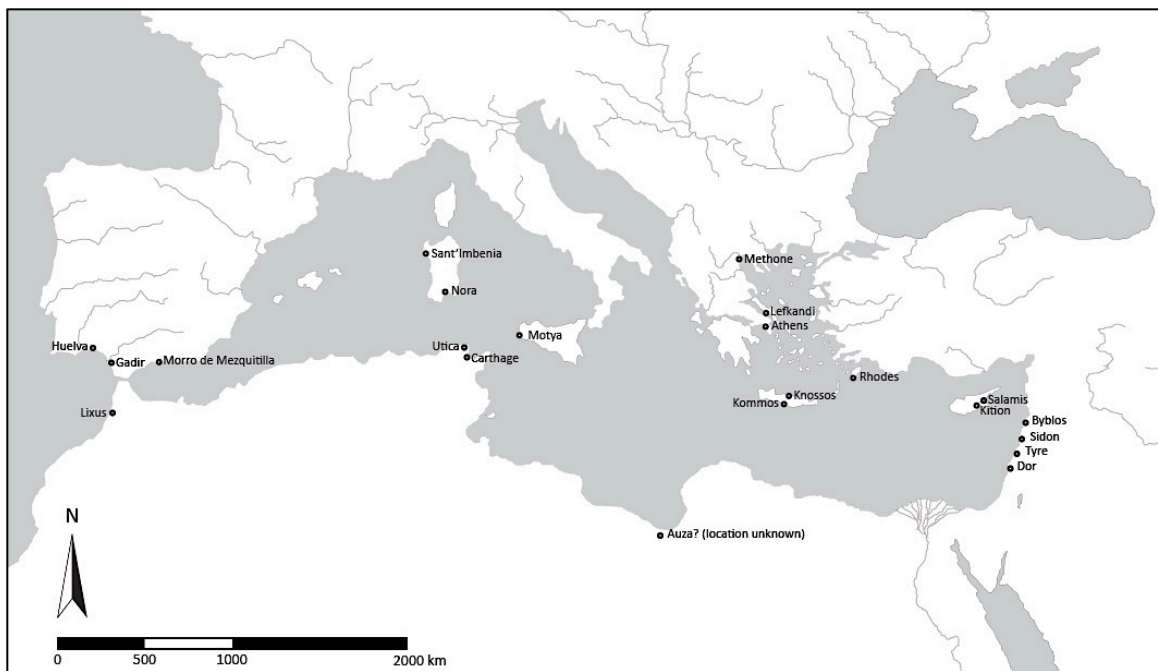


Fig. 7.14 Definite, probable, and possible sites of pre-800 BCE Phoenician activity throughout the Mediterranean

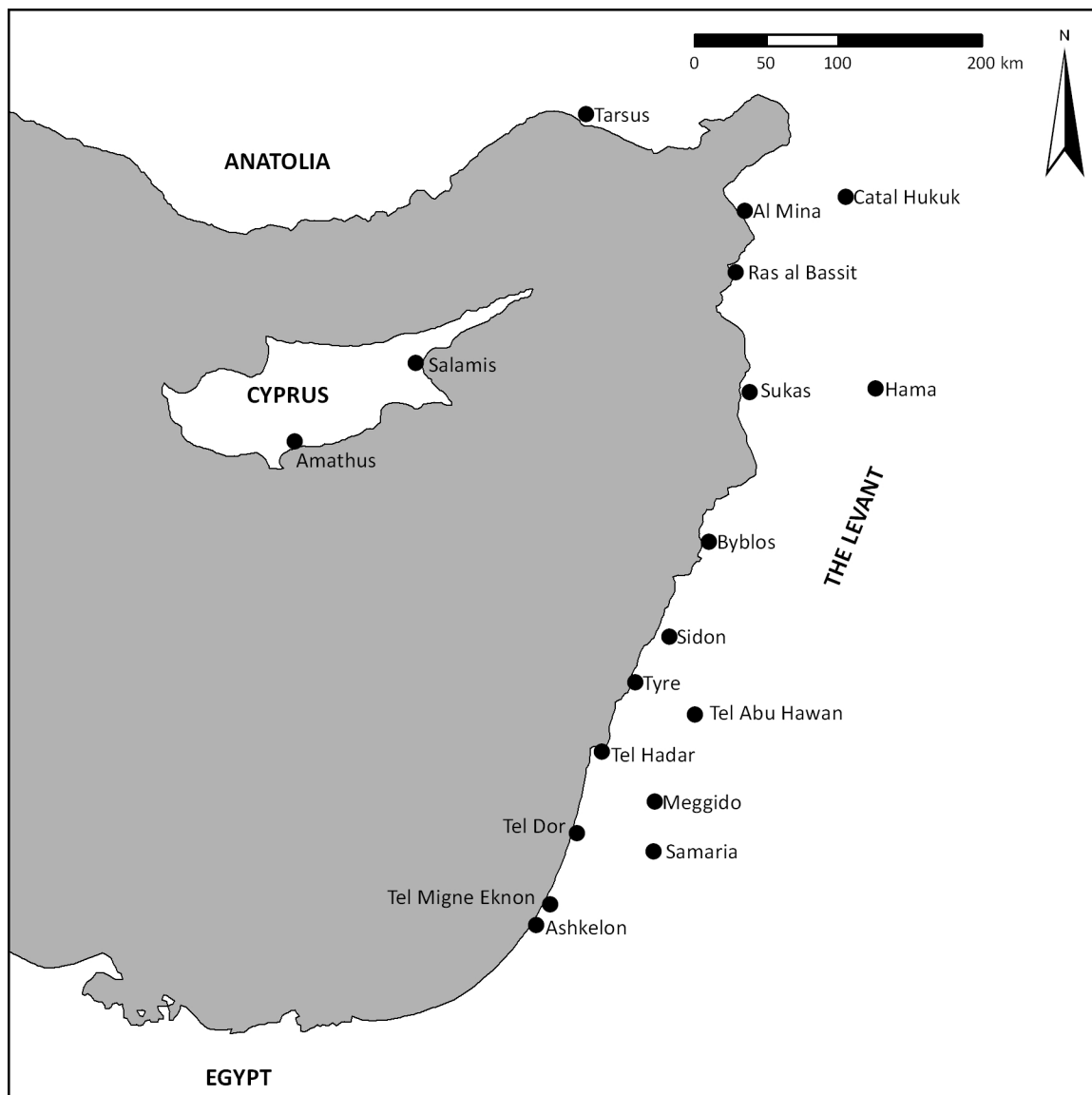


Fig. 7.15 Eastern Mediterranean sites with Euboean Protogeometric pottery (after Lemos 2002: 229)

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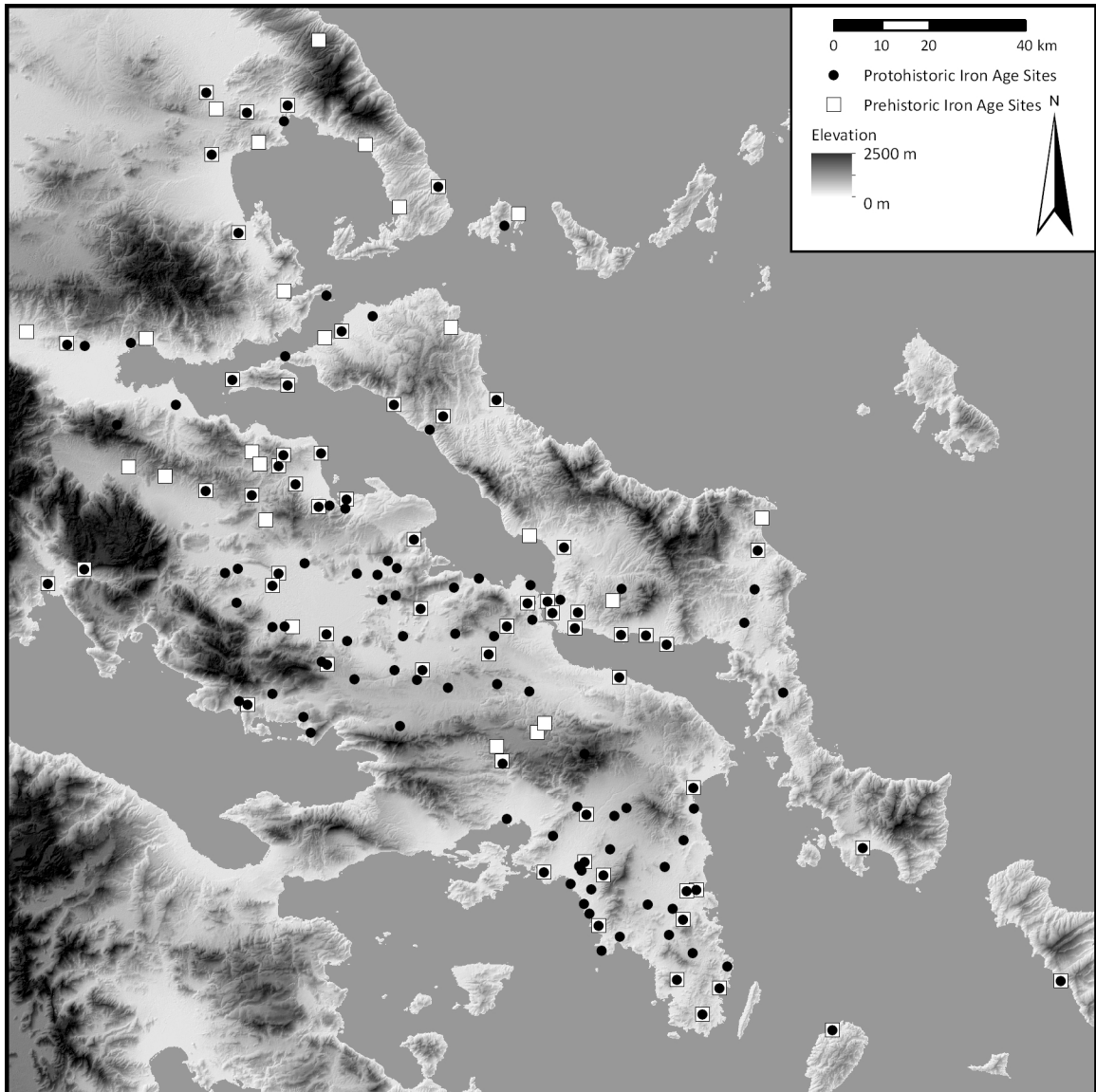
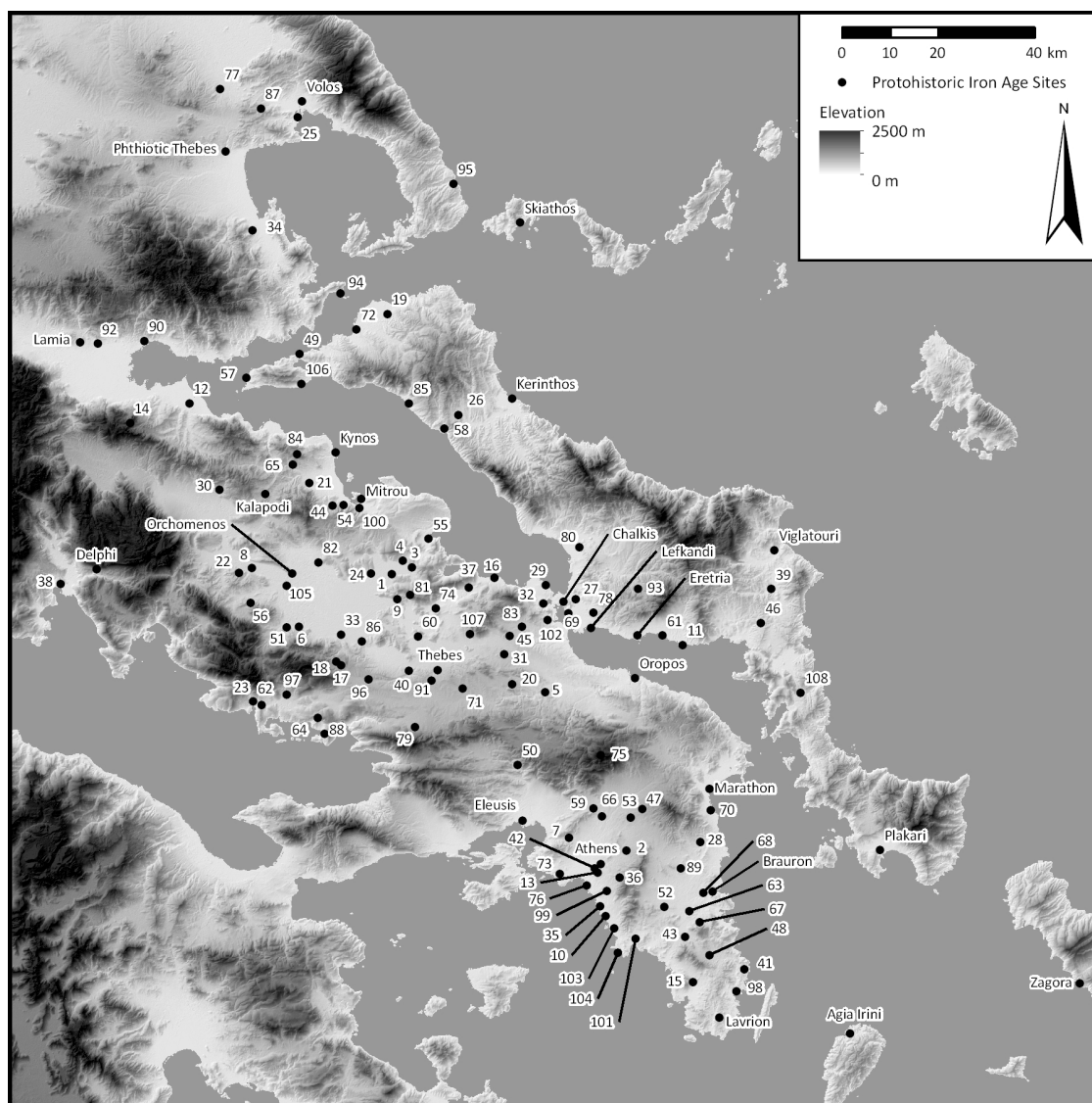


Fig. 8.1 A comparison of Prehistoric Iron Age and Protohistoric Iron Age settlement patterns



- | | | | | |
|--------------------------|--------------------------|-----------------------|----------------------|----------------------------|
| 1. Agia Marina | 22. Chaironeia | 45. Kastri: Lykovouno | 67. Merenda | 90. Stylis |
| 2. Agia Paraskevi | 23. Chorsiai | 46. Katakalous: Agia | 68. Merenda: Brauron | 91. Tachi |
| 3. Agios Ioannis: Megali | 24. Copai | 47. Parakevi | 69. Nea Lampsakos | 92. Tratsa |
| 4. Katovothra | 25. Demetrias | 48. Keratea | 70. Mea Makri | 93. Theologos |
| 5. Agios Ioannis: Spitia | 26. Daphni: Kastro | 49. Khironisi | 71. Neochoraki | 94. Theotokos Sepia |
| 6. Katovothra | 27. Dokos: Agia Triadha | 50. Kephissia | 72. Oreoi | 95. Theotokou |
| 7. Agios Konstantinos | 28. Draphi | 51. Koroneia | 73. Palaia Kokkinia | 96. Tespiai |
| 8. Agorani | 29. Drosia: Agias Minas | 52. Koropi | 74. Paralimni | 97. Thisbe |
| 9. Aigaleos | 30. Elateia | 53. Koukouvaones | 75. Parnes | 98. Thorikos |
| 10. Akontion: Kephisos | 31. Eleon | 54. Kyparisi | 76. Phalerion | 99. Trachones |
| 11. Akraiphia | 32. Glypha | 55. Larymna | 77. Pherai | 100. Tragana |
| 12. Aliko | 33. Haliartos | 56. Levadeia | 78. Phylla Vrachos | 101. Vari |
| 13. Amarynthos | 34. Halos | 57. Likhos | 79. Plataia | 102. Vathi: Agios Nikolaos |
| 14. Amavra | 35. Helleniko | 58. Limni | 80. Psachna | 103. Voula: Alyki |
| 15. Analatos | 36. Hymettos (sanctuary) | 59. Liossia | 81. Ptoon | 104. Vouliagmeni |
| 16. Anavra | 37. Isos | 60. Lithares | 82. Pyrgos | 105. Vranesi |
| 17. Anavysos | 38. Itea | 61. Magoula | 83. Ritsona | 106. Yialtra |
| 18. Anthedon | 39. Itea (Euboea) | 62. Mali | 84. Roustania | 107. Ypaton |
| 19. Askra | 40. Kabirion | 63. Markopoulo | 85. Rovies | 108. Zarakes |
| 20. Askra Pyrgaki | 41. Kaki Thalassa | 64. Mavrovouni | 86. Seidi | |
| 21. Asminion | 42. Kallithea | 65. Megaloplatanos | 87. Sesklo | |
| 22. Asopia | 43. Kalyvia | 66. Menidi | 88. Siphai | |
| 23. Atalanti | 44. Kastraki | | 89. Spata | |

Fig. 8.2 Names and distribution of Protohistoric Iron Age sites around the Euboean Gulf

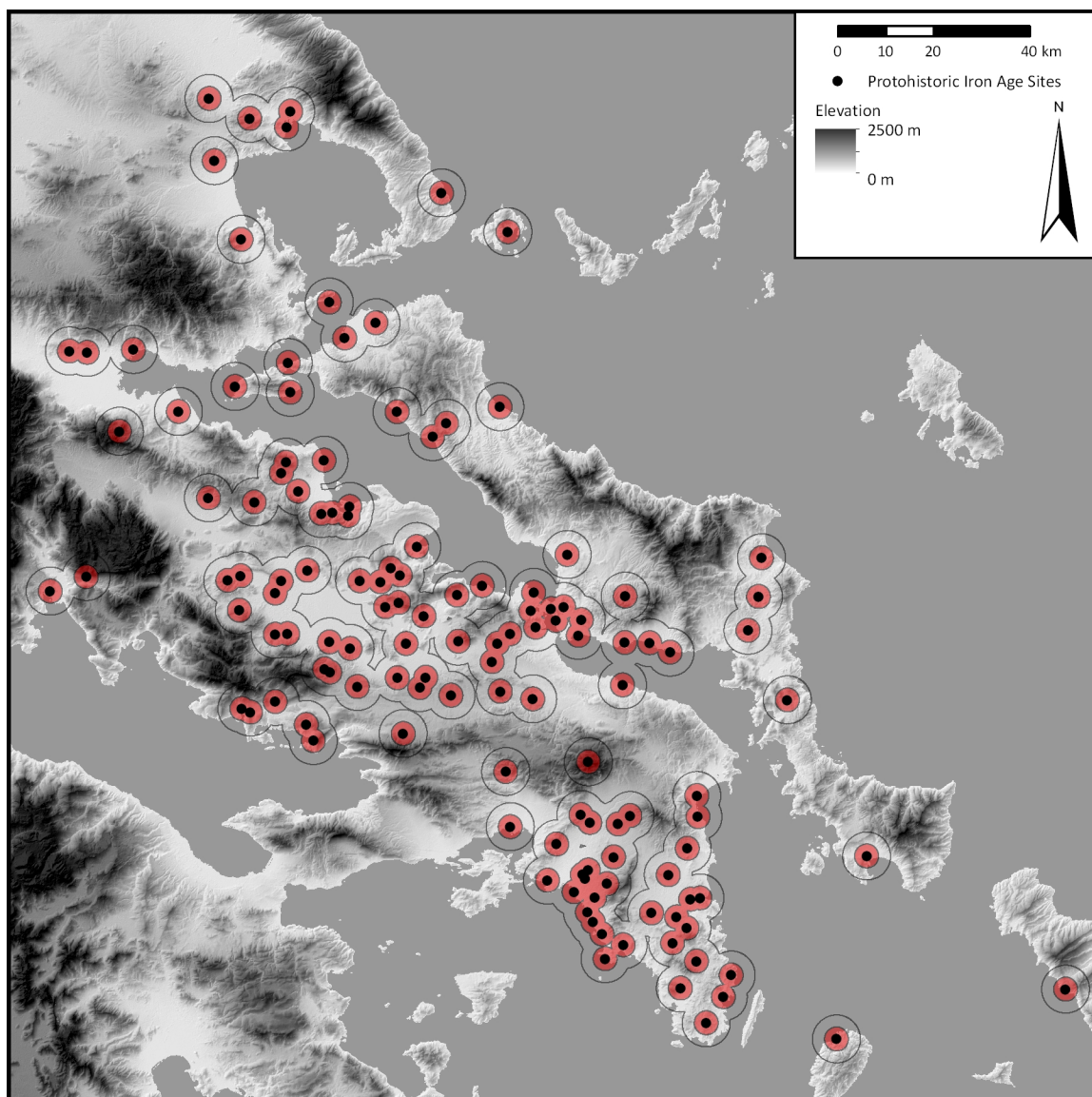


Fig. 8.3 Territorial catchments of Protohistoric Iron Age sites, with radii at 2.5 km (red fill) and 5 km (grey line)

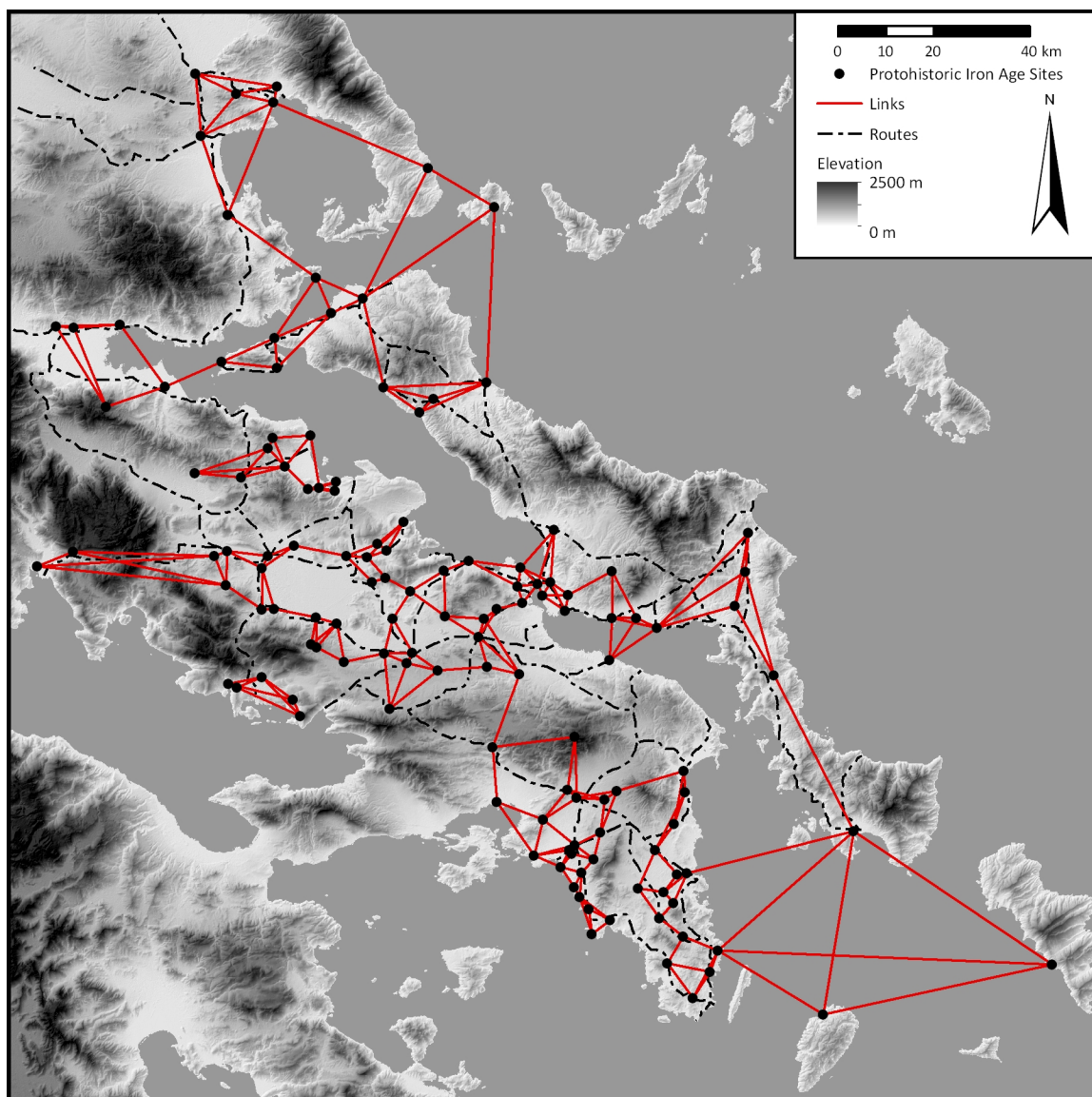


Fig. 8.4 Protohistoric Iron Age settlement networks based on connections between at least three nearest neighbors and principle land routes



Fig. 8.5 Map of the Lelantine Plain and environs; eastern limit of the plain c. 2 km east of Lefkandi, western limit at Nea Lampsakos (background image: ESRI imagery basemap)



Fig. 8.6 Photo of the Lelantine Plain looking west from Phylla (taken in August 2008)

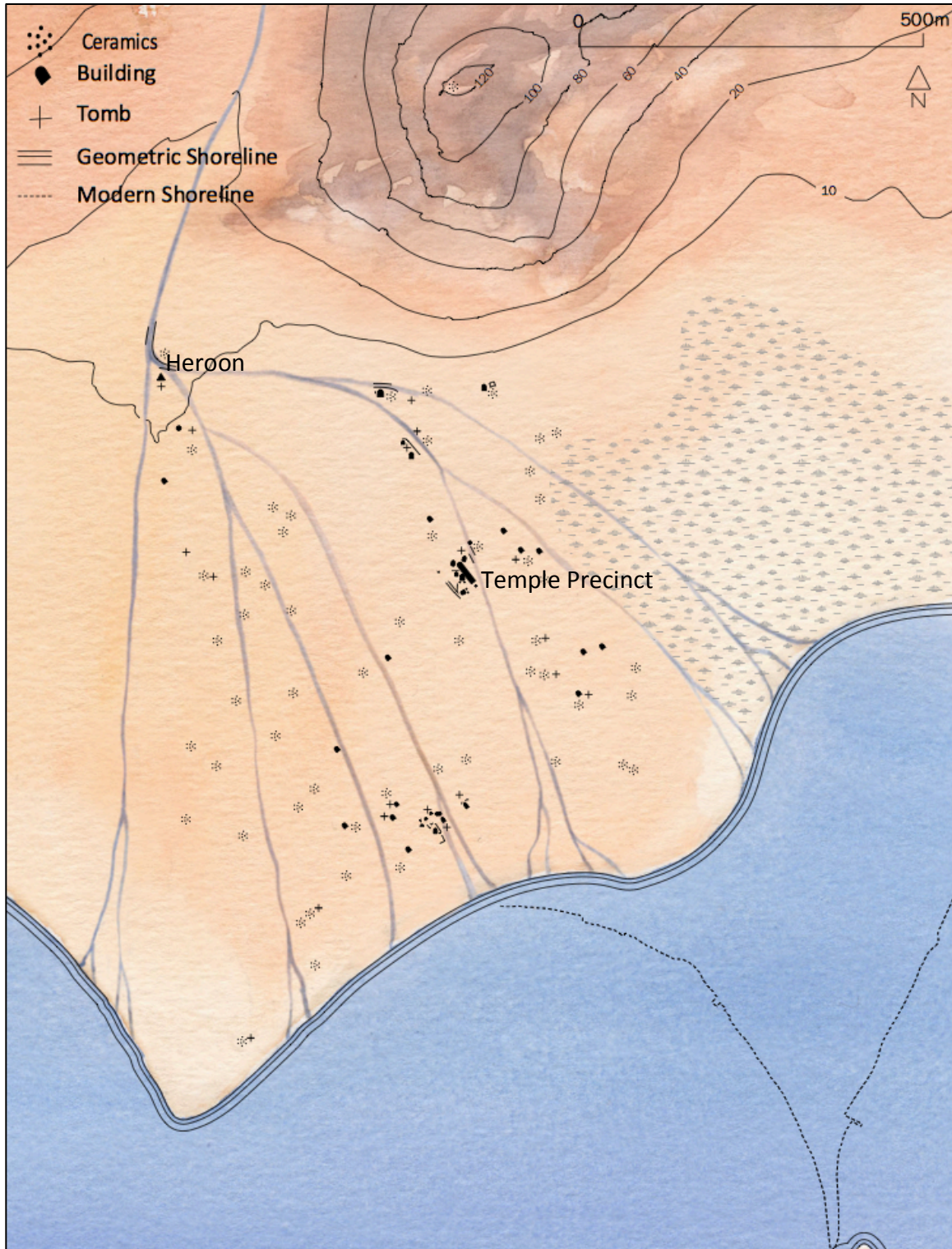


Fig. 8.7 Plan of Eretria, with Protohistoric Iron Age remains (Courtesy of the Swiss School of Archaeology in Greece)

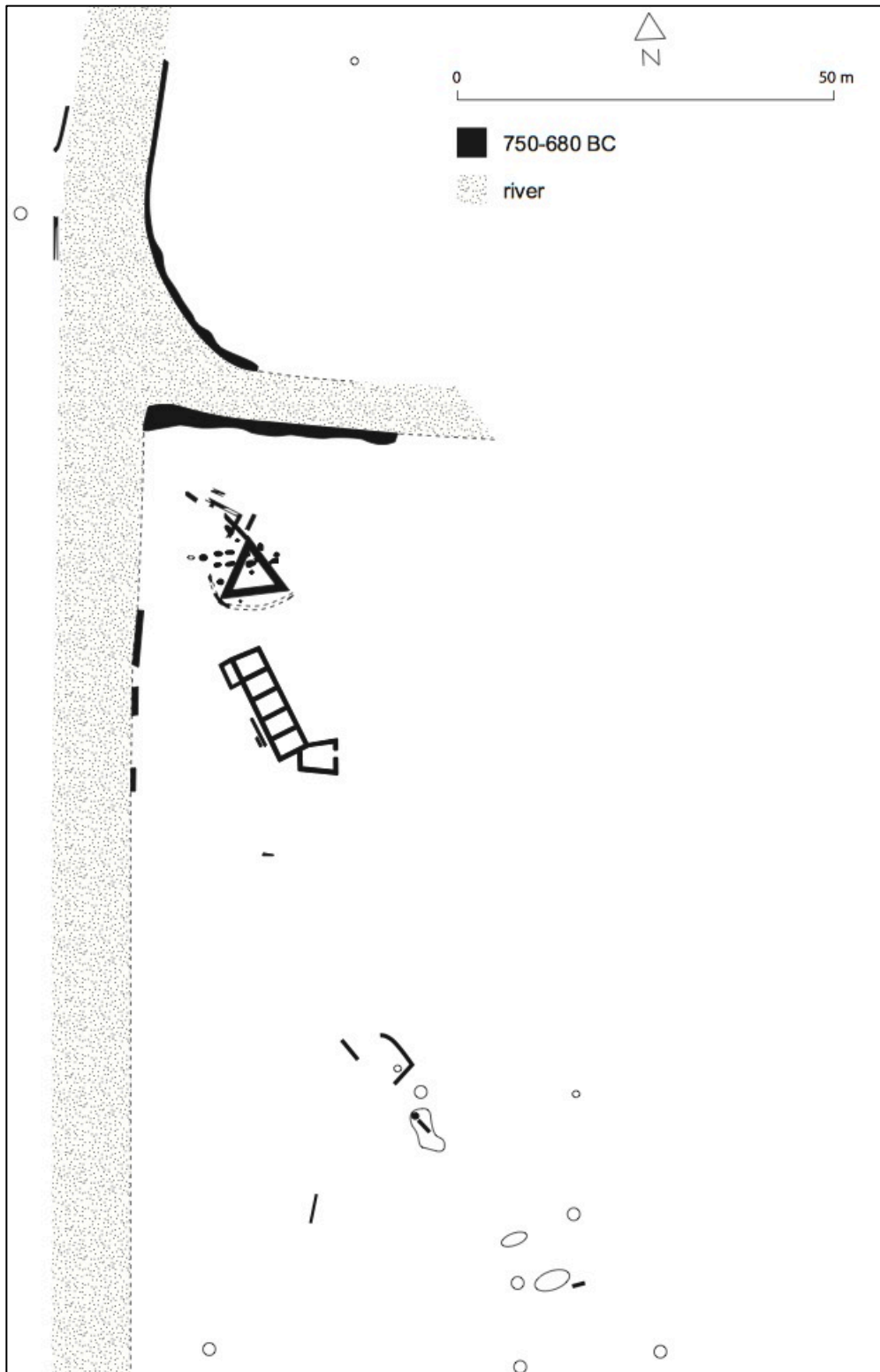
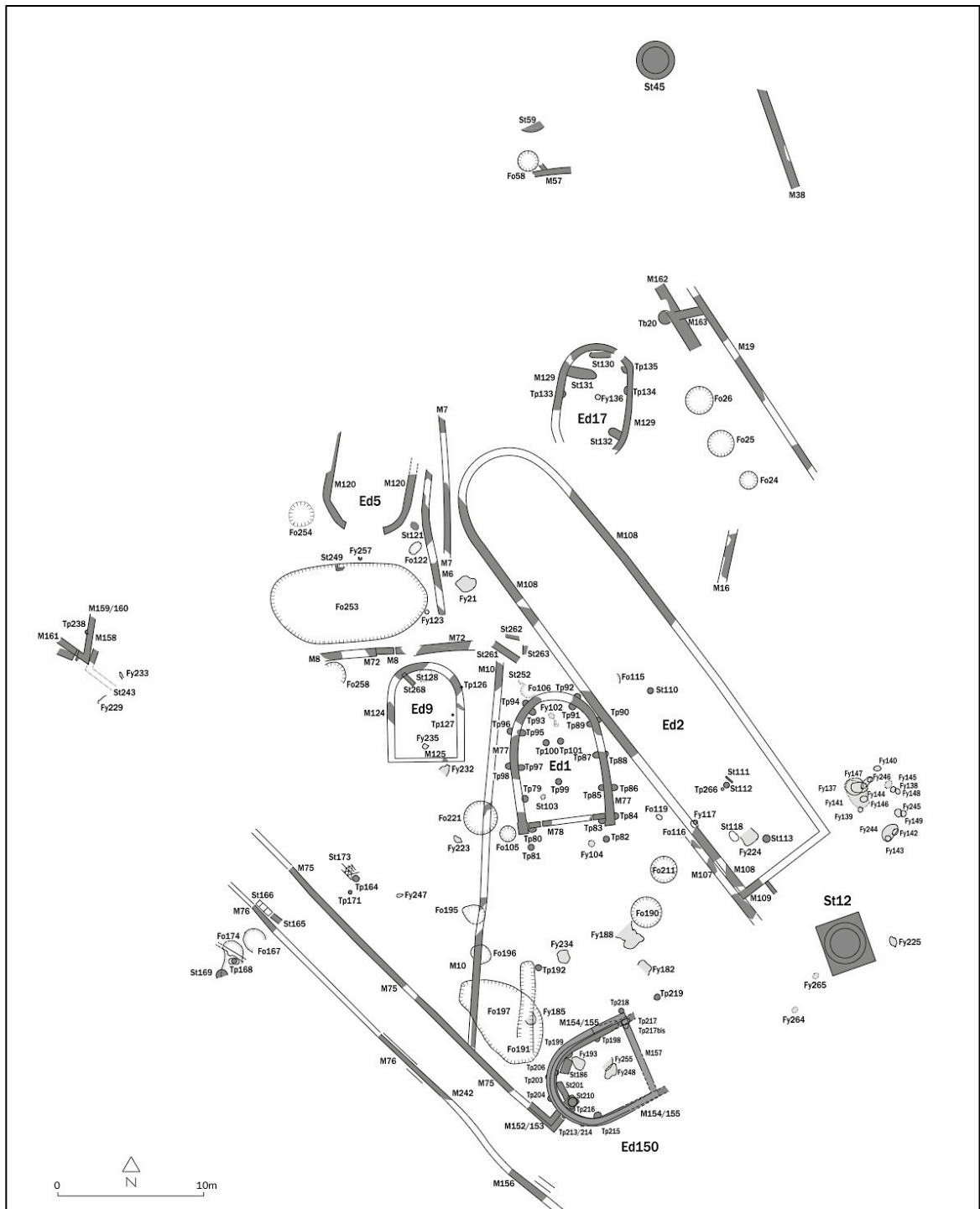


Fig. 8.8 Plan of the West Quarter of Eretria, with Heroon and other Late Geometric remains (Courtesy of the Swiss School of Archaeology in Greece)



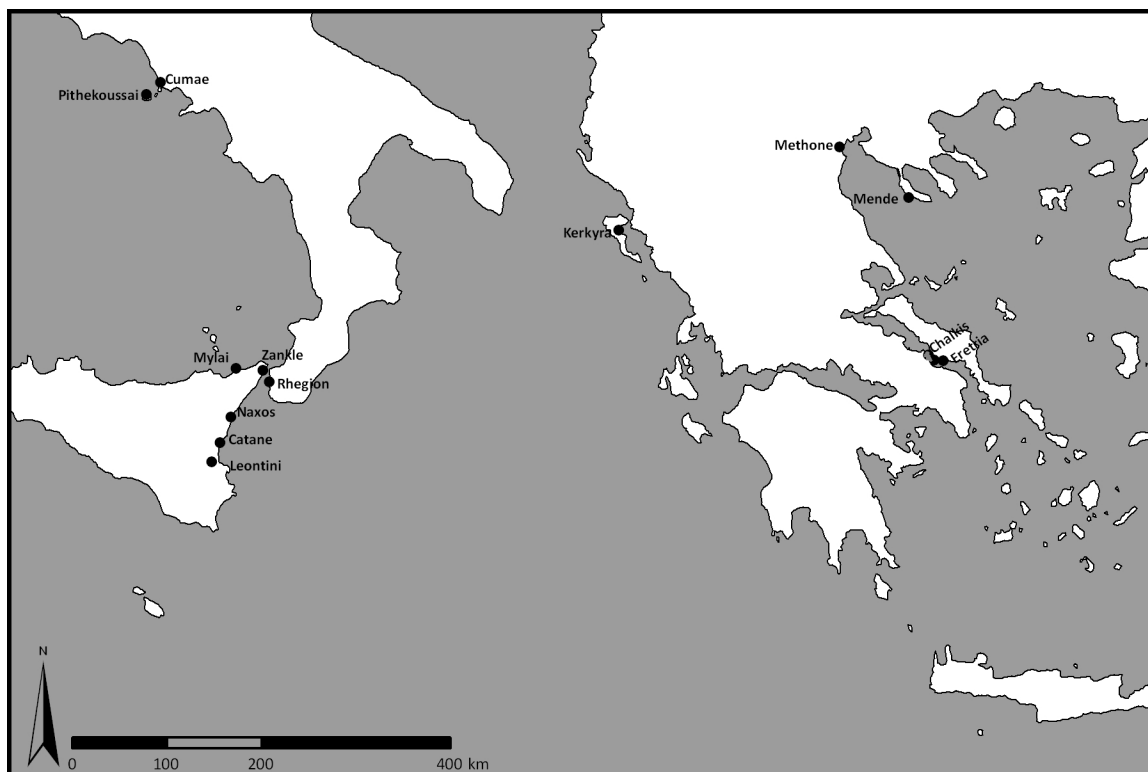


Fig. 8.10 Euboean colonial foundations in the eighth century

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