

Aegean Prehistory as World Archaeology: Recent Trends in the Archaeology of Bronze Age Greece

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Abstract This article surveys archaeological work of the last decade on the Greek Bronze Age, part of the broader discipline known as Aegean prehistory. Naturally, the literature is vast, so I focus on a set of topics that may be of general interest to non-Aegeanists: chronology, regional studies, the emergence and organization of archaic states, ritual and religion, and archaeological science. Greek Bronze Age archaeology rarely appears in the comparative archaeological literature; accordingly, in this article I place this work in the context of world archaeology, arguing for a reconsideration of the potential of Aegean archaeology to provide enlightening comparative material.

Keywords Archaeology · Greece · Bronze Age · Aegean prehistory

Introduction

The present review updates the article by Bennet and Galaty (1997) in this journal, reporting work published mainly between 1996 and 2006. Whereas they characterized trends in all of Greek archaeology, here I focus exclusively on the Bronze Age, roughly 3100–1000 B.C. (Table 1). The geographical scope of this review is more or less the boundaries of the modern state of Greece, rather arbitrarily of course since such boundaries did not exist in the Bronze Age, nor was there a uniform culture across this expanse of space and time. Nevertheless, distinct archaeological cultures flourished on the Greek mainland, on Crete, and on the Aegean Islands (Figs. 1, 2), interacting with one another and the wider Mediterranean world. Although these broader contacts form an essential part of the Bronze

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Table 1 Chronological table of the Aegean Bronze Age, using a modified *low* chronology^a

Crete (Minoan)			Mainland (Helladic)		
	Pottery Phase	Calendar dates	Pottery Phase	Calendar dates	
Prepalatial	Early Minoan (EM) I	3100–2700	Early Helladic (EH) I	3100–2700	
	EM II	2700–2200	EH II	2700–2200	
	EM III	2200–2100	EH III	2200–2000	
	Middle Minoan (MM) IA	2100–1900	Middle Helladic (MH) I	2000–1850	
Protopalatial	MM IB	1900–1800			
	MM II	1800–1700	MH II	1850–1700	
Neopalatial	MM III	1700–1600	MH III	1700–1600	Shaft Grave Era
	Late Minoan (LM) IA	1600–1480	Late Helladic (LH) I	1600–1500	
	LM IB	1480–1425			
Final Palatial	LM II	1425–1390	LH IIA	1500–1440	Mycenaean
			LH IIB	1440–1390	
			LH IIIA1	1390–1370	
Postpalatial	LM IIIA2	1370–1300	LH IIIA2	1370–1300	
	LM IIIB	1300–1190	LH IIIB	1300–1190	
	LM IIIC	1190–1070	LH IIIC	1190–1070	
	Subminoan	1070–1000	Submycenaean	1070–1015	

^a The relative merits of low and high chronologies are discussed in the text. All dates B.C.

Age story, I mention only a few examples of the important archaeological work done in Anatolia, Cyprus, the Levant, northern Africa, the Balkans, and the central Mediterranean, which bears upon interaction with the Aegean area. The Greek Bronze Age forms part of the longer timeframe of the discipline of Aegean prehistory, and archaeologists of the Bronze Age typically consider themselves Aegean prehistorians. The term “Aegean” is used widely in place of “Greek” to acknowledge that many who lived in the region in the Bronze Age had no linguistic or ethnic connection to recognizably Greek populations.

Research on the Aegean Bronze Age is a vast enterprise, and considerations of space preclude a comprehensive reporting of all deserving fieldwork and interpretive study. Inevitably, this review is selective and idiosyncratic, reflecting my own experience as well as issues that seem to me to have particular relevance for archaeologists working in other world areas. I have chosen to examine a limited number of topics of general interest in the hope that non-Aegeanists will recognize in them similar problems to which we may all share approaches, if not common solutions. These topics are chronology, regional studies, the emergence and organization of archaic states, ritual and religion, and archaeological science. A central claim of this survey is that Aegean prehistory is an underutilized resource for



Fig. 1 Map of the Aegean and surrounding areas showing regions and other geographical references mentioned in the text

comparative studies in world archaeology. A growing trend toward convergence in theoretical and methodological discourse around the world makes the study of prehistoric Greece more comprehensible and relevant to similar discussions occurring elsewhere. The Aegean Bronze Age witnessed the emergence, expansion, and collapse of two major complex societies (Minoan and Mycenaean), and the rich data sets produced in more than a century of archaeological investigation are crying out for use by other prehistorians. There are real similarities and differences between Aegean and other societies in scale, organization, and historical trajectories, and in closing this review I offer a brief example of how a recent opening of communication has been illuminating to experts on Maya and Mycenaean archaeology, with great promise for fruitful interaction in the future. Aegean prehistorians are consumers of world archaeological literature, but they are also innovators in many areas such as regional archaeology, archaeometry, and the integration of textual and archaeological data. My hope is that the admittedly selective treatment below suggests places to begin exploring the rich Aegean tradition.

In view of the expected audience, there is a bias toward English-language sources that in no way should be read as a disparagement of flourishing non-Anglophone

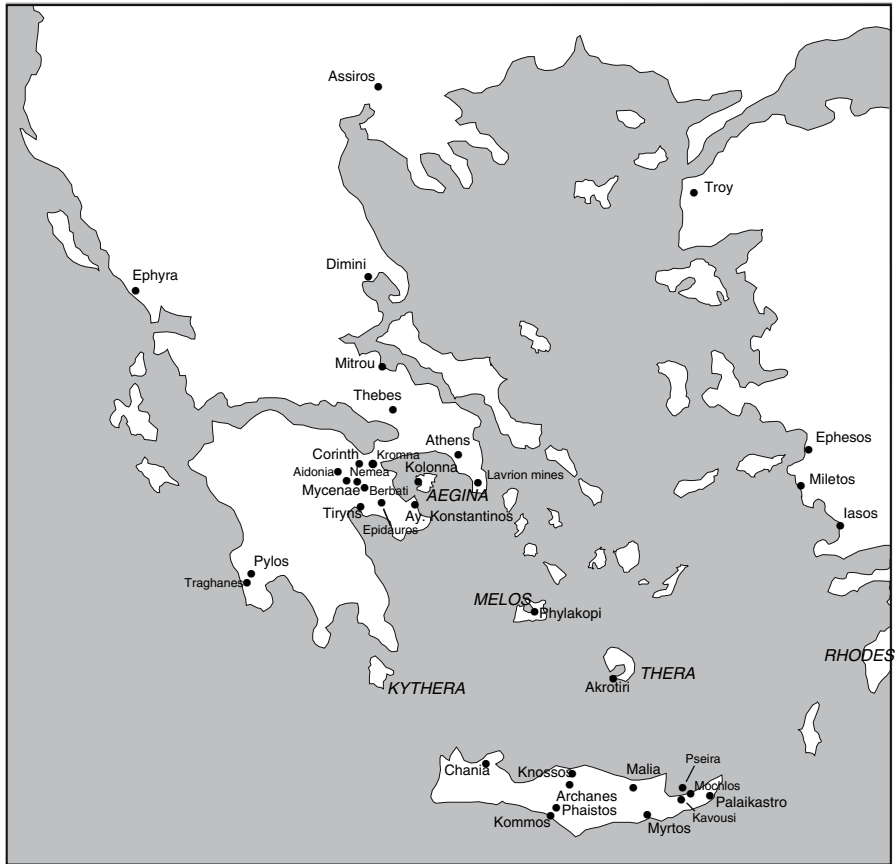


Fig. 2 Map of the Aegean area showing important sites mentioned in the text

archaeological research in the Aegean. Archaeologists in the Greek Archaeological Service spend their careers mainly in rescue mode, rarely experiencing the luxury of a proper research project. Without their dedication, the battle against rampant destruction of Greece's archaeological heritage would be lost.

Chronology and Thera revisited

There are many new developments in Bronze Age chronology, but discrepancies persist between traditional and more recent, mainly science-based, chronological frameworks. We may expect the effort to resolve these differences to be a prominent feature of Aegean prehistory for years to come. As Bennet and Galaty (1997, pp. 82–84) explain, an absolute chronology for the Aegean Bronze Age relied traditionally on pegging extensively developed pottery sequences to the well-established Egyptian historical chronology through the frequent appearance of Aegean objects in archaeological contexts in Egypt and vice versa. More recently,

both text-based and scientific dating methods have been refined. Egyptian astronomical dates, based on textual references to the heliacal rising of Sirius (Sothic dates) and the phases of the moon (lunar dates), have been refined by new calculations. These dates generally buttress the traditional Egyptian chronology, but they contain similar margins of error because of the ambiguity of such observations and the complex movements of celestial bodies over long periods of time (Krauss 2003; O'Mara 2003; Wells 2002; Wiener 2003b).

A general radiocarbon framework for Aegean Bronze Age chronology is now firmly established (Manning 1995, 1999), but is by no means universally accepted as more accurate or precise than the traditional chronology in key phases, particularly the latter part of the Bronze Age in the second millennium. Critics point to persistent anomalies that are largely inherent to the method. Among these are interlaboratory measurement variability [where there is steady improvement (Boaretto et al. 2003)], regional and diachronic variation in the absorption of radiocarbon (Olsson 2003), and perhaps most troubling, serious issues of bias and convergence introduced in the calibration of raw radiocarbon dates (Wiener 2003a, pp. 380–387). The most promising developments in scientific dating have come from dendrochronology (for basic principles, see Nash 2002). The Aegean does not enjoy the advantage of excellent preservation of long-lived tree species that characterizes northern Europe and the southwestern United States, nor has it been common practice to collect wood or wood charcoal for dendrochronological analysis (Kuniholm 2001; Newton and Kuniholm 1999). Yet the Aegean Dendrochronology Project, now directed by S. Manning, who has taken the place of the retired P. Kuniholm (<http://www.arts.cornell.edu/dendro/>, accessed 3 March 2007), has made tremendous strides in constructing a robust tree-ring sequence for the eastern Mediterranean using Anatolian oak, pine, juniper, and other species (Kuniholm et al. 2005; Manning et al. 2001, 2003). Currently, the sequence is continuous from c. 2657 to 649 B.C., but it is a “floating chronology” because it is not anchored precisely to any marker event, and it does not yet overlap with the sequence extending to the present. Nevertheless, based on a series of high-precision radiocarbon wiggle-match analyses, these collaborators claim that the dendrochronological sequence is “near-absolute,” with 3σ error ranges of $+16/-7$ or better within the Bronze and Iron Ages (Manning et al. 2003). The full impact of these findings will not be realized for some time, but a preview of the implications may be seen in a new series of tree-ring dates published for four charred building timbers at the site of Assiros in Macedonia, northern Greece (Newton et al. 2005). There, the association of timbers with a Protogeometric pottery vessel—marking the beginning of the post-Bronze Age period—in a secure deposit has yielded dendrochronological and radiocarbon dates that would move the traditional date for the end of the Bronze Age earlier by as many as 75 years. If verified, this result would squeeze the last phases of the Bronze Age (Late Helladic [LH] IIIC and “Submycenaean”) while lengthening that immediately following the Bronze Age (Protogeometric). Newton and colleagues (2005, p. 188) even suggest that the changes might be accommodated by moving back the beginning of LH IIIC, now dated no earlier than 1200 by coordinating Egyptian records with widespread destructions at Mycenaean palaces, into the 13th century B.C. The findings from Assiros are sure to be

controversial, and indeed a first blistering critique (Keenan n.d., pp. 12–14) questions both the quantitative methodology and the comparability of Greek and Anatolian trees.

Evidence that a rapprochement is not imminent can be seen in the still-ongoing debate surrounding the date of the cataclysmic eruption of the volcanic island of Thera (Santorini) sometime in the mid-second millennium (see Bennet and Galaty 1997, p. 83). The dating of this event is crucial because it occurred at the transition between pottery styles labeled Late Minoan IA and IB, squarely in the Cretan Neopalatial period, and it holds important consequences for cross-dating material throughout the eastern Mediterranean. The traditional date of this ceramic transition—and by extension the eruption—at around 1550 B.C. or a bit later had been challenged by interpretation of ice cores, frost-ring dendrochronology, and ^{14}C determinations, suggesting a date in the second half of the 17th century B.C. for material thought to originate in the eruption. The consensus that Bennet and Galaty saw as inevitable in favor of the earlier date has failed to materialize, however, as grave concerns persist about the scientific data [see especially Bietak's (2004) critical review of Manning (1999)]. It is now acknowledged that the tephra from Greenland, originally dated to 1628, cannot derive from the Thera eruption. A new candidate for Thera tephra in the GRIP and North GRIP cores, redated with reference to the Dye 3 core from southern Greenland to 1645 ± 7 B.C. Hammer 2000; Hammer et al. 2003), has met with similar skepticism regarding its origin, possibly Alaskan rather than Thera (Keenan 2003; Wiener 2003a, pp. 373–376, 2003b, 2006). Radiocarbon dates are of limited help because they suffer from unfortunate oscillations and plateaus in the calibration curve at just this period. Some success for wiggle matching of Anatolian tree-ring dates to ^{14}C determinations in that range has been claimed (Manning et al. 2003), but larger sample sets of internally well-dated tree rings are needed. The most recent radiocarbon reassessment, using a new calibration curve and three laboratories, of 127 samples from Akrotiri on Thera and other Aegean sites conventionally dated between 1700 and 1400 B.C. yielded a date for the eruption between 1660 and 1613 B.C. at a 95% confidence level (Manning et al. 2006). Another group independently dated an olive branch, said to have been found buried alive in the pumice of the Thera eruption, to 1627–1600, again at a 95% confidence level (Friedrich et al. 2006). Yet those favoring the later chronology remain entirely unconvinced, insisting that scientific dates that diverge from the Egyptian historical chronology by 100 years or more are impossible (Bietak, quoted in Balter 2006; Wiener 2006). If accepted, the early dates would cause a lengthening of the period marked by Late Minoan (LM) IB-style pottery to between 125 and 175 years, considered by many to be highly unlikely (T. Brogan, personal communication 2006). It should be noted, however, that there has been no systematic attempt to subject Egyptian sites and materials to radiocarbon evaluation, and this has allowed Egyptologists to avoid confronting any discrepancies that may result. Thus, as of this writing, there is substantial support for both low and high (or “short” and “long”) chronologies, including a modified long chronology that tracks recent developments in scientific dating (Manning et al. 2002; Rehak and Younger 2001, pp. 389–392, 467). This debate reveals a peculiar methodological rift that can be attributed to a long reliance on historical calendars

for absolute dating, one likely to puzzle archaeologists in other world areas, who have always relied on scientific methods for chronometric dates in prehistory. But it is healthy that scientific techniques have forced a thorough reevaluation of the bases of our chronological schemes, and it seems inevitable that advances from that direction, most likely when radiocarbon dates are “locked in” by dendrochronology, will one day permit the synchronization that is at present so elusive.

Regional studies and “Mediterranean myopia”

The state of Aegean regional studies in the mid-1990s was well characterized by Bennet and Galaty (1997, pp. 96–99; see also Galaty 2005), but there are new developments and once again, a consensus that they perceived—this time on methodology—is under siege. In recent years, Greek regional studies have come in for vigorous criticism from observers within Mediterranean archaeology and elsewhere (Blanton 2001; Osborne 2004a, 2004b; Terrenato 2004). The failings that Blanton describes as “Mediterranean myopia” include a localism that hinders data comparability from region to region, resulting in a lack of integration of results into regional syntheses; an obsession with methods over historical reconstruction; a focus on intensive, siteless surveys rather than large-area, site-based “full-coverage” surveys, at tremendous cost for too little area covered; and an alleged environmentally deterministic landscape archaeology. Stanish (2003) claims that Mediterranean and Americanist regional studies constitute very different research traditions. He notes that settlement archaeology in the Americas routinely incorporates surface survey and excavation, as features of a methodology that arose from explicit ties to the theoretical framework of cultural ecology and an emerging processual paradigm. He views the differences in Mediterranean practice as resulting from a lack of those same theoretical ties. Osborne (2004a, p. 89), a historian, concludes that survey has had little impact on Greek archaeology.

How much of this criticism is valid and why should regional studies in Greece be apparently so different from those in the Americas and elsewhere? To understand the current situation, a brief historical digression is necessary. The Minnesota Messenia Expedition (MME), the grandfather of all Aegean regional studies, explored a large region (approximately 3,800 km²) in southern Greece in the 1950s and 1960s (Bennet and Galaty 1997, pp. 96–97; McDonald and Rapp 1972). In a revealing introductory chapter, McDonald makes clear the project’s debt to Steward’s cultural ecology and cites specifically the influence of contemporary regional studies directed by Braidwood, Adams, MacNeish, and Sanders (McDonald 1972). The research design was remarkably interdisciplinary for its time, very much in line with the scope of settlement pattern studies as they unfolded in the New World. In the same year as the MME publication, Renfrew’s unabashedly processual *The Emergence of Civilisation* gave impetus to the next generation of regional studies in Greece (Barrett and Halstead 2004; Bennet and Galaty 1997, p. 77; Cherry 2004, pp. 1–4; Renfrew 1972), which have until very recently remained true to those processual theoretical roots (Davis 1994). The early projects often

integrated survey with excavation of one or more key sites (Jameson et al. 1994; McDonald and Wilkie 1992; Wright et al. 1990).

Already in the 1970s, however, Aegean regional studies had begun to take a different and idiosyncratic path. Perhaps the two most significant developments were the widespread adoption of intensive, siteless survey methods and increasing legal restrictions on regional-scale fieldwork. The forceful advocacy of hyperintensive survey methods in a constant stream of publications by a handful of leading archaeologists, notably Cherry, Davis, Bintliff, and Snodgrass, undeniably shaped survey practice. These archaeologists were influenced by the New Archaeology's interest in sampling and statistical methods, and by early Anglo-American experiments with siteless methods (Cherry 1983; Cherry et al. 1991; cf. Foley 1981; Plog et al. 1978; Shennan 1985; Thomas 1975). Quite apart from this, however, legal and administrative realities have played a major role. The laws governing foreign archaeological work in Greece have become increasingly restrictive (a summary of the recent law 3028/2002 may be viewed at <http://www.ascsa.edu.gr/News/encyclical.htm>, accessed 5 March 2007) (see Cherry et al. 1991, p. xv; Davis 2004, pp. 22–23; Tartaron et al. 2006a, pp. 464–466). Currently, each foreign archaeological school or mission is allotted only six permits for archaeological work annually. With the resulting logjam of applications, no project can expect a permit longer than around three seasons. Further, survey and excavation cannot be combined in a single project, except in the highly unlikely event that a project could consume two permits. Field seasons are limited to six weeks per year, and a project's survey area must not exceed 30,000 *stremmata* (just 300 hectares); thus, survey on the scale of the Basin of Mexico or Valley of Oaxaca is for the time being unthinkable. The consequences of these policies for regional archaeology are sobering: holistic archaeological approaches to regions that are practiced around the world, integrating surface survey with plowzone experiments, excavations of key sites, long-term replication experiments, and other such studies, are rarely possible. The reasons for this restrictive posture are complex, but they include a sense that foreigners often come to Greece with colonial attitudes (see Atwood 2005 for a New World parallel), and exasperation over the severe burden that site management and storage of massive amounts of cultural material have placed on the Greek Archaeological Service (for different perspectives, see Cherry 2003; Dumas 2001; Kardulias 1994).

These conditions illuminate many aspects of Blanton's critique. The map of survey coverage in Greece contains mainly smaller-scale, regionally noncontiguous surveys, although there are exceptions in a few vast surveys and in recent efforts to join survey territories. Archaeologists in the Aegean are indeed obsessed with high-resolution methods of siteless survey; with few other options, they have focused increasingly on refining the data extracted from the surface alone. Fine-scale geomorphological analysis in tandem with intensive survey has become a defining characteristic of this approach (Francovich et al. 2000; Given et al. 2002; Tartaron et al. 2006a, pp. 466–470). These innovations are sophisticated and should be of interest beyond the Mediterranean. Yet as Blanton observes, there has been a real sacrifice in terms of regional coverage, problem orientation, and comparative perspective. Stanish (2003, p. 167) makes the key point that in the Americas the

methodology of settlement pattern survey is explicitly directed toward comparative approaches to regional problems of anthropological interest. In recent times, this broader outlook has been lacking in Greece, resulting in a patchwork of small surveys using diverse methods, hindering data comparability and ultimately the illumination of supraregional phenomena. Happily, there is a concerted effort underway to utilize survey data in comparative studies (Bintliff 1997; Cavanagh 1995; Cherry and Davis 2001; Cherry and Parkinson 2003; Cunningham 2001; Cunningham and Driessen 2004; Driessen 2001; Halstead 1994; Mee 1999; Moody 2004; Wright 2004a), facilitated by the appearance of several preliminary and “final” reports on surveys carried out from the 1970s to the early 1990s (Cavanagh et al. 1996, 2003; Cosmopoulos 2001; Davis 1998; Davis et al. 1997; Haggis 1996; Jameson et al. 1994; Mee and Forbes 1997; Runnels et al. 1995; Watrous et al. 2005; Wells and Runnels 1996; Wiseman and Zachos 2003). It should be obvious from the foregoing discussion that differences in the Aegean and Americanist traditions resolve in part to different sets of options available to the archaeologist, rather than a sharp philosophical or theoretical divide. If restrictions on the scope of fieldwork in Greece were relaxed, one immediate effect would be fundamental changes in research designs that would bring regional projects more in line with practice in the Americas. Yet much scope for fruitful dialogue would remain. For example, Blanton’s advocacy of the so-called full-coverage survey practiced in Mesoamerica (Blanton 2001; Fish 1999; Fish and Kowalewski 1990) will seem no panacea to many Aegean archaeologists. The term itself is misleading in that it entails neither inspection of nor even interest in the totality of the surface of a given region, and this is sampling by another name. Further, it appears to some as a broad-brush method in which “sites” are unproblematic, readily identified constructs and all that is not recognized as a site is ignored or decontextualized as a grab sample (Cherry 2004, pp. 11–12). An alternative point of view, widely held in the Aegean, emphasizes the wealth of information that resides in nonsite patterns of presence/absence and density, in clear contradiction to Blanton’s (2001, p. 629) characterization of the “comparatively trivial matter of off-site artifact densities.” Whatever one’s position, we must acknowledge that these methods produce genuinely alternative readings of the archaeological landscape. While it is certainly the case that the expansion of survey in full-coverage mode yields new insights and may correct prior interpretations (Feinman and Nicholas 1999, pp. 172–173; Finsten and Kowalewski 1999), it is equally true that high-resolution, siteless survey greatly modifies interpretations drawn from coarser investigative methods. Consider one brief example from the Eastern Korinthia Archaeological Survey (EKAS) in southern Greece. Kromna, a historical-period settlement on the coastal plain east of the ancient city of Corinth, was investigated in part by high-resolution siteless survey (Caraher et al. 2006; Tartaron et al. 2006a, pp. 494–513). These methods revealed consistent, low-density background scatters of material for four periods that likely would have been missed entirely by extensive or site-based methods. These results, enhanced by geographic information systems (GIS) analysis, changed radically our thinking about settlement patterns in the region by peopling the landscape in periods that were thought to be depopulated, and by documenting a shifting spatial focus of activity over time at this large settlement. It seems obvious

that both full-coverage and siteless surveys, with their different levels of resolution and distinct units of discovery and analysis, play important roles in revealing the fullness of human presence in any region, not as either/or propositions, and offer a fruitful point of departure for mutually beneficial discussion across these traditions.

A final point in Blanton's critique is that an environmentally deterministic perspective, discarded decades ago in the Americas, has been adopted in Mediterranean landscape archaeology (Blanton 2001, p. 629). In Greece, landscape archaeology did emerge initially from a processual tradition that emphasized the interaction of human societies (as aggregate entities) and the natural environment to ensure subsistence and adaptive success (e.g., Kardulias 1994, p. 10: "the interactive biological and cultural aspects of human existence within an environmental context"). But following their colleagues in the Americas and western Europe, survey archaeologists working in Greece developed varied responses to neo-evolutionism and ecological/demographic/technological determinism that in no way foregrounded environment as the decisive factor in social organization or cultural change, such as world systems theory (Kardulias 1999a, 1999b; Kardulias and Yerkes 2004), peer polity interaction (Renfrew and Cherry 1986), and *Annales* history and other forms of structure/contingency modeling (Bintliff 1991, 1999; Knapp 1992; Sutton 2000). One benefit of so many small surveys has been an appreciation for the surprising variability of human culture across time and space, which in turn has been instrumental in stimulating resistance to deterministic explanations in Greece as elsewhere (Trigger 1989, pp. 329–347). In operationalizing the concept of landscape in regional studies, Aegean archaeology has adopted not so much the kind of environmental fetishism that Blanton seems to imply, as a focus on paleoenvironment as a means to contextualize ancient societies and an emphasis on geomorphology as a way to better understand the formation of the surface archaeological record.

By the late 1980s, the influence of (mainly British) postmodernists and postprocessual archaeologists was felt (e.g., Bender 1993; Bradley 1994, 2000; Cosgrove 1985; Hodder 1987; Tilley 1994). Their writings emphasized the individual and experiential aspects of living in the world, and their notion that there is no single, objectively observable landscape is now commonplace. Recent literature across the spectrum of Aegean prehistory shows the gradual incorporation of these ideas into archaeological analysis and interpretation, but more rarely into research designs for regional studies. A challenge going forward will be to learn to incorporate these ideas in the research design phase and to collect data in such a way as to facilitate addressing significant anthropological questions (Cherry 2003, pp. 158–159). Some initial steps toward that goal have been taken by the Sydney Cyprus Survey Project (Given and Knapp 2003). Given (2004) explores the possibility of recreating the "ideational" landscapes (Knapp and Ashmore 1999) of a rural Cypriot population by combining information from targeted surface survey, geomorphology, prior excavations, historical documents and oral histories, ethnoarchaeology, and GIS analyses, including viewsheds. In this case, Given attempts a phenomenological approach to changing perceptions of the world between the Roman period, characterized by an extensively cultivated and industrial landscape, and later Medieval and Ottoman times, when settlement was highly nucleated in small villages and sharply bounded by surrounding zones of cultivation. This approach is successful in part because written

documents and oral histories can verify certain emic perceptions, but what is most striking is that unlike previous landscape studies in the postmodern vein, Given explicitly utilizes off-site artifact distribution data to make his case.

Some Mediterranean archaeologists have called for fundamental changes in regional archaeology, including the abandonment, or at least rethinking, of hyperintensive survey as the main method of surface archaeology (Fentress 2000; Terrenato 2004). In both methodology and research orientation, Aegean regional studies stand at a crucial crossroads, with several difficult issues to confront. (1) Will the recent spate of publications that attempt to utilize siteless data in regional and supraregional syntheses deliver the goods, showing the viability and comparability of these data across many diverse surveys? Attempts to create and maintain a formal framework for data sharing and standardization have yielded only modest results (Dunn n.d.), but the Collaboratory for GIS and Mediterranean Archaeology (CGMA: <http://cgma.depauw.edu/>, accessed 3 March 2007) is set to release a pan-Mediterranean GIS with metadata and some primary data on survey projects in this vast region (Galaty 2005, p. 318). (2) The microlevel surface record is messy, and the sources of distortion and bias are well documented (e.g., Given 2004; Terrenato 2004), but do we simply turn away from this messiness because it is easier to do so, disregarding the complexity of the archaeological landscape at this scale? (3) Should we reorient regional research away from traditional processual concerns (Fish 1999, pp. 205–207) toward a more relativistic and humanized approach fueled by postmodern conceptions of landscape (Anscheutz et al. 2001)? Terrenato (2004, p. 47) recommends that we generate internally consistent, empirically based narratives that would lead to relative rather than absolute comparisons of data that do not rely on complete or near-complete recovery. Along the way, some narratives would find wider acceptance than others. (4) Finally, is settlement pattern archaeology sustainable in the long term, in the face of rampant destruction of the plowzone by modern development and the generally negative attitude of the Greek authorities toward spatially extensive fieldwork? Should we stay the (intensive) course, or focus instead on full-coverage surveys, maximizing time and coverage to inventory the largest possible amount of territory while there is still time?

Rethinking archaic states in the Aegean

One of the most important developments of the last decade has been an explicit effort to deconstruct the dominant paradigms of state formation in the Aegean, particularly the concept of the Minoan and Mycenaean “palace” as a monolithic and pervasive locus of royal power. With no small influence from postmodern points of view, there has been a radical break with the normative and monumental conceptualization of the palace as elite residence and centralized administrative and redistributive center (Haggis, personal communication 2004). Some have called for the abandonment of such terms as “palace” and “king” in the Minoan world, finding little archaeological or documentary evidence to sustain them (e.g., Driessen 2002, Schoep 2002a, b). This critique is more muted for the Mycenaean world,

where the Linear B texts detail a complex, pyramidal social hierarchy with a king (*wanax*) at the apex, but even there much new work has called into question the pervasiveness of a palace's control—political, economic, and social—over everyday life in outlying communities (e.g., Galaty and Parkinson 1999a; for an excellent overview of Linear B administration, see Palaima 2003).

In the middle of the third millennium B.C., precocious developments toward complexity occurred in the Cycladic Islands, on Crete, and in parts of the Greek mainland (Broodbank 2000; Renfrew 1972). A recent landmark publication on this phenomenon is Broodbank's *An Island Archaeology of the Early Cyclades* (2000), in which the author presents a new synthesis of 100 years of archaeological data and a spatial (network) analysis to describe and explain the patterns of interconnection within the Cycladic island group and with the wider Aegean world. Drawing comparative material from island archaeologies in the Pacific and elsewhere, Broodbank seeks to show the common experiences of island life but also concludes that the Cyclades followed a unique historical trajectory. The work should have appeal beyond the Aegean because of the way Broodbank blends a meticulous empiricism with a postmodern landscape perspective.

In the Cyclades and on the mainland, however, this complexity is regarded as a “false start,” unraveling with destructions and abandonments in the latter centuries of the Early Bronze Age before achieving what we would call state-level society. Thus, there can be no question of continuity to the later Mycenaean palaces, the origin of which cannot be found prior to the end of the Middle Bronze Age in the so-called Shaft Grave Era. On Crete, however, no irrefutable discontinuity exists, and a current matter of discussion is whether a continuous evolution of complexity culminating in the Middle Minoan (MM) palaces began already in Early Minoan (EM) II. The debate revolves around several elements of material culture into which some read social complexity and others do not, as well as general attitudes toward evolutionary explanations. For example, Schoep (1999, 2001, 2006) has argued for emerging complexity in EM II in the form of monumental structures and seals and sealings that may attest to organized administrative activity. Others disagree, pointing out that the very small number of seals and sealings that can be positively attributed to this early period are found in burials and in other patently nonadministrative contexts, and, furthermore, other apparent signs of social differentiation are absent in burials, dwelling sizes, etc. Weingarten (1986, 1990) argues that the system of administrative sealings was imported along with the concept of the palace from Anatolia in the Middle Minoan period. A possible exception, still debated, appears at Mochlos, where contrasts in elaboration of EM burials and the presence of seals in domestic contexts of EM II may connote meaningful differences in social status (compare Soles 1992, pp. 255–258 and Watrous 2001, pp. 173–175, 191–192).

The trend to read the record as one of discontinuity is partly a reaction to evolutionary arguments that are not well supported by empirical evidence (Watrous 2001, pp. 174–179). There has been a problem of up to three “lost centuries” in EM III, which from the evidence of regional surveys and excavations was characterized by site abandonments and a largely deserted countryside (Watrous 2001, pp. 179–182; Watrous et al. 2005), but this gap appears to be closing with

good EM III–MM IA deposits at several sites, including Mochlos and Gournia (Brogan, personal communication 2006). More recently, Schoep and Knappett (2004) have offered something of a compromise position, arguing that a gradual, “slow-boiling” heterarchical social competition developed many traits of complexity before a hierarchy “exploded” onto the scene in the first palaces of MM II.

The palaces of Minoan Crete

Turning to Minoan Crete, the “palatial model,” as constructed by its critics, presents a monolithic and relatively static picture of a limited number of small, essentially similar palace “states” across Crete. These states are characterized by a centralized and hierarchical political authority; economic and political power is centralized in the palace and embodied in an individual ruler (“king”). The palace serves as a residence for the ruler and his relatives and retainers, and as a center for the administration of an economy concerned with mobilization and storage of subsistence goods and the production of luxury items. The polity maintains political and economic control over a regional territory, which it exploits and to which it transmits elements of style and ideology. The palaces are recognizable by their exceptional size within their settlements; by their distinctive architectural form, a square or rectangular central court surrounded by wings containing complexes of rooms, halls, and staircases leading to upper stories; and by architectural elaboration including ashlar masonry, use of gypsum to decorate facades, frescoes, light wells, pier-and-door partitions, and specialized ritual spaces such as “lustral basins” and “pillar crypts.” This court-centered complex served as a vehicle for the presentation of elite status, ideology, and solidarity.

The fundamental problem with this picture is that its main features were formulated at the beginning of the 20th century by Arthur Evans, the first non-Greek excavator of Knossos, partly from the archaeological remains of the final (LM II–III) phase of the palace and partly in his imagination (Hitchcock and Koudounaris 2002; Klynne 1998; Papadopoulos 2005). Several scholars have noted that Evans constructed a Minoan world reminiscent of the late British Empire and its Victorian/Edwardian sensibilities: the Minoans were elegant, nature-loving, and hierarchical, with kings and queens reigning over a peaceful empire made safe through naval might, i.e., a thalassocracy (Hamilakis 2002a; MacGillivray 2000; Schoep 2002b, pp. 102–103). Evans was deeply influenced also by prevailing evolutionary views of culture as organic, unilinear, and directional, progressing from a simple past to a complex (European) present (Hamilakis 2002a, pp. 3–4). Subsequently, these notions were perpetuated by comparisons with the palace- and temple-centered administration of Near Eastern Bronze Age cities and with the patently hierarchical organization of Mycenaean palace centers revealed in the Linear B archives. According to Hamilakis (2002a), an anachronizing, evolutionary perspective has persisted through Renfrew’s (1972) application of neo-evolutionist ideas borrowed largely from American processualism (see Schoep and Knappett 2004; Whitelaw 2004), more recently in modified form (e.g., Earle 1997; Stein and Rothman 1994), leaving us with embedded terminology, theories, and methods that continue to shape

our narrative of Cretan Bronze Age society. This kind of critique is a familiar one, very much in tune with recent reviews in other world areas (e.g., Yoffee 1993, 2005). As with Yoffee's (2005) analysis, there is a hint of a straw man in that the archaeologist who subscribes to all points in the model may not exist, but clearly many of these assumptions remain with us and need to be addressed.

One problematic result of the influence of these ideas has been that since Evans' time the model, generated from the final (Postpalatial) palace at Knossos, has been applied uncritically to the earlier palaces of the Neopalatial and Protopalatial periods across Crete. In the final palace at Knossos, under the apparent control of a Greek-speaking (probably Mycenaean) elite, the Linear B archive details a hierarchical social and economic polity, and here the model has some merit. But a mechanistic evolutionary development from earlier to later palaces, assuming formal and functional similarity and continuity between the more archaeologically visible later palaces and their scantily preserved (notably, Protopalatial) predecessors, has been challenged by recent archaeological evidence that sheds new light on form, function, process, and variability across space and time. The controversy about "palace" as a valid term is also fueled by recent discoveries of "court-centered" buildings at Petras, Galatas, and Kommos, calling into question the distinction between palace and nonpalace, and diminishing the uniqueness of the palaces architecturally.

In a series of articles drawing mainly on the site of Malia, Schoep (2002a, b, 2004, 2006) has decoupled the Protopalatial palace centers from earlier and later manifestations of political organization. She demonstrates that the first (Protopalatial) palaces lack many "palatial" architectural features, which are instead found first in elite, nonpalatial structures in those same settlements (Schoep 2002b, 2004, 2006, pp. 39–42). Furthermore, elite pottery styles such as polychrome-painted Kamares ware, once believed to have been produced and consumed restrictively by palace elites at Knossos, are now known to have been imported and consumed in a wide range of palatial and nonpalatial locations on the site (Day and Wilson 1998). The evidence of sealstones and sealings tells a similar story: their earliest use predates the first palaces, and through the Protopalatial period they are found in elite burials and nonpalatial structures as well as in the palaces (Schoep 2006, pp. 44–48).

This evidence has been taken to mean that the palaces in the Protopalatial period, whatever their function, did not house an overarching central authority. Many have proposed the abandonment of the term "palace" in favor of more neutral designations such as "court compound" or "court complex." Inevitably, this also has led to the demotion of the king (Driessen 2002). The absence, in both the Protopalatial and Neopalatial periods, of "royal" burials, representations of royal personages in frescoes and other media, or plausible mentions of rulers or dynasties in the (still undeciphered) Linear A and Cretan Hieroglyphic texts persists in spite of much new work. The search for alternative agents of power has led many to consider heterarchical models and the role of factions (Brumfiel 1994, 1995; Crumley 1995; Feinman 1998) in the emergence and maintenance of Minoan political systems (Hamilakis 2002b; Schoep 2006; Wright 2004b). Although these agents are usually assumed to have been elites living outside the palaces, their formation, composition, bases of power, and reasons for competition often remain

unclear (Day and Relaki 2002, pp. 224–228). Control of ritual and ideology is frequently invoked as a means by which factions distinguish themselves from other groups within a society. One such strategy involves the creation of “high culture,” a set of aesthetic objects and values imbued with connotations of a legitimizing cosmic order in which the group possessing them takes its rightful place as agent of social and political authority (Baines and Yoffee 2000; Brumfiel 2000). As one example, Schoep (2006, p. 51) cites elite, extrapalatial control of attached craftspersons at Protopalatial Malia, who used innovative techniques to create objects of high culture such as luxury pottery with appliqué decoration. Following Helms (1988, 1993; see also Broodbank [2000] on the power of esoteric knowledge among maritime traders), Schoep suggests that factions acquired and maintained ascendancy through knowledge of and access to objects and ideologies from distant places. In late Prepalatial and Protopalatial times (EM III–MM II), extrapalatial elites may have exercised some control over expanding trade with Egypt and the Levant, and by EM III local imitations of Egyptian objects may have conferred prestige. At the same time, new technologies arrived in Crete, including the sail, use of written script, the fast potter’s wheel, faience making, and architectural innovations, which initially were restricted in access.

If the role of palaces as loci of political power in the Protopalatial period has been challenged, what were their functions and who controlled them? Most alternative interpretations cast the palace as a site for ritual performances such as feasting, dancing, processions, sacrifices, and communal meals (Day and Wilson 1998, 2002; Driessen 2002). The Protopalatial palaces at Knossos, Malia, and Phaistos contain open western courts, accessible from outside the palace, and enclosed central courts, to which access was more restricted. From this perspective, the western courts were spaces of inclusion that witnessed large-scale communal ritual emphasizing the solidarity of the community and the munificence of the sponsoring elite, while simultaneously dispatching ideological and religious symbols to reinforce the social hierarchy. In the central court, elites created a controlled space, decorated with evocative symbols such as double axes and horns of consecration, for rituals of solidarity and legitimation for a selective audience that some might view as an ascendant faction. Two reconstructed frescoes from later (Neopalatial) Knossos, the Sacred Grove and Dance Fresco and the Grandstand Fresco, appear to depict ritual performances in the western and central courts, respectively. If the first palaces were in fact ritual rather than residential complexes, it will be necessary to imagine the bulk storage facilities and food-processing equipment as intended for ritual feasting (Christakis 2004), and there must be more cogent explanations for the way that control of the palace—a large and highly complex architectural compound, after all—was negotiated and maintained by competing elite groups. Were these shadowy elites members of factions, defined as spontaneous groups formed by leaders toward specific ends and then disbanded once the outcome of their purpose was achieved or confounded? If so, can this model answer Betancourt’s (2002) contention that only through continuity and longevity of authority is it reasonable to envision the management of such crucial activities as long-distance trade, successive monumental building projects, and the bureaucracy

associated with palace storage? Indeed, if we envision a world of fluid political associations, how and why were the palaces built in the first place?

Another way to interpret the Protopalatial palaces is to picture a central authority deliberately pursuing an inclusive and decentralized “corporate” strategy (Blanton et al. 1996; Driessen 2002, pp. 11–12; Feinman 2000; Feinman et al. 2000; Parkinson and Galaty 2007). Within this dual-processual framework, such an authority maintains its position and promotes compliance through inclusive practices such as communal ritual and labor projects, unifying ideologies, and the suppression of economic differentiation and personal aggrandizement in arenas such as art and burial (evoking Renfrew’s [1974, 2001] “group-oriented chiefdom”). Archaeologically, the corporate strategy may present a distinctly heterarchical signature, and certainly the contextual details of the Protopalatial palace centers might be interpreted in this light. Schoep (2002a), however, rejects the idea that this was a single, palatial authority since innovation and exercise of power seem to issue from outside the palaces, and a redundancy of activities across the sites suggests to her multiple competing groups.

The Neopalatial period would appear to present a stronger case for central authority focused on the palaces, notably on the palace at Knossos (Fitton 2002, pp. 133–135). An unprecedented homogeneity of material culture characterizes much of the island, including architectural forms and techniques, pottery styles, iconography, artisanal products, and administrative practices using Linear A script (Gates 2004; Rehak and Younger 2001, pp. 392–441; Schoep 1999, 2001). Many of these features and styles seem to emanate from Knossos, and no contemporary site can match Knossos for size and splendor (Branigan 2001; Cadogan et al. 2004; Whitelaw 2001a). This preeminence has often been understood as the extension of a Knossian political hegemony over much of the island, for which further evidence is adduced in the virtual absence of fortifications on Crete, a kind of enforced “pax Knossiana.” From this point of view, palaces controlled international trade, military matters, and ritual activities in palatial courts and peak sanctuaries (Wiener 1987, 1990, 1999). Many who reject the notion of a single, autocratic king envision instead an oligarchy of elite families at Knossos with common theocratic and mercantile interests (Betancourt and Marinatos 1997; Chapin 2004; Weingarten 1999).

From the same evidence, others infer a very different political world in which numerous independent, mostly small “peer polities” (Renfrew and Cherry 1986) engaged in intensive interaction and competition internally, regionally, and internationally. The cultural influence of Knossos is acknowledged, but the similarities to Knossian style and technique are attributed to emulation without the implication of political control, i.e., Wiener’s “Versailles effect” (Wiener 1986, p. 17). Furthermore, the shared language of culture provided a unified ideology that formed the basis for competition among factions in a heterarchical political landscape (Hamilakis 2002b; Schoep 2002a; Vansteenhuyse 2002). Adams (2004, 2006) stresses that hierarchy and heterarchy can exist side-by-side: at Neopalatial centers like Knossos and Malia, she argues for a paramount central authority in the palace but intense competition among second-tier elites. She does not view these elites as members of factions at Knossos, because they remained economically dependent on the palace, but at Malia the variety of ceremonial practices and signs

of economic self-sufficiency are consistent with a factional model (Adams 2004, pp. 212–213).

New data from excavations and particularly from regional surface surveys have added greater nuance, permitting cultural and political influence to be separated and providing alternatives to the notion of island-wide political control from Knossos. Recently, two prominent scholars independently reached the conclusion that in LM IA Knossos led a central Cretan state, while in eastern and western Crete small states remained independent (Driessen 2001; Warren 2002). In addition to spatial variability, there also were important diachronic changes within the Neopalatial period. Macdonald's (2002) careful contextual analysis of the architectural and artifactual remains at the palace of Knossos reveals three building phases, which he calls the new (MM IIIB), frescoed (LM IA), and ruined (LM IB) palaces. In his view, the MM IIIB palace was conceived and built as a single great program by an elite group with the consensus and participation of the broader community. After a devastating earthquake late in MM IIIB severely damaged this palace, it was rebuilt in LM IA on a less ambitious scale with changes that effectively excluded access for the wider community. This frescoed palace incorporated monumentalized frescoes with a symbolic program probably meant to convey social distance and control to the community and to foreign visitors. In this transformation it is plausible to see an elite group reacting to post-earthquake social disturbances, and in the terms of the dual-processual framework, moving away from corporate toward exclusionary "network" strategies, exemplified also by changes in funerary forms and practice to increasingly private burial (Soles 2001), nucleation and expansion of palatial authority in the economic realm, and increased gift exchange among elites on Crete and beyond (cf. Feinman 2000, table 3.2). Parkinson and Galaty (2007, pp. 120–122) note, however, there are still strong elements of a corporate orientation, such as the continuing absence of portraits of individual rulers.

Subsequent disturbances in LM IB may have been triggered by the eruption of Thera and the earthquakes that preceded it (see above). Some perceive LM IB as a time of political fragmentation and a return to localized political authority following these natural and human-induced destructions, which itself ends in a horizon of destructions at all major sites except Knossos (Driessen and Macdonald 1997).

Thus, although the Neopalatial period is often presented uniformly as the apogee of Minoan civilization, the emerging story is one of considerable variability over time and across the island as the fortunes of sites and regions waxed and waned. The nature of social and political relations depends on the time and place one examines, and a salutary trend of the last decade has been the growth of systematic contextual analyses involving the examination and comparison of whole assemblages rather than individual objects such as imports (Adams 2006; Brogan, personal communication 2004).

The results of surface surveys support broad outlines of both island-wide changes and pervasive regional variability (Cunningham 2001; Cunningham and Driessen 2004; Driessen 2001; Haggis 2002). Using data from the Kavousi Survey in eastern Crete, Haggis (2002) asserts that economic (and by implication political) interference from the palaces *can* be seen in the regional surface record as a change from *integration* to *connectedness*. He describes the countryside in

Prepalatial times (EM III–MM IA) as a heterarchical arrangement of clusters of farmhouses and small hamlets surrounding discrete areas of arable land and perennial water sources. These clusters shared agricultural resources, applied diverse subsistence strategies, and interacted intensively with other clusters. Haggis argues that such systems are well integrated, that is, characterized by a “multiplicity of linkages between individuals, sites, and the landscape itself” (Haggis 2002, p. 123), and are perhaps the most stable adaptations to Aegean landscapes. In contrast, the Neopalatial (MM III–LM IA) pattern reflects nucleation under palatial influence, with a clear site-size hierarchy, where settlements are no longer oriented to arable zones but instead to trade routes, ports, and rivers for irrigation. Palatial systems display high connectedness through regional political hierarchies rather than local relationships based on traditional land use and other social and economic interactions. As a result, they break down traditional structures and tend to be poorly integrated and inherently unstable. The syntheses of settlement pattern data across Crete that have begun to appear (Cunningham 2001; Cunningham and Driessen 2004; Driessen 2001; Knappett 1999) support a process of political expansion and centralization in central Crete focused on Knossos in the Neopalatial period, but this appears to be an aberration against a background of multiple divergent trajectories and a strong sense of local autonomy at most times and places in the Cretan Bronze Age.

The debates surrounding the social and political organization of the Cretan Bronze Age partly reflect a generational divide: older scholars who came of age with the comparative moral certainties of the post-World War II and Cold War world order naturally hold different worldviews than younger colleagues emerging in a highly ambiguous post-Cold War, postmodern world. This new generation of scholars has its own, possibly anachronistic biases about the past, a fact acknowledged and even embraced (Hamilakis 2002a). But there is also the simple fact that the archaeological record, now vastly more voluminous than even ten years ago, is inevitably more complex. With this enlarged database, it is possible to demand more exacting criteria for defining and explaining concepts such as the “palace.” It is interesting that the deconstruction of the palace concept occurs in the Aegean at a time when it is receiving increasing attention in the New World (Christie 2003; Evans and Pillsbury 2004; Inomata and Houston 2001). Similar questions of identifying the architectural attributes, residents, and ranges of activities and functions that define a palace are being posed, and there is much to be learned in the variety of perspectives cross-culturally. In contrast to the New World, however, the concept of the palace was never stigmatized as inappropriate or offensively colonial in the Aegean because in European nationalist narratives, Greece held the honor of being the first “European” civilization, thus having produced the first “Western” palaces.

Emergence of complexity in Mycenaean Greece

One of the enduring mysteries of Mycenaean civilization is how and why signs of social complexity appeared suddenly in Middle Helladic (MH) III, exemplified by

the spectacularly rich shaft graves at Mycenae and the tholos tombs of Messenia, from a Middle Helladic background of poorly furnished graves and decidedly simple settlements (Rutter 2001, pp. 124–147, 151–155); subsequently a small number of palace-centered states emerged from numerous, small polities. Because the exotic objects and pictorial art of the shaft graves show close ties with Minoan Crete, at that time at the apex of its Neopalatial prowess, it has often been suggested that small groups of nascent elites on the mainland cultivated a “special relationship” with one or more Minoan palaces to gain access to exotic materials and artisans. The Minoan influence is certainly real and even profound in some areas, including iconography, ceramic forms and styles, metalworking, and to some extent funerary architecture, but the graves and their furnishings betray many other influences and craft traditions, from Anatolia and Egypt, but more prominently of local or other mainland origin. In recent years, attention has been drawn to Kolonna on the island of Aegina, the most prominent site in the Aegean before the rise of the expansive state at Mycenae. Kolonna possesses a continuous sequence of massive fortifications built and modified over 500 years and a shaft grave remarkably similar in form and content to those at Mycenae (Kilian-Dirlmeier 1998), only earlier. Kolonna’s connections to Minoan Crete and the Cycladic Islands are obvious in the shaft grave and the Middle Bronze Age settlement, and some argue that Kolonna may have acted as mediator of goods and ideas to nascent elites at Mycenae (Niemeier 1995; Rutter 2001, pp. 126–130), and possibly as direct competitor (Pullen and Tartaron in press). Regrettably, in spite of decades of excavations at Kolonna since the late 19th century, relatively little information has been published, but renewed Austrian excavations may soon allow us to fully appreciate Kolonna’s role in these crucial centuries (Gauss 2006, in press; Lindblom 2001; Walter 2001).

In recent years, archaeologists have endeavored to move beyond simply debating the provenience or inspiration of the objects in the shaft graves, or invoking vague concepts of “secondary state formation,” as if these answers were in themselves causal explanations. Instead, analyses that embrace entire regions and full ranges of material remains have led to new questions about the mechanisms by which social inequality emerged and the specific processes by which leaders arose and marked their status in material ways. A sort of narrative can be distilled that depicts this period (c. 1700–1400 B.C.) as one of transformation in which chiefdoms arose at many sites in southern and central mainland Greece, and a few of these managed to consolidate power as small palace-centered states by c. 1400 (though there are some who see Mycenae as a special case that qualifies as a palace state already during the use of the shaft graves in Grave Circle A, c. 1600: French 2002; Kilian 1987, 1988a; but cf. Laffineur 1995). Incipient imbalances in wealth and population stimulated the emergence of chiefdoms in an environment of competition and emulation, involving conspicuous consumption and display, and possibly warfare. Later, certain principalities were able to form palatial states through the suppression of regional competition (Voutsaki 1995, 1998; Wright 1995, 2003).

The principal debate about this narrative involves the way that political hegemony within a region was achieved; generally, existing models emphasize either conflict or consensus. A major obstacle in moving from generalized to more nuanced reconstructions is that this era is known primarily from burials; because

there is little information on settlements, architecture, and other aspects of the world of the living, most arguments are based on funerary evidence. Voutsaki (1995, 1998, 1999, 2001) has carefully analyzed the burial evidence, tracking changes in tomb form, shifts from intramural burial to extramural cemeteries and individual to multiple burial, and trends toward more complex burial rituals and increasing amounts of wealth deposited as grave goods (see also Boyd 2002). She concludes that funerary behavior was an active agent in social change, not a passive reflection of wider social tensions; thus, differentiation, display, and competition in mortuary practices were deliberate strategies on the part of nascent elites to create and maintain social distinctions. For Voutsaki, the catalyst for all of this activity was Minoan expansion; specifically, the influx of Minoan and Cycladic goods disrupted the egalitarian social structures of Middle Helladic Greece with novel ideas and ways to distinguish oneself through the creation and expression of prestige. These new objects and styles were put to work as political capital through conspicuous ritual deposition in tombs. A comparative analysis of mortuary change in two prominent regions, Messenia and the Argolid, reveals contrasts in the pace and strategies of political consolidation by two polities (Pylos and Mycenae, respectively) that would emerge as palace centers (Voutsaki 1998). We may expect that each region has a unique historical trajectory, and it will be especially important to discover why in some regions palace centers never developed at all, in certain cases despite obvious ecological and geographic advantages (Cherry and Davis 2001; Pullen and Tartaron in press; Wright 2004a).

In Voutsaki's analyses, and indeed in most reconstructions, palace centers became possible because their political elite were able to eliminate rivals in a regional competition for hegemony (Bennet and Davis 1999). An alternative interpretation focusing on consensus is offered by Wolpert (2004). Drawing on work by Pauketat and others (Fotiadis 1999; Pauketat 1994; Pauketat and Emerson 1999), Wolpert argues that notions of hegemony through antagonistic, open competition rely on misunderstandings of classic ethnographic phenomena such as the potlatch, and suggests instead a process of regional consensus through negotiation of legitimate practice within a kinship structure. From this perspective, consensus establishes hegemony more effectively than violence and subjugation, and legitimacy is established when rule by a particular lineage appears as natural or organic, not oppressive. Wolpert specifically rejects the notion that objects and influences from the Minoan world could stimulate the "...dissolution of earlier frames of reference: the more localized identities, the kinship order, the segmentary alliances" (Voutsaki 1998, p. 47). He seems to believe that instead of emerging victorious after a period of intense political and military struggle, palace centers like Mycenae and Pylos incorporated their regions into a community of cult centered on ancestor veneration and vertical kinship. This process was played out in the reuse and lavish consumption of prestige goods in shaft and cist graves over many generations (the other main types, tholos and chamber tombs, are typically too heavily disturbed to reconstruct separate burial events). The consolidation of consensus involved rival lineages renegotiating social networks and establishing the meaning of unfamiliar symbolic codes appropriated from external sources.

Consensus models have their weaknesses. For example, what are we to make of the proliferation of bronze weapons and martial iconography at that time (Voutsaki 2001, fig. 3)? Wolpert's is a mainly theoretical argument, with little guidance about specific methods or material indicators that might establish its validity. Upon close examination, Wolpert and Voutsaki agree in most respects, differing chiefly on the mechanisms of social change reflected or effected by mortuary behavior. There is in fact a middle way, that after a period of competition rival chiefs recognized the futility of cyclical conflict and chose to cooperate in the creation of a larger, more productive political and economic entity (Wright 1995, p. 73). This is a useful debate because it focuses attention on potential biases in the ways that we assign causality to material patterns in the archaeological record. But it is also important to keep in mind that in ascribing such a pivotal role to conspicuous mortuary behavior, we are only dimly aware of the realm of the living, where other symbols and activities must have been implicated in these momentous changes.

The meager information we possess regarding settlements has come from regional surface surveys, small-scale excavations, and architectural studies, which have added details about the expansion of nascent centers and the transition to palatial political systems (Bennet 1999; Cherry and Davis 2001; Cosmopoulos 2006; Davis 1998; Davis et al. 1997, 1999; Maran 1995; Nelson 2001; Wright 2003, 2004a). In Messenia, intensive survey has documented the growth of settlement at Pylos from the beginning of the Shaft Grave era to the formation and expansion of the palace (Bennet 1999), as well as an apparent centralization of population around the palace after 1400 as formerly active settlements in the hinterland diminish in importance (Bennet and Shelmerdine 2001). But the survey also added nuance by tracking diachronic histories of several small settlements, demonstrating their changing fortunes and functions over time, first within a competitive environment and later as part of the Pylian state.

There has been no surface survey at Mycenae and its immediate environs, but in the early 1990s a systematic survey of monuments, old excavation trenches, and roads outside the citadel walls was undertaken (French et al. 2003; Jansen 1997, 2002). The remains of the MH III–LH II settlement within the citadel at Mycenae are deeply buried beneath those of later periods, but the proliferation of richly appointed tombs (shaft graves, tholos tombs, and chamber tombs) certainly sets Mycenae apart from other developing centers of the Argolid (Voutsaki 2001). The expansion of Mycenae is instead best seen in the data from intensive surveys in adjacent regions to the east (the Berbati Valley: Wells and Runnels 1996) and northwest (Phlius and the Nemea Valley: Casselmann et al. 2004; Cherry and Davis 2001; Wright 2004a; Wright et al. 1990). These surveys consistently show near or total abandonment of much of the Argolid and southern Corinthia for four centuries from the end of the Early Bronze Age to the last phase of the Middle Bronze Age, until the time of the shaft graves at Mycenae. A burgeoning center like Mycenae might logically seek to fuel its growth by expanding into these rich and nearly uninhabited agricultural landscapes, but the emerging picture is complex and variable. By LH II, the Nemea Valley appears to have been incorporated into Mycenae's sphere (Cherry and Davis 2001), but the initial resettlement of sites in the valley (e.g., Tsoungiza) in MH III was probably narrowly focused on local

arable and pastoral lands (Wright 2004a, p. 126). In fact, before Mycenae annexed the Nemea Valley into its sphere, the inhabitants of Tsoungiza may have been attached to the Phliasian Plain to the west, where an early settlement and rich cemetery are known at Aidonia (Casselmann et al. 2004; Wright 2004a, p. 125). The Berbati Valley, adjacent and readily accessible to the east, was not fully exploited by Mycenae until well into palatial times (LH IIIA2), perhaps because the small settlement at Mastos managed to maintain its independence (Schallin 1996, pp. 170–173). Furthermore, the dynamics of expansion among the developing centers in the Argolid, including the exploitation of the richest agricultural land in the extensive Argive plain to Mycenae's south, are little known since no systematic survey has been performed there.

Thus, in the current state of research we are merely beginning to assemble the details of the transformation from small, egalitarian farming and herding communities to palace-centered states. A key contribution of survey has been to introduce variability in time and space to a process that, peering back from the palaces, looked linear and uniform. A recently formed project focusing on the Argolid during the Middle Helladic period and the transition to the Late Helladic (c. 2000–1500 B.C.) should place the indigenous and exogenous contributions to emerging complexity in proper perspective (Voutsaki 2004). By examining and reanalyzing decades of funerary, settlement, skeletal, and iconographic data, the investigators hope to identify the seeds of later developments in the Middle Helladic background and to sort out intra- and interregional dynamics. In the future, this kind of research design can be extended to less-studied regions, which may allow us to move beyond simplistic, totalizing formulations such as secondary state formation under Minoan influence toward frameworks that better accommodate variability across space and time, such as dual-processual analysis (see above) or dynamic models that track the different stages in the life cycles of states (Marcus 1998; Parkinson and Galaty 2007; but for critique see Haggis in press).

Organization and political economy of the Mycenaean palaces

In the past decade many important works have appeared on the organization and operation of the Mycenaean palaces (Galaty and Parkinson 1999a; Shelmerdine 1998, 1999, 2001a, b; Voutsaki and Killen 2001). One of the most significant trends in recent scholarship has been a reformulation of the debate on how the political economy of the palaces actually operated on a daily basis, and particularly a new emphasis on the roles of individuals and their interactions with the state. There has long been a tendency to portray the Mycenaean palaces as impersonal structures whose managerial control was “pervasive, monolithic and monopolistic” (Bennet 2001, p. 25), based partly on comparison with obsolete notions of an “Asiatic” palatial economy in the Near East (Cherry and Davis 1999, pp. 94–95). In such a world, individuals are faceless props lurking behind systemic titles and roles, their actions a passive response to structures beyond their control. Several scholars have sought to break the monopoly of the palaces in the economic sphere by identifying palatial and nonpalatial sectors, the latter referring to certain areas of agriculture and

craft production in which the palaces may have shown little interest or exerted little control (Galaty 1999a, b; Halstead 1992a, b, 1999a, 2001; Parkinson 1999; Whitelaw 2001b). Nonpalatial sectors have usually been identified by a virtual absence of mention in the Linear B archives, particularly those involving nonluxury goods, or from evidence that a particular activity was decentralized at a remove from the palaces. Palatial interest was instead focused on “the creation and control of easily transported products with pronounced ritual, aesthetic, or commercial value” (Galaty 1999a, p. 57), the mark of a wealth-financed economy (D’Altroy and Earle 1985; Galaty and Parkinson 1999b; Parkinson 1999). While the two-sector approach has spawned a productive debate, many critics find it problematic (Nakassis 2006, pp. 11–16). The assumption that silence in the texts or distance of an activity from the center should imply a lack of palatial involvement is unwarranted: workshops that are archaeologically attested at the palaces, as well as craft specialists including scribes, receive no mention. At the same time, the tablets do mention vast herds of sheep controlled by the palace at Mycenaean Knossos that grazed in distant pasture and taxes extracted from distant communities in the Pylian polity (Cherry and Davis 1999, pp 96–97; Halstead 1999b, 2001; Killen 1999, p. 89). Further, in more extreme formulations this model tends to create and reify a false dichotomy, as if two parallel economies existed as separate, nonintersecting entities in daily life. To be sure, there were economic activities over which the palace exerted greater or lesser control and had more or less interest, but it is at the intersections and overlaps of official and unofficial action that we may glean the true penetration of the state in the lives of nonelite individuals.

A good example of this debate is the question of palatial interest in pottery production. In the palace at Pylos, more than 10,000 vessels were found in the final destruction deposit, many of these stacked neatly in pantries waiting to be deployed for state-sponsored feasts. This assemblage is significant because it seems to represent a nearly complete record of the pottery in use at the moment of the palace’s destruction (Whitelaw 2001b, p. 77). Were these produced by palatial potters, commissioned from outside artisans, or obtained from nonpalatial markets? The relative scarcity of references to potters in the Linear B archives has been noted (e.g., Palaima 1997; Whitelaw 2001b), but Hruby (2006, p. 198) contends that their number is consistent with the scale of production needed to supply the palace in a given year. Bulk acquisitions of pottery are recorded and four potters are mentioned, including one landholding potter at Pylos accorded the epithet “royal.” This “royal” potter has been variously interpreted as an elite, attached craftsman who supplied the pottery found in the destruction deposit (Wiener in press), an independent producer on whom a “royal seal of approval” was bestowed (in the sense of “potter to the king”) (Knappett 2001, p. 94), or possibly a procurer of pottery from local producers for the palace (Nakassis 2006, p. 16). Nevertheless, calculations by Whitelaw (2001b) based on ethnographic data on labor and pottery breakage indicate that all of the palace’s annual needs for pottery could have been met by a single workshop; the total corpus at the palace accounts for only a tiny percentage of total ceramic production within the Pylian state. Hruby (2006, pp. 199–209) takes this argument much further in an exhaustive analysis of nearly 6,700 fineware vessels from pantries 18–22 at the palace. Based on ethnographic

data and observations on fabric uniformity, consistent motor habits, metrical standardization, and even fingerprints and palmprints preserved in clay, she makes a persuasive case that a single potter produced all the vessels in the pantry rooms, if not in the entire palace. Interestingly, the potter was inexperienced and the work emphasized mass production rather than quality.

Although Whitelaw concludes that the palace exercised no meaningful control over the production of ceramics, being content to allow departments of the state to acquire pottery from a small number of provincial workshops through direct taxation or obligations, more direct palatial involvement cannot be excluded. Because the tablets at Pylos represent temporary records that may preserve only the final six or seven months of the existence of the palace (Palaima 1997), it is possible, as Voutsas (2001, p. 160) has observed, that a large shipment in summer (a logical seasonal schedule for pottery production) simply predated the administrative cycle of the tablets preserved in the destruction, which is thought to have occurred in the spring. Some see interest on the part of the palace in specific kinds of ceramics only (Knappett 2001). Recent chemical and petrographic analyses (Galaty 1999a, b) raise the possibility that a single workshop monopolized high-quality sources of kaolinite clay for the manufacture of fine, wheelmade vessels such as the kylix (pl. *kylikes*), a drinking goblet found in the thousands in the palace pantries. Although Galaty (1999a, p. 59) concludes that “an independent and parallel local economy...only superficially intersected with the palace economy,” he finds it plausible that the palace tried, in mature palatial times, to control a few large potting establishments to lower costs and ensure supplies of the finest vessels. This may depend on the debated point of whether value or prestige was ever attached to *kylikes*, used in funerary ritual and feasting but also an everyday vessel and at Pylos mostly undecorated (Galaty 1999a; Knappett 2001, p. 94). If so, Voutsaki’s (2001) observation on the distributional pattern of prestige goods over time is relevant: in the early Mycenaean period, there was intense competition for prestige goods, followed in the palatial period by a progressive restriction of access, culminating in late palatial times (LH IIIB). It is unclear whether this strategy signifies confident prosperity or fear of the impending crisis of c. 1200 B.C. What is clear, however, is that dichotomous categories such as “attached” and “independent” craft specialists fail to capture the complexity of relationships between official and nonofficial actors, or producers and consumers in the Mycenaean political economy. The potters mentioned in the texts may have been both or neither (Hruby 2006, p. 226; Knappett 2001, p. 95; see also Costin and Wright 1998).

Because numerous individuals are referred to by name and/or title, and their interactions with or on behalf of the state are described, the Linear B archives present an unusual opportunity to apply agency theory (Bennet 2001; Manning 1998; Nakassis 2006). The aim of recent work has not been merely to show that we can identify individuals who did things, or to imagine individuals operating free of structural constraints. Rather, following the now universally cited concepts of “structuration” (Giddens 1979, 1984) and “habitus” (Bourdieu 1977, 1990), an agency approach to the Linear B texts emphasizes the dynamic interplay of humans and the structures and practical knowledge they inherit, a continuous process of

creating and mutual shaping in which individual action may have discernible consequences. This perspective holds the promise of a humanized Mycenaean state, reproduced but also animated and transformed by myriad individual acts and decisions. Nakassis (2006) presents a detailed prosopographical study of named individuals, who often appear in multiple texts with multiple roles and areas of responsibility, to argue that these Mycenaeans were knowledgeable agents capable of manipulating social contexts for their own advantage. Examining the records of bronzesmiths, shepherds, and others, Nakassis proposes that many such persons were heavily invested in the palatial economy, because in return for managing the resources of the state, they were granted access to otherwise unattainable wealth and status. Bennet (2001) associates the palace scribes with the names of elite supervisors of various activities, including the provisioning of feasts at the center and in the hinterland or distributing raw materials to craftsmen.

There are, of course, limits to what we can learn about agency from the tablets alone. The individual actions and decisions of a vast hinterland of common farmers and herders cannot be extracted from the tablets, though some of their interactions with the palace are known. A view from the hinterland is sorely needed to counterbalance a strong palace-centered bias (Cosmopoulos 2006, pp. 207–208). To some extent, archaeological surface survey has succeeded in placing lower-order settlements and activity areas on the map. In Messenia, the Minnesota Messenia Expedition (see above) in the 1950s and 1960s (McDonald and Rapp 1972), the Pylos Regional Archaeological Project (PRAP) in the 1990s (Davis et al. 1997), and the ongoing Iklaina Archaeological Project (IKAP; Cosmopoulos 2006) have investigated the region at three very different scales. IKAP has narrowed its focus to a single district administered by the palace at Pylos, using an intensive, total coverage strategy to accord particular attention to the lower tiers of settlement. Nevertheless, published excavations of small, provincial Mycenaean settlements have been rare, and this has curtailed much discussion of individuals in the hinterland. Addressing this imbalance has long been expressed as a priority, but reaction has been slow, in part due to the constraints on fieldwork explained above. The few new excavations at small Mycenaean sites are thus almost inordinately important and deserve brief mention. In 2006, IKAP began a second phase involving excavation at Traghanes, a site identified with the regional town *a-pu₂* in the Linear B records, and at other sites discovered by the survey. IKAP has a tremendous advantage in that it is operating under the auspices of the Athens Archaeological Society, a body outside the purview of the Greek Archaeological Service, with potentially fewer restrictions on the project's scope and duration. At Mitrou, a small island just off the eastern coast of central Greece, excavations begun in 2004 have already yielded structures of the poorly represented early Mycenaean period (LH I) and more abundantly of the postpalatial phases of LH IIIC, which transition to the Early Iron Age (Van de Moortel and Zahou 2005). These excavations afford our best hope of illuminating topics that can scarcely be broached at present, e.g., archaeologies of households and communities, domestic production and consumption, and evidence of the presence of the state in daily life.

Defining Mycenaean political and economic structure at close range is essential, but there are still questions about the way that Mycenaean polities related to one

another. In spite of separate and distinct origins for each palace center, a striking uniformity evolved among them in crafts, administrative systems, and unifying institutions such as kingship (Shear 2004; Wright 1995, p. 64), typically explained as the result of some form of peer polity interaction. Yet at a recent conference, Near Eastern specialist Nicholas Postgate noted the remarkable homogeneity of the Linear B script and the administrative system it served at the palaces, and challenged experts to explain why there could not have been a single Mycenaean political authority (Voutsaki and Killen 2001, p. 13). The fact that there was no ready, conclusive answer underscores our imperfect knowledge of the political structure of the Mycenaean world and the need for empirical fieldwork and more robust theory. Is it unthinkable to imagine a politically unified Mycenaean world? The idea that the Greek mainland was ruled from a single palace (i.e., Mycenae) was discarded long ago, but an old proposal has recently resurfaced that there may have been a pan-Mycenaean elite of related families ruling the palace centers. This notion turns on the recurrence of identical names in the Linear B tablets among a group of prominent officials known as “collectors” over a period of six to seven generations between the earliest archives at Knossos and the latest at Pylos and Thebes (Killen 1979; Olivier 2001). Among Linear B experts there is disagreement about whether these are family names unique to a restricted elite or simply popular names reflecting a cultural *koiné* (Rougmont 2001, p. 138).

In any case, the peer polity concept falls apart once one ventures beyond the confines of the core area of southern and central Greece, or even into the intervening territories between palace states. In the last decade there has been increasing interest in defining and exploring “cores” and “peripheries” in the Mycenaean world, using a variety of approaches (Dakoronia 1999; Kyparissi-Apostolika and Papakonstantinou 2003). The Mycenaean world was active participants in eastern Mediterranean trade networks, from which the palaces obtained essential raw materials, particularly metals including copper, tin, silver, and gold. As the palace economies expanded in search of reliable sources of supply, certain peripheral locations witnessed Mycenaean presence, ranging from sporadic visits to full-blown colonies. Broadly speaking, to the east the old civilizations in Egypt and Syro-Palestine were more powerful and politically complex than the Mycenaean world, and there was little prospect of Mycenaean colonization or significant cultural impact. Kardulias (1999a, b) advocates a world systems approach, envisioning the Mycenaean world in a “core-core” relationship with Egypt and the Levant through intensive trade relations. Yet we still do not know the frequency with which Mycenaean merchants traveled to distant places in Egypt and the Levant, as opposed to trading through middlemen, at Ugarit or Cyprus, for example, who then transshipped Mycenaean products farther on (Bell 2005; Cline in press; Pulak 2005; Whittaker 1997, pp. 104–115). The Linear B archives are virtually silent on exchange within the Mycenaean world and without, a situation that has not changed in the decade since Bennet and Galaty wrote, in spite of the recovery of many new tablets, mainly at Thebes (Bennet, personal communication 2006; see Aravantinos et al. 2001).

To the north and west and on the Aegean Islands and coasts, however, Mycenaean world encountered many societies at lower levels of complexity than themselves. In the past, these interactions have been interpreted primarily in terms

of the interest of the palaces in establishing and securing access to desired trade goods. Relations were presented as asymmetrical between a dominant (Mycenaean) core and a passive periphery; that is, there was no agency in the periphery (Stein 1999, pp. 10–26; Tartaron 2005). A salutary trend of recent years has been to shed this Myceno-centric point of view and instead explore these encounters as unique and historically contingent outcomes of interaction between Mycenaean and indigenous populations, which were diverse in terms of social organization and motivations for accommodation or resistance (Melas 1991). The general question of Bronze Age Aegean emporia in the eastern and central Mediterranean has been taken up in the weighty proceedings of a recent conference in the Aegaeum series (Laffineur and Greco 2005), and many authors consider specifically the form of Mycenaean presence: do the material remains indicate simple episodes of trade at multicultural emporia, or was there deeper cultural penetration in the form of emulation, merchants' enclaves, or even colonies of Mycenaean immigrants? Notable work that emphasizes this interaction as a dynamic and negotiated process has been accomplished in Macedonia (Andreou and Kotsakis 1999; Buxeda I Garrigós et al. 2003; Kiriati et al. 1997), Epirus (Soueref 1999; Tartaron 2001, 2004, 2005), Thessaly (Adrimi-Sismani in press; Feuer 1994, 1999, 2003), the Aegean Islands (Karantzali 2005; Momigliano 2005; Privitera 2005), the Ionian Islands (Soyoudzoglou-Haywood 1999), Anatolia (Müller Celka 2005; Niemeier 1998, 2005), Cyprus (Cadogan 2005), and the central Mediterranean (Alberti and Bettelli 2005; Buxeda I Garrigós et al. 2003; D'Agata 2000; Jones and Vagnetti 1991; Militello 2005). In spite of increasingly sophisticated theoretical approaches and careful reassessment of relevant assemblages, the evidence, frequently consisting mainly or solely of portable goods such as pottery and lacking useful information on such areas as funerary or religious behavior, is often not up to the task of distinguishing among the various options.

Even when there is good reason to suspect a colony, Mycenaean impact in peripheral lands was primarily coastal, superficial, and discontinuous (Tartaron 2005). Certain landfalls may be understood as “ports of trade” or “gateway communities,” but there was little direct penetration of Mycenaean culture into the interior save for portable objects that were probably conveyed by indigenous traders. In the region of Thessaly, which borders the Mycenaean core area by land and sea, decades of survey and excavation have made it possible to trace the attenuation of Mycenaean influence as one moves inland from the Aegean coast and northward along a land frontier (Eder 2003, 2006; Feuer 1983, 1994, 1999). Yet ongoing excavations at the remarkable Mycenaean-era settlement at Dimini on Thessaly's Aegean coast (Adrimi-Sismani 1994, 1996, 1999–2000) are revealing a high-order Mycenaean settlement, possibly a palace center, which underscores the maritime orientation of Mycenaean expansion and demands a reevaluation of the geographical meaning of the “core area” (Adrimi-Sismani in press).

A further interesting development is an effort to break down the Aegean region into “small worlds” (Broodbank 2000; Horden and Purcell 2000, pp. 51–172; Sherratt and Sherratt 1998), referring to the small-scale, intensive networks of interaction among communities of the Aegean Islands and coasts (compare Chase-Dunn and Mann 1998 on the Wintu of northern California). These interactions

sustained essential ties among small communities living with limited subsistence and human resources. Bronze Age small worlds have been proposed for the Cycladic Islands (Broodbank 2000), the coast and offshore islands of southwestern Anatolia (Momigliano 2005), and the Saronic Gulf (Pullen and Tartaron in press). Momigliano finds evidence that Iasos on the Anatolian coast was part of a small-scale exchange network with the Cycladic and Dodecanesian Islands of the Aegean, which in turn was nested within larger-scale exchange at major emporia such as Miletos (on coastal Anatolia) and Trianda (on the island of Rhodes: Karantzali 2003). Another small-scale network is proposed for small Mycenaean settlements ringing the Saronic Gulf, centered (geographically and culturally) on the major site of Kolonna on the island of Aegina (Pullen and Tartaron in press). The Saronic Gulf has become one of the most important new research areas in the Mycenaean world, thanks to the discovery of a number of major and minor Mycenaean sites on the islands and coasts (Siennicka 2002), notably on Salamis Island (Lolos 1996, 2001, 2002) and along the previously poorly studied western shores, where an important settlement at Galatas (Konsolaki-Yannopoulou 1999, 2003b), a Mycenaean sanctuary at Ayios Konstantinos on the Methana peninsula (see below; Konsolaki-Yannopoulou 2001, 2002, 2003a), and a Mycenaean harbor at Korphos (Rothaus et al. 2003; Tartaron et al. 2003) have all been located recently. The Saronic Gulf is ideally positioned for an investigation of emergence, consolidation, and resistance in the rise of Mycenaean power in the northeastern Peloponnese.

Ritual and religion in the Minoan and Mycenaean worlds

Although the beliefs underlying Greek Bronze Age religion(s) will always remain to some extent elusive, considerable progress has been made in the last decade on illuminating the range of ritual expressions and cult places associated with them, with some new, albeit tentative steps toward belief. These advances have been made possible by the careful analysis and comparison of contextual assemblages, by an unprecedented integration of artifactual, iconographic, glyptic, and textual data, and by an increasing use of anthropological models and interpretive frameworks.

Minoan ritual and religion

Minoan religion is more easily approached than Mycenaean, owing to a tightly associated suite of iconographic, artifactual, and architectural elements of widespread ritual practices. For example, recurrent themes of female goddesses and worshipers, symbols such as double axes and “horns of consecration,” and specific kinds of clay figurines and pouring and drinking vessels often co-occur in painted fresco scenes, inscribed sealstones and signet rings, and artifactual assemblages. Based on contextual associations, several kinds of ritual spaces have been identified, including cult rooms within palatial and nonpalatial structures; large, open courts attached to palaces; isolated shrines located on conspicuous mountain peaks or hillsides, known as peak sanctuaries; and caves. The iconographic images provide clues to certain ritual acts

and equipment, as well as the roles of human and divine participants, but the identities of those depicted and the meanings of the ritual acts and accompanying symbols are generally problematic; moreover, these images represent a narrow, elite slice of Minoan religious life (Cain 2001; Fitton 2002, pp. 172–178; Peatfield 1992; Rehak and Younger 2001, pp. 437–439). Recent excavations at a number of sites in Crete have shed new light on the changing nature of religious practice in shrines—public and private, and in palatial and nonpalatial settings (Rehak and Younger 2001, pp. 433–440; Watrous 2001, pp. 193–196, 220–221).

Some of the earliest evidence for Minoan ritual comes from large, communal built tombs that supply good evidence for an ancestor cult that endured for a millennium or more in the eastern half of Crete in the EM and MM periods. In a study of the stone tholos tombs (circular in plan with corbel-vaulted superstructures; pl. *tholoi*) of the Mesara plain, Murphy (1998) makes a comprehensive case for ancestor cult and shows that long-term funerary practices reflect broader developments in social and political organization. The tombs were built close to the settlements that used them, typically situated in prominent places with commanding views of the surrounding landscape, but mainly on land unsuitable for cultivation. This locational pattern is ripe for a landscape archaeology interpretation (e.g., Buikstra and Charles 1999). The tombs were built for permanence using better materials than were used for the settlements themselves. Many had pavements attached to them, suitable for public rituals. Some were used for up to a thousand years, though not necessarily continuously, as there were many demographic shifts, and surely some of the social units (families, clans, etc.) that used individual tombs became extinct from time to time. Such tombs could be reoccupied by newly arrived groups to press claims to land and resources through fictive ancestral lineages. The treatment of the dead is consistent with ancestor cult: earlier burials were moved aside, but skulls and some long bones were carefully stacked in tombs or in specially constructed antechambers that served as ossuaries. Obsidian blades found with bones bearing cut marks were probably used to deflesh corpses, and signs of burning may indicate periodic fumigation (Branigan 1987). Drinking, pouring, and ritual vessels such as *rhyta* are common, and food remains, while rare, indicate that feasting may sometimes have accompanied drinking ceremonies. Other stone features are interpreted as altars and libation stones.

Citing ethnographic studies of death and society, Murphy (1998) interprets the *tholoi* as territorial markers manifesting the claims of a living community to land and resources through explicit links of descent from ancestors who occupied them in the past (Saxe 1970). She explains the contents of the tombs in terms of a three-phase funerary process of conversion of a living individual to an ancestor: burial, with rites of separation; transition, a liminal phase in which the body exists but is decomposing; and incorporation into the community of ancestors after the flesh has disappeared (Van Gennep 1909). Each of these phases was accompanied by communal rituals emphasizing continuity and stability, remembering and forgetting (Hamilakis 1998).

Changes in the use of the tombs over time correspond to significant changes in Minoan society. After an initial phase in EM I in which there is little sign of social differentiation in the contents or uses of the *tholoi*, EM II witnessed a gradual

increase in the placement of prestige goods and symbols of authority, including seals, daggers, and gold and other precious metals, with certain of the deceased. This process accelerated in EM III/MM IA in the run-up to the first palaces; cemeteries then contained conspicuously larger tombs, and grave offerings included exotic goods from foreign lands. Some bodies were placed individually in large ceramic containers (*larnakes*), along with personal items such as seals and work tools. Annex chambers were built onto the tombs as small cult rooms or ossuaries. The ritual nature of some of these chambers is suggested by benches, stone bowls, and stacks of the mass-produced conical cups that in later centuries became essential components of Minoan ritual (Wiener 1986). Because of their small size and difficulty of access, these chambers seem intended to exclude. Murphy (1998, p. 36) concludes that Late Prepalatial chiefs sought to “assert their control over local resources and also to legitimize growing social disparities by manipulating the rituals carried out at the tombs and by controlling access to the ancestors of the community.”

Soles (2001) takes these conclusions one step further by linking the history of funerary practice with patterns of political economy through the end the Bronze Age and beyond. He characterizes the Minoans as “a very old, ancestor-worshipping culture” (Soles 2001, p. 233), adding to the archaeological evidence cited above the suggestion that the settlement pattern of small farms, towns, and country estates that persisted through the Neopalatial period implies the existence of a large middle class of free, land-owning families. Ancestor worship is characteristic of societies in which the distribution and ownership of land are widespread, since land and resources belonging to the ancestors must be preserved and passed down through the generations. This factor perhaps had the effect of preserving ancestor worship, even after the emergence of the palaces and the introduction of elite, inaccessible rock-cut chamber tombs in the Neopalatial period. Soles attributes the demise of ancestor worship on Crete instead to the imposition by the Mycenaeans of a feudal society as recorded in the Linear B archives, in which ancestor cult lost its purpose since landless peasants had little stake in the land and its resources. Soles’ impression of an egalitarian, ancestor-worshipping (almost utopian) Minoan society brought to heel by an oppressive Mycenaean regime seems simplistic, but the changes he documents are real and call for explanation.

Cult at peak sanctuaries and caves emerged at about the same time as the first palaces, and there may be a connection between the establishment of powerful central authorities and the activity at these new ritual spaces. The rural peak sanctuaries offer an interesting contrast to the representations of deities and worshippers in frescoes, sealstones, and rings. Typical finds at a peak sanctuary include large numbers of clay anthropomorphic and zoomorphic figurines, clay and stone offering tables, pottery of varying form and quality, and ash layers without bones (Kyriakidis 2005). Despite the fact that obvious representations of deities are absent among finds at Minoan peak sanctuaries, Minoan scholars have generally tried to identify a deity or deities to which these shrines were dedicated. Peatfield criticizes this “theistic premise,” noting that “If you assume that religion is primarily about gods, then you are forced to go looking for them” (Peatfield 2001, p. 54). Instead, he focuses on the unusual poses of the human figurines—with hand

to head or chest, and apparently swaying bodies—to argue for an emphasis not on gods but on bodily experience and the ecstatic performance of visionary epiphany, divination, healing, or altered states of consciousness (see also German 2005; Morris 2001; Morris and Peatfield 2002). Like the frescoes, these figurines depict and memorialize enacted rituals, but of a very different type. A similar suggestion has been made for Minoan cult places found deep in caves, based on comparable figurines and other ritual objects, as well as the susceptibility to altered states that may result from profound darkness and isolation (Tyree 2001). This emphasis on the performative aspects of Minoan religion is informed by psychological studies and ethnographic accounts of trances induced by narcotics, dancing, chanting, and rhythmic sounds, as well as shamanic traditions of healing and divination (Goodman 1990; Lewis 2003; Price 2001). A general emphasis on theater and performance in Neopalatial religion also has been inferred from the paucity of identifiable cult buildings, the construction of open areas where communal gatherings could be held, and the portable nature of cult equipment at that time (Rehak and Younger 2001, p. 439).

In Neopalatial times, the palaces seem to have exercised unprecedented control over many spheres of religious activity, including the peak and cave sanctuaries, as part of a political strategy in which elites also may be religious officials (Adams 2004; Rehak and Younger 2001, pp. 439–440). Still, some scholars detect a distinction between “official” and “popular” religion at the Neopalatial palace centers (Gesell 2004). At Knossos, a cult area in the palace’s west wing yielded faience “snake goddess” figurines with associated ritual equipment in luxury materials, notably faience but also bone, ivory, rock crystal, and gold and silver foil. These assemblages have been interpreted as the remains of elite worship of a fertility goddess with a chthonic dimension (Jones 2001; Marinatos 1993), open only to those with access to the palace’s innermost sanctum. Signs of coexistence with popular religion can be seen at the palace centers of Phaistos and Malia, where shrines in peripheral locations within the palace may represent a link with the wider community. These shrines contain no objects in luxury materials and no representations of the Minoan goddess. Instead, the cult objects, including clay female figurines probably in attitudes of worship, stone libation tables and altars, seashells, and pottery, are made from readily available and inexpensive materials (Gesell 2004, pp. 132–133). This contrast underscores the restrictive nature of the religious practices of palace elites.

In nonpalatial towns of the Neopalatial period, recurring “cult assemblages” have been identified at a few sites, including Pseira (Betancourt 2001) and Kommos (Shaw 2004). Ritual objects in these assemblages may include some or all of the following: bull-shaped figurines, triton shells, offering tables, double axes, stone chalices, and groups of *rhyta* (sing. *rhyton*, a perforated pouring vessel that was widely used in Minoan cults to transfer liquids and pour libations: Koehl 2006). At the small Minoan town of Pseira, where 60 buildings have been excavated, Betancourt (2001) has identified three containing cult assemblages, which he terms “*rhyton* hoards.” In one of these buildings, the ritual equipment was found in storage, suggesting periodic ceremonies. In another, the House of the Rhyta, the cult objects came from an upper floor with a carefully plastered and painted room, while

the ground floor was occupied by a kitchen and a number of large storage jars. The excavator's inference of feasting associated with ritual ceremonies is strengthened by a common spatial association of storage and food preparation with presumed cult locations on Crete (Gesell 1985).

A fundamental reorientation in Cretan religious practice after the widespread destruction of Neopalatial palaces, towns, and country houses at the end of LM IB (c. 1450 B.C.) is one manifestation of a sharp break with the social and political order of the Neopalatial period that affected almost all areas of art and culture (Rehak and Younger 2001, pp. 441–464). Only the palace at Knossos survived relatively unscathed into LM II, then possibly controlled by Mycenaeans as indicated by the new Linear B-based administration and other changes. While this would appear to suggest Mycenaean presence, the assumption of an invasion and takeover from the mainland has been challenged (Preston 1999), and this has provided scope for an interesting debate about ethnicity and identity in Final Palatial and Postpalatial Crete (Brogan et al. 2002, p. 89). From a mortuary perspective, Preston (2004) rejects an ethnic distinction between Mycenaean rulers and Minoan subjects, arguing instead for conspicuous display of mixed cultural symbols, not for the purpose of asserting ethnicity but rather as part of intransland competition among elites and a gradual “Mycenaeanization” that implies economic and cultural influence but not political domination. An alternative interpretation is offered in Burke's (2005) reading of the famous Ayia Triada painted sarcophagus of the early Postpalatial years (c. 1370–1360 B.C.), decorated on four sides with a complex cult scene combining traditional Minoan images and symbols with contemporary Mycenaean elements. For Burke, the sarcophagus exemplifies the strategic appropriation of Minoan symbols by a Mycenaean elite “...who were asserting political, ideological, and economic dominance by means of art and architecture in religious settings” (2005, p. 405). The excavators of Mochlos on the northern coast of east Crete have found evidence for a foreign reoccupation early in the Final Palatial period with close ties to Knossos and an apparent interest in reemerging maritime trade (Brogan et al. 2002). The LM IB/LM II transition provides a plausible case for reading dramatic changes in cultural identity and will continue to be debated as new evidence emerges almost continuously.

The Shrine of the Double Axes at Knossos, founded near the end of the Final Palatial (LM IIIA2) just before the final destruction of the palace, shows the transition between the old palace-based cult and a new, popular religion no longer under palatial control (Gesell 2004). Among the features that prefigure Postpalatial religion is a new kind of female terracotta figure, known as the Minoan Goddess with Upraised Arms (MGUA), found displayed on a bench along with two terracotta female figurines with hands on breasts, one terracotta male figurine holding a bird, two pairs of horns of consecration, and a miniature double axe. This group, found in situ, appears to depict a ritual ceremony in which votaries make offerings to a goddess in front of traditional Minoan sacred symbols (Gesell 2004, p. 134). The MGUA is thought to be the successor of the Minoan snake goddess, appropriated and adopted as the standard cult image of the popular religion that spread across Crete in the subsequent Postpalatial period (LM IIIB–IIIC).

Recent discoveries of *in situ* or moderately disturbed shrines and ritual assemblages have clarified the variability of Postpalatial religious practice, allowing us to reconstruct the appearance and display of cult objects and furniture and the locations of cult settings within settlements and houses (Eliopoulos 2004; Gesell 2004; Klein 2004; Shaw 2004). Small public shrines have been found in at least eight Postpalatial towns, typically near the edge of the habitation area but easily accessible (Gesell 2004, pp. 135–143). Most have outdoor areas suitable for public ritual, and the number of rooms in the cult complex varies from one to eight, incorporating functions of display and ceremonial space, storage, and food preparation. A distinctive ritual assemblage of ceramic objects (no luxury materials were used) includes MGUAs, offering bowls on long tubular stands, and ceramic plaques, some depicting ritual scenes, that were pierced with holes to hang on the wall behind benches on which the cult objects were displayed. These objects recur in sets and have been found together frequently enough that a typical ceremonial room with benches can now be reconstructed (Gesell 2004, p. 143, fig. 7.14). Yet an interesting variability in popular religion is suggested by the discovery of domestic ritual spaces at Kommos, a harbor town on Crete's southern coast (Shaw 2004). One small shrine occupying the corner of a room was recovered largely *in situ* (Shaw 2004, fig. 10.6). Stacks of small vessels rested on either side of a small table made of stone slabs. On the table were placed miniature spouted jugs and a small cup containing pebbles and seashells. On the floor in front of the table, a triton shell and more pebbles rested on a burned slab, and a pair of bowls full of ash were tucked under the table. Braziers, ceramic containers possibly used to carry coals and burn incense, were found in all of the shrine's phases from LM II to LM III. In the absence of characteristic ritual objects, the excavator speculates that the focus of ritual may have been on sea, earth, and sky, the essential elements of nature. Whether right or wrong, this interpretation highlights the ambiguity of identifying cult in the archaeological record: in this case, ordinary objects take on a ritual meaning because of their contextual associations. By and large, however, there seems to be no rigorous or consistent methodology meant to test and potentially falsify such claims. Such a method has been proposed by Kyriakidis (2005) for the peak sanctuaries, building on work by Renfrew (1985) and others, which queries first the ritual nature and then the religious content of the context or assemblage in question. This framework could profitably be applied across the board to Aegean Bronze Age religion.

Mycenaean ritual and religion

Mycenaean religion is harder to penetrate because there are fewer archaeological contexts and artifacts that can be assigned unambiguously a religious function, and because the Mycenaeans adopted Minoan religious iconography and cult objects but apparently without harboring the same underlying meanings or beliefs (Häg 1985, 1996; Soles 2001). The Linear B archives inform us of deities and religious personnel, their lands and obligations, and appropriations for certain kinds of feasts and religious activities, but the archaeological visibility of these aspects of religion

is quite low. On the other hand, the places (e.g., bench shrines) and artifacts (e.g., figures, figurines, frescoes) to which we usually attach a religious function are not directly attested in the texts. The one class of object that is found universally in potentially cultic settings, the ceramic female figurine, appears in so many and such diverse contexts (citadel cult centers, tombs, domestic contexts, dumps, fill) that its status as a ritual indicator has been questioned (French 1972; Tzonou-Herbst 2002, pp. 264–265); an alternative explanation is simply the universality of Mycenaean ritual practice (Wright 1994). For example, at Tiryns, such figurines have been found preferentially around hearths and doorways, suggesting a protective function in everyday Mycenaean beliefs (Kilian 1988b). Even so, there have been important strides made in studies of Mycenaean ritual and religion, through a combination of new discoveries, innovative reanalysis of older materials, stronger theoretical and comparative perspectives, and the kind of close integration of archaeology with the Linear B texts that had been called for many years ago (Bennet 1988; see Lupack 1999; Shelmerdine 2001a, pp. 369–372, 380–381). Most of this new knowledge involves the ritual equipment and expressions of a belief system about which we still have little understanding (Hägg 1996, p. 600; Whittaker 1997, pp. 160–162), but there has been some new work on the content of Mycenaean religious beliefs in connection with a cult of the dead and belief in an afterlife (Gallou 2005).

The most salient current discussions on Mycenaean religion focus on the variability of cult activity over time, within polities and across regions, and in the range of cult places, ceremonies, and participants (Whittaker 2001). It is perhaps easiest to give a general sense of the development of Mycenaean cult over time. Hägg (1996, p. 611–612) proposes three phases that reflect variable Minoan influence on an essentially mainland religion. The first phase, in the 16th century, involved the importation or imitation of Minoan luxury and cult objects, yet with no adoption of Minoan beliefs as cult objects were not used in the same way. At Kynortion hill near Epidauros, we see a mainland cult merely embellished with Minoan cult objects such as the double axe. The second phase, the 15th century, is poorly known archaeologically, but Minoan influence on Mycenaean iconography and cult material was strongest. This was a time of close relations between elites on the mainland and their counterparts on Crete, and some Mycenaean elites may have shared Minoan religious beliefs as part of aristocratic cults that had little to do with the rest of the populace. The third phase is the Mycenaean Palatial period, when Minoan elements gradually disappeared, except for the continued imitation of Minoan cult symbols in iconography and the survival of certain Minoan objects such as *rhyta* for pouring libations. In spite of the continued popularity of Minoan religious symbols, Kontorli-Papadopoulou (1996, pp. 101–102) shows the development of idiosyncratic mainland iconographic features, including warrior goddesses, processions of females bearing gifts, lions and griffins arranged antithetically or in repetitive lines, and a more explicit depiction of cult actions. Thus, Mycenaean religion throughout the Late Bronze Age was Helladic, with a superficial borrowing of Minoan and, to a lesser extent, Syrian and Egyptian elements, showing influences from beyond the Aegean.

Several publications have appeared on various aspects of Mycenaean sanctuaries and cult buildings (e.g., Albers 1994, 2001; Moore and Taylour 1999; Whittaker

1997; Wright 1994). Based on textual and archaeological evidence, each community of any size established one or more sanctuaries, but few of these have been recognized or investigated. The list of securely identified sanctuaries and cult places is rather short, including the palaces and other intramural cult locations at Pylos, Mycenae, and Tiryns; the small town sanctuaries at Phylakopi on the island of Melos and Ayios Konstantinos on the Methana Peninsula; and the rural hill sanctuary at Mt. Kynortion near Epidauros.

The most significant recent discovery is the Mycenaean sanctuary at Ayios Konstantinos, overlooking the Saronic Gulf (Hamilakis, 2003; Hamilakis and Konsolaki, 2004; Konsolaki-Yannopoulou, 1999, 2001, 2002, 2003a). This sanctuary is important for numerous reasons: its inconspicuous position within a small, peripheral village; the in situ condition of the remains, which permits chronology and ritual performance to be reconstituted; and the distinctiveness of the cult objects, which show regional variability that cannot be characterized as a chronological effect. The cult centered on the small Room A (4.3 × 2.6 m), whose furnishings consisted of a floor of mixed earth and pebbles, a stepped bench in the northwest corner opposite the entrance, a low platform along the south wall, a podium in the center of the room, and a hearth in the southeast corner. The finds date the use of the room to LH IIIA–LH IIIB (early 14th to late 13th century), i.e., squarely in the Palatial period. On and around the bench, excavators found more than 150 terracotta figurines, tripod altar tables, pottery, and a triton shell similar to those found in Minoan shrines. The corpus of figurines is unusual in that it consists mainly of bovids (cattle and oxen) and horses, with several rare groups including horses with helmeted riders, horses with chariot groups, and ridden and yoked oxen. The standard Mycenaean female figurines that are so abundant elsewhere are virtually absent. Other aspects of the sanctuary are well attested elsewhere, however. Like most Mycenaean cult places outside the palaces, this sanctuary lacks monumental construction or decorative elaboration. The pottery includes *kylikes*, bowls, alabaster, and *rhyta*, all common ritual shapes. Certain structural features, a stepped bench on which figurines were displayed, and platforms on the wall opposite the bench and in the center of the room, probably served as attention-focusing devices in the rituals and connect this sanctuary with others such as the Temple in the Cult Centre at Mycenae. Of utmost significance is the hearth, which was filled with ash and animal bones as well as scattered sherds from tripod cooking pots. Analysis of the faunal remains revealed a predominance of burnt, juvenile pig bones, with lesser representation of sheep and goat (Hamilakis 2003; Hamilakis and Konsolaki 2004). The presence of all body parts suggests that these animals were burnt offerings to the deity rather than meals roasted for human consumption. An important distinction should be made between sacrifice, the ritual killing of an animal followed by consumption of the meat, and burnt offering, where the focus is on the destruction of the animal body, perhaps understood symbolically as having been consumed by the deity (Hamilakis and Konsolaki 2004, p. 145). This is the first evidence found in a primary use context for burnt animal offerings in Mycenaean Greece, although we can infer animal sacrifice at Pylos (see below) and elsewhere and the practice must have been widespread (Hamilakis and Konsolaki 2004, p. 144).

The features at Ayios Konstantinos that appear anomalous are difficult to assess, since we possess few Mycenaean sanctuaries and thus do not know the true range of variation. We do not know whether the sanctuary was autonomous, serving the needs of a small rural community, or tethered to a regional center, such as the recently discovered site at Galatas (Konsolaki-Yannopoulou 1999, 2003b) or the still poorly known Mycenaean settlement at Kolonna on Aegina. Ayios Konstantinos may have been like one of the outlying communities to which the palaces sent animals for sacrifices and feasting (Bennet 2001, p. 33; Dabney et al. 2004). Hamilakis and Konsolaki construct a narrative for the performance of ritual at Ayios Konstantinos involving the embodied sensory experience of food, drink, music (the triton shell may have been used as a horn), and symbolic communication with deities and ancestors through the sights and smells of burnt offerings. These experiences, shared by a few members of society, might be translated to power and authority in wider social arenas (Hamilakis and Konsolaki 2004, pp. 146–147). This account, while appealing, shows speculation running well ahead of what we know archaeologically about the site, the region, and Mycenaean sanctuaries generally.

Still less certain is the way that Mycenaean religion was organized and practiced (for a good overview, see Shelmerdine 2001a, pp. 362–372). A distinction commonly drawn between “official” and “popular” cult (Hägg 1996) has been challenged as a false dichotomy (Albers 2001; Wright 1994), but the question of where meaningful distinctions can be discerned in the range of cult practice remains. Scholars have focused on other dichotomies such as rural/urban (Wright 1994, p. 60), public/private (Albers 2001, p. 132, n. 6), presence/absence of palatial control, restricted access/open access (Wardle 2003, p. 317), or simply evolution of cult over time (Wright 1994, p. 60) as alternative ways to think about this variability. For example, Albers (1994, pp. 9–10) identifies five kinds of Mycenaean cult settings: (1) the *megaron* and court of the palace; (2) “public communal” sanctuaries in peripheral locations at palace centers and outside them; (3) commoners’ houses and workplaces; (4) gate sanctuaries; and (5) house sanctuaries. On the other hand, Wardle (2003, p. 317) perceives three groups on the basis of access and location: (1) isolated sanctuaries with relatively unrestricted access; (2) those associated with settlements but showing no sign of restricted access; and (3) those within settlements to which access may have been restricted to an elite clientele.

The debate over the status of cult spaces within the palace centers highlights problems of definition and interpretation. It is generally agreed that some kind of cult centered on the core of the palace itself, architecturally defined as the *megaron*, a highly elaborated form of the basic Mycenaean domestic unit: a long, linear structure consisting of a porch, vestibule, and main room in which the throne and a large hearth were installed. Following ideas first proposed by Kilian (1988a), Wright (1994) developed the concept of a “hearth-*wanax* cult,” in which the king (*wanax*) presided over a state cult that emphasized the symbolism of the hearth as the center of the domestic sphere and the primacy of the ruler as father and chief. Strong evidence for cult in the *megaron* comes from the palace at Pylos, where a thematic fresco program shows a bull being led in a procession in the vestibule, followed by scenes of banqueting and ritual toasting in the throne room. Next to the

central hearth, excavators found an altar table and miniature *kylikes* thought to have been used for libations. A plastered depression next to the throne also has been interpreted as a receptacle for libations.

Other cult spaces within the palace centers have provoked more disagreement. Wright (1994, pp. 60–61) draws a sharp contrast between the hearth-*wanax* cult and the kind of peripheral sanctuaries or cult complexes he calls “citadel cult centers.” The best-known example of the latter is the Cult Centre at Mycenae (French 2002, pp. 84–92; Moore and Taylour 1999; Wardle 2003), an irregular agglomeration of buildings arranged around a small courtyard housing cult rooms with altars, platforms, benches, and frescoes as well as storage rooms and workshops. Wright (1994, p. 61) argues that the Cult Centre at Mycenae (and other citadel cult centers by extension) was of “lesser importance” than the palace cult, noting the vernacular architecture, the lack of elaborate decoration or monumentality, the peripheral location against the fortification wall at a remove from the palace, and the late appearance in mature palatial times, suggesting that the rituals enacted there were not essential to the early palace. Further, because the citadel cult centers survived the demise of the palaces, they appear not to have involved the *wanax* or state-sponsored religion. Albers (2001) responds that it is misleading to compare these two manifestations of cult in this way, because they served quite different purposes for the state. She calls the citadel cult centers “public communal sanctuaries,” and the distinction she draws is between the *megaron* as cult place of the human ruler and the peripheral sanctuaries as abodes of the deity, where they resided and were accessible for human contact. Accordingly, both Albers (2001) and Whittaker (1997, 2001) define them as temples. For Albers, public communal cult was official, organized by the palace administration and executed by priestly functionaries according to a fixed annual schedule of religious festivals—an arena provided by the king for public cult but restricted to a small, elite group who carried out ritual on behalf of the entire community. This image of a highly restricted Cult Centre at Mycenae may require reassessment, however, in light of new information that it may have operated for several decades entirely accessible from the outer town before the extension of the fortification wall cut off access to the complex from the south after 1250 B.C. (LH IIIB2) (Wardle 2003). This may mean that public, popular ritual took place in the courtyard, while access to the interiors of the small cult buildings remained restricted.

The recognition of a ceremonial feasting deposit from faunal and artifactual evidence at the small Mycenaean town of Tsoungiza northwest of Mycenae may provide the rural counterpart to the public communal sanctuary (Dabney et al. 2004). This deposit contained a dump of head and foot bones from butchered cattle, pig, and sheep/goat; ceramics dominated by plain vessels used for serving food and drink; a fragmentary terracotta female figure; and a number of female and animal figurines. The excavators interpret it as the deliberately discarded remains of a regional feast intended to maintain political and economic alliances among elites from several towns and villages. Such feasts may even have been provisioned by the palace at Mycenae (Bennet 2001, p. 33). The presence of a terracotta female figure and smaller female and animal figurines connects this assemblage with sanctuaries such as the Cult Centre at Mycenae.

Feasting in the Aegean Bronze Age has been the theme of recent archaeological work that conspicuously integrates archaeological, environmental, and textual data. Two important edited volumes appeared in 2004, *The Mycenaean Feast* (Wright 2004c) and *Food, Cuisine and Society in Prehistoric Greece* (Halstead and Barrett 2004). In these volumes, excellent survey chapters draw together the evidence from ceramic and metal drinking sets and other feasting equipment; iconography of feasting on frescoes, seals, and vessels; zooarchaeology; and Linear B archives (Day and Wilson 2004; Halstead and Isaakidou 2004; Killen 2004; Palaima 2004; Rutter 2004; Wright 2004d, e). Some of this new scholarship considers the social implications of palace-sponsored feasting: Bendall (2004) analyzes the distribution of banquetting vessels at the palace at Pylos, concluding that although persons of high and low status participated in and contributed to feasts, there was a strict hierarchy of banquetting that reproduced and perpetuated social inequalities.

Perhaps the most remarkable example of integrative research on feasting concerns the reconstruction of specific feasts involving animal sacrifice at Pylos (Halstead and Isaakidou 2004, pp. 143–150; Isaakidou et al. 2002; Stocker and Davis 2004). Archaeologists and faunal experts reexamined six sets of deliberately deposited cattle bones from discrete locations around the palace dating to LH IIIB. The bones, which consisted almost entirely of mandibles and leg joints, were burned and showed signs of dismembering or filleting. One of these deposits representing at least 10 head of cattle was found in Room 7, an archives office, along with 22 miniature *kylikes*, a spearhead and sword, and fragments of a large storage jar with a number of Linear B tablets underneath them. Carl Blegen, the original excavator, recognized these as the remains of sacrificial and votive offerings but was mystified by their presence in an archive room. A recent analysis of the distribution and content of the texts indicates that Room 7 was an office where an archivist revised texts and monitored the flow of tablets that would later be archived in adjacent Room 8 (Pluta 1996–1997). Several tablets from Room 7 concern provisioning of animals for sacrifices and associated feasts. One of these, Un 718, describes the offering of a bull to be made to Poseidon, possibly by the *wanax* himself along with a military commander and others. The Ta tablet series, found elsewhere in the palace, records banquetting equipment and sacrificial animals for a feast marking the appointment of a new officeholder (Killen 1998). This particular feast was allotted 22 seats at 11 tables, matching exactly the number of miniature *kylikes* found in the Room 7 deposit (Palaima 2000). Although this may be a coincidence, a plausible scenario begins to emerge in which the miniature *kylikes* and other equipment were brought to Room 7 to be processed before returning to storage, along with the cattle bones as proof of completion of the ritual feast. This interpretation accords well with studies of the flow of information among the various offices and workshops at the palace, as well as the meticulous recording of activities in areas of palatial interest (e.g., Shelmerdine 1998, 1999). The contextual information suggests that the Room 7 deposit was still being processed when the palace was destroyed and that sacrifices were made to Poseidon to the very end (Palaima 1995). The case of Pylos Room 7 shows how we may recognize the archaeological consequences of particular feasts (Dietler and Hayden 2001, pp. 8–9), and illustrates the potential of true interdisciplinary research.

The study of feasting leads to the recognition of differences in Minoan and Mycenaean ritual practice that may cautiously be generalized to contrasts in religion and in social and political organization (Borgna 2004). Minoan feasting, whether in connection to funerary rites, religious ceremonies, or other rituals, focused more on community unity and identity than on individual aggrandizement. The Mycenaeans, on the other hand, feasted in smaller, restricted areas where interelite generosity and hospitality were emphasized in reciprocal transactions among individuals. Minoan feasts presented an ideology of community solidarity, but elites displayed their status through privileged roles in the ritual and in separate, exclusive celebrations. The Mycenaean palaces organized many feasts, presenting an ideology of equality but always separating elites from the lower strata of society through unequal displays of conspicuous consumption. The provision of Mycenaean feasts contained a patronizing element: as Bendall (2004) proposes, one's social status was clearly marked at a feast by the location, equipment, and companions one was assigned. Though nonelite individuals were included in regional banqueting, the intent seems to have been to underscore the superiority of the palace through lavish contributions of food and drink that were beyond the means of small communities and common people. For Bendall (2004, p. 128), to participate in a Mycenaean banquet was to accept and perpetuate the status quo of hierarchical inequality, a grim "bread of servitude." Few would take such a bleak view, and many would characterize Bendall's interpretation as a misunderstanding of gift exchange theory (Nakassis, personal communication 2006), but this is a good example of a locus of interaction where the state is present in a material and symbolic way in the lives of common people in the hinterland. Borgna (2004, pp. 146–147) invokes dual-processual theory to assert contrasting pathways to power—the Minoans pursuing corporate strategies to structure and constrain social action, and the Mycenaeans effecting social exclusion through network strategies—though she acknowledges that the reality is far more complex.

Archaeological science

Aegean prehistorians have had a long and fruitful relationship with the natural and physical sciences, starting with Heinrich Schliemann's first excavations at Troy in the 1870s, where he pioneered a multidisciplinary approach by incorporating geography, geology, cartography, meteorology, ethnology, anthropology, botany, photography, and technical analyses of metal (Runnels 2002, p. 8). That said, the application of rigorous science in Greek Bronze Age archaeology has been uneven at best, but there have been significant advances and greater consistency on all fronts in the last decade. Much of the impetus for collaboration with nonsocial scientists has come first from regional archaeological projects and their emphases on environmental resources and surface geomorphology, and second from big questions that require scientific, often archaeometric, input, such as the sourcing of metals and ceramics to investigate trade networks and technologies. The typical regional-scale project now includes geology and geomorphology, climate studies, remote sensing and geophysics, and GIS as complements to traditional methods of

excavation, survey, ethnoarchaeology, and artifact analysis. Many Aegean regional projects are represented in the five-volume publication of the European POPULUS project, *The Archaeology of Mediterranean Landscapes* (Bintliff and Sbonias 1999; Francovich et al. 2000; Gillings et al. 2000; Leveau et al. 1999; Pasquinucci and Trément 2000), which presents case studies of methods in landscape archaeology with the general aim of establishing a set of “best practices”—although many would regard this as an unrealistic or even undesirable goal (Blanton 2001). Among the topics discussed are demography, environmental reconstruction, GIS, remote sensing and geophysics, geochemistry, geomorphology, and the interpretation of surface artifact material. A good overview of current Aegean projects with a strong scientific component may be found in *Metron: Measuring the Aegean Bronze Age* in the Aegaeum series (Foster and Laffineur 2003).

Environmental studies

Environmental studies have been fundamental to contextualizing human societies, and as practiced in Aegean regional studies typically involve geomorphology, paleoclimate, zooarchaeology, and archaeobotany (e.g., Davis et al. 1997; Given and Knapp 2003; Wiseman and Zachos 2003; Zangger et al. 1997). A sampling of current environmental research, with a focus on soils and botanical evidence, may be found in *Landscape and Land Use in Postglacial Greece* (Halstead and Frederick 2000). In addition to case studies describing methods and results of paleoenvironmental reconstruction, this volume takes on some thorny problems: the difficulty of correlating the effects of climate and human activity in chronological and causal terms, and the extent to which humans have been responsible for episodes of environmental degradation such as landscape destabilization resulting in erosion and catastrophic soil loss. With palynological and geoarchaeological evidence that often can be only roughly dated, it is difficult enough to establish contemporaneity with specific, well-dated human occupations, let alone causality (Halstead 2000, pp. 118–121). For this reason, debate continues on the prevalence of human agency in episodes of destabilization that are often observed in the paleoenvironmental record. In the Argolid, regional surveys of the 1970s–1990s generated a large body of geological and archaeological data that seemed to indicate human agency in certain episodes of massive Holocene soil erosion (Runnels 1995, 2000; van Andel et al. 1986, 1990; Zangger 1994). Two of these were attributed to careless slope clearance by farmers and another to widespread grazing and the collapse of agricultural terraces. This interpretation has been criticized for what some see as poorly dated sequences that leave ambiguous the causal relationship between humans and episodes of landscape destabilization, and for the extrapolation from a few samples to broad, regional patterns (Bintliff 1992; Butzer 2005; Endfield 1997; Moody 1997, 2000; Whitelaw 2000). Others, citing ethnographic and ethnohistorical evidence, argue that traditionally, Greek farmers and pastoralists who cannot afford to overexploit or otherwise endanger their resources put in place informal, self-regulating taboos and constraints (Forbes 2000; Koster 1997). This debate is not easily resolved, but there is a clear need to build local, well-dated, and correlated

sequences (e.g., Krahtopoulou 2000) as a prelude to making wider inferences about agency in regional land–human relationships.

In spite of these problems, enormous resources are expended in flotation for the recovery of botanical and microfaunal material (Megaloudi 2006). An excellent recent example is the use of recovered animal, fish, plant, and stone remains to reconstruct the contents and use of a kitchen at pre-eruption Akrotiri (Birtacha et al. in press). Organic residue analysis by gas chromatography-mass spectrometry figures prominently in investigations of diet and trade. Recently, a major exhibition and accompanying book, *Mycenaeans and Minoans: Flavours of Their Time* (Tzedakis and Martlew 1999), brought together evidence from residue analysis of pottery; plant, faunal, and molluscan remains from excavations; iconographic and written sources; and isotopic and other studies of human remains to describe Aegean Bronze Age cuisine. At Neopalatial Mochlos, residues from large vessels in the Vat Room of Building C.7 are part of a persuasive argument for an industry in perfumed oils and unguents (Koh 2006).

Geomorphology

Geomorphology has figured prominently in reconstructions of Bronze Age coastlines and harbors (Besonen et al. 2003; Jing and Rapp 2003; Rothaus et al. 2003; Zangger et al. 1997). In Messenia, Zangger and colleagues identified an artificial rectangular basin that they believe served as a protected port for the palace at Pylos (Shelmerdine 2001a, p. 339; Zangger et al. 1997, pp. 619–623). To keep the port free of sediment, Mycenaean engineers excavated a small lake and a channel by which the Selas River could be partially diverted to the harbor, while the sediment carried by the river was trapped in the artificial lake. This reconstruction has met with some skepticism, but a project of this scale and sophistication was well within the impressive engineering skills of the Mycenaean, who built monumental tombs, fortifications, roads, bridges, and dams and drained the vast Lake Kopais in central Greece to reclaim agricultural land (Knauss 2001; Loader 1998). Another coastline reconstruction project employed sedimentological analysis of dozens of geological cores to contextualize a possible Mycenaean colony on the Ionian seacoast in Epirus (Besonen et al. 2003). The reconstruction restores a broad bay that extended inland some 6 km or more in the Bronze Age, placing the Mycenaean settlement in a strategic position overlooking a sheltered harbor.

Geomorphologists have become close partners in regional survey archaeology. Some surveys have begun to attach a geomorphologist to each survey team for real-time interdisciplinary consultation (Given et al. 2002; Tartaron et al. 2006a, pp. 468–470). Other creative applications of geomorphology have originated from the need to study surface sites when there is no recourse to excavation. The Laconia Rural Sites Project investigated 20 small, rural surface sites by combining controlled artifact collections, geophysical prospection, and soil chemistry of 20-cm auger cores (Cavanagh et al. 1996, 2004; Mee and James 2000). The soil from the cores was analyzed for a range of properties, including color, texture, consistency, artifact and ecofact content, organic carbon, mineral magnetic properties, and

elemental content of phosphorus, copper, lead, calcium, and potassium. Among the many interesting results was a strong positive correlation between artifact distribution/density and most of these soil properties. This correspondence suggests that these markers of human activity have survived together for thousands of years, with little evidence for widespread erosion, even at sites on sloping terrain. In another case, geomorphologists and archaeologists collaborated to provide evidence for dating partially collapsed limestone architecture (Tartaron et al. 2006b). Geomorphologists constructed a relative chronology based on the progressive development of karstic dissolution features in the stone, with two broad phases in antiquity. Controlled artifact collections demonstrated a clear association of Early Helladic (EH) II artifacts with the older phase architecture, allowing the plan of a fortified coastal site of that period to be recognized.

Geophysics

Geophysical prospection is widely practiced on both excavations and surveys, as improvements in instrumentation, electronics, and data processing have increased coverage per unit time, with greatly enhanced reliability, precision, and visualization (Kvamme 2003). In a thorough review of techniques and the history of geophysical prospection in the Mediterranean, Sarris and Jones (2000) emphasize both the research value of geophysical techniques and their potential as rapid, nondestructive means to gather information on the nature and structure of archaeological sites and features endangered by modern development. A dramatic increase in interest began around 1990, and now much of the geophysical work is carried out by specialized Greek research units such as that directed by Sarris at the Institute for Mediterranean Studies at Rethymnon, Crete, which publishes its work annually in *Archaio-telepiskopika Nea* (in Greek and English). These publications show the power of integrated geophysical survey using several different instruments (Vafidis et al. 2005) and illustrate many superb examples of GIS imaging of integrated geophysical, archaeological, and environmental data. To mention just one project relevant to the Greek Bronze Age, at the spectacular Mycenaean center at Dimini, geophysical mapping of 29,000 m² using magnetic, electromagnetic, and soil resistance methods revealed the two main *megaron* complexes and numerous other structures, which have been confirmed by ongoing excavations (Sarris 2002).

Geographic information systems

As everywhere, there has been an explosion in the use of GIS to organize and process the massive amount of spatial information that any project generates. Whereas until recently GIS had been used mainly to analyze data retroactively (Gillings 2000), most new surveys now come to the field armed with complex “archaeological knowledge systems,” including multiple GIS layers of environmental and cultural data linked via databases to the new data generated in the field (for links to online examples, Gates et al. 2004). The proliferation of GIS in Aegean

prehistory has been facilitated by the increasingly user-friendly interface of off-the-shelf GIS packages such as ESRI's ArcGIS, as well as the wider availability of inexpensive satellite imagery and digital terrain (or elevation) models (DTMs). In Greece, where in the past it has been a complicated matter to obtain paper topographic maps from the army (at 1:5,000 scale), the new digital options are welcome. Currently, georeferenced DTM "scenes" of several kilometers on a side are available on CD from the Ministry of Agriculture, offering an affordable building block for a project's GIS.

Although standard GIS software is not well tailored to archaeological needs, some projects have used the model-building and analytical capabilities of GIS in interesting ways. A GIS-generated locational model for prehistoric harbors in the Saronic Gulf, based on environmental and cultural variables, resulted in both hits and misses but led to the discovery of two major Bronze Age harbor settlements (Rothaus et al. 2003; Tartaron et al. 2003). The Kythera Island Project (<http://www.ucl.ac.uk/kip/>, accessed 6 March 2007) has used viewsheds to analyze the relationship between peak sanctuaries and surrounding settlements in Minoan times, and one project member used GIS in an elegant analysis of surface scatters of the Neopalatial period, from which he reconstructed details of social structure, demography, and site location (Bevan 2002; Bevan and Conolly 2002–2004). Another project, called Digital Thebes, employs GIS to create layered data sets that help archaeologists map the scattered and fragmented remains of a great Mycenaean palace center now buried underneath a thriving modern town (Dakouri-Hild et al. 2003). The project directors have found that, in addition to the value of visualization and updating of remains that are constantly added one small house plot at a time, the GIS has helped protect the cultural heritage of Thebes by improving communications between archaeologists and city officials.

Archaeometry and laboratory sciences

Laboratory sciences have flourished, in part due to generous funding from the Institute for Aegean Prehistory (INSTAP), which now supports the operation of the Wiener Laboratory at the American School of Classical Studies at Athens, the INSTAP Study Center for East Crete, and the Aegean Dendrochronology Project at Cornell University, as well as individual field and laboratory projects around the Aegean. Bioarchaeology has been an area of vast improvement: where once projects rarely did anything with faunal or human skeletal material, that trend has been reversed and there are now many innovative projects. An ongoing project in the Argolid (mentioned above) includes the comprehensive reexamination of all preserved skeletal material from the Middle Helladic and early Mycenaean era for definitive determination of age/sex profiles, occupational activities, pathologies, and diet (Voutsaki 2005). A similar study of skeletons from several Bronze Age cemeteries in western and central Macedonia revealed few differences among age and sex groups in diet or overall health but significant sex-based and age-based differentiation in mortuary treatment (Triantaphyllou 2001). Scientists from the University of Manchester have reconstructed the faces and heads of seven of the

bodies interred in Grave Circle B at Mycenae, and DNA and diet studies are underway on these specimens as well (French 2002, pp. 32–35; Musgrave et al. 1995). Polymerase chain reaction (PCR) techniques are being applied to the search for DNA evidence of diseases like malaria in Bronze Age populations (Arnott and Stuckey 2003); although this work is methodologically sound, it has proven difficult thus far to extract sufficient genetic material. If successful, this research will provide valuable information on the prevalence of infectious diseases, their evolution and transmission, and the social and economic factors that may inhibit or facilitate their spread. Another aspect of disease is healing; Arnott (1997, 1999, 2002a, b) has explored the evidence for medications, healing cults, and healers in the Minoan and Mycenaean worlds.

There is a longstanding interest in understanding the place of animal resources in the Linear B administration, and Halstead (1998–1999) has made an important distinction between textual (livestock) and faunal (deadstock) evidence in reconstructing animal management and exploitation. In the past, faunal analysis has been spotty and mainly directed toward questions of subsistence (Halstead 1996, 2000). As described above, however, faunal assemblages have been central to understanding ritual practice in the sanctuary at Ayios Konstantinos and state-sponsored feasts at Pylos and Tsoungiza. Many current studies are analyses of unexamined faunal assemblages from old excavations. A recently published survey on the state of zooarchaeology in Greece (Kotjabopoulou et al. 2003) shows that while subsistence and methodology remain primary concerns, there is a new emphasis on symbolism, ritual, and the artistic representation of animals.

The characterization of inorganic material is a long-term strength in Aegean prehistory (Tartaron 2003), indicated, for example, by the frequency of publication in journals such as *Archaeometry*, *Journal of Archaeological Science*, and *Geoarchaeology*. The bulk of this work involves ceramics, metals (mainly copper and tin), and stone (obsidian and marble). Pottery, clays, and other potting resources are routinely characterized using geochemical methods such as NAA, XRD, and ICP, microscopy including SEM, electron microprobe, and optical petrography, or a combination of several techniques (e.g., Day et al. 1999; Dorais and Shriner 2002; Feuer and Schneider 2003; Galaty 1999a, b; Hein et al. 2002, 2004; Kilikoglou et al. 2003; Kiriati 2003; Kiriati et al. 1997; Mommsen et al. 1994, 2002; Shriner and Dorais 1999). Ceramic petrography is thriving in the Aegean. The labor of several decades of patiently building up mineralogical data from petrographic collections has paid off: on Crete, because of extensive sampling and reasonable geological variability, it has been possible to develop mineralogical “fingerprints” for a wide range of fabrics that are often associated with specific stylistic classes (Day et al. 1997; Day and Wilson 1998; Whitelaw et al. 1997; Wilson and Day 1994). The ability to identify the region of manufacture of these fabrics has led to many insights into production and consumption patterns, intransland exchange, and social relations of status and power. Often, these results have been surprising, challenging well-entrenched ideas (Betancourt 2003). It has been possible to show that the palace at Knossos was not the production center for Kamares ware, a luxury product of the Protopalatial period, but rather that this ware was manufactured in the Mesara plain in the south, and Knossos was instead a center of importation for the

purpose of elite consumption (Day and Wilson 1998). In Prepalatial Crete, petrography has demonstrated that pottery was distributed widely on the island through long-distance exchange mechanisms, and on a local scale, complex social processes rather than ease of access or proximity of a workshop seem to have determined consumption patterns (Betancourt 2003, p. 117).

Questions of the degree of centralized production and the frequency and magnitude of interregional trade in pottery have prompted numerous studies. As noted above, petrographic analyses paint a picture of intensive interregional trade of pottery in Prepalatial Crete, which may be explained by a “special products model” in which specialist workshops on Crete and further afield in the Aegean created vessels of high perceived value, which were selectively consumed at a distance as funerary offerings and other markers of status (Betancourt 2003). A similar explanation may be offered for the broad distribution of cooking and storage vessels manufactured on the island of Aegina in the Middle and early Late Bronze Age, though in this case they were desired for their superior working properties (Lindblom 2001; Rutter 2001, pp. 124–130; Zerner 1993). A different story is materializing for the Mycenaean Greek mainland, driven mainly by geochemical approaches. A significant hypothesis to emerge from this work is that a striking regionalism, even localism, characterized the production and consumption of pottery in Mycenaean world. A complete reanalysis of a large neutron activation database of 878 Mycenaean sherds from the mainland and Crete by Mommsen and colleagues (2002) leads them to several intriguing conclusions: (1) despite a high degree of typological and stylistic homogeneity (the so-called *koiné* in Mycenaean material culture), chemically distinct pottery groups prevail by region; (2) a limited number of local recipes tend to persist throughout the Mycenaean period, indicating strong and continuous local potting traditions; (3) workshops produced pottery in sufficient quantity to meet local needs; (4) workshops produced a full range of wares, from coarse utilitarian vessels to fineware; and (5) thus interregional trade in pottery and clay was not a significant component of overall consumption. These conclusions are supported by chemical and petrographic analysis of Mycenaean pottery at Pylos (Galaty 1999a, pp. 55–57), as well as outside the core area in Thessaly and Macedonia, where local potters imitated Mycenaean forms and styles but only occasionally imported them (Feuer and Schneider 2003; Kiriatzi et al. 1997). This evidence also makes sense when one considers that a similar case for imitation without importation has been made for the Mycenaean Corinthia, geographically adjacent to the Argolid, Mycenae’s realm of power (Morgan 1999; Mountjoy 1999; Rutter 2003). The definition of regional chemical signatures in pottery and clay on the mainland is underway (Hein et al. 2002), in this case running well ahead of the petrographic research (but see Whitbread et al. 2002). The burgeoning archaeometric database may now be placed alongside the results of formal and stylistic analysis, most notably Mountjoy’s *Regional Mycenaean Decorated Pottery* (Mountjoy 1999). In this two-volume work that represents the culmination of decades of research, the author defines the range of variation, across the Aegean world and through each phase and subphase, in preferences for particular shapes and decorative elements. In doing so she isolates regional styles that may correlate with changing patterns of trade, political or cultural influence, or

other forms of interregional interaction. Numerous archaeometric analyses have been completed and published since Mountjoy's study, so the work of comparing the diverse data sets and understanding their full implications is ongoing and will occupy archaeologists well into the future. But the situation with Mycenaean ceramics illustrates the promise of integrating traditional and cutting-edge modes of observation in a framework that, along with excavation and survey, can truly illuminate the nature of relations among regions. This cooperation is essential because although archaeometric analyses have modified provenience assignments made on the basis of stylistic properties, the redundant carbonate geochemistry of much of the Greek mainland has often prevented precise determinations of provenience.

A long-standing dialogue continues on the sources of ores, slags, and metal artifacts of copper and tin and their movements around the eastern Mediterranean, with profound implications for our comprehension of political and economic relations among the Bronze Age states. The primary sourcing technique, lead isotope analysis (LIA), has generated a vast technical literature over the last 25 years, but uncertainties about the method and the results have provoked an enormous and sometimes contentious debate, prompting special issues of *Archaeometry* (vol. 40, no. 1) and *Journal of Mediterranean Archaeology* (vol. 8) devoted to airing the various interpretations of the data. Often the LIA source fields overlap or group membership is ambiguous, statistical methods used to assign unknowns are questioned, and there is the confounding problem of remelting and mixing of ores and metals from different sources (Attanasio et al. 2001; Muhly 1995a; Pernicka 1995). Ongoing improvements in analytical instruments and techniques, and far larger databases, have alleviated some of the problems (Stos-Gale and Gale 2003). The new generation of plasma mass spectrometers (MC-ICPMS) are more sensitive and accurate than the thermal ionization mass spectrometer (TIMS). It has now been confirmed that copper and tin vary isotopically in nature, raising the prospect that direct isotopic measurements may one day replace the indirect method of measuring lead isotopes. As for remelting and mixing, the Aegean is unusual in the high proportion of metals removed from circulation for placement in graves as opposed to settlements, sanctuaries, and other contexts. In nonfunerary contexts, evidence for repair rather than the more laborious process of melting down and casting is widespread. (An exception is Mochlos on Crete, where 450 copper and copper-alloy objects were recovered from nonfunerary contexts in the final destruction horizon of LM IB [Soles and Stos-Gale 2004]. Several hoards indicate remelting of scrap metal.) Therefore, it is reasonable to assume that the lead isotope signatures of extant metal artifacts should reflect their ore sources (Stos-Gale and Gale 2003, p. 86).

Working from this assumption, it is possible to construct a diachronic picture of the changing exploitation of ore sources in the Bronze Age Aegean (Stos-Gale and Gale 2003, pp. 88–98), which may correlate well with shifting relations and centers of power. In the Early Bronze Age, the Lavrion mines in Attica and sources in the Cycladic Islands were preferentially exploited, correlating well with the flourishing Cycladic culture. By the Late Bronze Age, however, metals from Cycladic sources were no longer exploited, and the circulation of metals around the eastern

Mediterranean was complex and variable, reflecting vigorous and widespread trade. On Crete and the mainland, Lavrion copper was used extensively, and Cyprus became a major supplier to the eastern Mediterranean. The provenience of hundreds of copper ingots recovered from the Uluburun shipwreck (which went down off the coast of southern Turkey around 1300 B.C.) is uncertain, but the isotopic overlap with several Cypriot source fields points to an as yet undiscovered source on Cyprus. Much of the analyzed copper from Crete is of Cypriot origin, but at Mochlos it is possible to distinguish between bulk ingots of Cypriot copper and scrap metal wire with a mainland origin at Lavrion (Soles and Stos-Gale 2004, pp. 46–47). On the mainland, Cypriot copper was not much used. Further, there are small occurrences in the Late Bronze Age Aegean of copper from Anatolia, Sardinia, and Israel. One surprising result is that copper oxhide ingot fragments found in Bronze Age contexts in Sardinia (an island with plentiful copper deposits) match the Apliki ore sources on Cyprus (Gale 1999; Stos-Gale and Gale 2003, p. 99). Thus, the LIA data paint a complex picture of exchange and consumption of copper-based metals, raising fascinating questions about the organization of the metals trade and the broader networks in which it was embedded. The situation with regard to sources of tin is less developed methodologically, and the corpus of analyzed samples is much smaller; consequently, there is even less agreement on the ore sources (Gillis et al. 2003; Muhly 1995b, 2001; Yener 2000; Yener and Vandiver 1993). There are no tin sources in the Aegean, however, and on present evidence Anatolia and sources farther east seem most plausible.

There has been little provenience work on obsidian because long ago Renfrew and colleagues established that almost all obsidian at prehistoric Aegean sites comes from the island of Melos (e.g., Renfrew et al. 1965). New elemental analyses, however, have shown more source variability than expected: not only more distant sources such as Anatolian obsidian at Knossos and Malia (Poursat and Loubet 2005) and Carpathian obsidian in Macedonia (Kilikoglou et al. 1996), but also at Melos itself where it is possible to discriminate chemically between two separate quarries. More importantly, lithic studies have been overly technical, focused on provenience, the details of the reduction sequence, and economic explanations, while ignoring "...more nuanced, socialized, embodied, gendered and subjective deconstructions of the natural world and its resources" (Carter 2003, p. 76). Carter's recent research examines consumption patterns of obsidian as possible expressions of individual or corporate identity, as well as the role of obsidian in ritual behavior and cosmological belief (Carter 1998, 2003).

To conclude, it is still atypical for scientists to participate in research design formulation or to work alongside archaeologists in the field on a daily basis (Butzer 2005; van Andel 1994). Because of limited funding and poor professional prospects, few scientists can afford to devote their full energies to archaeology, and it is the rare individual who is expert in both field archaeology and one or more of the hard sciences. All the same, there are encouraging signs of better integration of scientific experts in the archaeological endeavor and increasing mutual understanding across disciplines. Technology continues to enhance the ability of archaeologists to store information, recognize patterns in their data, and reconstruct the "life histories" of durable objects of stone, clay, and metal. Nevertheless, archaeologists and archaeological scientists

are not mere technicians, and we would do well to heed Carter's (2003) plea to foreground the social and the cultural—the people behind the pots—even as we embrace the latest techniques.

Discussion: The place of Aegean prehistory in world archaeology

In my own experience, I know well that prehistorians working in other world areas rarely think of the Aegean when they look outward for inspiration or comparative material to apply to their own problems (there are of course exceptions: Blanton 2004; Flannery 1998). Not so long ago, Galaty and Parkinson (1999b, p. 3) could write that "...rarely do the comparisons drawn by Aegean archaeologists extend beyond the confines of the eastern Mediterranean, and they almost never reach the shores of the New World." In a forum such as this, it is important to ask why this should be. Is there really so little of mutual relevance or interest? I contend that there has never been greater incentive to share our knowledge and perspectives, and that a gradual intellectual convergence between New World and Old World archaeology—a "meeting of minds" (Davis 2001)—may in fact be underway.

As has been observed repeatedly, Aegean prehistory occupies a strange position, straddling many disciplines (European archaeology, world prehistory, classical archaeology, anthropological archaeology) without being in the mainstream of any of them (Davis 1994, 2001). Practitioners of Aegean prehistory are themselves divided by differently structured academic systems: in the United States, they reside predominantly in classics departments, while in most of the rest of the world (where anthropology is defined more narrowly as social or cultural anthropology), they are members of archaeology departments. It is also true that the Anglo-American tradition in Greece is more strongly oriented toward method and theory than others, such as the German, which focuses on traditional architectural excavation and is more culture-historical in outlook. In the United States, the disciplinary divide also separates Aegean prehistorians from anthropological archaeologists, with whom they often feel strong intellectual affinities. Because the Aegean Bronze Age possesses neither the rich historical records of later periods, nor good preservation of nondurable material, Aegean prehistorians have often felt more closely connected, theoretically and methodologically, to other world prehistories than to classical archaeologies of the Aegean.

Aegean prehistorians themselves are often quite anxious about this continuing identity crisis, and introspective assessments of the "state of the discipline" appear with some regularity (Cherry and Talalay 2005; Cherry et al. 2005; Cullen 2001, 2005; Davis 1994, 2001; Keller and Rupp 1983; Renfrew 2003). There is something amusing about this collective neurosis, but then there are serious consequences to disciplinary marginalization and a failure to distinguish between Aegean prehistory and classical archaeology generally: there are few jobs, and financial support from bodies like the National Science Foundation is rarely extended to Aegean prehistorians.

Nonetheless, in efforts to bridge the "Great Divide," Aegean prehistorians have offered various enticements to their (mainly New World-focused) brethren. Some of these emphasize the rich database of more than a century of excavation and survey

as a source of comparative material and fertile ground for model building. Others involve the combination of textual and archaeological evidence, endorsed by Bennet and Galaty (1997) and even more in evidence today. Some assert that there are no fundamental differences in the methodologies espoused by anthropological archaeologists and those of most archaeologists working in the Mediterranean (Bennet and Galaty 1997, p. 100). Davis (2001, pp. 421–430) takes a different tack by outlining “big questions” that Aegeanists share with archaeologists across the world, including the origin and spread of food production, social inequality and processes of state formation, and the archaeology of states and empires. He recommends that we meet together, write together, and publish in journals that reach a worldwide audience (Davis 2001, p. 432).

These are all worthy suggestions, but no single inducement, or even a logically ordered set of them, seems sufficient to distinguish the Aegean from more traditional Old World options. Instead, I perceive two developments moving the Aegean closer to the New World: the first is a sharing of intellectual streams across the Atlantic, notably among a younger generation of archaeologists, and the second is a patient persistence on the part of individuals to foreground the Aegean in comparative studies.

While Aegean prehistorians embraced processual archaeology and other developments from the New World, they have generally followed European intellectual trends more closely than those of the Americas. This may be seen in the ideas of mainly French and British philosophers, historians, and archaeologists that permeate the theoretical and interpretive literature; structuralism (Lévi-Strauss 1967), *Annales* history (Bintliff 1991; Braudel 1972; Knapp 1992), structuration theory (Giddens 1979, 1984), practice theory/habitus (Bourdieu 1977, 1999), and phenomenology (Bender 1993; Tilley 1994) are some examples. Yet here I have stressed that the younger generation of Aegean prehistorians, regardless of where they are based, are paying close attention to theories and methods generated in the Americas, for example, the work of Blanton, Brumfiel, Crumley, Costin, Flannery, Hayden, and Marcus, to name a few. Thus, in our attempts to grapple with craft production and consumption, exchange systems, social inequality, identity and ethnicity, ritual and feasting, agency, or gender, we are increasingly speaking the same conceptual language. As we survey the intellectual landscape of these disciplines, it seems to me that most Aegean prehistorians would identify themselves with the broad array of approaches that Hegmon (2003) describes as “processual-plus” for North American archaeology, though with the caveat that some would find objections along with Moss (2005). But whereas Americanists are embracing European ideas with greater frequency (notably postmodern archaeologies and social theory coming out of Britain), this generally has not translated to enhanced interest in the Aegean. When in fact New World archaeologists do invoke comparative examples from the Aegean, the literature cited is often of the most general kind or decades out of date (e.g., Flannery 1998), and I am confident that it also works the other way around. Perhaps this tendency helps explain why Aegean prehistory seems so peripheral or backward. This hardly seems an insurmountable problem: most Aegean prehistorians would be delighted to compare notes with colleagues working elsewhere in the world.

This is where the persistence of individuals comes in. A small group of younger and mid-career scholars, conspicuously Cherry, Davis, Galaty, Kardulias, and Parkinson, has taken over the evangelical mission of previous generations of Mediterranean archaeologists like Wiseman, Dyson, Renfrew, and Snodgrass. In particular, they have brought together Aegean prehistorians and Americanists in organized sessions at the annual meetings of the Society for American Archaeology (Galaty and Parkinson 1999a) and the Archaeological Institute of America (Galaty and Bey 2007), an advanced seminar at the Cotsen Institute of Archaeology (Papadopoulos and Leventhal 2003), and an upcoming advanced seminar at the School of American Research in Santa Fe (Galaty, personal communication 2007). They have foregrounded the Aegean in cross-cultural, comparative studies on state formation, political organization, palatial economies, regional approaches in archaeology, and other “big” topics (Galaty 2005; Galaty and Parkinson 1999b; Parkinson and Galaty 2007). It seems fitting to end this review with a brief example of these aspirations.

A practical example: Maya and Mycenaean states

One example of potentially fruitful collaboration is among those who study Maya and Mycenaean states. There are many parallels in the history of research in these areas and similarities between the two civilizations in organization and developmental trajectory (Galaty and Bey 2007). In both cases, archaeologists began with models of empire, which later gave way to a political landscape of competing city-states with the properties (at least initially) of peer polities. But there is a need to work at multiple scales to better understand how these states worked: what was the nature of kingship, how were the polities organized politically, how were resources and power allocated, and how can we detect the presence or absence of the state in the rural hinterland? The fascination with palace sites and elite culture must be balanced with a view of the state from the countryside and the individual (Smith and Schreiber 2005, pp. 204–206). Regional surveys and excavations of small sites promise rich comparative data on households, villages, and other social groups as they interact within the larger organizational structure of the state. This promise is far from realized, but I have endeavored to show how ongoing efforts in the Aegean are addressing these issues.

The attributes that the Maya and Mycenaean shared, at least superficially, include hierarchical organization, a dominant political class, kingship, writing, economies heavily invested in the exchange of prestige goods, and the use by elites of religious ritual, feasting, and warfare as pathways to power. But these features were not necessarily constructed or employed in the same ways, so detailed comparisons have the potential to capture the true variability rather than flattening out the differences in simplistic evolutionary schemes.

There are convergent trends in the intellectual engagement with broad issues such as the nature of political organization among states and the causes and processes involved in “systems collapse.” Monolithic and static pictures of civilizations that emerge, floresce, and collapse in unison have given way to recognition of the temporal and spatial variability of complexity. Mycenaean states could be highly centralized,

but even in the Palatial period much of the countryside lay well beyond the political reach of the palaces (Tartaron in press). Behind the general trend of high centralization in the Maya Classic period and political fragmentation in the Terminal Classic lay a more complicated picture of coexisting centralized and noncentralized polities, abandonments and foundations, and shifting fortunes among competing states such as Caracol, Calakmul, and Tikal (Chase and Chase 2000; Marcus 2003, pp. 102–104). Drawing on dual-processual theory (Blanton et al. 1996; Feinman et al. 2000) and Marcus' (1993, 1998, 2003) dynamic model, Parkinson and Galaty (2007, pp. 123–125) argue that while both emerged as network-based, exclusionary systems, the Maya would be considered a secondary, second-generation state founded on the ashes of earlier state society, while the Mycenaeans would be a secondary, first-generation state formed by interaction with Neopalatial Crete, but representing the first instance of state formation on the Greek mainland. This difference may have had led to different social, political, and economic formations.

One striking contrast is in the uses to which writing was put (Marcus 1995). Mycenaean palace centers kept meticulous records of the goods and services that flowed into and out of the palaces, but they are devoid of real historical content. We learn of individuals only in their roles as participants in transactions of various sorts, and in many cases they are anonymous workers and slaves. We can reconstruct much about the Mycenaean economy from the texts, but they contribute little to a historical narrative. Maya writing served altogether different purposes. There is no evidence that the Maya ever recorded the daily flow of commodities disbursed or received; rather writing was closely associated with art (e.g., stone monuments, pottery, and wall painting), serving as captions to scenes of the lives of kings, queens, and other urban elites. In a climate of chiefly competition, Maya writing emerged to supply the names and pedigrees of these elites and to record their notable actions and life events (Marcus 2007). This contrast prompts the question: Why did the Maya and Mycenaeans use writing so differently, when both administered complex bureaucracies and multitiered settlement hierarchies and both employed scribes of elite status possessing highly restricted skills of literacy to record information deemed vital to palace interests? Perhaps a dialogue might begin with another set of questions: Why did Mycenaean rulers not see fit to record their names, images, and exploits, even though in most ways they pursued network strategies? Why did the Maya find careful recording of the flows of commodities unnecessary, despite their apparently strong interest in mobilizing surpluses and controlling access to specific resources? The written records offer very different, though complementary, windows onto these societies.

Explanations for the collapse of Maya and Mycenaean states have developed along similar lines. Early monocausal scenarios have been replaced by multicausal explanations emphasizing the interrelatedness of sociocultural and environmental factors, but the distinction between proximate and ultimate causes remains obscure (Marcus 2003, p. 106). Thus, warfare or internal unrest (Drews 1993; Oren 2000; Webster 2000, 2002), disease (Walløe 1999), and drought or other natural disaster (Hodell et al. 1995; Hunt and Elliot 2005; Moody 2005; Nur and Cline 2000) have been proposed as significant triggers, but it is difficult to draw causal links among them or to reconstruct the sequential process of collapse. Nevertheless, certain

trends in the scholarship on collapse characterize these two areas. Several scholars have asked whether the political economies of these states were inherently unstable. In the Aegean, the palaces may have undermined the viability of traditional risk-buffering agricultural strategies by relocating farmers and overspecializing on a narrow range of plant and animals species chosen for higher yields or value in the manufacture of luxury goods (Betancourt 1976; Haggis 2002). If so, the system was vulnerable to disaster in the event of a prolonged drought or disease to crops and animals. The Maya may have exhausted their resource base as populations nucleated and grew around the large regional centers (Abrams and Rue 1988), perhaps exacerbated if elites maintained power through the control of ecological resources such as land or water (Lucero 2002). These centers also might be more unstable if they were originally constituted through subjugation rather than incorporation (Cowgill 1988, p. 266), and generally, "...large-scale asymmetrical and inequalitarian structures were evidently less stable than commonly assumed" (Marcus 2003, p. 105).

The process of decline and collapse was much more gradual than previously believed, and there is a new emphasis on continuity and cultural survival. The Mycenaean "collapse" was really a long decline of 50–100 years of varied abandonments and destructions ending just after 1200 B.C. These destructions were followed by population movements and, in the 12th century, a final flourishing of Mycenaean material culture mainly at the edges of the former core area. Similarly, the Maya collapse is no longer seen as sudden and total. There, too, the abandonments and other disturbances unfolded over decades—in the Petexbatun area up to 140 years—and were attended by population movements away from inland centers toward the sea and other locations with dependable water supplies (Marcus 2003, pp. 106–108). Terminal Classic and Postclassic centers thrived in the southern highlands and the northern lowlands. Maya archaeologists often now speak of reconfiguration rather than collapse (McAnany and Gallareta Negron 2007), which might be understood as an oscillation in Marcus' long-term dynamic cycling. There are real contrasts, however, because hierarchical complexity in Greece did not reappear for almost half a millennium, and therefore "collapse" seems more appropriate.

The greatest benefit of intensive discussion across these traditions is the promise that we can move beyond "cherry picking" from trait lists and other superficial comparisons, toward a genuine appreciation of the ways in which leaders sought to resolve real-life goals and challenges in the management of the state. A deep understanding of these similarities and differences should cast new light on our own objects of study.

Conclusion

In spite of an astonishingly rich archaeological tradition, Aegean prehistorians have labored in relative anonymity on the world archaeological scene. I have presented here one view of current trends and possible future trajectories in archaeological research on the Greek Bronze Age, with the hope of promoting interest in their comparative potential. Is there some kind of intellectual convergence, as I have

suggested, and if so, will it lead to new opportunities for collaboration between Aegean prehistory and other archaeological traditions? Once again, as they have in the past, Aegean prehistorians are extending a “hand across the water.” It is worth considering that what unites us is our struggle with the same formidable challenges, and in the increasingly globalized marketplace of ideas, why labor in isolation?

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