Review of Aegean Prehistory VI: The Palatial Bronze Age of the Southern and Central Greek Mainland
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Review of Aegean Prehistory VI:  
The Palatial Bronze Age of the  
Southern and Central Greek Mainland  
CYNTHIA W. SHELMERDINE  

Dedicated to John Chadwick and William A. McDonald

INTRODUCTION

This review of Aegean prehistory focuses on the  
Late Bronze Age in southern and central Greece,  

* My thanks to Fred Kleiner and Tracey Cullen for  
inviting me to contribute to this series in AJA, and for  
their editorial help. I owe a particular debt to J.L. Davis, who  
set the standard and showed the way in the first review of this  
series (AJA 96 [1992] 699–756), and to J.B. Rutter  
for his coverage of the prepalatial Greek mainlapalatial  
(AJA 97 [1993] 745–97). This review is dedicated to two pioneers  
whom I was privileged to work: John Chadwick in textual matters, and William A. McDonald on the archaeological side.  

Many colleagues have been generous in their response  
to pleas for information, permissions, and/or advice:  
VassiS Aravantinos, Paul Aström, John Bennet, Emmett  
Bennett, Pierre Carlier, Eric Cline, Fred Cooper, Michael Cosmo- 
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Oliver Dickson, Elizabeth French, Robin Hägg, Halford  
Haskell, Spiros Lakovides, John Killen, Eleni Konsolaki- 
Yannopouloou, Peter Ronholm, Albert Leonard, Christopher  
Mee, José Melena, Penelope Mountjoy, Mike Nelson,  
Jean-Pierre Olivier, Ruth Palmen, Ingo Pini, Cemal Pulak,  
David Reese, Curtis Runnels, Jerry Rutter, Kim Shelton,  
Carol Thomas, Gisela Walberg, Peter Warren, Berit Wells,  
Malcolm Wiener, Jim Wright, and Eberhard Zangger. I am  
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help and general encouragement: John Bennet, Kate  
Bratcher, Jack Davis, Elaine Godwin, Sebastian Heath, Jan  
Jackson, Jane Okrasinski, Pamela Russell, Jerry Rutter, Susan  
Skelmerdine, and Chris Williams. Despite the best efforts  
of all these people, this review does not claim to be a  
comprehensive treatment of all aspects of LH III Greece.  
As usual in such cases, the choice of topics included is idiosyn- 
cratic, but I hope others too will find them important and  
interesting.  

The following abbreviations are used in this review:  

"Chronique"  
"Chronique des fouilles."  
BCH.  

J.L. Davis, "Review of Aegean Prehistory  
I: The Islands of the Aegaean," AJA 96  

Hägg and  
Marinatos  
R. Hägg and N. Marinatos eds., Sanctu- 
aries and Cults in the Aegean Bronze Age  
(Stockholm 1981).  

Hägg and  
Nordquist  
R. Hägg and G.C. Nordquist eds., Celeb- 
trations of Death and Divinity in the  
Bronze Age Argolid (Stockholm 1990).  

Kardulias  
P.N. Kardulias ed., Beyond the Site:  
Regional Studies in the Aegean Area  
(London 1994).  

Killen  
J.T. Killen, “The Linear B Tablets and  
the Mycenaean Economy,” in A. Morpurgo  
Davies and Y. Duhoux eds.,  
Linear B: A 1984 Survey (Bibliothèque  
des Cahiers de l’Institut de Linguis- 
tique de Louvain 26, Louvain 1985)  
241–365.  

Mykenaîka  
J-P. Olivier ed., Mykenaîka: Acts de IXe  
Colloque international sur les textes  
mycénens et étrusques, Athènes, 2–6 octobre 1990  

Politeia  
R. Laffineur and W.D. Niemeier eds.,  
Politeia: Society and State in the Aegean  
Bronze Age (Aegaeum 12, Liége 1995).  

Rehak  
P. Rehak ed., The Role of the Ruler in the  
Prehistoric Aegean (Aegaeum 11, Liége  
1995).  

Rutter  
J.B. Rutter, “Review of Aegean Prehistory  
II: The Prepalatial Bronze Age of the  
Southern and Central Greek Main- 

Studies Bennett  
J-P. Olivier and T.G. Palaima eds., Texts,  
Tablets and Scribes: Studies in Mycenaean  
Epigraphy and Economy Offered to  
Emmett L. Bennett, Jr. (Minos Suppl. 10,  
Salamanca 1988).  

Studies Chadwick  
J.T. Killen, J.L. Melena, and J-P. Olivier  
ed., Studies in Mycenaean and Classi- 
cal Greek Presented to John Chadwick  
(Minos 20–22, Salamanca 1987).  

with emphasis on current scholarly views about  
Mycenaean culture in the palatial age.* Much of the  
evidence on which these views depend has emerged  
or been reassessed during the last two decades. In  

addition to new discoveries, new interpretations have been inspired by advances in technology and by changes in our own cultural attitudes, which influence the way we look at the past.

The geographical scope (fig. 1) coincides with that of Rutter’s review in AJA on the prepalatial Bronze Age. The northern limit of coverage extends from the Gulf of Arta in the west to the mouth of the Spercheios River in the east. Below this line the entire mainland is included, and the immediately surrounding islands except for Euboea. The chronological focus is the high point of Mycenaean culture during the 14th and 13th centuries B.C., defined in ceramic terms as the Late Helladic (LH) IIIA and LH IIIB periods. Any analysis of the Mycenaean states would be incomplete, however, without consideration of their rise and fall. Recent debate on the emergence of statehood has included essential developments during the Early Mycenaean period, LH I–II. Similarly, discussion of the destructions that ended the

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1 Rutter 746.
Mycenaean palatial era ca. 1200 B.C. also requires
cornerstone of consequence for the following
LH III C period.

Even with some flexibility in its chronological limit,
this review covers a shorter time period than most of
the others in this series. By way of compensation,
an extra dimension is highlighted: the use of textual
evidence. Our ability to read Mycenaean Greek in-
creases the range of questions we can ask about the
period, and the Linear B tablets raise special prob-
lems of their own. In combination with archaeologi-
cal discoveries, these texts also contribute to research
on a variety of cultural issues such as religion and
economic administration. The material to be ad-
dressed is thus quite diverse, and is better suited to
a thematic approach than to a strict chronological or
geographical organization. This review is there-
fore arranged under the following headings: chronol-
ogy, work at palatial centers and other sites, regional
surveys and settlement patterns, technological ad-
vanced, ceramic studies, development of Mycenaean
states, new inscriptions, economic and political ad-
ministration, religion, and destructions.

The publication of Hope Simpson and Dickinson's
Gazetteer in 1979 is the starting point for the review
of fieldwork. Since then it has been possible to keep abreast of archaeological activity in Greece
through the invaluable yearly reviews in Archaeological Reports and the "Chronique des fouilles" in the
Bulletin de correspondence hellénique. Bibliographical
access to developments in Linear B studies has been
more difficult during the same period. The listings
of books, articles, and reviews in Nestor include tex-
tual as well as archaeological contributions, but the
summary publication Studies in Mycenaean Inscrip-
tions and Dialect was in hiatus from 1978 until its resur-
rection in 1995. Until very recently, new work on the
Bronze Age has not been much summarized, as-
essed, or synthesized. A welcome change is now
evident, with the appearance of comprehensive
studies of Bronze Age Crete and mainland Greece
as well as analytical bibliographies of Mycenaean
society. These publications, and the "Review of Ae-
gean Prehistory" series itself, document how much
has happened in this field in two decades.

CHRONOLOGY

Late Helladic IIIA–B chronology, both relative and
absolute, is more straightforward than that of pre-
ceeding phases of the Bronze Age. Nonetheless, it is
affected by several recent developments, and some
points remain in dispute. The alternative chronol-
ogies of the Late Bronze Age are given in table 1.7
Ceramic synchronisms still play a role in the debate

2 Gazetteer, with information through 1977. Davis 700
and Rutter 747 also acknowledge this publication as a ter-
minus post quem for their reviews.

3 Nestor, published monthly September through May by
the Department of Classics, University of Cincinnati, and
also available on computer diskette or by FTP (information
and searchable database available on the World Wide Web
at http://utas.uc.edu/classics/nestor/nestor.html [22
May 1997]).

4 The last compilation published was L. Baumbach,
(Incunabula graeca 86, Rome 1986). Publication has now been
resumed under the auspices of the Program in Aegean
Scripts and Prehistory and the Department of Classics, Uni-
versity of Texas at Austin. The first volume to appear un-
der this rubric is E. Sikkenga ed., Studies in Mycenaean
Inscriptions and Dialect, 1979 (Austin 1995). Future volumes
are planned to fill the gap from 1980 to 1995, as well as
current years.

5 K. Kilian, "Mycenaens Up to Date, Trends and
Changes in Recent Research," in French and Wardle 115–52
is an admirable exception, characteristically ahead of its
time.

6 R. Treuil et al., Les civilisations égéennes du Néo-élite
et de l'âge du Bronze (Paris 1989) is a fine textbook survey
of Crete and mainland Greece. O.T.P.K. Dickinson, The A-
gean Bronze Age (Cambridge 1994) is impressive as one man's
synoptic overview, organized thematically. Les mycéniens:
Les gres du IIe millénaire (DossPar 195, Paris 1994) addresses
a general audience. B. Eder, Staat, Herrschaft, Gesellschaft
in frühgriechischer Zeit. Eine Bibliographie 1978–1991/92 (Anz-
Wien 611, Vienna 1994) is part of a handbook project on
State and Society of Early Greece by the Mykenische Kom-
mision of the Austrian Academy of Sciences, under the
editorship of S. Deger-Jalkotzy. It includes the Dark Ages
and Homer as well as the Late Bronze Age. Its coverage
of textual matters is quite broad; archaeological studies
are included if they pertain to society and kingship. B. Feuer,
Mycenaean Civilization: A Research Guide (Research Guides to
Ancient Civilizations 5, New York 1996) offers a brief intro-
duction to Mycenaean civilization and an annotated bib-
liography organized by topic. Other bibliographical re-
sources include Studies in Mycenaean Inscriptions and Dialect
(supra n. 4) and Nestor (supra n. 3).

7 High chronology dates are taken from SW. Manning,
The Absolute Chronology of the Aegean Early Bronze Age. Archae-
ology, Radiocarbon and History (Sheffield 1995) 217–29; and
SW. Manning and B. Weninger, "A Light in the Dark: Archae-
ological Wiggle Matching and the Absolute Chronology
of the Close of the Aegean Late Bronze Age," Antiquity 66
(1992) 636–63. Manning and Weninger report the end of
LH IIIC as 1125/1065/1060, but the reasoning behind the
earliest figure, derived from A. Snodgrass, The Dark Age of
Greece: An Archaeological Survey of the Eleventh to the Eighth
Centuries B.C. (Edinburgh 1971) 122–23, is not now consid-
ered feasible.

Low chronology dates are taken from P. Warren and V.
Hankey, Aegean Bronze Age Chronology (Bristol 1989) 137–69.
over absolute chronology. In the last decade, however, the focus has been on radiocarbon and dendrochronological data, both of which have been refined in accuracy and augmented by new samples. An important recent discovery is a dramatic growth anomaly in Anatolian trees, which may bear on the much-debated absolute date of the Minoan eruption of the island of Thera. That debate is crucial for our understanding of the Early Mycenaean period, but it has only indirect consequences for LH III. The point of transition between LH II and LH IIIA will of course depend on which chronology is followed, but the two necessarily converge in LH IIIA.

The dates listed above do need one modification, in the length of LH IIIA2. There is widespread agreement that this period lasted longer than 30–40 years. The traditional cutoff date of ca. 1340/1330 accommodated the view that Mycenaean pottery from Tell el-Amarna in Egypt includes two stirrup jar fragments with LH IIIB features. The Egyptian court abandoned Amarna in year 3 of Tutankhamun, who according to the currently favored middle chronology reigned from 1336 to 1327 BC. A case has been made, however, that both jars can be dated to LH IIIA2. Support for an even later end to LH IIIA2 comes from the shipwreck being excavated off the coast of Turkey at Uluburun. A small log from the wreck that was firewood or dungnse, and was cut not long before the ship sank, has a last ring of 1316 BC. The Mycenaean pottery on board is all compatible with a date in LH IIIA2 except for one jug, still being restored and studied, that may cite his work.

The proposed modifications for LH IIIA–IIIB are explained infra. Warren and Hankey provide a good summary of the ceramic and 14C data as of 1988. Proponents of a low or short Aegean chronology rely chiefly on proposed synchronisms between the Aegean and Egypt. Dating the eruption on Thera to the later 16th century BC. The high or long chronology rests primarily on scientific evidence (tree-rings, ice cores, and 14C dates) that documents a “frost event” in 1628 BC. Supporters draw the inference that the eruption of Thera caused this event.

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Table 1. Late Bronze Age Chronologies

<table>
<thead>
<tr>
<th></th>
<th>High</th>
<th>Low</th>
<th>Modified</th>
</tr>
</thead>
<tbody>
<tr>
<td>LH I</td>
<td>ca. 1680–1600/1580</td>
<td>1600–1510/1500</td>
<td></td>
</tr>
<tr>
<td>LH II A</td>
<td>1600/1580–1520/1480</td>
<td>1510/1500–1440</td>
<td>1440–1390+</td>
</tr>
<tr>
<td>LH II B</td>
<td>1520/1480–1425/1390</td>
<td>1390+–1370/1360</td>
<td>1390+–ca. 1370</td>
</tr>
<tr>
<td>LH III A</td>
<td>1425/1390–1390/1370</td>
<td>1390/1370–1340/1330</td>
<td>1370/1360–1340/1330</td>
</tr>
</tbody>
</table>

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8 PI. Kuniholm et al., “Anatolian Tree Rings and the Absolute Chronology of the Eastern Mediterranean, 2220–718 BC.” Nature 381 (27 June 1996) 780–83; an update on the number of trees observed is reported by Kuniholm, “Aegean Dendrochronology Project December 1996 Progress Report” (unpublished), a newsletter circulated by the project director. The growth spike occurs at and just following relative ringyear 854 of 54 trees from the site of Porsuk in south-central Anatolia. The radiocarbon date range is compatible with linking this event to the 1628/1627 BC. event observed in dendrochronologies of Europe and the United States. A second event 470 years later also links up plausibly with an anomaly seen in Europe; together the two would anchor a formerly floating 1503-year dendrochronological sequence from Anatolia. The Aegean chronology is tied in by the further inference that the Minoan eruption of Thera caused the growth event of 1628 BC.

9 Davis 736 with n. 160; Manning (supra n. 7) 30–31, 200–29; M. Wiener, The Chronology of Late Bronze Age Egypt and the Aegean: Science, Texts, Interconnections (unpublished manuscript). I thank Malcolm Wiener for allowing me to years.10 The traditional cutoff date of ca. 1340/1330 accommodated the view that Mycenaean pottery from Tell el-Amarna in Egypt includes two stirrup jar fragments with LH IIIB features. The Egyptian court abandoned Amarna in year 3 of Tutankhamun, who according to the currently favored middle chronology reigned from 1336 to 1327 BC. A case has been made, however, that both jars can be dated to LH IIIA2.11 Support for an even later end to LH IIIA2 comes from the shipwreck being excavated off the coast of Turkey at Uluburun. A small log from the wreck that was firewood or dungnse, and was cut not long before the ship sank, has a last ring of 1316 BC.12 The Mycenaean pottery on board is all compatible with a date in LH IIIA2 except for one jug, still being restored and studied, that may cite his work.

10 Manning (supra n. 7) 228; Wiener (supra n. 9). At Nichoria, for example, it accommodates three phases of ceramic development, which occur in a stratified sequence in area IV: CW. Shelmerdine, “Mycenaean Pottery from the Settlement, Part III: Late Helladic IIIA2-IIIB2 Pottery,” in W.A. McDonald and N. Wilkie eds., Excavations at Nichoria II: The Bronze Age Occupation (Minneapolis 1992) 495.

11 In favor of a LH IIIB date: V. Hankey, “Stirrup Jars at El-Amarna,” in WV. Davies and L. Schofield eds., Egypt, the Aegean and the Levant, Interconnections in the Second Millennium BC (London 1995) 116–24, nos. 6, 8; cf. Warren and Hankey (supra n. 7) 149–51, 150 figs. 8–9. In favor of a LH IIIA2 date: Elizabeth French, personal communication, also cited by Wiener (supra n. 9). Hankey no. 6 is FS 171 (LH IIIA2–C1) or FS 173 (LH IIIB). The distinction rests on the relationship between height and diameter, which cannot be determined in this case from the amount preserved. The lozenge FM 73 is primarily a LH IIIB motif, which appears in LH IIIA2 chiefly as an accessory: E.B. French, “Late Helladic IIIA 2 Pottery from Mycenae,” BSA 60 (1965) 181, 190. As for Hankey no. 8, French (personal communication) reports Mountjoy’s view that it may be FS 166 (LH IIIA2–IIIB) rather than FS 182 (LH IIIB).

12 Kuniholm et al. (supra n. 8) 782; C. Pulak, “The Uluburun Shipwreck,” in R. Hohlfelder and S. Swiny eds., Res Maritima 1994: Cyprus and the Eastern Mediterranean, Prehistory through the Roman Period (BASOR Archaeological Reports 4, Atlanta 1997). I thank Peter Kuniholm and Cemal Pulak for discussing the matter with me and providing this definitive date.
be early LH III B. With an absolute date for the shipwreck in or shortly after 1316 B.C., it would appear that LH III A2 must continue almost to the end of the 14th century B.C. Furthermore, if one vessel really belongs to the following phase, the transition to LH III B (a process, after all, not a moment) is beginning at about that time.

One other chronological issue needs only brief mention. A recent attempt to lower the dates of the Dark Ages would bring the conventional second-millennium chronology down by 250 years, with the Egyptian 18th Dynasty beginning just after 1300 B.C. and ending just after 1050 B.C. This radical redating draws attention to some valid difficulties with the conventional chronology for the Dark Ages. As far as the Late Bronze Age is concerned, though, the attempt flies in the face of sound scientific evidence and has met with significant criticism. The present framework for continued refinement and debate on Aegean chronology is still confined to the alternatives presented in table 1.

WORK AT PALATIAL CENTERS AND OTHER SITES

Palaces and Citadels

In the past 20 years exploration has been renewed or continued at most of the known Mycenaean palatial centers and citadels. The result is a better understanding of the nature of such sites and of their history, especially during LH III B. Many cemeteries and isolated tombs have also been excavated, but much less attention has been paid to smaller settlements. This section summarizes recent work at palatial and other settlements, but discoveries at many of the sites receive further attention below in the relevant thematic sections.

Mycenae. The site of Mycenae is now under the general supervision of George Mylonas’s successor, Spyros Iakovides, who has conducted some explorations inside the citadel, in the vicinity of the Lion Gate and in the northwest corner of the acropolis. There is still an active British presence here as well, directed by Elizabeth French. Activity during the 1980s and 1990s at this well-explored site has chiefly involved study and publication, rather than new excavations. The latest joint Greek-British effort is a survey project that began in 1991, and will soon be published by the Archaeological Society of Athens. This is not a regional survey, and no systematic collection of material was attempted. Rather, like the earlier Knossos survey, it was designed to locate, identify, and map all visible remains throughout the settlement of Mycenae—an area of about 32 ha—after more than a century of exploration. The effort is especially valuable in the case of structures whose location or identity had been forgotten over time, as for a number of chamber tombs excavated in the 1880s and 1890s by Tsountas. Most of Tsountas’s tomb groups have now been reidentified, and over half of the individual tombs have been matched to their old excavation numbers. The project has also retraced the network of roads

15 Rutter has retracted the statement cited by Kuniholm et al. (supra n. 8) 782 that the wreck certainly contains LH III B pottery, but the possibility remains for the jug mentioned here: C. Pulak, personal communication, and Pulak (supra n. 12).


15 Cambridge Archaeological Journal 1 (1991) 227–53; Manning and Weninger (supra n. 7); Manning (supra n. 7) 23–24.

16 The regional section in the Gazetteer is adopted here throughout in discussion of sites and surveys. A possible change in the list of palatial centers is worth mentioning, though it falls outside of the review area. The Kastro site at Volos (Gazetteer H1) had previously been identified as Iolkos, on the strength of two successive large buildings. Recent excavation has revealed an extensive Mycenaean settlement at Dimini: AR 1991–1992, 39; AR 1992–1993, 47; AR 1994–1995, 35–36. Though to date only a street and private houses have been found, the excavators have proposed that Dimini is a better candidate for Iolkos. Presumably future work will strengthen or weaken this possibility.


in the Mycenae area, and established that the location of cemeteries is related to it.\textsuperscript{21}

Two groups of houses outside the citadel walls have now been fully published, the Panayia Houses north of the Treasury of Atreus, and the Oil Merchant group some 200 m further north and across the modern road (fig. 2). The first group consists of three LH IIIB houses, of modest domestic character.\textsuperscript{22} Panayia House I, built first, was destroyed shortly before the end of LH IIIB1. The cause was apparently an earthquake: a woman’s body was found in a doorway, her skull crushed, buried by the destruction debris. The same earthquake damaged House II, a somewhat later construction with a more elaborate plan. It was then partially repaired and reoccupied for a time before succumbing to a fire. House III, a small building belatedly squeezed between Houses I and II, continued in use well after House I, at least, was abandoned.

The Oil Merchant group of houses has a very different character. These four houses were constructed early in LH IIIB (first the West House, then in sequence the House of Shields, the House of the Oil Merchant, and the House of Sphinxes), and all were destroyed by fire near the middle of the period. Tournavitou provides a full account of the houses themselves and the materials found in them.\textsuperscript{23} Whatever other purposes these houses may have served, they were at least repositories for oil and worked ivories, and probably for perishable commodities as well. This is suggested by the presence of Linear B tablets, which deal, among other issues, with the collection of spices (Ge series), disbursements of wool (Oe), and maintenance of male and female personnel (Au).\textsuperscript{24} These topics are characteristic of palatial concerns elsewhere, and Tournavitou is right, in my view, to regard these buildings as an integral part of the palace administration.

Excavations of the South House and Cult Center (Citadel House area) during the 1960s are being presented in a series of fascicles, the first of which summarizes the work year by year and briefly describes the LH IIIB\textsuperscript{2} remains.\textsuperscript{25} In addition to these publication projects, a new museum has been constructed below and north of the citadel. The galleries should be ready by the end of 1997; they will house

\textsuperscript{21} A. Jansen, \textit{Stations along the Roads in the Area of Mycenae: An Analysis of the Mycenaean Road System and Its Relation to the Mycenaean State} (Diss. Univ. of Pennsylvania 1994);

\textsuperscript{22} I.M. Shear, \textit{The Panagia Houses at Mycenae} (University Museum Monograph 68, Philadelphia 1987).

\textsuperscript{23} I. Tournavitou, \textit{The ‘Ivory Houses’ at Mycenae} (BSA Suppl. 24, London 1995).

\textsuperscript{24} The tablets receive admirably thorough and professional treatment in C. Varias García, \textit{Los documentos en Linear B de Micenas: Ensayo de interpretación global} (Diss. Univ. of Barcelona 1993).

all finds from the site, except those on display in the National Museum at Athens.

**Tiryns.** The history of Tiryns has been greatly clarified, in large part through the work of the late Klaus Kilian.²⁶ The LH IIIA and earlier remains are discussed below. LH IIIB1 saw rebuilding on the upper citadel, and walls of mudbrick on stone foundations were added around the Lower Citadel (Unterburg). A conflagration at the end of LH IIIB1 necessitated another rebuilding in LH IIIB2. At this point Cyclopean stone fortifications were extended around the entire citadel. At the end of LH IIIB2 the site was destroyed, according to Kilian, by an earthquake.²⁷ The Lower Citadel was rebuilt and occupied into the Submycenaean period, ca. 1065/1060–1020/1000 B.C.²⁸ This area was a long-standing part of the Tiryns settlement, consisting of domestic buildings and some cult structures as well, of both LH IIIB2 and LH IIIIC date. In addition, a series of casemates (38 at present count) provided additional space for storage and offerings. Both the west and east sides have been partially excavated. Meticulous attention to stratigraphy in the Lower Citadel has also led to the refinement of ceramic phases from LH IIIA2 Late through LH IIIC (see below).

Around the hill lay a Lower Town that was inhabited from the Early Helladic period through LH IIIIC Late. It expanded greatly in LH IIIB or IIIC; in LH IIIC Early–Middle (the 12th and early 11th centuries B.C.) it covered 24.5 ha.²⁹ Kilian thought that the town was smaller in LH IIIB. Recent geophysical and soil studies, however, suggest a different view.³⁰ It is now clear that the Manessi River near the site changed its course in late LH IIIB–early IIIC. A natural shift from the south to the north side of the citadel deposited as much as 4 m of alluvium, burying much of the Lower Town east and north of the citadel under flash flood deposits. The inhabitants subsequently diverted the river well to the south by constructing a dam and canal, so that houses could be built in the former streambed. It is likely that the Lower Town was at least as large in LH IIIB as in LH IIIC, even though much of it is obscured by sediment.³¹ The same investigations also show that the coastline was only about 300 m southwest of Tiryns in the Early Bronze Age, ca. 2500 B.C., but receded to ca. 1 km from the citadel during EH II, where it remained throughout the Bronze Age.³²

**Midea.** Work at the citadel of Midea in the Argolid resumed as a Greek-Swedish project in 1983, under the direction of K. Demakopoulou with the collaboration of P. Åström.³³ The Swedish team has been working in the area of the East Gate and on the lower terraces, and the Greek team in the area of the West Gate. All three areas suffered a burning destruction late in LH IIIB2, and large fallen blocks and collapsed walls suggest that the cause was an earthquake. Foundation trenches for the citadel wall near the East Gate and on a lower terrace contained LH IIIB2 pottery, showing that at least some sections of the wall were constructed during that phase. A


²⁸ The most recent statement on Tiryns chronology is by P.A. Mounjoy, Mycenaean Pottery: An Introduction (Oxford 1993) 160.

²⁹ Zangger (supra n. 27) 197, fig. 8.


³¹ Zangger (supra n. 27) 211–12, with reference to Kilian 1978 (supra n. 26) 470.

³² Zangger (supra n. 27) 194–98, fig. 4.

section near the West Gate was apparently built in LH IIIB1, however, since no later pottery was found in the foundation trench explored there.

A complex of six rooms abutting the citadel wall inside the West Gate served as workshops and storerooms. Among the finds were remains of foodstuffs such as figs, olive stones, shellfish, small animal bones, and grain. Evidence of workshop activity includes grinding stones and pestles, a steatite jewelry mold, pieces of fluorite and mother-of-pearl, and a bronze knife of leather-working type.34 Pottery in the destruction level is generally of typical LH IIIB2 varieties, with good parallels from Mycenae and Tiryns, but with a few features conventionally assigned to early LH IIIC. This mixture defines a transitional LH IIIB2/IIIC Early phase recently identified by Mountjoy (see below).35

The lower terraces of the citadel have also been the focus of attention, especially in areas M and N. Both produced stratified deposits of LH IIIB and LH IIIC below Roman occupation layers, as well as earlier material. Sherds in a foundation trench for the citadel wall in area M confirm a LH IIIB2 construction date for that section, matching findings from the upper gate areas. A large (14 × 7.5 m) megaron complex is emerging in area N (fig. 3), but few details have yet been published.36 It had long been assumed that a megaron had stood on the summit of the hill, as at other Mycenaean palaces, although no architectural traces of such a building were ever found. The off-center and less prominent position of the newly discovered structure is thus of interest. The megaron at Midea has two LH IIIB floor levels. Five buttresses against the south wall are an unusual feature, with a parallel in the LH IIIB2 “mansion” at the Menelaion.37 The excavator suggests that they may have been intended to protect against earthquakes. In this they were unsuccessful, for a tilted

34 Demakopoulou et al. 1994 (supra n. 33) fig. 36 (fluorite), fig. 37 (jewelry mold).
35 Demakopoulou 1995 (supra n. 33) 155; Demakopoulou, forthcoming (supra n. 33).
36 Demakopoulou et al. 1994 (supra n. 33) 41, fig. 65;
wall and fallen stones agree with evidence from the upper gate areas that an earthquake severely damaged the site at the end of LH IIIB.38 The debris includes pottery of the transitional types found in the West Gate area.39 The building was subsequently repaired and remodeled: in this LH IIIC reuse a row of three column bases bisected the main room, replacing the hearth and four column bases of the LH IIIB phase. Among the finds of interest from the LH IIIB2 floor levels of the lower terraces are a large lead vessel and a stirrup jar decorated with a body zone of double axes and horns of consecration.10 Linear B inscriptions have been found on both upper and lower terraces (see below).

**Pylus.** In 1990, members of the project Minnesota Archaeological Researches in the Western Peloponnesse (MARWP) began work at the palatial site of Ano Englianos under the direction of F.A. Cooper, with M.C. Nelson as field director.41 With a view to preparing a complete site plan of the architectural remains, the project members are removing backfill, clearing walls and floors down to the lowest course of stone or the lowest level reached by the original excavators. A state plan of the Main Building is in progress (fig. 4). Remains uncovered to date reveal some discrepancies from the older published plans in a number of areas. For example, the excavator of Pylus, Carl Blegen, restored a door between outer propylon 1 and room 7 of the Archive Complex, in a wall that had been destroyed by post-Mycenaean robbing. Recently it has been suggested that access to the Archive Complex was more likely to have been from the interior of the palace, from inner propylon 2 to room 8.12 Work in this area during 1995 has brought to light some confirmation of this suggestion: a stone found under the plaster floor of inner propylon 2 is in a suitable place to have been a footer under the threshold of such a door.45

Stratigraphical investigations by the Minnesota team also indicate a more complex relative chronology for the site. The sequence of construction is now clear for the northeastern side of the palace. Five building phases, beginning in the MH period, predate construction of the Main Building and the Wine Magazine, which Blegen dated to the beginning of LH IIIB. Subsequently (phase 7), courts 42 and 47 were created by the construction of a rubble wall. A branch of the water channel to the east was diverted to run parallel to the northeast wall of court 47, and the corridor between the two (ramp 91) was then paved with plaster. The Northeast Workshop is a still later construction (phase 8), for its southwest wall rests on the edge of the water channel. Phase 9 represents post-Mycenaean (Dark Age) habitation of the site, for which there is increasing evidence.14

In addition to this work on the site itself, the vicinity of the palace was intensively surveyed by members of the Pylus Regional Archaeological Project in order to determine the size of the settlement. Artifact densities indicate that habitation extended for about 1 km along the Englianos Ridge and covered its full width (ca. 200–300 m), so that the area of the town was between 20 and 30 ha.47 Geophysical exploration by the project has also produced some welcome surprises. Chief among them is a substantial subsurface lineament, detected by magnetometry and electric resistivity, on the steep northeastern side of the Epano Englianos ridge. In computer models, the upper boundary of the source causing the anomy has been determined to be 1.0–1.5 m below the surface. The lineament is 60 m in length and 2.0–2.7 m wide. Since it runs parallel to the contours of Archives Rooms at Pylus: Form and Function in a Mycenaean Palace,” *AJA* 89 (1985) 251–62.

38 Walberg 1992 (supra n. 33) 31, 38; Walberg, unpublished (supra n. 33); Demakopoulou et al. 1994 (supra n. 33) 39.

39 Demakopoulou et al. 1994 (supra n. 33) 35.

40 Demakopoulou et al. 1994 (supra n. 33) 36, fig. 48 (lead vessel), 36–37, fig. 53 (stirrup jar).


43 Cooper (supra n. 41); and F.A. Cooper, “Preliminary Report: 1995 Season,” unpublished report to the Greek Archaeological Service, 6th Classical Ephoria. My thanks to Fred Cooper for giving me a copy of this report.


Fig. 4. Pylos. State plan of Main Building; draft in progress by M.C. Nelson. Walls reconstructed by Blegen are marked with A (anastylosis). (Courtesy F.A. Cooper and M.C. Nelson)
the hill, it is conjectured to be a substantial terrace or fortification wall, perhaps marking the limit of the Late Bronze Age settlement in this direction.\textsuperscript{46} If confirmed, this discovery would solve the long-standing puzzle of why Pylos, alone among Late Bronze Age palatial centers, seemed to be walled. Blegen failed to find traces of such a wall despite extensive test excavations, but he looked only in the immediate vicinity of the palace, while the distance between the westernmost corner of the palace and this anomaly is between 50 and 110 m.

Landscape and soil analysis in the Pylos area has also resulted in the identification, just inland from the west coast near Romanou, of a man-made rectangular basin that is interpreted as a protected port for the Palace of Nestor (fig. 5).\textsuperscript{47} The sediments in cores taken from the basin contained marine organisms, showing that it was once linked to the sea. Inland of the basin, and separated from it by a bedrock knoll, was a lake also apparently constructed by Mycenaean engineers. They diverted the Selas River from its natural course southward to the Osmanaga Lagoon, cutting a channel through the bedrock knoll so that the river would flow through the basin and prevent its outlet to the sea from clogging with sand. Most of the sediment carried by the river would be trapped in the lake. Thus, a relatively clear stream was directed through the basin, and the remainder kept its original course to the lagoon. Cores from the lagoon, dated by radiocarbon, show that the deposition rate of riverine sediment there diminished ca. 1400 B.C., confirming the date at which the diversion was effected. It was reduced even further ca. 1200 B.C. The best explanation is that when the Mycenaean palace was destroyed and careful control of the area ceased, all of the current simply took the shorter route to the sea through the basin—a course it has followed ever since.

\textit{Athens.} No new excavation of Mycenaean levels has taken place on the Acropolis since 1978, but a re-

\textsuperscript{46} E. Zangger et al., "The Pylos Regional Archaeological Project, Part II: Landscape Evolution and Site Preservation in the Pylos Region," \textit{Hesperia} (forthcoming). The source of the anomaly and its date have not yet been verified by excavation.

\textsuperscript{47} Zangger et al., forthcoming (supra n. 46).
study of the entrance system of the citadel clarifies many elements and offers a new and convincing reconstruction. It supports the idea of an oblique entrance similar to the Lion Gate at Mycenae: visitors would first head westward, with the bastion on their right and a terrace on their left, and then turn north to pass through the gate.

**Thebes.** The considerable obstacle of a thriving modern town obscures the full plan of Mycenaean Thebes, but limited probes in various locations continue to show that the site was an important center during LH IIIA. The old debate over the existence of one or two palaces seems to have been resolved in favor of two successive structures on the acropolis, and the site was fortified at least from LH IIIA. Several important groups of Mycenaean remains have been excavated since the publication of the *Gazetteer*. An ivory workshop was found on the M. Loukos plot across Pelopidou Street from the so-called Arsenal, destroyed at the end of LH IIIB1. Two more excavations have unearthed important groups of inscribed Linear B documents (discussed infra).

**Gla.** Spyros Iakovides has summarized the present state of research at Gla in several recent and forthcoming publications. The huge acropolis was constructed at the end of LH IIIA2, and occupied into LH IIIB2. Its 3-km circuit of fortification walls surrounded an area of 20 ha, but architectural remains are confined to a 2-ha enclosure on the highest part of the site. The northern building consists of two wings, of similar size and construction. They are two-storied, and are made up mostly of two- and three-room units bordered by corridors. The building is sometimes referred to as palatial, and the large units at each free corner as megaron-like. Neither unit shows traces of a hearth or columns, however, and the one in the northwest corner has an uncanonical polythyron between rooms 2 and 3. The southern building complex includes long, narrow storerooms oriented north–south, with a total area of 2,500 m². Finds include storage jars and a quantity of grain. Iakovides estimates the storage capacity of these rooms to be at least 2,000 tons. It appears that the construction of Gla was connected with the Mycenaean system of dikes and canals that controlled drainage of the Copaic Basin, and made up to 20,000 ha available for cultivation. As Iakovides suggests, the site may have housed overseers for the area, and also provided storage space for the resulting crops.

**Other Settlements**

Only the more important settlement work receives attention here. On the hill of Tsoungiza at Nemea...
is a settlement occupied in the Neolithic–Early Bronze Age and again from Late MH through LH IIIB. An early LH IIIA2 deposit with religious significance is interesting (see below), but the settlement is most extensive during LH IIIB, when it reaches 7.5 ha and houses are packed closely together on the sides of the hill. They are purely domestic in character, like the Panayia Houses at Mycenae, and thus give a good picture of an ordinary Mycenaean settlement. Methana is another area with Mycenaean settlement remains, but the only details so far published concern a Mycenaean sanctuary at Ayios Konstantinos (see below). The ridgetop settlement of Nichoria sported a megaron in LH IIIA1, and it may therefore have been an independent center of power at that time. During LH IIIA2–IIIB it is an ordinary town, like Tsoungiza the largest in its area. Simple houses are the norm, some lined up along a street in area III. A new tholos was constructed at the site in LH IIIA2, with prestigious grave goods like jewelry, sealstones, and a matched set of bronze vessels. These signs of wealth and some shared vessel types of unusual form show that Nichoria profited from its association with Pylos. Furthermore, its geographical position above the southwest corner of the Messenian valley (fig. 6), along a natural route across the peninsula, fits the profile of one particular lookout site mentioned in the Pylos tablets. Additional points of similarity are the bronze-working establishment that operated here in LH IIIB and the suitability of the site’s location for flax production. Nichoria can thus be identified with some confidence


58 The size estimate I owe to J.L. Davis (personal communication). Other sites found by the project are smaller than 2 ha. On the site in this period, see M.K. Dabney, “Craft Product Consumption as an Economic Indicator of Site Status in Regional Studies,” in P. Betancourt and R. Laffineur eds., Téxyn: Craftsmen, Craftswnomen and Craftsmanship in the Aegean Bronze Age (Aegaeum 16, Liège 1997). In addition to architecture, a large deposit (over 20,000 sherds) of early LH IIIIB1 pottery was found in a rubbish pit near a building of the same date. P. Thomas, “A Deposit of Late Helladic IIIB1 Pottery from Tsoungiza,” Hesperia (forthcoming).

59 McDonald and Wilkie (supra n. 10).
as the site of *ti-mi-to-a-kee*, one of the seven main economic centers of the further province in the Pylos kingdom.⁶⁰

Current investigations of the prehistoric remains at *Eleusis* have established two Late Helladic phases on the southwest side of the hill, LH IIIA1 with some LH I–IIA admixture, and LH IIIA1–IIIB1; no architecture is associated with the finds.⁶¹ *Glifía (Vlícha)* on the eastern Boeotian coast near Chalkis was inhabited from EH to LH IIIC; the LH III remains include a fortification wall and cist graves. The suggestion has been made that it was a local capital and the port for Thebes, perhaps even the Mycenaean Aulis.⁶² An excellent summary of the Mycenaean remains at *Delphi* is now available, along with comments on the region, and on cult remains.⁶³ The site itself has traces of occupation from LH I, and the LH IIIB–early IIIC periods are especially well represented ceramically. The only Mycenaean architectural feature uncovered since 1978 is a terrace wall under the cela of the Temple of Apollo, which may have served also as a fortification wall.⁶⁴

**REGIONAL SURVEYS AND SETTLEMENT PATTERNS**

Over the last quarter-century, there has been a substantial change in the study of Mycenaean settlement. As is clear from the preceding section, this change is not much reflected in excavations, which have continued to concentrate mainly on palaces and tombs. The Nemea Valley Archaeological Project is one of the few projects to follow the model of the Minnesota Messenia Project at Nichoria in exploring an ordinary habitation site (Tsoungiza) and its environs. The real innovation is a broadening of perspective from single sites to regional settlement patterns. Closely tied to this change is the coming of age of intensive survey as a productive archaeological tactic. It is a tribute to Carl Blegen, one of the great pioneers of Mycenaean archaeology, that he realized the need for survey work of this kind as early as 1941.⁶⁵

The seed Blegen planted took some time to flourish: the broadening of interest from the Mycenaean king to his subjects, and from the center to its surroundings, did not occur until the 1960s and 1970s, beginning with the pioneering extensive survey project known as the Minnesota Messenia Expedition.⁶⁶ The broad-brush approach of extensive survey has been overshadowed by intensive survey, where selected areas are covered at a level of detail designed to insure that no significant archaeological material goes unnoticed. Rutter has provided a thorough review of the way in which intensive survey has developed during the last two decades, with references to a number of recent and current projects.⁶⁷ Comments here are therefore restricted to an update on recent results and their particular relevance to the political geography of the Late Bronze Age. It is appropriate to keep in mind recent warnings about the variability of goals and methods in different survey projects, and the difficulties inherent in interpreting ceramic and other data.⁶⁸ Nevertheless, the final reports so far published explain clearly their approach to such issues as site definition, functional types, and settlement hierarchy.

Survey data can be especially useful for comparing site densities in different regions. Table 2 shows the numbers of Early, Middle, and Late Bronze Age sites found by nine recent intensive survey projects, and densities per 10 km² to facilitate comparisons among the different project areas and periods.⁶⁹ In the following discussion the emphasis is on the Late Helladic settlement patterns, with some comparison to the Middle Helladic period.

The fluctuation of the number of sites in different regions from the Early to the Late Helladic period has interesting historical implications. Particularly noticeable is a striking increase from MH Early-
Middle to MH Late and LH in the northeastern Peloponnese and Boeotia, in contrast to Messenia and Laconia. For useful comparison among regions it is necessary to go beyond numbers of dots on a map, and to consider several other factors. When within the LH period are sites founded or abandoned? Where are the new sites in relation to earlier ones? Are they habitations or other types? Do sites that continue from MH to LH grow or decline in size, or do they continue unchanged? How do such changes relate to developments in the political landscape? A thorough inquiry goes beyond the scope of this review, but some observations can be made for survey areas for which sufficient information is available.

The northeastern Peloponnese has been the focus of a number of recent studies. Members of the Southern Argolid Exploration Project surveyed the southern end of the Akte peninsula, south of the Acheres mountain range. The 44 km² area intensively surveyed shows a dramatic increase from five MH habitation sites to 27 in the LH period. All of the LH sites are habitations except C1 and C3 (quarries; possible habitations). LH III remains are most abundant, but the growth begins in the Shaft Grave period (MH III–LH I). Increased population and intensified land use correlate with a wide dispersal of sites across the landscape and a settlement hierarchy of "villages and smaller satellites".

The same pattern of development was observed in the Nemea Valley area, where the number of sites increases substantially, beginning in the Shaft Grave period. This trend continues through the Early Mycenaean period to LH IIIA1. These new sites tend to be fairly large, and are evenly distributed throughout the study area. The onset of this period of growth coincides with the new prosperity of Mycenae in LH I. Perhaps more interesting in terms of the re-

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72 MH sites: A6, E9, E13, E76, F5. LH sites: A6, B2, B5, B9, B21, B24, B25, B38, B41, B89, B97, B98, C1, C3, C11, C24, E5, E9, E13, E74, F4, F5, F21, F29, F32, G13, G23.

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73 Runnels and van Andel (supra n. 73) 323, who also note (328) that the reverse pattern applies in Melos, where nucleation occurs in periods of growth and prosperity.

74 J.L. Davis, "If There's a Room at the Top What's at the Bottom: Settlement and Hierarchy in Early Mycenaean Greece," unpublished paper presented to the Institute for Aegean Prehistory, 6 April 1988; the summary of an earlier version appears under the same title in BICS 35 (1988) 164-65. My thanks to the author for allowing me to cite this paper. Updated data available on the Nemea Valley Archaeological Project World Wide Web site (supra n. 57).
relationship between the two areas, though, is the situation in LH III B. As is well known, there is an embarrassment of important Mycenaean citadels in the Argolid, especially during LH III B when Midea joins Mycenae and Tiryns as a fortified acropolis with a megaron complex.76 In the Nemea Valley, Tsoungiza is the only site to exhibit substantial growth at this time. A recent study by Dauney also suggests that its expansion was due to the economic development stimulated by Mycenae, and that its ability to acquire finely decorated pottery depended on its integration into the kingdom of Mycenae.77 Indeed, with more than one center perhaps competing for dominance of the Argive plain, Mycenae may have been able to increase its power by reaching north into the Nemea Valley.78 It still remains unclear, however, whether Mycenae, Tiryns, and Midea each controlled a separate state. The status of Midea is especially uncertain; the megaron complex is suggestive of power, but to date no tablets have been found there. A few inscribed nodules attest to an administrative presence (see below), but if the inhabitants of the site did not generate their own tablets, Midea could have been a literate outpost of one of the other two centers.

The Methana peninsula also exhibits growth but to a lesser extent.79 Of four possible MH habitations only MS10 is certain, and it is sizeable, covering 1.1 ha. All continue into LH, with a particular increase in size site in LH III, when both MS67 and MS124 grow to over 1 ha. Only one new site is founded in LH IIIA, albeit an important one: excavations at Ayios Konstantinos (MS13) have revealed a shrine complex as well as part of the settlement.80 All of these sites are on or near the coast, and two (MS10, MS67) are described as typical Mycenaean acropolis sites. The picture corresponds to that in the southern Argolid, with growth in both size and numbers of sites in the Early Mycenaean period, and the strongest presence in LH III.

In other areas settlement patterns do not follow the trend just described. The Laconia Survey has located a large number of chiefly small rural sites in central Laconia, in a 70-km² area extending from the Eurotas River on the west to the village of Chrysapha on the east, and from the Menelaion northward to the site of Palaiogoulas.81 The few that show signs of Middle and Late Bronze Age occupation are located in the southern part of the survey area. The Middle Bronze Age is much better represented there, with 11 inhabited sites. Of these, four were abandoned by the end of that period, and one by the end of LH II. Six MH sites were inhabited into LH III B, although two of them (R291, S478) seem diminished in LH III from their earlier extent.82 Only three LH III sites surveyed have no MH–LH II remains. The small hamlet of Melathria is one of these, inhabited from LH IIIA1 to IIIB2.83 This general stability over time is interesting, given an apparent break in occupation of the Menelaion itself during LH IIIA2–B1.84 Monumental buildings exist at the Menelaion in the Early Mycenaean period, and again in LH IIIB2, making it the likeliest candidate yet known in Laconia to have been a center of power. The LH IIIA2–B1 hiatus is rather surprising, as is the fact that it had no apparent effect on settlement in the surrounding area.

Exploration in the survey area continues in the form of the Laconia Rural Sites Project.85 Twenty single-period sites of different periods were investigated in 1993–1994 to determine their form and function. The project includes geophysical prospection and soil studies, as well as analysis of artifacts.

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76 A building "sur plan de mégaron" has also been reported on the east side of the Aspis at Argos by G. Touchais: "Chronique" 1978, 664. Only preliminary reports are available for the proposed megaron at Midea, which is not yet fully excavated: Demakopoulou et al. 1994 (supra n. 35) 41, fig. 65; Walberg, World Wide Web (supra n. 35).
77 Dauney (supra n. 58).
79 C.B. Mee et al., A Rough and Rocky Place: The Landscape and Settlement History of the Methana Peninsula, Greece (Liverpool, forthcoming). I thank Christopher Mee for allowing me to use a draft of the chapter on prehistory.
80 MH sites: MS10 is certain; MS67, MS103, and MS124 are possible. LH sites: MS10, MS13, MS67, MS103, and MS124 are certain; MS14, MS106, and MS108 are possible.
82 MH sites: M322, N191, R292, R457 (abandoned after MH); N413 (abandoned after LH II); M349, Q360—Menzelion, R291, S434, S478, U514 (continuing into LH IIIB). New LH III sites: H45, R424, U490.
84 Catling (supra n. 37) 24–42, esp. 32–33.
and their distribution. This multifaceted approach is exemplary, and the concentration on rural sites addresses a gap in current knowledge.86

Work by the Pylos Regional Archaeological Project reveals yet another pattern of settlement in western Messenia.87 Intensive field-walking covered approximately 40 km² within a larger area extending from just north of modern Koryphasion northward to just beyond Gargaliani, and from the coast eastward across the Aigaleon mountain range to the modern village of Maryeli. Eleven sites showed signs of MH occupation. Eight of these were inhabited into LH IIIB, while three were apparently abandoned after LH II/early IIIA.88 It may be that no new sites were founded in LH, though at three places earlier (MH) occupation is uncertain. Analysis of the data is still in progress, but some points are already clear. The MH period is better represented in Messenia than elsewhere, and there is no upsurge in the number of sites in the Early Mycenaean period. The time of greatest change in the region is not the Shaft Grave period, but the beginning of LH III, which is marked, not by the founding of new sites as in the Argolid and the Nemea Valley, but by the abandonment of earlier ones. It is hard to avoid the inference that this trend is connected with the rising power of the Pylian center. Furthermore, two of the abandoned sites (A2 and L1) lie in valleys just east of the Aigaleon range, which probably formed the provincial boundary of the Pylos kingdom.89 Border zones tend to be more heavily occupied during periods when there is no strong central power. When the center is strong, people leave the liminal zones, and it may be that people moved out of these remote valleys and closer to the center of power in LH IIIA (probably LH IIIA2), as Pylos annexed the area beyond Aigaleon.89

Several other observations support this inference. Tholos tombs proliferate in Messenia during the Early Mycenaean period, suggesting the presence of rival elites, but fewer tholoi are in use in LH IIIA2–IIIB, when they are limited to Pylos itself and to sites with probable administrative links to the center, like Nichoria.91 The megaron there goes out of use after LH IIIA1, and a tholos is constructed in LH IIIA2; both developments may indicate the time when local autonomy ended and Nichoria became part of the Pylos kingdom, as the power of the latter expanded to include the Messenian valley.92

It is not yet possible to make definitive statements about the Cambridge/Bradford project in southern Boeotia. Analysis to date, however, indicates no major drop in settlement during the MH period and no major expansion thereafter. At most sites all three phases of the Bronze Age are represented.93 It is to be hoped that when all the results are in, survey data from this area will contribute to the analysis of political history as they have done in the northeastern Peloponnese and Messenia. For the moment, the boundaries of the Theban kingdom are still unclear in most directions, though the appearance of the place-names Karystos, Amarynthos, and now Eleon on tablets from Thebes suggests that it controlled the southern half of Euboea—and therefore presumably the intervening territory of southeastern Boeotia.94 Worth noting in this connection is the set-

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86 Cherry (supra n. 68) 97.
88 MH sites: A2, B7 = Palace of Nestor, C3, D1, D2, I1, I3, K1, K2, K3, L1; there is also a possible MH presence at G3, I4, and D21. Of the certain MH sites, A2, C3, and L1 are abandoned after LH II/early IIIA; the rest continue through LH IIIB, and the three possible MH sites are occupied during LH as well.
90 D.J.L. Bennet, "Space through Time: Diachronic Perspectives on the Spatial Organization of the Pylian State," in Politeia 600.
92 Bennet (supra n. 90) 60.
93 O.T.P.K. Dickinson, personal communication.
94 Karystos: Wu 55f; Amarynthos: Of 25, Wu 58f; Eleon: new tablet 149. V. Aravantinos, "Mycenaean Place-Names from Thebes: The New Evidence," in Studies Chadwick 33–40 also finds evidence for Theban interest on the island of Aegina and in the vicinity of Thespiae; see also Aravantinos, in Politeia (supra n. 49) 616–17. See also S. Hiller, "Die Stellung Bötiens im mykenischen Staatenum- band," in Beister and Buckler (supra n. 54) 51–64. Thebes
tlement of Glipha/Vlicha, on the mainland across from Chalkis, which may have served Thebes as a port.

Some recent assessments make extravagant claims about survey work: one commentator perceives a threat that practicalities will force a shift from excavation to survey, while another goes so far as to call the development of regional studies a Kuhnian paradigm shift. However, the detailed results now appearing in survey publications indicate the advantages and limitations of this technique more fairly than either its most enthusiastic supporters or its strongest detractors. Surface survey is not a substitute for excavation, but it offers a regional perspective that excavation cannot give. The preceding analysis illustrates how diachronic survey data can clarify the history of an area, and how regional comparisons, even at a fairly basic level, can reveal meaningful synchronic variations.

TECHNOLOGICAL ADVANCES

In 1941, when Blegen discussed the value of survey archaeology, he also predicted quite correctly that “we shall come more and more to rely on pure science for help in solving many of the problems that face us.” Scientific contributions to archaeological projects have indeed become essential both in fieldwork and in the subsequent analysis of data. Some new kinds of tools and techniques are listed here, and examples of their impact on Late Bronze Age studies are discussed in the relevant sections of this review. Among new hardware, the Global Positioning System (GPS), developed for military use, has been enthusiastically adopted by some as a means of pinpointing sites and other features. On the ground, advances in surveying equipment like total stations greatly ease the process of mapping sites and surveying architectural remains. Geophysical prospection is also a valuable complement to surface exploration, whether or not excavation is to follow (as we have seen in the detection of the probable wall at Pylos). Landscape and soil studies have also proven invaluable, and have contributed greatly to our understanding of Mycenaean engineering: two Late Bronze Age examples are described above, pertaining to Tiryns and Pylos. Ceramic study of the Late Bronze Age too has been greatly enhanced by advances in provenience analysis, combining petrography and chemical spectrography, and in the analysis of organic residue (see below).

Finally, a word should be said about computer applications in archaeology. Computer Aided Drafting/Design (CAD) software transforms the coordinates of surveyed points into a three-dimensional reconstruction of a structure or a topographical site map. An even more powerful tool for expressing data in terms of spatial relationships is the Geographical Information System (GIS), which allows spatial data to be stored, manipulated, mapped, and visualized on a computer in two or three dimen-


sions.\textsuperscript{101} Sites or artifact types can thus be plotted in relation to general topography, including elevation, slope angle, drainage, water resources, and other geographical information. Projects with a Greek Bronze Age component are just beginning to take advantage of these resources, and they will become more visible as projects present themselves on computer through the Internet and on compact discs, as well as or instead of in printed publications. To date, the most extensive use of GIS technology for Bronze Age data has been by the Pylos Regional Archaeological Project.\textsuperscript{102} As a simple example, the distribution of LH III finds can be plotted on a two- or three-dimensional map of the survey area (fig. 7). More complicated plots can include not only the spatial information listed above, but also factors such as traveling distance from one site to its nearest neighbor, factoring in the ruggedness of the intervening terrain.

CERAMIC STUDIES

As noted above, ceramic studies have benefited greatly from scientific applications. Notable in Late Bronze Age studies is an ongoing project under the overall direction of Halford Haskell.\textsuperscript{103} One aspect of the investigation is an interdisciplinary study of transport stirrup jars from eastern Mediterranean

\begin{figure}
\centering
\includegraphics[width=\textwidth]{fig7.png}
\caption{Pylos Regional Archaeological Project. Distribution of LH III finds. (Courtesy Pylos Regional Archaeological Project)}
\end{figure}


\textsuperscript{102} Davis et al. (supra n. 45); and Davis et al., World Wide Web (supra n. 87). See also the Nemea Valley Archaeological Project site on the World Wide Web (supra n. 57); and J. Wiseman and A. Dousougli-Zachos, “The Nikopolis Project 1991–1993: Overview of the Multidisciplinary Study of Southern Epirus,” \textit{AJA} 98 (1994) 315 (abstract).

\textsuperscript{103} H.W. Haskell et al., \textit{Transport Stirrup Jars of the Bronze Age Aegean and East Mediterranean} (Fitch Laboratory Occasional Papers 5, Athens, forthcoming). What follows is based on information kindly provided by Halford Haskell and Peter Day.
contexts, using a combination of typological, petrographical, and chemical analyses to determine provenience. This work has important consequences for the study of intra- and extra-Aegean trade. For example, Cretan stirrup jars at mainland sites are a well-known phenomenon. Haskell’s study, however, adds several refinements. Petrographic analysis of stirrup jars from Thebes and Mycenae has shown that, in addition to west Cretan vessels, some jars previously thought to have been produced locally originated in central Crete. Most, indeed, are in a south-central Cretan fabric, newly distinguished by petrographic analysis and also prevalent at Knossos. Both sites contain examples of fabrics that were previously considered Knossian, occurring in quantity at Knossos and other sites in the Aegean and beyond. But these same fabrics also appear at other Cretan sites such as Malia, and further recent work on Crete has shown that at least some of these fabrics have their origin in the south-central part of the island. Among the project’s future plans is analysis of the organic residue preserved on the clay of such stirrup jars. These jars are known to be containers for olive oil, but the further investigation should confirm whether this oil came in different grades, whether it was plain or perfumed, and whether the jars carried any other commodities.

Other ongoing efforts also pertain to the movement of pottery in international trade. One contribution is the cataloguing of corpora of Aegean pottery found outside Greece; the most recent study covers Syria-Palestine. Another is the study by

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A. Leonard, Jr., An Index to the Late Bronze Age Aegean Pottery from Syria-Palestine (SIMA 114, Jonsered 1994); references to other corpora of Aegean pottery outside Greece are collected on p. 1, n. 4. Leonard also maintains a regularly updated computer database.

N. Hirschfeld, “Cypriot Marks on Mycenaean Pottery,” in Mykenaika 315–19. Hirschfeld expands this study in her dissertation (Univ. of Texas at Austin, in progress) to include painted and incised marks on both Aegean and Canaanite vessels of the Late Bronze Age.

109 Groups of material published or restudied include the following: P.A. Mountjoy, Orchomenos V: Mycenaean Pottery from Orchomenos, Etrusia and Other Beotian Sites (Bayrische Akademie der Wissenschaft, Philosophisch-historische Klasse, N.F. 89, Munich 1983); Å. Åkerström, Berbati II: The Pictorial Pottery (Stockholm 1987); B. Santillo Frizell, Asine II: Results of the Excavations East of the Acropolis, 1970–1974 2: The Late and Final Mycenaean Periods (Stockholm 1986); K.S. Shelton, The Late Hellenistic Pottery from Paphos (Jonsered 1996). Another valuable compilation is E. Vermeule and V. Karageorghis, Mycenaean Pictorial Vase Painting (Cambridge, Mass. 1982).


111 Cf. Kilian 1988 (supra n. 26) fig. 27; Kilian in French and Wardle (supra n. 5) 117–18 fig. 3. LH IIIA2 Late–IIIB Middle: Schönfeld (supra n. 26). LH IIIB Late: Podzuweit 1981 (supra n. 26). LH IIIC phases: Podzuweit (supra n. 26) all entries.

112 Nichoria, the LH IIIA2/B1 phase: Shelmderine (supra n. 10) 503–508. Korakou, the East Alley Deposit: J.B. Rutter, The Late Helladic IIIIB and IIIC Periods at Korakou and Gonia in the Corinthia (Diss. Univ. of Pennsylvania 1974).
IIIA2 groups at Mycenae, from the terrace on the Atreus Ridge and the terrace below the House of Shields. LH IIIB Middle corresponds to LH IIIB1 groups at Mycenae, and the Developed phase to canonical LH IIIB2. The Late phase at Tiryns is part of a transitional LH IIIB2/LH IIIC Early phase that Mountjoy has recently identified. It is characterized by features that are assigned conventionally to LH IIIC in the Argolid, like coated deep bowls, Group A deep bowls with monochrome interiors, and medium-band deep bowls, but that appear at other sites in contexts dated to LH IIIB2.

Another trend in ceramic studies has been the increasing awareness of variations from site to site and region to region in the palatial period. For example, some LH IIIB2 features like Group B deep bowls are much less common in Messenia and Laconia than in the Argolid. The LH IIIB2 and early LH IIIC periods are well represented at Delphi, and exhibit some typical Argolid features, but again with local peculiarities.

DEVELOPMENT OF MYCENAEN STATES

One of the important questions occupying scholars of Mycenaean Greece in the last decade concerns the transformation of scattered enclaves of power, characteristic of the Middle Helladic period, into the centralized states of LH IIIA–B. The political entities of the Early Mycenaean period are best classified as chiefdoms, wherein chiefs wielding inherited power coordinated economic, social, and religious activities, and maintained authority through ritual and the display of prestige goods and symbols of power. The later states exhibit a much higher degree of political and social complexity. The tablets suggest a fairly elaborate official hierarchy, and demonstrate the high degree to which economic control is essential to political power (see below). As Wright notes, the essential difference between a chiefdom and a state is that in the latter offices are “abstracted, formally defined and independent of the individual who fills them.” It is widely believed that it took the Mycenaens all of LH I–II to achieve this level of social, economic, and political development. Conventional measures of statehood include the definition of an administrative center through the construction of a palatial building complex, the development of writing, and the establishment of state institutions such as a state religion. Additional criteria such as complexity of social ranking—best reflected archaeologically in burials—and trade in prestige goods can characterize chiefdoms as well as states, but they too are useful indicators of the development that took place in Greece from Early Mycenaean times to LH III. A comparison of the Early Mycenaean situation with that in LH IIIA–B in these various areas

113 Schönfeld (supra n. 26) 163, table 4; French (supra n. 11) 174–84, 185–92.
115 P.A. Mountjoy, Regional Mycenaean Decorated Pottery (Berlin, forthcoming); Mountjoy, “Thorikos Mine No. 3: The Mycenaean Pottery,” BSA 90 (1995) 195–212. In addition to the sites mentioned in this article (Thorikos, Iria, Korakou, and the North Slope houses at Athens), Mountjoy confirms that the transitional phase existed at Tiryns, Midea, and Nichoria (personal communication). French has now recognized this phase at Mycenae also, in the latest material in the destruction level of the Citadel House area (personal communication).
117 Müller (supra n. 63) 461, n. 42, 463–65.
tiea and Rehak. Wright, “From Chief to King in Mycenaen Society,” in Rehak 63–82 provides a particularly thoughtful theoretical framework for discussion.
120 Wright (supra n. 118) 66.
may be a useful way to organize information and to indicate current thinking on Mycenaean states and their development.

Construction of an Administrative Building Complex

The strict architectural definition of a Mycenaean palace is a large ashlar construction centered on a megaron unit: a rectangular room with four columns surrounding a hearth, its long walls extending to form a porch and a vestibule. Extant traces show that such building complexes existed from LH IIIA at most of the centers that are important in LH IIIB: Mycenae, Tiryns, Pylos, and perhaps Thebes. Suggestions of still earlier palaces at these sites remain unproven, mainly because later construction has obliterated all or most of the architecture that might have existed. Wace demonstrated the existence of a structure on the Mycenae hilltop in LH I–II, adapted to the contours of the terrain, but there is nothing to show whether it included a megaron. The earliest identifiable megaron unit at Tiryns, situated under the later main megaron (rooms V–VII), dates to LH IIIA1. The subsidiary megaron (rooms XXI–XXII) also had a predecessor in early LH IIIA, and the first fortifications also appear in this phase, at the southern end of the acropolis. At Pylos, several phases of walls and stucco flooring underlie the extant LH IIIIB palace (notably in rooms 7, 55–57), with similar orientation and poros facade. These are probably part of an earlier palace presumed to date to LH IIIA, although there is little or no ceramic evidence. There is as yet no confirmation that still earlier structures at the site were palatial. The chronology of Thebes is especially difficult, and the architectural remnants sparse. No canonical megaron unit is yet attested, but there do seem to have been two successive structures on the acropolis. The earlier palace, the House of Kadmos, may go back to LH II. If so, and if it were truly a megaron, it would stand out as the earliest example on the mainland. The site was fortified at least from LH IIIA.

As just noted, the nature of Early Mycenaean structures at later palace sites is not clear from the existing architectural traces. Some possibilities are suggested, however, by evidence from contemporary nonpalatial sites whose architecture was not obscured by later construction. After all, the Early Mycenaean chiefs who occupied the known palatial centers were the winners in the competition among local powers to extend their authority over a wider area. At other sites, less successful rivals also left be-

121 The word megaron—with or without mitigating quotation marks—is variously and loosely applied to rectangular buildings of many different places and periods. It would be better to restrict it to the definition given here, if it is to be used at all: cf. P. Darque, “Pour l’abandon du terme ‘megaron,’” in Darque and Treuil (supra n. 49) 21–31.

122 R.L.N. Barber, “The Origins of the Mycenaean Palace,” in Sanders (supra n. 83) 11–23; this section is a summary of the relevant portion of Shelmerdine (supra n. 119).

123 A.J.B. Wace, Mycenae: An Archaeological History and Guide (Princeton 1949) 87; G.E. Mylonas, Mycenae and the Mycenaean Age (Princeton 1966) 59, fig. 14 assumes that this building would have had a megaron unit.


125 C.W. Blegen and M. Rawson, The Palace of Nestor at Pylos in Western Messenia I: The Buildings and Their Contents (Princeton 1966) 44, 94, 226–27; C.W. Blegen et al., The Palace of Nestor at Pylos in Western Messenia III: Acropolis and Lower Town; Tholoi, Grave Circle, and Chamber Tombs; Discoveries outside the Citadel (Princeton 1973) 34–36; Kilian 1987 (supra n. 124) 209. LH IIIA pottery predominates in debris covering the earlier wall in room 7, though there are a few possibly earlier pieces, and some sherds of LH IIIB. About the material from under rooms 55–57, which had been badly disturbed before excavation, Blegen et al. 36 could report only that “we felt that we were dealing with wares of Mycenaean III A.”

126 The Minnesota Pylos Project has reported walls forming “a megaron-like plan” beside the Wine Magazine (rooms 104–105): AR 1992–1993, 33, phase 3; Cooper and Swain (supra n. 41). These walls predate the extant palace by several phases, but no date has yet been assigned to them. There is nothing to recommend the theory of Kilian 1987 (supra n. 124) 213–17, figs. 5, 12a that a Minoan-style palace stood on the hilltop in LH I; doubts are also expressed by O.T.P.K. Dickinson. “‘The Origins of Mycenaean Civilization’ Revisited,” in R. Laffineur ed., Transition: Le monde égéen du Bronze moyen au Bronze récent (Aegaeum 3, Liége 1989) 131, and by Rutter 796, n. 213.

127 Symeonoglou (supra n. 49) 40–50, table 2.3, figs. 9–10 (reconstructed “megaron” of the first palace); see also discussion by Demakopoulou (supra n. 49) 316–17.


129 Barber (supra n. 122) 19–21.
hind residential architecture, and it is unlikely that Early Mycenaean buildings obscured by the later complexes at palatial centers were much different from these better-preserved examples. In many cases there are features that prefigure those of the canonical Mycenaean megaron complex, but none meets the strict definition. The earliest example is a likely MH prototype of the megaron unit in house D at Asine, which had a rectangular room and porch, but no hearth or column bases.130 Several prominent Early Mycenaean buildings also have rooms that approximate megaron units. The LH II mansion I at the Menelaion in Laconia is usually the first building to be suggested in such a context.131 Building F at Krisa in Phocis is earlier, however, constructed in LH I.132 At Kakowatos in Elis a LH II building includes a large room with two preserved column bases.133 None of these structures achieves the canonical form of the later palaces. Even unit IV-4A at Nichoria, which is confined in date to LH IIIA1 and thus contemporary with the earliest megaron at Tiryns, has only one anteroom (not a true porch and vestibule) and only two column bases at either end of a hearth.134 The true Mycenaean palace, then, is a product of long evolution, as may also be true of its Minoan counterpart.135 Though we can identify early megaron complexes and their predecessors, the point at which such a structure begins to represent palatial authority remains a different and challenging question.

**Development of Writing**

A process of selection and adaptation is visible in the derivation of the Linear B script from Minoan Linear A.136 There is a considerable overlap in the sign repertoires of the two scripts: only about 16 of the 89 Linear B syllabograms have no Linear A predecessor. However, the syllabograms are generally simplified and regularized, many new ideograms were added and most of the Minoan ones abandoned, and a different fractional system was adopted. The Mycenaean tendency to impose their own style on what they borrowed is as clear in their writing system as it is in their art. Palaima has recently argued on palaeographical grounds that LH IIIA1/LM IB was the most likely time for the adaptation, but a stone with incised Linear B syllabograms has been reported from a late MH context at Kafkania, 7 km north of Olympia.137 No numbers or logograms appear on this isolated find, however, and it shows at best an early stage of Mycenaean writing, not the kind of written administration seen later. Like the altered syllabary, restriction of writing to administrative use in the Mycenaean palatial era is another change from Minoan practice. Minoan inscriptions appear on a variety of artifacts of different materials, and in a variety of contexts. At the same time, their administrative uses appear to be limited. By contrast, Linear B inscriptions are found only on clay, either painted on transport jars or incised on tablets, labels, and sealings at major centers, but the range of their uses within the administrative sphere is extensive.

As far as is known, the first clear use of Linear B writing for administrative purposes was on Crete. The Room of the Chariot Tablets at Knossos, containing a cache of Linear B tablets, is currently understood to date to LM II.138 The Mycenaean administration that these early documents reveal is not much different from that seen in the later Knossian documents. We know nothing comparable on the mainland until the end of LH IIIB1, in the Ug tablets and the Wu nodules from Thebes, and the tablets from Figs. 7.58 and 7.59, pl. 7.119.

130 Barber (supra n. 122) 20–21, fig. 10; O. Frödin and A.W. Persson, *Asine: Results of the Swedish Excavations, 1922–1930* (1938) 72–73, 102–103, fig. 49.
131 Rutter 796. Barber (supra n. 122) 11–12, fig. 8 offers the suggestion that it had a hearth and column bases, though this is not certain.
132 *Gazetteer* G 56; J. Jannoray and H. van Effenterre, "Fouilles de Krisa," *BCH* 61 (1937) 318–22, fig. 16. Here there is no porch, but two flat stones are likely to have served as column bases. I omit from consideration two successive LH I buildings from Tsoungiza, each with a hearth and a stone support for a central post in one rectangular room. These are called "megara" by Rutter 788, n. 176, but not by the excavator: Wright et al. (supra n. 57) 631–32, fig. 19.
134 *Gazetteer* D 100; Aschenbrenner (supra n. 91) 433–39.
136 The most recent study is by TG. Palaima, "The Development of the Mycenaean Writing System," in *Studies Bennett* 269–342.
the Oil Merchant group of houses at Mycenae. The only tablets that could be dated earlier are five discarded fragments found at Pylos, below the southwestern edge of the hill. These certainly predate the main archive of late LH IIIB, and their distinctive palaeography suggests that they may belong to LH IIIA.139

Complexity of Social Ranking

Tomb types, grave goods, and tomb placement can all differentiate elite from nonelite members of a society. For the Early Mycenaean period, tombs are much better attested than settlement material. Excavation priorities are part of the reason, but it is also true that elite burials are often highly visible in the archaeological landscape, and in LH I–II there are many of these. The prime example is the tholos tomb. It used to be tempting to assume that these must be "royal" graves, but their early proliferation and their tendency to occur in pairs or triplets militate against this view. At Mycenae itself they first appear only in LH II A, but in Messenia the earliest are contemporary with the Mycenaean Shaft Graves in MH III–LH I.140 The Early Mycenaean tholos is now understood to be a symbol of elite status, and thus certainly a precursor to statehood, but not an indicator that it begins this early.141 The nature of the power wielded by the elite members of Early Mycenaean societies is impossible to discern, but wealthy burials are sufficiently numerous and widely dispersed to suggest that the reach of each center was quite limited. Another notable feature during this period is the diversity of tomb types and burial customs. Cists and pits coexist with chamber tombs and even at times with tholoi, and Dickinson has warned against the equation of cist tombs with a poorer element of society.142 On a regional basis the tholoi themselves are common in Messenia but virtually unknown in Boeotia, while for chamber tombs the reverse is true.

In LH IIIA2–IIIB, by contrast, some standardization of tomb types can be seen, and the number of large tholoi in use drops significantly. They are concentrated at palatial centers, chiefly in Messenia and the Argolid, though small ones are built on a regional basis, especially in peripheral areas.143 These phenomena can very plausibly be linked with the rise in power of the Mycenaean states.144 The general decline in large tholoi coincides with increasingly elaborate architecture in the form of palatial complexes, suggesting a shift in how the elite chose to invest their human and material resources.145 At the same time, the distribution of these large tombs suggests that the ruling class annexed the tholos tomb as a symbol of power. This does not mean simply that tholoi may at last have become truly royal tombs. The construction of a tholos at Nichoria in LH IIIA2, for example, could be directly associated with its assimilation into the Pylian state. As the site lost its position as an independent center, the status of its leaders may have risen by virtue of their relationship to the central administration, and a tholos may


143 Cavanagh and Mee 1984 (supra n. 141) 51; Darcoque (supra n. 141) 200–205; Pelon (supra n. 140) 392–423.


145 An analogous shift in priorities may have taken place in Neopalatial Crete: the rich tombs of LM II–IIIA1 mark a distinct change from the heyday of the Minoan palaces in LM IA–IB, when funerary architecture is very poorly documented.
have been a status symbol—tangible proof of a new kind of power and of the leaders’ ties to Pylos.146

**Trade in Prestige Goods**

Trade in prestige goods implies a market among a society’s elite for goods indicative of status as well as wealth. It further means that the society is organized enough to control mechanisms for acquiring such goods, and producing objects to offer in exchange. The imported riches in the Shaft Graves at Mycenae are the first signs of such items reaching Mycenaean Greece, but it is likely that at this stage Minoans, not Mycenaeans, were responsible for Aegean access to them. Throughout the Early Mycenaean period very few Aegean objects found abroad are demonstrably mainland products. Crete had the dominant Aegean role in foreign trade, and for mainland Greece itself the Minoan connection was clearly the most significant. Relevant here is the model of secondary state formation, in which a less highly organized society is stimulated to further development by contact with a more advanced state. In particular, a chief’s special access to external prestige goods demonstrates and thereby reinforces his superiority to, and authority over, those whom he rules. Wright shows that this model applies well to the contact between mainland Greece and Crete, which is demonstrated by the contents of the Shaft Graves.147 A special link has been posited between Mycenaeans and the Cretan palace sites, particularly Knossos, but funerary wealth and Cretan contact go hand in hand in Messenia at the same time.148 In any case, Minoan artistic influence is clear, and for much of the Early Mycenaean period it is difficult to distinguish Minoan from Mycenaean work. Nevertheless, for assessing the impact of this relationship on emerging Mycenaean states, this long-standing difficulty is not crucial: the fact of close contact is the point.149 In LH IIIB/LM II, however, recognizable Mycenaean artifacts and styles are seen in Crete, mainland burial practices are adopted in the Cretan “Warrior Graves,” especially in the Knossos area, and Mycenaean administrators are keeping records in Greek at the Palace of Minos itself.150

There is a marked difference between this continuum of growth in external contacts, chiefly with Crete, and what we know of Aegean trade in LH IIIA2–LM IIIB. Bronze Age exchange systems have recently received much attention. They took a variety of forms, and only aspects directly relevant to Mycenaean Greek states are summarized here.151 The Mycenaean presence abroad becomes far more extensive than before, by the measures of pottery traded and actual outposts, and signs of Minoan presence simultaneously diminish. Imports from the East show the same shift in the balance of Aegean power: they are much more common in Crete than mainland Greece until LH IIIA2, at which time the situation

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146 This discussion does not include burial rituals, which are much the same in different kinds of tombs: Dickinson (supra n. 6) 228. Discussions of such rituals usually focus on the Early Mycenaean period when the funerary material is most abundant: several papers in Hägg and Nordqvist; M.J. Boyd, “Mortuary Archaeology: Performance, Architecture, Time, Memory,” *Archaeo* 2 (1994) 83–94.

147 Wright (supra n. 118).


151 In general and for further references, see N.H. Gale ed., *Bronze Age Trade in the Mediterranean* (SIMA 90, Jonsened 1991); A.B. Knapp and J.F. Cherry, *Provenance Studies and Bronze Age Cyprus: Production, Exchange, and Politic-Economic Change* (Madison 1994); R. Laffineur and L. Basch eds., *Thalassa: L’Égeé préhistorique et la mer* (Aegaeum 7, Liège 1990). On Mycenaean pottery abroad, see Leonard (supra n. 107). A handy summary of Mycenaean foreign contact, with further references, may be found in Dickinson (supra n. 6) 250–56. An intriguing addition to the evidence for Egyptian contact is a papyrus from Amarna depicting warriors, some of whom wear Mycenaean-looking clothing and boar’s tooth helmets: L. Schofield and R. Parkinson, “Of Helmets and Heretics: A Possible Egyptian Representation of Mycenaean Warriors on a Papyrus from El-Amarna,” *BSA* 89 (1994) 157–70. Two different views of Mycenaean relations with Europe are presented by J. Bouzek, *The Aegean, Anatolia and Europe: Cultural Interrelations in the Second Millennium BC* (Prague 1985), who believes the Mycenaeans relied on northern sources for such raw materials as amber, and by A.F. Harding, *The Mycenaean and Europe* (London 1984), who argues that direct contact was minimal; see also B.P. Hallager, “Crete and Italy in the Late Bronze Age III Period,” *AJA* 89 (1985) 293–305.
is reversed. More important, the foreign goods found in Greece in LH IIIA–B include royal artifacts, suggesting the possibility of exchange between rulers. Nine of the 14 objects from the Aegean inscribed with the cartouche of Amenhotep III or his wife Queen Tiye were found at Mycenae. Most are heirlooms in LH IIIIB contexts, but this pharaoh’s reign overlaps with LH IIIA1–2, and the presence of artifacts with the royal cartouche may suggest contact with Mycenae at the highest diplomatic level. Similarly, the cache of lapis lazuli cylinder seals discovered in a LH IIIB context in Thebes has been interpreted by one scholar as a gift from the king Tukulti-Ninurta I of Assyria.

The Linear B tablets occasionally refer to textiles (Knossos) and perfumed oil (Pylos) as kē-se-nu-wi-ja barēnai. The root suggests a connection with the Classical Greek ἱερος, “host, guest, stranger,” and thus with the world of hospitality and formal gift exchange. The term seems to characterize a type or quality of the product; the oil in question (Fr 1231) is actually designated for a goddess. Nor do the tablets contain any direct evidence for extra-kingdom trade, an omission that continues to surprise and to attract various explanations. They do, however, contain hints of foreign contacts. Mainland states may not have controlled all of Mycenaean trade with Canaanites, Egyptians, and others, but they did organize the production of goods for export, not all of them visible in the archaeological record. They also retained the Semitic names of the spices, gold, and ivory they received, among other commodities, in return. A number of ethnics in the tablets also reflect associations with other lands. Sometimes these appear to be men’s names: mi-sa-ra-ja | Misraios (Knossos), “Egyptian”; a-i-ku-pi-ti-jo | Aiguptios (Knossos), “Memphite”; ku-pi-ri-jo | Kuprios (Knossos, Pylos; also adjectival), and possibly a-ra-si-jo | Alasius (Knossos, Mycenae), “Cypriot.” Some of the dependent textile workers at Pylos (A-series) are groups of women designated by foreign ethnics: a-si-wi-ja | Aiswiail, “Asians,” ki-ni-di-ja | Knidial, “Knidians,” mi-ra-ti-ja | Milattiai, “Mileseians,” and ze-pu-ri-ja | Zephyrail, “Halikarnassians” (cf. Strabo 14.2.16). These references raise the interesting possibility that Pylos was able to conscript groups of foreigners into full-time service. Apart from these few textual points, however, the chief evidence for a Mycenaean role in Aegean trade remains the Mycenaean pottery found abroad, especially in Cyprus, Syria-Palestine, Egypt, and Italy.

152 E.H. Cline, Sailing the Wine-Dark Sea: International Trade and the Late Bronze Age Aegean (BAR-IS 591, Oxford 1994) 9–10. Cline generally contrasts LH IIIA with LH IIIIB, but on pp. xvii, 10–11, and in personal communication he acknowledges his belief that the shift takes place in LH IIIA2.


154 E. Porada, “The Cylinder Seals Found at Thebes in Boeotia,” AFO 28 (1981) 1–70, 77, esp. 68–70, 77. Others dispute this claim; discussion in Cline (supra n. 152) 25–26 (further references in catalogue). Our appreciation of the way in which Mycenaean Greece was regarded by other political leaders is greatly affected by whether it or any part of it was the entity known as Ahhiyawa. On this issue, which falls outside the scope of the present review, see W.D. Niemeier’s forthcoming “Review of Aegean Prehistory VIII” in AJA on the Mycenaeans in Anatolia.

155 The only two certain imports among pottery in the Pylos Palace are small stirrup jars, from the perfumed oil storeroom room 32, which appear similar in fabric and quality of decoration to Argolid pottery: Blegen and Rawson (supra n. 125) 407–408 nos. 411–12, with the explicit suggestion that no. 411 is an Argolid import.

156 Cline (supra n. 152) 128–31 offers a list of “Linear B references to Egypt and the Near East.” This heading is misleading; it is actually a list of words in the tablets for which a specific foreign origin can be suggested. Not all the suggestions are equally attractive to a Linear B scholar, and not all imply direct or indirect contact with the place in question.

157 On the status of the female textile workers, see J. Chadwick, “The Women of Pylos,” in Studies Bennett 43–95; also among those listed are women from Lemnos (ra-mi-ni-ja), and possibly Khios (ki-si-wi-ja). The masculine forms of “Asian” and “Halikarnassian” also appear: ze-pu-ri-jo is the name of a Pylian tailor who holds land on Ea 56, while the name a-si-wi-jol-a | 64-jo, “Assios,” recurs more than once each at Pylos, Knossos, and Mycenae.

158 Also of critical importance to an understanding of Aegean trade are the excavated shipwrecks. That off Point Iria in the Argolid dates to the end of the LH IIIIB period, with Cypriot (LC IIIIA), Minoan (LM IIIB), and Mycenaean (LH IIIB2) pottery: C. Pennas, Y. Vichos, and Y. Lolos, “Point Iria Wreck 1992,” Enalal Annual 1992:4 (1996) 4–5; Pennas, Vichos, and Lolos, “Point Iria Wreck 1993,” Enalal Annual 1992:4 (1996) 6–31. On the earlier Uluburun wreck in southern Turkey, see G. Bass, “Evidence of Trade from Bronze Age Shipwrecks,” in Gale (supra n. 151) 69–82, and Pulak (supra n. 12), with further bibliography. It appears to have sunk while traveling westward, yet it contains some Mycenaean pottery and swords in addition to large quantities of Cypriot pottery and metal ingots, and Syro-Palestinian amphoras. The combination suggests a generally circular trade route in the eastern Mediterranean, showing equal favor to a number of clients.
Religion and Other State Institutions

Relations between Crete and mainland Greece in LH I–II have already been mentioned in the sections above on trade and the development of writing. Several scholars have suggested that the Mycenaean were equally receptive to Minoan ideas and beliefs. Many institutions of the later states—written administration, religious rituals, perhaps even the Mycenaean form of kingship itself—may reflect the influence of Minoan concepts and practices. However, there is no reason to think in terms of wholesale adoption. The process of reasoned selection and adaptation already observed applies equally well to the world of ideas, and the transformation of Middle Helladic chiefdoms into Late Mycenaean polities resulted in a new and distinctive culture. Religion has been the most productive area of scrutiny, because Minoan influence there takes a tangible form in iconography (see below). Social institutions are harder to discern, but Wright has proposed that a wine-drinking ritual was adapted from Crete by the Mycenaeans. The ceremony is most clearly depicted in the LM IIIA Campstool Fresco from Knossos, where one man holds a Mycenaean goblet and another a stem restored as a Minoan chalice. These are two of the three gold vessel shapes offered to deities on the later Pylos tablet Tn 316, and the fresco itself is similar to the banquet scene depicted in the Pylos megaron. It should be noted, though, that all of the evidence for this ritual belongs to the Mycenaean period, so its Minoan origin is still speculation. The chalice itself is a Minoan shape in stone, and its presence in the Shaft Graves demonstrates the Mycenaean's early interest in it, but there is no evidence from the Cretan Neopalatial period concerning the way in which it was used.

Recent discussions of Minoan influence on mainland religion are also relevant to the institution of kingship, since the Mycenaean king played an important role in religious affairs (see below). Palaima has offered the idea that the later Greek sképtron, or staff of office, goes back to Mycenaean times, and is derived from Crete along with the ideology of the wanax, or king. So little evidence exists about Minoan rulers that this idea is difficult to evaluate, especially since what we know of later mainland kings presumably represents a substantial transformation into Mycenaean form. It does seem likely, as Wright observes, that Minoan influence on evolving Mycenaean institutions and ideology set the Mycenaean elites apart from the rest of their society. The process of development, however, served equally to distinguish them from their Cretan neighbors.

NEW INSCRIPTIONS

Recent work at palatial centers has brought to light a number of inscriptions. Those from Tiryns, Thebes (except those from Pelopidou Street), and Mycenae are now conveniently brought together in a single publication, and so do not need a full description here. The 24 examples from Tiryns are extremely fragmentary, but the topics are familiar: lists of men, wheels and armor, animals, and land. A number of these come from a LH IIIB2 context in a building with religious significance in the Lower Citadel, but their contents are routinely administrative. Ef 2 and Ef 3, from the southeastern part of the Upper Citadel, are land-tenure tablets: one refers to ke-ke-ne]-na land, a class of landholding also known at Pylos, and the other gives an amount of land in terms of the amount of seed-grain that would be needed to sow it, a convention also known at Py-
los. This discovery suggests that administrative systems operated in generally similar ways from kingdom to kingdom, though differences in details can be observed as well.\footnote{A brief account of some representative differences, with further bibliography, is provided by Shelmerdine (supra n. 119).}

Published in the same volume is an important cache of 56 sealings at Thebes that comes from a small room in a house on Oidipodos Street.\footnote{V. Aravantinos, "The Mycenaean Inscribed Sealings from Thebes: Problems of Content and Function," in TG. Palaima ed., Aegaeum, Seals, Sealing and Administration (Aegaeum 5, Liège 1990) 149–74; Piteros et al. (supra n. 139) 103–84.} The sealings belong to the earlier of two destruction levels, with a reported ceramic date near the end of LH IIIB1. The subject of the inscriptions is a variety of animals and other foodstuffs sent to the palace from outlying areas, probably for a state banquet. Still more recently, excavations from 1993 to 1996 under Pelopidou Street have unearthed some 250 tablets, dramatically increasing the number of texts from Thebes.\footnote{Aravantinos (supra n. 49) 619, 621; V. Aravantinos,} The new location, approximately 200 m² in area, is very near the "Arsenal" site where the Ug tablets had previously been found (fig. 8). The tablets are not in situ, but they are associated with a pavement, in a destruction level reported to date to the second half of the 13th century BC. The texts deal chiefly with rations, especially wine, figs, and grain. These are given to both men and women, but divine offerings are also attested. The tablets are still undergoing restoration and study, but preliminary reports show that they have the capacity to advance our knowledge in several ways, from further attestation and better transliteration of rare syllabograms, to some possible new theonyms and occupational terms. Especially interesting for geographical relations is the term ra-ke-da-mo-ni-jo-u-jo ILakedaimonios huiois, "son of Lakedaimon," along with three attestations of the ethnic ra-ke-da-mi-ni-jo. A Lakedaimonian connection, even if confined to the presence at Thebes of individuals from that area, raises the issue of interstate relations in an interesting way. Two more tablets were found in 1994 during further exploration of the Arsenal area. The longer document, TH 149, lists quantities of grain and olives against various names. At least two of these are place-names in the dative-locative: Thebes itself, and e-re-\text{\emph{o}}-\text{\textit{ni}}, thought to represent Eleon, a Boeotian place-name attested in Homer and later authors.

Three inscribed sealings now confirm the status of Midea as an administrative center of some kind, though no tablets have yet been found there. One

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nodule (Wv 3), with the ideogram GRA(num), comes from room VI in the West Gate area; the other two finds are from a room north of the megaron complex in area N of the lower terraces. Face α of the nodule Wv 1 bears the ideogram CYP(erus), and facet β the syllabograms ro and zo, while the newly discovered sealing Wv 5 is reportedly inscribed α OLE(um) and β pa-zo-wo. All three inscriptions date to LH IIIB2.

At Pylos, three tablet fragments have been found in the course of clearing backfill and reexcavating Blegen’s dump near the south corner of the site. An inscribed nodule (Wr 1480) was also recovered from the site by a guard. The nodule refers to javelin handles. Only personal names are preserved on Xn 1481 (fig. 9), while Un 1482 lists beds and baskets, both items familiar from other Pylos texts. The third fragment, which includes ideograms for honey and unguent, probably goes with previously known Un fragments to comprise a tablet listing banquet supplies. Such documents are understood to have special political and religious importance, so it is especially interesting that the word wanax appears here in the dative (for further discussion, see below).

The painted signs and sign groups occasionally found on pottery—usually coarse stirrup jars—belong in a different category from these administrative documents. Ceramic fragments with painted signs are known from Tiryns, Mycenae, Eleusis, Thebes, Gla, and now Midea. This new find, MI Z 4, is one of many storage stirrup jars from the LH IIIB2 floor level of room VI in the West Gate area. It is inscribed with the name wi-na jo, which also appears on a locally made stirrup jar from Knossos.

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172 Wr 1480 and Xn 1481 are published by C.W. Shelmerdine and D.J.L. Bennett, “Two New Linear B Documents from Bronze Age Pylos,” Kadmos 34 (1995) 123–36. Study of the other tablets is in progress by John Bennett, Emmett Bennett, and Cynthia Shelmerdine. The proposed join of one new fragment is José Melenäs’s suggestion; the pieces have not yet been brought together to confirm the joins. In addition to these new discoveries, the definitive study of scriptional hands at Pylos has appeared, Palaima 1988 (supra n. 139).

173 A. Sacconi, Corpus delle iscrizioni vascolari in Lineare B (Incunabula graecia 57, Rome 1974). For subsequent finds, see H. Döhl, “Bronzezeitliche Graffiti und Dipinti aus Tiryns,” Kadmos 18 (1979) 67–69; J.-P. Olivier, “Tirynthian Graffiti,” AA 1988, 262; S. Iakovides, “Ενα Επιγραφής Βεβαίοντος από τον Γλά,” in Αριστερά, Αριστερά στον Σπηλαίο Αλεξίου (Athens 1989) 39–43; and Demakopoulou and Divari-Valakou (supra n. 171). In the last mentioned article, the authors also publish a join showing that the stirrup jar previously published as MI Z 2 (K. Demakopoulou and N. Divari-Valakou, “A Linear B Inscribed Stirrup Jar from Midea (MI Z 2),” Minos 27–28 [1992–1993] 303–305) is not inscribed after all. Three new fragments from Thebes are mentioned by Piteros et al. (supra n. 139) 107, n. 18. A summary of all painted inscriptions then provided by Farnoux and Driessen (supra n. 106) 87–88.

ECONOMIC AND POLITICAL ADMINISTRATION

Much can be inferred about economic and political matters from the Linear B tablets, but it is necessary to remember that these are concerned exclusively with palatial affairs. The tablets existed as an aide-mémoire for the central administration, and they say nothing explicit about any activities not under its control. A further limiting factor is that the tablets we possess refer to a single year—the last before the destruction that baked and preserved them. Scholars must generalize from these tablets to develop any picture of Mycenaean economy in LH IIIB, without clear knowledge of how representative they are of the 13th century B.C. as a whole.

Political Organization

The Linear B tablets contain a number of titles with clear political significance. The relative hierarchical position of a few officials has been known since before the publication of the second edition of Ventris and Chadwick's *Documents in Mycenaean Greek,* but the status of others remains uncertain. As usual, most of our information from the mainland comes from the Pylos archive, but we have nothing to suggest that other kingdoms were organized differently. The paramount figure is the *wanax,* and second in importance is the *ra-wo-ke-ta llaowgetas,* “leader of the people.” Among the figures at a lower level are the *ga-si-re-u* *l**g**asileus* (see below), the *e-geta lhekgetas,* “companion” (presumably of the king), the *te-re-ta litedetas,* “officials,” and the *ko-re-te khoreteri* and *po-ro-ko-re-te lprokoretleri,* “mayor” and “vice-mayor” of the 16 major economic districts of the kingdom. Beyond this much remains uncertain. In particular, despite much fruitful debate over the last 20 years, there is not a single official about whose functions all are in complete agreement. Discussion has focused principally on the first three figures listed above.

The *wanax* presents less difficulty than the others, yet the extent even of his responsibilities is not fully understood: we cannot with certainty demonstrate for him a judicial or a military role, or that of an international statesman. He seems, however, to have had a presiding role in religious affairs (infra), and the designation of certain craftsmen as “royal” suggests either that they served his personal or professional requirements, or that he had particularly direct authority over one branch of the palatial workforce. In addition, he makes an official appointment on Pylos tablet Ta 711, and few would deny that he has secular as well as religious authority.

Debate on the status and responsibilities of other officials is still less conclusive, even when the title is transparently Greek, like *ga-si-re-u* *l**g**asileus* (cf. Classical Greek βασιλεύς) or *ra-wo-ke-ta llaowgetas* (cf. Classical Greek λαγητας, from λαός + άγο). On the Pylos Jn tablets three *g**asileis* act as overseers of working groups of bronzesmiths. Most of the groups in this series do not have an overseer, and it is not clear why only three are thus provided. More frequently attested is the derivative *ga-si-re-ui-ja l**g**asileial. Three such groups, designated by the name of the man responsible for them, receive rations on Pylos tablet Fn 50 (cf. also Fn 867.3). For Carlier, the presence of religious personnel on both tablets is significant, suggesting that *g**asileis* played a role in religious affairs. Nonreligious recipients are listed as well, however, so the inference seems unwarranted. As for the *l**a**wagetas,* it has been traditional to view him as second in power to the king, and a military leader. The first point has not been challenged, but some scholars have recently pointed out, rightly I believe, that there is no necessary connection of this official to military matters.

The larger political questions of importance are what kind of polity the Mycenaean state was, and how directly it was controlled by the king and his palace officials. In this context “political” control is hardly separable from economic control, and one must turn to the realm of economic administration for the partial answers reached to date. In general, always does signify the king. Another question is whether or not the man *e-ke-ra-zu-i Enkelisaidon* is the *wanax* of Pylos at the time of the tablets. For a recent argument in support of this view, see Palaima, in Rehak (supra n. 119) 129–35, passim.

173 For an even more pessimistic view of our ability to interpret this and other titles, see J.T. Hooker, “Titles and Functions in the Pylian State,” in *Studies Chadwick* 257–67. On the *wanax,* see P. Carlier, *La royauté en Grèce avant Alexandre* (Strasbourg 1984) pt. 1, esp. 44–101; several papers in Palaima, forthcoming (supra n. 119) and in Rehak.

174 Carlier (supra n. 175) 63–72 prefers the first alternative.

175 As Hooker (supra n. 175) 258–59 and others have noted, it is not possible to prove that the term *wanax* always refers to a single individual, or even that it always refers to a human rather than a divine lord. Each student of the tablets must develop a personal view; my own is that *wanax*
there is a growing trend toward acknowledging that the authority of state officials is not absolute, and that considerable activity went on, at least in the Pylos kingdom where records are most plentiful, independent of palatial control.  

Economic Administration

The economic themes reflected in the tablets are, generally speaking, limited to agricultural production, taxation, industries (the manufacture and distribution of goods, chiefly goods of high economic status), and personnel. To a greater or lesser degree, all these topics are better understood today than they were 20 years ago, and together they form a fairly coherent picture of Mycenaean administration. There is widespread agreement that the Mycenaean palatial sites were redistributive centers, taking in a variety of commodities from their dependencies, storing them centrally, and allocating them (or products made from them) again within the kingdom. The tablets document each stage: the collection of goods, the allocation of resources to dependent workers, and the distribution of a variety of commodities. Redistributive economies may be primarily altruistic, pooling needed or desirable goods and services to ensure widespread access to them, or the motive may be rather to mobilize such resources upward to the elite. In the case of the Mycenaens both impulses may have been at work, although the Linear B evidence is slanted toward concerns of the central elite, so that we observe only the economic activity that it dominates. The complex, even inconsistent, details hinted at in the texts are a further deterrent to understanding. A redistributive economy is normally viewed as an alternative to a market economy, in which the relative values of different commodities make market exchange possible. Yet the Mycenaean equivalent of Classical Greek πρανσομα, “buy,” is used at Knossos with reference to human beings. There are also a few cases where the value of one commodity is expressed in terms of others in what appear to be payment records: cloth is valued in terms of wheat and figs (Pylos Un 1322), and alum in terms of several commodities (Pylos An 35, Un 443.1). Thus, it does not appear that staples and prestige goods were handled in completely separate exchange systems, as happens in some cultures. Nevertheless, the overall picture is clear: the palace was the focal point of a redistributive system, mobilizing both goods and services. It exercised minimal control over the production of staple goods, though it acquired these selectively for such uses as ration payments to workers and suppliers. By contrast, it did directly oversee the production of particular agricultural resources, such as flax for the linen industry, and over the industrial processes themselves.

Animal husbandry and agricultural production. Records of livestock indicate that the palace controlled large flocks and herds. The prominence of records pertaining to sheep at Knossos is due to the importance of the wool industry there, and listings of thousands of animals (more than 19,200 on Dn 1088 alone) are without parallel on the mainland. The Pylos archive also records extensive holdings of sheep and goats, and refers as well to other important animals like oxen. Much of the direct written evidence for agricultural production concerns grapevines, figs, olives, and grain, particularly one variety of wheat. A recent study by Palmer has clarified both the place of wine in the economy, and documents relating to the assessment of vines and the collection and distribution of the finished product. The bulk of our information comes from Pylos, but the meager evidence from Knossos and Mycenae is consistent with it. Palmer shows that wine was a high-status item, stored perhaps at outlying centers as well as in the Wine Magazine (rooms 104–

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182 Cf. Halstead, in Wells (supra n. 181) 57.  
185 Halstead, in PCPS (supra n. 181) 57–58.  
187 Halstead, in Wells (supra n. 181); Halstead, in PCPS (supra n. 181) 60–61, 64. As Halstead notes, the archaeological record is more diverse, suggesting that other staples reached the center from the nonpalatial sector of the economy.  
of interest is at variance with the Ma series, and it is appropriate for an industry under direct palatial control.

**Industries.** Several recent studies have clarified the industrial activities supervised by the central administration. These chiefly involved bronze-working and the production of prestige goods like perfumed oil and fine textiles. The control of most industries appears highly centralized, and most operate in a redistributive fashion referred to as the *ta-ra-si-ja* /italasial/, or “allotment” system (cf. Classical Greek τάλασια, “an amount [of wool] weighed out and allocated for processing”). Under this system the palace brought in the necessary raw materials for an industry and allocated them to craftsmen. The term *ta-ra-si-ja* appears at Pylos in the Jn series, which lists bronzesmiths with and without an allotment of bronze, and at other sites in records of textiles (Knossos, Mycenae) and chariot wheels (Knoossos). The only extant bronze collection record (Jn 829) seems to be a tax document, recording contributions of bronze from almost the same districts named in the Ma series. Archaeological evidence that the palace distributed lump bronze to smiths around the kingdom comes from Nichoria. If the identification with *ti-mé-to-a-ke* is correct, Nichoria is one of the places with palatial smiths in residence. A LH III B2 smithy there, contemporary with the Pylos tablets, shows evidence of remelting and reworking of bronze, rather than the smelting of copper and its alloying with tin.

In the oil industry raw materials are similarly distributed to perfumers on several tablets from the Archives Complex at Pylos. These tablets shed some light on the manufacturing process, which resembles that described in later Greek recipes. The


191 Halstead, in *PCPS* (supra n. 181) 50.

192 Kilien 247–49; Shelmerdine (supra n. 190) 139–41.


Fr tablets, records of finished products, are found elsewhere in the palace, in specialized storage contexts. These tablets describe the oil both by variants of the oil ideogram and by adjectives like pa-ko-we Isphakowen, "sage-scented"; wo-do-we luordowen, "rose-scented"; and e-tiu-we lertiwen, "henna-dyed." The majority were found in room 23, one of two oil storerooms behind the megaron. Large storage jars set into benches along the walls contained oil, as is clear from residue found in and around them and from the intensity of the fire in this area at the time of the destruction. 196 Twelve twists of clay also preserved by the fire show that tablets were actually fashioned and written here. 197 Other perfume tablets come from room 32, a well-finished storeroom, and from a location upstairs, above room 38. The Fr tablets together constitute a scribal department concerned with the perfumed oil industry. 198 Many of the entries are allocations, most of a religious character, but there are also disbursements to "attendants" who may well be secular, while still other tablets are inventory records. Several scribes wrote the tablets concerned; each handled a specific variant of the oil ideogram, and for the most part each is represented in only one room. The notable exception is Hand 2, who has a greater range of responsibilities, and whose tablets appear in all three storerooms. He also wrote a transaction of oil within the department, Fr 1184, which was found in the Archives Complex. Thus, he seems to have been the head of this administrative department, in which other scribes had very specific assignments, so that each could be readily held accountable for the oil on which he reported.

The textile industry is equally central to the Mycenaean economy, and tablets referring to it were found at Thebes and Mycenae as well as Knossos and Pylos. The Cretan sheep and wool texts have received the most attention, particularly from John Killen, who has also made some comparative observations about the Pylian industry. 199 It is interesting that production is centralized here to a greater degree than at Knossos. Specialized personnel are located at a small number of places, chiefly Pylos itself, and there are small outlying groups of less-specialized workers, one of them at the probable capital of the Further Province, Leuktron. The textile records from Thebes and most of those from Mycenae concern wool that has been delivered to the center, and is being disbursed for further treatment. 200 At each site the relevant tablets were found in buildings that apparently served as clearings for wool. Like the Wine Magazine at Pylos, these central collection and storage points complement the ample textual evidence for the redistributive system at work.

What happened to the goods produced by these industries? In Halstead’s view, the tablets are much less informative about the disbursement of finished products than about the previous stages of the industries, 201 but actually, plenty of textual evidence exists for the use of these products within the kingdom. The Pylos Fr records of the disbursement of perfumed oil have already been mentioned, and Jn 829 earmarks collected bronze for the manufacture of spearpoints and arrowheads. These weapons are presumably for local use, like the chariots being manufactured and repaired in the Northeast Workshop. 202 On three texts associated with this workshop, the term e-qi-si-jol-ja is applied to wheels (as it is elsewhere to cloth). The adjective derives from the term e-qi-ta lhe-[e]-tâši, “companion (of the king),” and may designate elite goods of a kind belonging to or suitable for such officials.

Halstead is correct, however, in that there is almost no textual evidence for the deployment of such prestige goods outside the kingdom. 203 Yet perfume

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196 Blegen and Rawson (supra n. 125) 135–36.
197 Blegen and Rawson (supra n. 125) 137, fig. 267 nos. 1–7.
198 The term was introduced by J.-P. Olivier, Les scribes de Cnosos (Incunabula graeca 17, Rome 1967) 8, 125, to characterize a group of tablets linked by findspot, scribal hand, and content to form an office; a department is a group of related offices.
200 T. Spyropoulos and J. Chadwick, The Thebes Tablets II (Minos Suppl. 4, Salamanca 1975) published the Theban records; two recent studies that include the Mycenaean material are Varías García (supra n. 24) and Tournayvou (supra n. 23). C.W. Shelmerdine, “Workshops and Record Keeping in the Mycenaean World,” in Betancourt and Laffineur (supra n. 58) considers the material from each site in relation to its archaeological context, which in each case is interpreted as a clearinghouse rather than a workshop. On the general topic of prehistoric textiles, E.J.W. Barber, Prehistoric Textiles: The Development of Cloth in the Neolithic and Bronze Ages, with Special Reference to the Aegean (Princeton 1991) is an invaluable resource for future studies.
201 Halstead, in PCPS (supra n. 181) 62.
202 The most recent study of the Northeast Workshop, with references to earlier works, is R. Schon, “Chariot Manufac-ture and the Organization of Industry at Pylos,” in Betancourt and Laffineur (supra n. 58).
203 The Mycenaean’s own written evidence is discussed briefly above. Foreign textual evidence, apart from the Kom el-Hetan statue base (supra n. 153), depends largely on the equation of Mycenaean Greece with Ahhijawa (supra n. 154). Killen 264 outlines the few possible tablet references to external transactions.
was clearly an important trade item: the stirrup jars that functioned as oil containers are tangible signs of this commodity, and they are heavily represented among Mycenaean pottery found abroad. It is assumed that textiles too were offered in trade, in return for the metals, spices, ivory, and other raw materials that the Mycenaens were interested in importing.\(^{209}\) Indeed, the reticence of the tablets is so much at variance with the archaeological evidence that it has tempted some to assume that records of foreign exchange were kept on leather or some other material that perished in the very fires that preserved the tablets.\(^{205}\) It is worth noting that the largest extant archive—that from Pylos—dates to the very end of LH III B when trade was dramatically reduced from its heyday of LH IIIA2–B1. Even under this circumstance, however, the production of elite goods remained, on present archival evidence, a high priority. Most of the people who worked in these industries were fully dependent on the palace for their upkeep.\(^{206}\) In some cases the records of their support are extant: for instance, the Pylos Ab series records food rations allocated to textile workers and their children, and the Pylos Fn series lists rations given to other personnel. The tablets also provide a few hints, however, that some work may have been done by more independent workers, who received goods in return for their services.\(^{207}\) Such indications support a growing awareness that, although our written evidence is limited to palace business, a wider economic sphere existed in the Mycenaean world that the palaces did not control.\(^{208}\)

**RELIGION**

A fair amount of textual, iconographical, and artifactual evidence can be cited for Mycenaean religion, but it has always been difficult to interpret,\(^{209}\) in part because the various sources point in different directions. Linear B texts link the Late Bronze Age to later Greek religion, recording a similar pantheon and range of offerings. Iconography, on the other hand, particularly in Early Mycenaean glyptic art, echoes the symbols of Minoan religion—without, however, indicating whether the beliefs behind them were also adopted on the mainland. Until recently, little attention was paid to the third source of evidence: archaeological remains of cult sites and artifacts. New finds and new interpretations have improved this situation in the 1980s and 1990s, so that more can now be said about where the Mycenaens worshipped, and a little about the forms their rituals may have taken. These topics are addressed here; for information about the gods themselves, older bibliographical sources are still valid.\(^{210}\)

**Cult Places**

Cult environments range from separate shrines at palatial and other urban sites to simple open-air settings, and it has been proposed that rituals also took place in the megaron itself. Some see in this diversity a distinction between official and popular, or urban and rural, religion; others interpret it as a continuum from the humblest expressions of piety up to elaborate celebrations at the center of state power. We begin with public or urban shrines at palatial and other sites, where it is easiest to identify the trappings of cult.\(^{211}\) The two shrine complexes most often discussed are the cult center at Mycenae and the sanctuary at Phylakopi on Melos. Though the latter site lies outside mainland Greece, it is useful for purposes of analogy since the installation and its contents conform closely to those on the mainland.\(^{212}\)
Mycenae. Most of the complex at Mycenae was built and used only in LH IIIB.\textsuperscript{213} Though the Tsountas House shrine may have been built in LH IIIA2, the Temple, the Room with the Fresco, and the Megaron all postdate the construction of the South House in mature LH IIIB.\textsuperscript{214} Some alterations were made to the area in LH IIIB2, perhaps after an earthquake, and a final destruction took place at the end of that period. A brief summary of the most significant remains may serve to introduce most of the tangible elements of Mycenaean cult.

The Tsountas House shrine lies on the upper of three terraces (fig. 10).\textsuperscript{215} A bolster-shaped altar in front of a bench belongs to the first of two phases. The altar has a hollow extension on the western side; a runnel leads from it to a jar in the floor, suggesting that it was used for libations.\textsuperscript{216} A miniature kylix and a flat dish (FS 322) also belong to this phase.

The Temple lies in the center of the complex, and is entered from the south. A low dais occupies the middle of the main room, and at the back is a series of stepped benches or platforms. These apparently served as altars, in the sense of offering places, for a clay tripod offering table was found at the northeast corner of the bench, next to a large female idol embedded in the bench. These were the only finds from the room, but a cache of large clay human and snake figurines was found in a small sealed room up a flight of stairs, and joining fragments came from a triangular area behind the main room. Drinking vessels and bowls were also found in the building.

The building containing the Room with the Fresco lies west of the Temple. The fresco in question decorated the southern part of the east wall of the room (fig. 11). In front of it was a platform of clay and rubble; a Minoan-style painting of horns of consecration above a row of circles decorates the top of its north face. The upper surface of the platform at the west end forms a ledge shaped into three shal-


\textsuperscript{214} French (supra n. 213) 43; Taylour (supra n. 25) 8–9. The date of the Tsountas House shrine is based on information from Elizabeth French.

\textsuperscript{215} French (supra n. 213) 44–45.

\textsuperscript{216} A.J.B. Wace, “Mycenae 1950” JHS 71 (1951) 254; R. Hägg, “The Role of Libations in Mycenaean Ceremony and Cult,” in Hägg and Nordquist 178.
Fig. 11. Mycenae. Fresco and platform from the Room with the Fresco. (Photo C.W. Shelmerdine)

low discs. Ash in the discs suggests that this platform too functioned as an altar.\textsuperscript{217} The lower register of the fresco beside this altar depicts a female, probably divine, and an animal restored as a griffin. Above the altar the upper register depicts two females, also thought to represent deities, in an architectural setting. They wear long robes of different types; one holds a sword and the other a staff, and between them hover two small human silhouettes.\textsuperscript{218} In the center of the room is a large elliptical hearth, and a bench runs along the south side. A number of objects were found in the fill of the bench, including kylikes, cups and cooking pots, worked ivories, and a faience plaque of Amenophis III. The adjacent room 32 may have been a shrine or a related storage area.\textsuperscript{219} The former interpretation is supported by the discovery of a terracotta figurine, probably a divine image, on a dais in the southwestern corner. In front of it was a pile of glass paste beads. However, the room also contained storage debris such as worked and unworked ivory fragments, and a variety of pottery.

The variety in orientation and contents of these three buildings suggests that they served different deities, but there is a certain consistency in the cult installations themselves. The main rooms all contain a low central raised area. That in the Room with the Fresco was a hearth, while the dais in the Temple and the altar in the Tsountas House shrine show no trace of burning, and both have been tied to libations.\textsuperscript{220} Another common feature is one or more benches or platforms, where offerings were placed. Large figures and small figurines are the most common offerings found in religious locales.\textsuperscript{221} The examples from Mycenae are all large enough to be

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\item \textsuperscript{217} Taylour 1969 (supra n. 213) 94; P. Rehak, “New Observations on the Mycenaean ‘Warrior Goddess,’” AA 1984, 539; and R. Hägg, “Ritual in Mycenaean Greece,” in F. Graf ed., Ansichten griechischer Rituale: Geburtstags-Symposium für Walter Burkert (Stuttgart, forthcoming). I thank the author for sending me a draft of this paper.
\item \textsuperscript{219} French (supra n. 213) 45.
\item \textsuperscript{220} Temple: Taylour (supra n. 25) 18; Tsountas House shrine: references supra n. 216.
\item \textsuperscript{221} For the distinction between figures and figurines, see E.B. French, “Mycenaean Figures and Figurines, Their Typology and Function,” in Hägg and Marinatos 173–77.
\end{itemize}
called figures, though there are two sizes. The large (50–60 cm tall) "grotesques," hollow human figures of both female and ambiguous gender, probably depict celebrants rather than deities. Two smaller (ca. 30 cm tall) female figurines found with them are carefully shaped and finely painted. These figurines and the similar example from room 32 could represent goddesses. The third type found at Mycenae consists of the snake figures from the Temple.

_Tiryns._ Several cult areas were identified at Tiryns in addition to the megaron: the earliest date to LH IIIB2. Three deposits in the Upper Citadel are little more than concentrations of figurines. At the north end of the colonnaded court above the eastern galleries, human and animal figurines were found with a few other artifacts. More diverse is a group of material thought to come from pits 10 and 17 of the Geometric bothros, south of court XXX. In addition to Psi-figurines, this cache contains two animal rhyta, a miniature throne, and a figurine perhaps depicting a person on a bed. Most extensive is a deposit from the so-called _epichosis_-complex, in the southern part of the palace quarters. This material included several rhyta, five models of thrones, 56 female figurines, and 126 miniature vessels.

The installations in the Lower Citadel are better preserved. Casement room 7 in the fortification wall was a LH IIIB2 cult room, as is clear from debris accumulated outside in the courtyard—more than 239 Psi-figurines, two larger figures (30+ cm), several representations of thrones and chariots, and two animal rhyta. Building VI nearby seems to date from the same period. It contained an altar and animal rhyta in room 123, and Kilian therefore interpreted it as the house of the priestess of the cult practiced in room 7. However, Linear B tablets were found in a pit at the end of the corridor in building VI; they are thought to have fallen from a room above room 130, which connects to building VI on the east. Among the subjects are lists of personnel and chariot wheels, and the complex is clearly part of the palace administration. A cult building also stood in the Lower Citadel during the post-palatial era. R 117 was a small one-room structure built in LH IIIC Early against the interior of the fortification wall. This simple building had a bench at the rear and a column in the center of the room, as well as three columns outside the entrance. R 110 was subsequently built, without columns, directly above the ruins of R 117 in LH IIIC Developed; the two-room structure R 110a in turn replaced R 110. At this point a hearth occupied the center of the main room. In each phase the building had a bench at the back, on which clay figures were found. These portray a known type of female deity with upraised arms; headresses are preserved in some cases, as well as applied and painted jewelry and other painted decoration. Other cult paraphernalia include rhyta, miniature and regular-sized vessels, and animal bones in ash layers.

_Pylos._ The small room 93 northeast of the Main Building at Pylos has been interpreted as a shrine. Plowing had obliterated the floor level and only a few artifacts were found in the room. Among the chance finds is a miniature kylix. Essential to the identification of this room as a shrine is a stuccoed block a few meters to the southeast in court 92, which the excavators thought was an altar.

_Phylakopi._ The sanctuary at Phylakopi also consists of more than one building; the West Shrine was built during LH IIIA2, and the small East Shrine was added in LH IIIB. The sanctuary continued as before in LH IIIC. Bench altars in both shrines hold small human and animal figurines and chariot groups, as well as large wheelmade bovids and human figures. Of the human figures, the elaborately shaped and decorated “Lady of Phylakopi” is unique at this site. Other figures are clearly delineated as male or female, down to their genitalia. There

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225. Müller (supra n. 124) 210; Kilian, in Hägg and Nordquist (supra n. 223) 193.

226. Kilian, in Hägg and Nordquist (supra n. 223) 193. Some uncertainty about the findspot arises from ambiguous labeling of boxes in the storeroom.

227. Kilian, in Hägg and Nordquist (supra n. 223) 193.

228. W. Voigtlander, “Epichosis,” in _Tiryns X_ (Mainz, forthcoming); Müller (supra n. 124) 45.


231. Rawson (supra n. 125) 303–305, fig. 223.


233. Davis 729–30, with references.

234. Renfrew et al. (supra n. 159) 215–16, SF 2660, fig. 6.4, pl. 31.
is some duplication of types in the two shrines, but within the West Shrine the genders are separated: male figures are associated with the northwest altar, and female figures with those in the northeast and southwest corners. The range of figures and figurines is closer to that at Tiryns than to the assemblage from Mycenae. The Lady of Phylakopi, though rather large (45 cm tall), resembles the three finer figurines from Mycenae and their counterparts from Tiryns, but no parallels exist here for the "grotesques" from Mycenae. Phylakopi is unique in having clearly male idols, but some figurines from the newly discovered shrine at Ayios Konstantinos on Methana are interpreted as male (see below).

Other indoor cult areas. A few other sites have cult places, all with features similar to those just described. House shrines are reported at both Asine and Berbati. The shrine in Asine House G dates to LH IIIC. Pottery, female figurines, and a larger head (the "Lord of Asine," now understood as female) were found near a bench in the corner near the entrance at the north end of the room, which also contained two centrally placed column bases. A thick layer of ash and bones extended from near the bench along the east long wall. A deliberately broken jug was fixed upside down at the east end of the bench, suggesting that libations were offered there. Two rooms in the Potter's Quarter at Berbati also had bench altars in LH III B. In room A, a broken amphora and a clay spoon were found on the bench, and a Psi-figurine in the fill above. Room B, a subsequent construction, has the more interesting installation: a channel formed by two rows of stones, with part of a large kylix wedged under smaller blocking stones at one end. In addition, a separate room to the north (room C) features a pictorial krater fixed in the floor, its bottom pierced.

The work at Ayios Konstantinos on Methana is too recent to have been much discussed in print yet, and I only highlight here a few salient features of the shrine (fig. 12). All of the finds in this building complex date to LH IIIA-B; the pottery includes

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239 R. Hägg, "The House Sanctuary at Asine Revisited," in Hägg and Marinatos 91–94, with references. Hägg observes (94) that the bench may have differed in appearance and use from those at Mycenae and Tiryns.

244 Å. Åkerström, "Cultic Installations in Mycenaean Rooms and Tombs," in French and Wardle 201–202.


rhyta, kylikes, and tripod pots. The main room A, oriented east–west, features a stepped bench in the northwest corner, a platform along the south wall, and a hearth in the southeast corner. Near the south- west corner a broken jar neck on the floor may have been a receptacle for libations; a rhyton, cup, and dipper were found with it. About 150 figurines were associated with the bench in the northwest part of the room. Many are boids, but a number of rare types are also present, including chariot groups, helmeted riders on horseback, and people driving and riding oxen (fig. 13). The human figures are presumed from their activities to be male. The absence of female figurines, apart from one Psi-type with a hollow stem, is notable.

Finally, a LH IIIA2 Early deposit at Tsoungiza may be mentioned here (fig. 14).236 It is a dump below the crown of the hill, with which no architectural remains are associated, but the contents are thought to have come from a structure higher up. The lower half of a figure was found here, along with numerous human and animal figurines, including two representations of breadmakers. Additional finds include a limited range of pottery, chiefly kylikes and bowls, and animal bones.

Outdoor cult areas. Traces occasionally remain of ritual activity conducted in the open air. The only certain Mycenaean cult installations predating LH III are those at the later site of the sanctuary of Apollo Maleatas at Epidauros.237 The Early Mycenaean remains have been described by Rutter.238 In LH IIIA–B the large Early Mycenaean open-air altar terrace on the hilltop continues in use, with an extension to the east. A deep deposit of ash, animal bones


(chiefly bull and goat), and pottery accumulated on the hillside under the terrace. Among the other LH III offerings were large and small bovid figures, Psi-and Phi-figurines, and small horse figurines, including one from a chariot group. Only a few meters away from the altar terrace is a settlement with three layers of Mycenaean habitation (above two of EH date). Thus, despite its lofty location on Mt. Kynortion, this installation is not a remote peak sanctuary of Minoan type.

Two more open-air cult places of the palatial period are known, both in the vicinity of Tiryns. One is a surface deposit found near a chapel of Ayia Triada near Klenies, and the other is a cave on Profitis Elias near Ayios Adrianos. The Klenies deposit comprises 123 Phi-figurines of middle LH IIIB style, three animal figurines, an animal rhyton, and pottery, including some deliberately broken drinking vessels. A naked male figurine was originally reported, but is now lost. The Profitis Elias cave lies near a LH IIIB building on the hilltop. No figurines were found there, but cookpots, a cup, and kylikes (some broken) lay on the floor and on a natural rock bench. A more elaborate outdoor cult area is also attested in the late LH IIIB or IIIC period at Amyklai, with finds similar to those from earlier indoor shrines and from Epidauros, including many female and animal figurines and some figures.

The LH III iconographical evidence for the appearance of cult areas consists of a number of fresco fragments depicting shrine facades. Several elements recalling Minoan shrine features appear on

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239 Kilian, in Hägg and Nordquist (supra n. 223) 185–93, with references. Finds of figurines and rhyta at Delphi suggest the existence of a cult place, probably of the outdoor type, but none has been located: Müller (supra n. 63) 475–86. Nor is there any demonstrable ritual content to the Mycenaean remains under the Telesterion at Eleusis: P. Darque, "Les vestiges mycéniens découverts sous le Théâtre d'Eleusis," BCH 105 (1981) 593–605.

240 K. Demakopoulou, Το μυκηναϊκό ιερό στο Αμυκλαίο και η ΥΕ ΙΙΙΠ περίοδος στη Λακωνία (Diss. Univ. of Athens 1982); Wright (supra n. 236) 65.

one or more of these: antas, central column, half-rosettes, beam ends, and horns of consecration. The last two designs recur on the side of the bench by the fresco in room 31 at Mycenae (see above, fig. 11). Two of the Pylos facades are crowned by pairs of animals, 1 A 2 by sphinxes and 2 A 2 by lions. The Linear B tablets use several words for shrine, and make reference to particular cult places in the Pylos area, but no information is offered about their layout or contents.\textsuperscript{242}

\textit{Cult Practices}

Certain ritual practices can be deduced from the layout and contents of cult places: the offering of figurines/figures and other objects, libations, and animal sacrifices. Frescoes and Linear B texts reinforce the archaeological evidence, and extend the range of information beyond it, particularly on ritual processions and ritual feasting. The most widely attested practice is the offering of various objects, particularly animal and human figures and figurines. Not all of the large anthropomorphic figures represent deities. To date, the “grotesques” from Mycenae are unique, and seem to represent worshippers. The hands, in various positions, are thought to have held either actual offerings, such as jewelry, or clay replicas of them.\textsuperscript{243} Some of the other figures from various sites, more finely shaped and decorated, may also stand for human celebrants. One type, however, certainly depicts the goddess with upraised arms, and it is easy enough to picture such an image draped with or holding offerings. These figures clearly overlap in function with the more common small figurines, which were sometimes placed on benches in the same way, often in the same shrines. Comparison of their distributions, however, shows that the figurines had a wider range of uses.\textsuperscript{244} Figurines (human and animal) appear in tombs as funerary offerings, and were also deposited near hearths and doorways, where they perhaps served an apotropaic function.\textsuperscript{245} They are the only offerings, apart from cookpots and drinking vessels, in the simplest cult places like Berbati, Klenies, and the Profitis Elias cave. It has been argued that this restricted ritual assemblage represents a popular level of cult, as opposed to official cult places where figures and figurines appear together, along with animal figures and figurines, small clay models of furniture, rhyta, and miniature and full-sized vessels.\textsuperscript{246}

If the range of offerings is the basis for such a distinction, location is not: official cult attributes occur both at palatial sites (Mycenae, Tiryns) and elsewhere (Phylakopi, Asine),\textsuperscript{247} both indoors and outdoors (Epidauros), both during the palatial period and afterward (Tiryns, Phylakopi, Amyklaion).

Some frescoes show offerings of various kinds being carried in procession. Objects depicted include flowers (Thebes, Pylos), vessels of metal, stone, and clay (Mycenae, Tiryns, Thebes), boxes or pyxides (Mycenae, Tiryns), trays (Pylos), a necklace (Mycenae), and a frame or table (Pylos).\textsuperscript{248} Figures or figurines have also recently been identified in procession frescoes from Mycenae and Tiryns. After the procession, such offerings might have been placed on a bench in a shrine, though the figurine of a celebrant actually embedded in a bench in the Temple and Popular Cults in Mycenaean Greece,” in Hägg and Marinatos 35–39; Hägg, “State and Religion in Mycenaean Greece,” in Politeia 387–91; and K. Kilian, “Mykenische Heiligüter der Peloponnes,” in H. Froning, T. Höscher, and H. Mielisch eds., Koinos: Festschrift für Erika Simon (Mainz 1992) 10–25. Wright (supra n. 236) 72–73 prefers to view the various manifestations of Mycenaean religion as a continuum rather than a series of levels.\textsuperscript{249}

In addition to the sites discussed here, there is a head from Nichoria, probably to be associated with a LH IIIB2 building: H. Hughes-Brock, “The Metal Objects and Miscellaneous Small Finds, Part II: Terracotta and Miscellaneous Small Finds,” in McDonald and Wilkie (supra n. 10) 631, 655 no. 2064, fig. 10.8, pl. 10.76.

Procession frescoes are attested from all the major palace sites. They are discussed, with references, by Lang (supra n. 241) 38–40; 51–62; and Hägg (supra n. 217). Vessels in processions and other frescoes are discussed by E. Mantzourani, “Vases and Vessels in Aegean Wall Painting,” in C. Morris ed., Klados: Essays in Honour of J.N. Coldstream (BICS Suppl. 63, London 1995) 123–41.
at Mycenae shows that not all idols were carried in processions. Among the vessels carried in the frescoes are two that from their yellow color appear to be made of gold. Highly relevant, therefore, is Pylos tablet Tn 316, which itemizes donations of a gold vessel and a man to several gods, and a gold vessel and a woman to goddesses. It was once suggested, well before the cumulative archaeological and iconographical evidence for the offering of figures and figurines was as substantial as it is now, that the “people” were actually figurines. The verb used, however, is ἔχει, not φέρει, so they should be led and not carried as figurines would be. The conventional view is preferable, that the men and women referred to are real people, marked for sacrifice or for a life of service to a deity, or simply detailed to carry the vessels. Another notable offering mentioned in the tablets is perfumed oil. The majority of Fr tablets from Pylos list disbursements of perfume to deities and sanctuaries, and for two festivals, one of which takes place at pa-kijana and is associated with Poseidon. In only one case (Fr 1225) is the purpose of the oil stated: it was to serve as ointment for clothing.

The procession frescoes and the tablets bring us into the Mycenaean palace proper, and to the highest level of official cult—that associated with the palatial elite, and in particular the wamanax. Indeed, the presentation of offerings has been directly linked to the megaron itself, and so have the two other rituals detectable in the archaeological record, libation and animal sacrifice. In addition to the rhyta discovered at a number of cult places, permanent installations discussed above at Mycenae (Tsountas House shrine), Asine, and Berbati clearly point to the pouring of libations. In the porch of the megaron at Mycenae an alabaster slab beside a low rounded altar has a shallow oval depression that Hägg suggests may also have been for this purpose. This evidence gives a meaningful context to the two round depressions, joined by a channel, in the floor next to the cutting for a throne in the Pylos megaron. This arrangement has long been tied to libations, and the relevance of a painting of a stone jug on the dado immediately above has recently been observed. Hägg believes that tripod offering tables may have been receptacles for libations, and that kylikes, like rhyta, were used as libation vessels. Significant for his argument is a pair of miniature kylikes found lying on an offering table in the Pylos megaron. Both miniature and standard kylikes are common in cult contexts; indeed, drinking vessels and bowls are the only offerings besides figurines found in the humblest shrines. Hägg also associates libations with animal sacrifice, which is clearly attested by the accumulation of animal bones in ash layers at Asine, Phylakopi, and Epidauros.

While the slaughtering of animals may represent

250 Hägg and Marinatos (supra n. 223) 49. On the Tiryans example, see Rodenwaldt (supra n. 241) 87 no. 103, pl. X.7; C. Boulouis, “Zur Deutung des Freskofragmentes Nr. 103 aus der Tiryntner Frauenprozession,” Arch-Korfb 9 (1979) 59–67, fig. 1; S.A. Immerwahr, Aegean Painting in the Bronze Age (University Park 1990) 114, 202 Ti no. 4, fig. 33b. Mycenae: Mylonas 1972 (supra n. 213) pl. XIV. I. Kritseli-Providi, Ταχυγράφες του Θρησκευτικού Κέντρου των Μυκηνών (Athens 1982) 41–42, pl. 6a. Some think this image resembles a naturalistic doll rather than a figure: Immerwahr (supra) 119. A sarcophagus from Tanagra depicts mourning women approaching a male holding a figure: “Chronique” 1975, 642, fig. 118.

251 Rodenwaldt (supra n. 241) 86–87 nos. 101–102, pl. X.2 (no. 101); Immerwahr (supra 249) 114, 202 Ti no. 4, fig. 32g; Mantzourani (supra n. 248) 133 nos. 41–42, 137.


253 Neither festival name is securely interpreted: F. Aura Jorro, Diccionario micénico II (Madrid 1993) 237–38, ss. re-ke(r)-to-ror-ri-jo, 362, ss. to-no-ke-ri-jo. On the Fr tablets see Shelmerdine (supra n. 195).

sacrifice in certain circumstances, it is also a necessary part of food preparation. Similarly, the kylix may be used for libations, but it is also the Mycenaean drinking vessel par excellence. A growing body of evidence suggests that communal feasting was an important feature of Mycenaean culture, and it may thus be only a question of terminology whether one views animal bones in ash layers, and kylikes in cult settings, as evidence for sacrifice and libations or for ritual meals.\textsuperscript{260} In addition to the accumulations of animal bones already mentioned, others have been directly tied to such feasts. One example comes from LH IIIC levels of the Tiryns Lower Citadel, where animal bones were found in the courtyard outside the cult building.\textsuperscript{261} Another is the LH IIIA2 deposit at Tsoungiza, where the discard pattern of animal bones is consistent with feasting.\textsuperscript{262}

This archaeological evidence is significantly augmented by references to banquet supplies in the Linear B texts. The liquid component of the banquet may be discernable in the gold vessels brought to deities on Tn 316, the Pylos tablet mentioned above. The three shapes listed are the conical cup, the goblet or kylix, and the chalice. The last two were associated even in the Early Mycenaean period with ritual drinking, and appear in the LM IIIA Campstool Fresco from Knossos, which has been interpreted as a ceremonial drinking scene. The 56 inscribed sealings found at Thebes in 1982 document animals (sheep, goats, pigs, and oxen) and two food-stuffs coming into the palace. It has been demonstrated that the types and numbers of the animals, and some of the terminology, are remarkably similar to those on Pylos tablets Un 2 and Un 138, which list animals and various other edibles.\textsuperscript{263} It is very likely that the commodities listed are ingredients for a state banquet: the heading of Un 2 reveals the kind of occasion that would prompt such a feast. It refers to a special ceremony at pa-kija-na, which

the king either undergoes or presides over.\textsuperscript{264} Pakija-na is an important Pylian sanctuary, and the proposed interpretation of its name as ἰσφαγιανοῖ, “place of slaughter,” takes on new relevance in the light of evidence for the slaughter and ritual consumption of animals.\textsuperscript{265} A recent find from Pylos further links such banquets to the king. A fragment unearthed from Blegen’s dump in 1995 has been associated with several fragmentary tablets of the Un series, all previously known. If the joins prove correct, the resulting tablet, while still incomplete, includes the word wamax in the dative, above a list of commodities, including wheat and barley, an ox, honey, unguent, and figs. It is hard to see here anything but another list of banquet supplies. Killen has identified similar lists at Knossos, so it appears that ceremonial banquets were a widespread Mycenaean phenomenon.\textsuperscript{266} One occasion mentioned in writing is the Pylos ceremony involving the king, and in many societies such meals are mechanisms whereby a chief can assert and enhance his authority by rewarding his dependents. It may have served this purpose in Bronze Age Greece, but the ceremony on Un 2 takes place at a sanctuary, and most of the archaeological evidence comes from nonpalatial and religious sites. It is safe to say that such occasions always had a ritual dimension, even though it is not always possible to distinguish purely religious feasts from those that also served a political purpose.

An illustration of just such a ceremonial feast appears on the northeast wall of the Pylos megaron, the culmination of the procession with a bull in vestibule 5.\textsuperscript{267} At the right-hand end of the wall, the famous bard with a lyre entertains at least two pairs of men seated at tables, while nearer the throne is a bull either standing or, in a more recent reconstruction, recumbent and actually trussed for sacrifice. The setting by the throne suggests that the king himself presides over the kind of event depicted, if in-

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\textsuperscript{261} Kilian 1981 (supra n. 26) 150; the debris is characterized as “bone waste from meals” by Kilian (supra n. 5) 148. See also Albers (supra n. 211) 106–10, 132–34.

\textsuperscript{262} Wright (supra n. 236) 69.


\textsuperscript{264} The most plausible translation is “at pa-ki-ja-na, upon the initiation of the king...” though there is some debate about this: Documents 440–41, 562; s.v. mujo-me-no; Killen 1994 (supra n. 263) 72; F. Aura Jorro, Diccionario micénico

I (Madrid 1985) 80–81, s.v. a-pi-e-ke; 459–60, s.v. mujo-me-no.

\textsuperscript{265} Hiller (supra n. 242) 107–108; for the suggested translation see Aura Jorro (supra n. 252) 72–74, s.v. pa-ki-ja-na, pa-ki-ja-ne. The toponym persists in the Pylos area: Σφαγία is an alternative name for Sphakteria (Strabo 8.4.2), though Mycenaean pa-ki-ja-na is not thought to be that small, barren island.

\textsuperscript{266} Killen 1994 (supra n. 263), adding Inka and Classical Greek parallels.

\textsuperscript{267} Lang (supra n. 241) 38–40, 192–93, reconstruction pl. 119. In the megaron itself L. McCallum, Decorative Program in the Mycenaean Palace of Pylos: The Megaron Frescoes (Diss. Univ. of Pennsylvania 1987) 68–141 reconstructs a trussed bull lying on a table, but only the bull’s shoulder actually survives: Lang (supra) 109–10 no. 19 C 6, pls. 53, 125.
DESTRUCTION

The destructions and abandonments that Mycenaean sites suffered at about the end of LH IIIB continue to fascinate. We now possess somewhat more information about these events and their aftermath than was available in 1978, but new data have not much changed the basis for debate. The search for explanations has continued too, but it must be said that the field is not much nearer consensus about either the immediate or the more remote cause(s) responsible for the end of the palaces. The remarks offered here are not an exhaustive review of the problem, but a brief attempt to assess the more recent information and interpretations.

The historical sequence of construction and destruction at palatial centers in LH IIIB-C has already been touched on above. The first signs of widespread damage appear in the middle of LH IIIB, with destructions in the citadel at Tiryns, in the Oil Merchant group and Panayia Houses I and II outside the walls at Mycenae, and at Gla (perhaps in LH IIIB2). The sequence of events at Thebes is not certain, but a destruction at the end of LH IIIB1 is apparent at some locations, with Linear B tablets preserved by fire. Fortification walls are substantially extended at Mycenae and Tiryns in the aftermath of the destructions there. At Midea the wall was built in sections, and several foundation trenches have now been excavated. Sections examined in the East Gate area and lower terraces were built in LH IIIB2, according to ceramic evidence. A foundation trench in the West Gate area contains LH IIIB1 pottery but no certain LH IIIB2 sherds; the construction date suggested for this section is near the middle of the 13th century B.C., pointing to the latter part of LH IIIB1. The first half of this phase is also reported as the date of the fortification wall at Athens, but Wright has recently argued that the original plan was later modified. Subsequent alterations are made at Mycenae and Athens near the very end of LH IIIB, to ensure access to water from within the walls.

How closely were these redoubled efforts at fortification building connected with the destructions that immediately preceded them? The disasters at Tiryns and Mycenae have been attributed to earthquakes. Yet the building of massive Cyclopean walls is not a useful response to the threat of earthquake: it is a clear indicator that human enemies threatened the palatial centers in the Argolid, and perhaps at Athens. Other signs point in the same direction. Within the citadel at Mycenae further construction efforts include workshops and storage areas, notably the House of Columns and the Artists' Workshop in the east wing of the palace. Most of the cult center, which includes workshops and storage rooms, also postdates the mature LH IIIB1 South House. At Pylos, nothing is yet known of the putative fortification terrace wall now indicated by geophysical prospection, but a number of alterations to the original plan restricted access to the Main Building and altered its character. The most obvious change was the walling in of courts 42 and 47, preventing entry through gateway 41. Room 27 and corridor 18 were added to the storage facilities, and room 32 was converted to a storeroom. Finally, the Northeast Workshop was a very late addition to the overall setup that the Oil Merchant houses referred to were destroyed not at the end of LH IIIB1, but in a general disaster in LH IIIB2 that was responsible for all the LH IIIB destructions observed at Mycenae. The ceramic links on which the argument is based, however, do not force this conclusion, and it has not met with universal approval. Tiryns: Iakovidis 1983 (supra) 3–13, 19. Thebes: supra n. 139. Midea: Walberg 1992 (supra n. 33) 33 (Lower Terraces); Demakopoulou, forthcoming (supra n. 33) (West Gate area); Aström et al. 1992 (supra n. 33) 11 (East Gate area). Athens: Iakovidis 1983 (supra) 79–86, 90; Wright (supra n. 48) 348–49.

269 Mycenae: S. Iakovidis, Late Helladic Citadelos on Mainland Greece (Leiden 1983) 24–37, 70–72; Shear (supra n. 22). Iakovidis, "Destruction Horizons at Late Bronze Age Mycenae," in Φιλία Επιστημών Ελλήνων Και Εξωτερικών Ερευνών (Athens 1986) 233–60 has proposed that the Oil Merchant houses referred to were destroyed not at the end of LH IIIB1, but in a general disaster in LH IIIB2 that was responsible for all the LH IIIB destructions observed at Mycenae. The ceramic links on which the argument is based, however, do not force this conclusion, and it has not met with universal approval. Tiryns: Iakovidis 1983 (supra) 3–13, 19. Thebes: supra n. 139. Midea: Walberg 1992 (supra n. 33) 33 (Lower Terraces); Demakopoulou, forthcoming (supra n. 33) (West Gate area); Aström et al. 1992 (supra n. 33) 11 (East Gate area). Athens: Iakovidis 1983 (supra) 79–86, 90; Wright (supra n. 48) 348–49.

268 Rehak (supra n. 256) 109–12 argues from iconographic associations of seated figures and griffins that the "throne" was in fact the seat of a priestess or queen, not a king.

269 As often suggested: see Hiller (supra n. 242) 117–19; Kilian (supra n. 246) 17; and Hägg, in Politia (supra n. 246) 389–90.

270 Palaima (supra n. 186). The bones at Epidaurus are mainly from bulls and goats.

271 Tiryns: Kilian (supra n. 5) 134. Mycenae: Iakovidis 1986 (supra n. 271) 259.
plan, postdating the walling-in of the courts. Thus, at both Mycenae and Pylos the latter part of LH IIIB saw an increase of storage and work areas close to the palace; at Mycenae this development was correlated with the abandonment of an administrative complex, the Oil Merchant group of houses, outside the walls. The extramural settlement itself continued in LH IIIB2, as it did at Tiryns, though at both sites houses were also built within the citadel. The real change was directly connected to the central administration. An increased centralization of resources and personnel sends the same message as the building of new and massive fortifications: Mycenaean officials perceived a very human threat, from quarters as yet unknown. The Pylos tablets reflect only the administrative situation at the end of LH IIIB, not its evolution, but they do demonstrate a highly centralized bureaucracy at that time.

It is against this background that the disasters that struck the greater Mycenaean world at the end of LH IIIB must be considered. Most of these were already well documented by 1978. Since then evidence has become clearer for destructions at Midea and Thebes, and the abandonment without destruction of Nichoria and Tsoungiza. The relative date of many of these events is now only emerging as the newly recognized transitional phase LH IIIB2/IIIC Early. The latest pottery in destruction levels at Tiryns, Midea, and in the Citadel House area at Mycenae belongs to this phase, as does the latest Mycenaean material at Nichoria. The destruction date of Pylos is a matter of renewed debate, but there too the LH IIIB/IIIC transition still seems most likely. The impact of these destructions on settlement patterns was not uniform. In Messenia, the dramatic depopulation previously documented is reflected in a dearth of LH IIIC pottery among surface finds of the Pylos Regional Archaeological Project. Many sites in other regions also went out of use, but habitation continued at the citadels of Mycenae, Tiryns, Midea, and Athens, and at other sites like Argos, Korakou, and Chalandritsa and Derveni in Achaea.

from the Pylos palace, most of it anomalous. The motifs on a few vessels, including the five distinctive pithos jars of shape 53, look early (LH IIIB2–IIIB1), while some deep bowls with debased and sloppy designs would be more at home in LH IIIC than in LH IIIB. On the strength of this handful of pots, M. Popham, "Pylos: Reflections on the Date of Its Destruction and on Its Iron Age Reoccupation," OJA 10 (1991) 315–24 argued for a destruction in LH IIIB1 and a later reoccupation. Unfortunately he takes no account of the other 90%+ of the palace pottery, which is unpainted. The high proportion of unpainted ware, its range of shapes, and its profiles are all entirely typical of LH IIIB2, and militate against an earlier destruction date. Popham’s suggestion that the exterior wall of courts 42–47 might be Geometric has now been conclusively disproven, since the wall predates the construction of the Northeast Workshop (supra n. 273). As he and others have suggested, however, a postpalatial reoccupation now seems certain (supra n. 44); future work by the Minnesota project will, it is hoped, clarify its date. A response to Popham’s article by P.A. Moutjoy is forthcoming in BSA.


275 Thebes: The insistence of Symeonoglou (supra n. 49) 47–50 on LH IIIB1 as the destruction date for the later palace site requires reevaluation. Two groups of Linear B tablets, certainly part of the palatial bureaucracy, clearly belong to a LH IIIB2 context. The OI tablets from the corner of Epanymondas and Metaxas Streets were found with LH IIIB2 pottery including coated deep bowls: T. Spyropoulos and J. Chadwick, The Thebes Tablets II (Minos Suppl. 4, Salamanca 1975), contra Symeonoglou (supra n. 49) 48, 291. This is also the date of the new finds under Pelopidou Street: Aravantinos et al. (supra n. 170) 823. Nichoria: McDonald and Wilkie (supra n. 10) 767–68. Tsoungiza: Wright et al. (supra n. 57) 638, 641.

276 There is proportionally very little decorated pottery
ber tombs at Thebes are the only evidence so far of a LH IIIC presence there. Only a few other places stand out as more prominent in this period than in LH IIIB: the fortified settlement of Teichos Dymaion in Achaia, Asine in the Argolid, Panakton in Boeotia, Elateia in Phokis, and cemeteries at Perati in Attica, Palaikastro in Arcadia, and on Kephallenia. At the sites where settlement continues, a considerable degree of continuity is evident: of the new elements associated with LH IIIC, handmade burnished pottery and the Naue II type sword are first attested in LH IIIB before the destructions, while in burial customs the change to cremation and the use of cut graves does not occur until the middle of LH IIIC. The significant change from LH IIIB to LH IIIC is the demise of palatial administration. Though life went on at Mycenae and Tiryns, the megaron units went out of use. At Midea, the megaron itself was remodeled and converted to other uses, while Pylos was abandoned, at least for a while. Fortunately for students of ancient Greek, the end of Mycenaean bureaucracy meant the end of literacy, leaving the Greeks of the mainland free to adapt a more serviceable script in due course.


collapse at this point, and not after the earthquake
damage postulated for the end of LH IIIB? Above
all, this is not the disaster for which the Mycenaeans
had been preparing. However intriguing the mystery
of the demise of the Mycenaeans, an equally inter-
esting question is what threat they perceived. The
heavy fortifications of LH IIIB2 and protected ac-

to water (Mycenae, Tiryns, Athens), the increasing
restrictions on circulation (Pylos), and the addi-
tion of workshop and storage areas within the walls
(Mycenae, Tiryns) or close to the megaron unit (Py-
los) all suggest that an attack was anticipated.

Thus, the theory that Mycenaean Greece suc-
cumbed to raids or invasions by foreigners also has
its adherents.284 In addition to citing the archaeo-
logical evidence of preparations, some have at-
tempts to discern signs of an imminent attack in
the Linear B tablets from Pylos.285 The arguments
put forward focus on activities that may have been
prompted by an emergency. Chief among them are
the following: 1) the o-ka tablets in the An series de-
tail watchers guarding the coast at various points;
2) bronzesmiths in the Jn series are given small allo-
cations or none at all, while “temple bronze” is col-
lected, suggesting a shortage at the center; 3) vari-
ous craftsmen are exempted from taxes; and 4) the
 sloppy execution of Tn 316, recording human offer-
ings to deities, suggests urgent appeasement. In fact
there is no reason to view any of these phenomena
as extraordinary, or to connect them with the fall
of Pylos. The arguments that an immediate crisis
can be inferred from the tablets have not convinced
those who work with the archive on a regular basis,
and several refutations have been offered.286

If an assault on the Mycenaean world was a re-
ality, two groups are most often proposed as the cul-
prits. One is the Sea Peoples, a band of mercenaries
or pirates who, according to Egyptian sources, caused
a great deal of damage in Egypt, the Levant, Cyprus,
and Anatolia in the late 13th–early 12th century
B.C.287 There is, however, no archaeological evidence
that these pirates attacked the Greek mainland; nor
do the Aegean islands suffer destructions at this
time.288 The other candidates are invaders from the
north. The old view that these could be equated with
the Dorians of Greek tradition has given way to a
scenario of raiding, followed by the gradual infra-
filtration of West Greek speakers over the course of a
century or more. At issue in recent discussions has been
the difficulty of tying new customs and artifact types
to the time of the destructions; as noted above, some
first appear in LH IIIB, and others not until the mid-
dle of LH III C.289

Another approach to the problem has been to fo-
cus on why the Mycenaeans were vulnerable, and why
the setbacks of the LH IIIB/C transition had precisely
the kind and degree of impact that they did. Accord-
ing to this line of reasoning, Mycenaean administra-
tion had been in trouble for a long time. The highly
centralized control of industries and resources docu-
mented by the tablets, and their preoccupation with
detail, along with the construction of workshop and
storage areas in the immediate vicinity of the meg-
aron, all reflect a response to economic decline rather
than to any immediate threat.290 A “systems collapse”
of this kind could have involved competition for in-
creasingly scarce resources of various kinds, from
deprecated agricultural supplies to metals and other
imported commodities. Some have even attributed
attacks on palatial centers to local uprisings or inter-
kingdom warfare resulting from this competition,
rather than to foreign incursions. An economic de-
cline does not explain everything that took place dur-

284 R. Drews, The End of the Bronze Age: Changes in War-
fare and the Catastrophe ca. 1200 BC. (Princeton 1993), with
a review of earlier theories.

285 L. Baumbach, “An Examination of the Evidence for a State of Emergency at Pylos c. 1200 B.C. from the Linear B
Tablets,” in Heubeck and Neumann (supra n. 189) 28–40.

286 J.E. Hooker, “The End of Pylos and the Linear B Evidence,” SMEA 23 (1982) 209–17; de Fidio (supra n. 274);
623–33.

n. 282); G.A. Lehmann, Die mykenischen früh griechischen Welt und der östliche Mittelmeerraum in der Zeit der "Seevölker": Invasionen um 1200 v. Chr. (Opladen 1985).

288 Davis, passim; D. Schilardi, “Paros and the Cyclades after the Fall of the Mycenaean Palaces,” in Mykenaike
621–39, esp. 638.

289 The most recent proposal attributing the destruc-
tions to hostile action has the merit of seeking to explain
how it succeeded rather than simply who was responsible.
Drews (supra n. 284) argues that raids by the Sea Peoples
on the kingdoms of the eastern Mediterranean succeeded
because of a new type of warfare, which favored infantry
over chariots. Specifically, he sees evidence of this shift
in military tactics in the advent of the Naue II slashing
sword, and other changes in weaponry and armor, during
the 13th and early 12th centuries B.C. His arguments for
the change in tactics are well made and interesting, though
his general thesis leaves open some essential questions,
and is perhaps too monolithic. Early reviews have been
mixed: those D. Haggis in AJP 116 (1995) 321–24 and
NV. Sekunda in GR 45 (1995) 119–21 are a study in contrasts.

290 Betancourt (supra n. 273); de Fidio (supra n. 274); Shelmerdine (supra n. 273).
fortifications to the abandonment of most sites in Messenia, nor does this explanation indicate the proximate cause of palatial collapse. Most useful about the notion of systems collapse, however, is that it takes into account the fact that it was the top level of Mycenaean society that suffered most directly. The key elements lost in the disasters were the trappings of those in power: the megaron proper, the enriching contact with other cultures, the elaborate administrative system, and, with nothing to record, the art of writing. Thus, any plausible scenario for the transition to LH III C must take into account the architectural modifications following LH II B I, the destructions and abandonments at the LH III B C transition itself, the end of palatial administration, and also the continuity of normal Mycenaean life at a lower level, with no immediate change either in material goods such as ceramics or in practices such as religion. It is improbable that all these phenomena, at all sites, could have had a single cause. Indeed, many now agree that a combination of factors must have been at work, and that the collapse of the Mycenaean states required both a process of decline and a precipitating event or events.291

A LOOK BACK AND FORWARD

Writing this review has brought an appreciation of the great progress made over the past 20 years in the disciplines that contribute to the study of Late Bronze Age Greece. At the same time, some avenues for future work are emerging. The position of the Mycenaean Greek dialect remains as ambiguous as ever, but Linear B studies have continued to refine our understanding of specific issues like land tenure, taxation, and industrial production, the general outlines of which were in many cases already clear by 1978. A newer development has been an advance in the study of institutions. The *wanax* himself has been one focus of attention, in conjunction with an interest in the formation of Mycenaean states. Another has been the industrial operations of the palaces, and the kinds of activities that took place in specific areas. Here textual and archaeological studies have necessarily gone hand in hand, and this sort of interdisciplinary approach will continue to be of great value. Of all topics that the tablets cover, the greatest progress can be seen in the field of Mycenaean religion. The discovery of new texts has been partly responsible. Most of the strides, however, have come from new archaeological discoveries, and these are only beginning to be integrated with textual information. A good example is the practice of ceremonial banquets described above. Excavators have reported suggestive caches of pottery and/or bones, while tablet experts have found written evidence for such feasts, but the two kinds of evidence have not yet been thoroughly discussed together.

Further indications of the importance of interdisciplinary research have come from the sciences. In particular, the combination of geophysical exploration and soil studies with intensive survey has already begun to generate new questions that can be asked about the evolution of individual settlements, before or in lieu of excavation. This is an area of great potential for future research, as is the larger issue of regional settlement patterns. In terms of excavation itself, archaeologists interested in the palatial period have continued to concentrate on the major centers, and on cemeteries. New questions have been asked and answered about the palatial sites themselves, regarding the size of the towns and the territories that they controlled. There is still a shortage of knowledge about ordinary settlements, however, which can only be filled by a willingness to forgo material rewards and explore some of the many smaller habitation sites that surveys have identified. In addition to the value of such knowledge for its own sake, it can also shed light on the organization of the Mycenaean states. The cases of Nichoria and Tsoungiza have shown how a combination of survey, excavation, and textual study can clarify the relationship between a satellite and the center. Further work along these lines could greatly improve our understanding of economic geography in Mycenaean Greece, the manner and degree to which different centers controlled their territories, and the consequences of expanding authority (and subsequently the end of that authority) for land use and settlement.

The painstaking analysis of artifacts remains essential to the successful study of these and other thematic problems, notably foreign trade. Categories like shell and bone, metalwork and glyptic art, and even frescoes receive little or no coverage in this review, but all continue to receive scholarly attention, and all must form part of any consideration of Mycenaean culture. Assimilating and organizing the proliferation of published objects will pose an increasing challenge in the future. Rapid advances in computer resources can be of great assistance, making it possible to assemble searchable illustrated databases of all sorts, from grave goods to Mycenaean pottery found abroad to assemblages from

291 Dickinson (supra n. 6) 307–308.
specific excavations and surveys. Those wishing, for instance, to develop arguments about the growth of states based on metal finds in tombs, or about the rise of infantry tactics based on numbers of different weapon types, must have comprehensive and reliable figures on which to depend. So must those who wish to evaluate such arguments. It would be extremely useful if this kind of detailed information were computerized and made widely available. At the same time, students of Late Bronze Age Greece must continue to strike a graceful balance between the analysis of specific artifact types and assemblages and the contemplation of broad theoretical problems. Only in this way will the achievements described above in bringing Mycenaean culture into focus be matched by the gains of the next 20 years.

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292 Jim Wright's forceful advocacy of databases (personal communication) has prompted me to include the point here. Leonard (supra n. 107) is an example of a useful database now in existence. Argument based on metal finds in tombs: Wright (supra n. 118). Argument based on changes in weapon types: Drews (supra n. 284), esp. 180-208. Of course computer access is not available to everyone. It is, however, less expensive both to "publish" and to "buy" a computer database than to publish or to buy a book. Furthermore, towns and institutions worldwide that lack both computers and libraries are perhaps more likely in the future to acquire the former.