

New Approaches to Late Bronze Age Urban Landscapes on Cyprus: Investigations at Kalavastos-Ayios Dhimitrios, 2012–2016

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The Late Bronze Age was a period of profound transformation on the island of Cyprus. Through investigations at the Maroni complex and at Kalavastos-Ayios Dhimitrios—two urban centers in south-central Cyprus—the Kalavastos and Maroni Built Environments (KAMBE) Project seeks to understand the relationship between these changes and the coeval rise of the island's first cities. Here we discuss the results of new work at Ayios Dhimitrios, where the collection of high-resolution data is providing new insights into the emergence and development of this Late Bronze Age urban landscape. Our work has focused on two areas: (1) a monumental court-centered building (Building XVI) with possible evidence for feasting and (2) the approach to the city's administrative core, which was monumentalized through a series of construction phases. We argue that cities are produced by the place-making activities of their inhabitants at various scales, and our investigations in these two areas of Ayios Dhimitrios provide compelling evidence for elite place making through which the urban environment shaped, and was shaped by, new patterns of movement, social interaction, and daily practice. Comparison with the nearby and largely contemporaneous Maroni complex reveals that the first cities on Cyprus took rather divergent paths to becoming urban.¹

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INTRODUCTION

The emergence, decline, and forms of ancient cities and the consequences of urbanism have long been important avenues of research in archaeology. The number of recent volumes addressing these themes suggests that cities continue to be of great significance for our understanding of past societies.² The urban adventure is increasingly recognized as being as central to the explanation of human societal forms and structures as the (long-running and often Marxist-inspired) focus on factors such as subsistence, surplus, labor, and control. Many of the themes that emerged from a recent effort to identify the most important scientific challenges for future archaeological research focus directly or indirectly on ancient cities, including the emergence of social inequality, complexity, and communities of various scales; the resilience, transformation, and collapse of societies; human-environment interactions; identity formation; and spatial and material reconfigurations of landscape.³ Beyond archaeology, prominent urban theorists from Lewis Mumford and Jane Jacobs to Edward Soja have recognized the relevance of ancient cities to our understanding of modern cities,⁴ and there is a growing recognition that archaeological investigations can directly address significant contemporary urban issues, from sprawl and squatter's settlements to class mobility and the long-term sustainability of urban systems.⁵

While Cyprus has rarely been considered important for understanding ancient urbanism,⁶ it nevertheless provides a compelling case study, not only for the relatively late emergence of urbanism on the island and the short time span over which it occurred, but also for the far-reaching social implications of this process. Indeed, cities did not emerge on Cyprus until the Late Bronze Age (ca. 1680/1650–1100/1050 B.C.E.; table 1), a period that saw the rapid transformation of the island from a relatively insular and mainly egalitarian village-based society to one with hierarchical and heterarchical social structures, economic centraliza-

TABLE 1. Chronology of Late Bronze Age Cyprus.

Archaeological Period	Approx. Dates (cal B.C.E.)	Alternative Periodization
MC III	1750/1700–1680/1650	ProBA 1
LC I	1680/1650–1450 ^a	
LC IIA–B	1450–1340/1325	ProBA 2
LC IIC	1340/1325–1200	
LC IIIA	1200–1100/1050	ProBA 3

MC = Middle Cypriot; LC = Late Cypriot; ProBA = Protohistoric Bronze Age

^aNo ¹⁴C date available.

Note: Dates are derived from Knapp 2013a, table 2; Manning 2013, 513–15, table A2. Dates are rounded calendar B.C.E. approximations based on modeled calibrated ¹⁴C data, except for the end of LC I; see Manning 2013 for discussion.

tion and specialization, and extensive international relations.⁷ We acknowledge recent reassessments that highlight evidence for the emergence of highly complex sociopolitical and economic systems on the island's northern coast during the Early and Middle (Prehistoric) Bronze Age.⁸ Webb, for example, argues that the “major shift” that began ca. 1700 B.C.E. might be best understood as a “relocation, reorganization, and further development” of these systems and structures.⁹ The Kalavassos and Maroni Built Environments (KAMBE) Project has been investigating the relationship between these profound social changes and the coeval emergence of new urban landscapes that included large-scale monumental buildings and new types of domestic and mortuary architecture. Our work suggests that these new built environments played an active and essential role in Late Bronze Age social transformation, becoming the primary arenas in which new patterns of daily practice and interaction were enacted.

In what follows, we discuss the work of the KAMBE Project at the site of Kalavassos-*Ayios Dhimitrios*.¹⁰ We

² See, e.g., Harmanşah 2013; Creekmore and Fisher 2014; Yoffee 2015; Jennings 2016; Fernández-Götz and Krause 2017.

³ Kintigh et al. 2014.

⁴ Mumford 1961; Jacobs 1969; Soja 2000, 19–70.

⁵ E.g., M.E. Smith 2010a, 2017; M.L. Smith 2014.

⁶ But see Gates 2011, 153–57; Fisher 2014a; Fisher and Creekmore 2014, 13.

⁷ Keswani 2004, 154–60; Knapp 2013a, 348–432; 2013b.

⁸ E.g., Webb 2018; Manning 2019.

⁹ Webb 2018, 23.

¹⁰ The site name is also spelled Kalavassos-*Ayios Demetrios* or -*Agios Dimitrios* in some publications.

begin by providing some background on the overall project, its objectives, and its theoretical approach, and we go on to summarize the previous excavation and survey work conducted at the site. This is followed by a report of current investigations focusing on our ongoing program of archaeological geophysics and the results of new excavations conducted in two areas of the site. The discussion illustrates the efficacy of this approach in advancing our understanding of the cityscape of Ayios Dhimitrios and its role in shaping social interaction. We conclude by discussing the work at the site in the wider context of Late Bronze Age Cypriot urbanism and our interpretations of the KAMBE Project investigations at the nearby Maroni urban complex, arguing for the materialization of two rather different trajectories of urbanization: at Ayios Dhimitrios, a nucleated and planned center; at Maroni, a larger but more low-density urban form that emerged over a longer time span.

APPROACHING CYPRIOT URBANISM

The study of urbanism has undergone significant changes in emphasis over the last several decades. Investigations rooted in the New Archaeology of the 1960s and 1970s and later processual archaeology typically sought to move beyond culture history to understand the origins, forms, and functions of ancient cities within regional settlement systems as a reflection of broad social evolutionary patterns, particularly the rise and collapse of state-level societies.¹¹ Such approaches were adopted in Cypriot archaeology in the 1980s and early 1990s and tended to view changes to the built environment as reflecting the emergence and development of sociopolitical complexity, emphasizing the function of settlements within politico-economic systems of production and exchange.¹² These models are important attempts to explain the politico-economic functions and interconnections of Late Cypriot urban centers at the regional scale, but they largely fail to recognize unique trajectories and materializations of urbanization or to shed light on the significant social role that these cities played in transforming the way many Cypriotes lived and interacted in daily practice.¹³

More recent approaches, rooted in postprocessual archaeology and the spatial turn seen in the social

sciences more generally, view ancient cities as both products and producers of the social lives of their inhabitants.¹⁴ Such approaches see a recursive relationship between the actions and interactions of human agents and the formation, transformation, and reproduction of social structures.¹⁵ While initially slow to penetrate into archaeology in general and Cypriot archaeology in particular,¹⁶ works by Manning, Bolger, and Knapp, among others, have taken agent-centered approaches that see Late Cypriot buildings as social spaces, imbued with meaning and memory that play a significant role in the creation and negotiation of individual and group identities.¹⁷ This work recognizes the importance of the spatiality of social relations; however, it does not explicitly address the transformative nature of the new cities.¹⁸

We might take such approaches further by examining how built environments at various scales play vital roles in these processes by framing daily practice and interaction. More than mere stages for these actions and interactions, the built environment is a participant in their performance, dividing and ordering space, and structuring and routinizing patterns of movements and encounter.¹⁹ Decades of research in environmental psychology²⁰ have demonstrated that built environments have a “deep and persisting influence” on human behavior and interaction.²¹ In this sense, we acknowledge that buildings, while lacking the intentionality or consciousness often characteristic of human agency,²² do exhibit secondary or material agency through which they entangle people in a web of co-dependencies.²³

The attribution of agency to both people and their built environments is embodied by the concept of place. While space can be seen as the passive, neutral

¹⁴ M.L. Smith 2003; Blake 2004; Fisher 2009a; Fisher and Creekmore 2014.

¹⁵ E.g., Bourdieu 1977; Giddens 1984; Lefebvre 1991.

¹⁶ Blake 2004, 234. Rupp (1993, 2–3) and Knapp (2013a, 29) have both noted the ongoing prevalence of culture historical approaches and slow uptake of postprocessual or critical approaches in Cypriot archaeology.

¹⁷ Manning 1998a; Bolger 2003; Knapp 2003; 2013a, 349–81.

¹⁸ On this theme, see Fisher 2009a, 2009b, 2014a, 2014b, (forthcoming).

¹⁹ Hodder and Cessford 2004; Fisher 2014b, 357–58.

²⁰ E.g., Hall 1966; Rapoport 1990; Betchel and Churchman 2002.

²¹ Hall 1966, xi.

²² E.g., Dornan 2002.

²³ Gell 1998; Latour 2005; Knappett and Malafouris 2008; Hodder 2012. See Lindström 2015 for a detailed critique.

¹¹ E.g., Redman 1978; Adams 1981; Ferguson 1991.

¹² E.g., Keswani 1993; Webb and Frankel 1994; Knapp 1997, 46–63.

¹³ Manning et al. 2014, 10.

physical location in which social action occurs, a place is lived space imbued with meanings, identities, and memories that actively shape, and are shaped by, the daily practice and experiences of its inhabitants and historically contingent social processes.²⁴ We argue that individuals and groups created and transformed ancient cities through acts of place making at various spatial scales, ranging from the top-down planning of ruling elites materialized in massive city walls or gridded streets,²⁵ to mid-level interactions at the neighborhood or district scale that may represent particular communities,²⁶ to the bottom-up actions of individuals and households, which at times undermined or resisted the intentions of their rulers.²⁷

Defining the city remains a matter of debate among archaeologists, as it does among scholars and planners of modern cities.²⁸ The small size of many Late Bronze Age Cypriot urban centers, including Ayios Dhimitrios, compared with other Near Eastern centers, has resulted in a reluctance to refer to them as cities, with scholars preferring “town” or “center.”²⁹ While factors such as large size, a dense aggregation of people, socioeconomic heterogeneity, and the performance of specialized functions in relation to their hinterlands are commonly cited as characteristics of cities,³⁰ our view of cities as socially produced requires that we eschew definitions based solely on size or density and emphasize instead the importance of urban social life and the distinct identities that emerge from it. These urban identities arise from the physical characteristics and daily practices of life in cities that socialize people to move, think, feel, play social roles, and solve problems in ways that are uniquely urban.³¹ An important distinction between urban (referring to “city-ness”³²) and nonurban, then, is one of identities. Monica Smith

refers to it as an urban “ethos.”³³ We also emphasize the role of cities as “social reactors,” generating and shaping social interaction among inhabitants and between inhabitants and visitors.³⁴

As socio-spatial entities, Ayios Dhimitrios and other ancient cities are, in our view, urban landscapes. While landscape approaches foregrounding the social and symbolic dimensions of the physical environment have been influential in extensive and regional survey projects on the island since the groundbreaking Sydney Cyprus Survey Project,³⁵ they have, with notable exceptions such as the Palaepaphos Urban Landscapes Project,³⁶ less typically been applied to investigations of specific ancient Cypriot cities. A landscape perspective on urbanism addresses the “mutually implicated ritual, political, economic, and social uses of urban centers and their surroundings.”³⁷ Monica Smith distinguishes between the “inner” landscape (what we and others have called the “cityscape”), manifested in the architecture and spatial organizations that configure relationships within the city, and the “outer” landscape composed of the hinterlands on which urban centers depend for material and human resources.³⁸

At present the major impediment to understanding the role of urban landscapes in Late Cypriot social dynamics is that we still have little idea of the anatomy of these first cities—how individual buildings, neighborhoods, or districts were woven together into an urban fabric that shaped social interaction. While excavations have been carried out at several Late Bronze Age urban centers, typically much less than 10% of the estimated area of most of these sites has been excavated, usually in discontinuous parts and often with a focus on monumental areas.³⁹ In addition, some sites, such as Kition,

²⁴ Tuan 1977; Pred 1990; Lefebvre 1991; Feld and Basso 1996; Low and Lawrence-Zúñiga 2003.

²⁵ M.E. Smith 2007.

²⁶ Yaeger and Canuto 2000; Knapp 2003; M.E. Smith 2010a.

²⁷ Fisher 2014a; Fisher and Creekmore 2014.

²⁸ E.g., M.E. Smith 2017.

²⁹ E.g., Wright 1992; South 1995; Keswani 1996; Negbi 2005; Knapp 2013a.

³⁰ Wirth 1938, 8; Kostof 1991, 37; Trigger 2003, 120; M.E. Smith 2017, 153–56.

³¹ Proshansky et al. 1983, 78; Lalli 1992; Graumann 2002, 109–10; Cowgill 2004, 526; Fisher 2014b; Magnoni et al. 2014; Manning et al. 2014; M.L. Smith 2014; Christophersen 2015.

³² Cowgill 2004, 527.

³³ M.L. Smith 2003, 8; or “mentalité,” as per Manning et al. 2014, 7.

³⁴ Bettencourt 2013, 1441. See also Kostof on “energized crowding”: “Cities are places where a certain energized crowding of people takes place. *This has nothing to do with settlement size or with absolute numbers; it has to do with settlement density*” (1991, 37, emphasis added).

³⁵ Given and Knapp 2003; Given et al. 2013. See also Knapp 1997; 2013a, 37–40.

³⁶ Iacovou 2008, 2014.

³⁷ M.L. Smith 2014, 308.

³⁸ M.L. Smith 2014, 307–8. See also Fisher 2014a, 2014b; Fisher and Creekmore 2014; cf. Soja’s (2000, 8) concept of “cityspace,” the city as historical-social-spatial phenomenon.

³⁹ See Iacovou 2007. The issue of problematic “guesstimates” regarding the size of Late Cypriot cities is a further implication

are currently located in the midst of fairly dense modern urban development. With 20% of its 14 ha excavated, much of it contiguous, the site of Enkomi offers some key evidence for our understanding of Late Cypriot urbanism,⁴⁰ yet its value is limited by incomplete publication, difficulties in resolving the site's complex phasing and chronology, plans that fail to distinguish architectural phases, the effects of extensive looting, and its location in the northern part of the island. Most of these difficulties are of course not limited to Cyprus but represent larger issues for the archaeology of urban sites.⁴¹ Indeed, one of the "grand challenge" questions to come out of a recent effort to focus future archaeological research is: "How can systematic investigations of prehistoric and historic urban landscapes shed new light on the social and demographic processes that drive urbanism and its consequences?"⁴²

The KAMBE Project was initiated in 2008 with the primary objective of collecting new data to analyze the relationship among urban landscapes, social interaction, and the profound social changes that characterized Late Bronze Age Cyprus.⁴³ A central aim of the project is to obtain relatively complete plans of two urban centers located in neighboring river valleys in south-central Cyprus: Ayios Dhimitrios and the Maroni complex (fig. 1). The project takes an integrative and multiscalar approach to data collection and analysis that uses archaeological geophysics to map subsurface urban features (e.g., buildings, open spaces, infrastructure) and identify areas for targeted excavation and geoarchaeological analysis aimed at gathering high-resolution information that can be used to interpret the use of space. This is combined with new methods of 3D digital recording and modeling for both our current excavations and the extant architecture recovered by earlier projects. These data facilitate socio-spatial analysis and 3D modeling of urban spaces that focuses on the investigation of movement, interaction, and the experiential aspects of daily practice as a means of understanding Late Bronze Age social dynamics.⁴⁴

of this situation (Manning et al. 2014, 10).

⁴⁰ Schaeffer 1952, 1971; Dikaios 1969–1971; Courtois et al. 1986.

⁴¹ Marcus and Sabloff 2008a, 19; 2008b, 324–25; Fisher and Creekmore 2014, 21–3.

⁴² Kintigh et al. 2014, 6, 10.

⁴³ Fisher et al. 2011–2012; Manning et al. 2014; Leon et al. 2018.

⁴⁴ Fisher 2009a.

CONTEXT AND PREVIOUS WORK

Kalavassos-Ayios Dhimitrios is located in the Vasilikos River valley about 3.5 km from the Mediterranean coast. The site is well situated for communication and trade, sitting at the crossroads of the natural route along the coastal plain that links central and eastern Cyprus with the western part of the island and the north–south route along the valley that links the copper mines in the Troodos Mountains to the sea.⁴⁵ As defined by the surface scatter of ceramics and other archaeological materials and visible architectural remains, the site covers roughly 10 ha, although published size estimates are as high as 11.5 ha (fig. 2).⁴⁶ Ayios Dhimitrios sits on terrain that rises from the southeast to the northwest, with a more gradual slope on the eastern half of the site. Its northeastern and southern limits are marked by fairly steep embankments that rise approximately 5 m above the surrounding plain, and its eastern limits are about 200 m west of the current river bed. Since 1976, this region has been investigated by the Vasilikos Valley Project,⁴⁷ and as part of its work, excavations at the site were initiated in 1979 in advance of the construction of the A1 motorway.⁴⁸ While construction of the motorway has created an inaccessible 40 m wide corridor through the central part of the site and destroyed the archaeological remains that had been recovered beneath, the remainder of the site has been mostly untouched by modern land uses other than cereal and other arable farming.

Excavations carried out by South from 1979 to 1998 reveal a Late Cypriot (LC) II urban center that reached its zenith in the LC IIC period, after which it was abandoned.⁴⁹ In spite of significant occupation dating back to the Early Aceramic Neolithic (late ninth millennium B.C.E.) elsewhere in the Vasilikos Valley,⁵⁰ solid evidence for occupation of this site can be traced back no earlier than LC IIA:1. At this time, it was at least used as a cemetery and, by LC IIA:2/IIB, there is evidence for more extensive construction.⁵¹ South's excavations in four separate areas of the site provide some

⁴⁵ South 1980, 23–6.

⁴⁶ South 1996, 39; 1997, n. 1; also Iacovou 2007, 8; Knapp 2013a, fig. 95.

⁴⁷ Todd 2004, 2013, 2016.

⁴⁸ South 1980.

⁴⁹ South 1980, 1984, 1988, 1991, 1992, 1997. There is evidence for some later use of the site (South 1997, 158).

⁵⁰ Todd 2013, 75–94.

⁵¹ South 1997, 173.

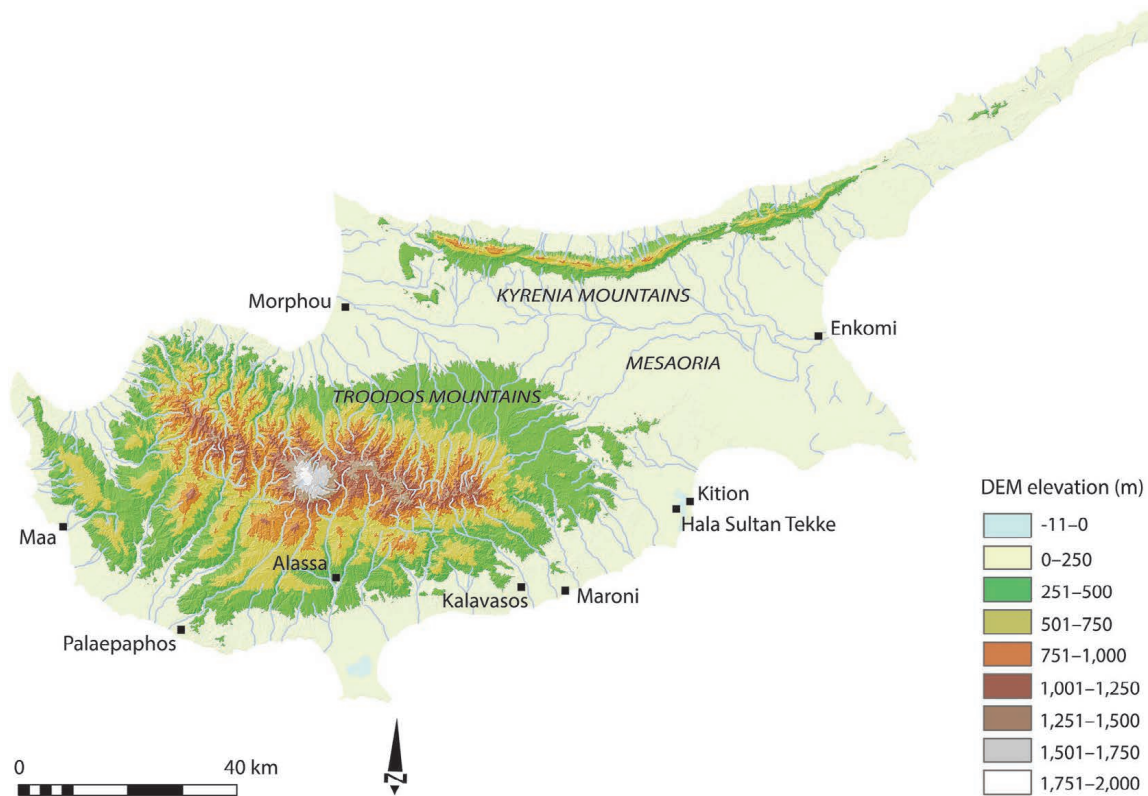


FIG. 1. Map of Cyprus with elevations and sites mentioned in the text (drawing by C. Kearns and K. Fisher).

indication of the LC IIC urban center's layout (see fig. 2).⁵² The various buildings and roads recovered are mostly oriented to 25° west of north, suggesting that the city was likely laid out on an orthogonal plan. This consists of at least one major north–south road, extending at minimum 150 m through three separate excavation areas, and one or more transverse east–west streets.⁵³ Wright argues that some form of zoning may also have been imposed in which the monumental administrative buildings were in the Northeast Area, perhaps surrounded by a separate enclosure wall.⁵⁴ Elite residences (some of which also contained industrial facilities) were recovered in the East, Central, and Southeast Areas of the city, and non-elite dwellings were found in the West Area. The latter dwellings are aligned slightly closer to north than the rest of the city's buildings and roads.⁵⁵ South suggests that the layout

of the rest of Ayios Dhimitrios shows symmetry and conformity in layout through the alignment of buildings on opposite sides of the street and the possible demarcation of lots using long stretches of wall.⁵⁶

Given the available evidence, the Northeast Area appears to have been the focus of elite power at Ayios Dhimitrios and lies at the north terminus of the aforementioned north–south road (see figs. 2, 3). This area contained a number of buildings, but is best known for Building X, a 30.5 x 37.0 m, court-centered, monumental structure. We discuss the phasing of construction in this area in more detail below, but Building X and some of the surrounding buildings were initially erected sometime after the LC IIA:2/IIB buildings noted above and on a slightly different orientation. In mid LC IIC, Building X and some of the surrounding buildings, including Building XII (a large building, mostly unexcavated, which abuts the front of Building X), were monumentalized with the addition of

⁵² South 1980, 1988, 1997; South et al. 1989.

⁵³ Wright 1992, 115.

⁵⁴ Wright 1992, 115; see also South 1988, 223.

⁵⁵ These structures have not been fully excavated and the difference in orientation could be chronological as at Maroni (see

Manning et al. 2014).

⁵⁶ South 1995, 192.

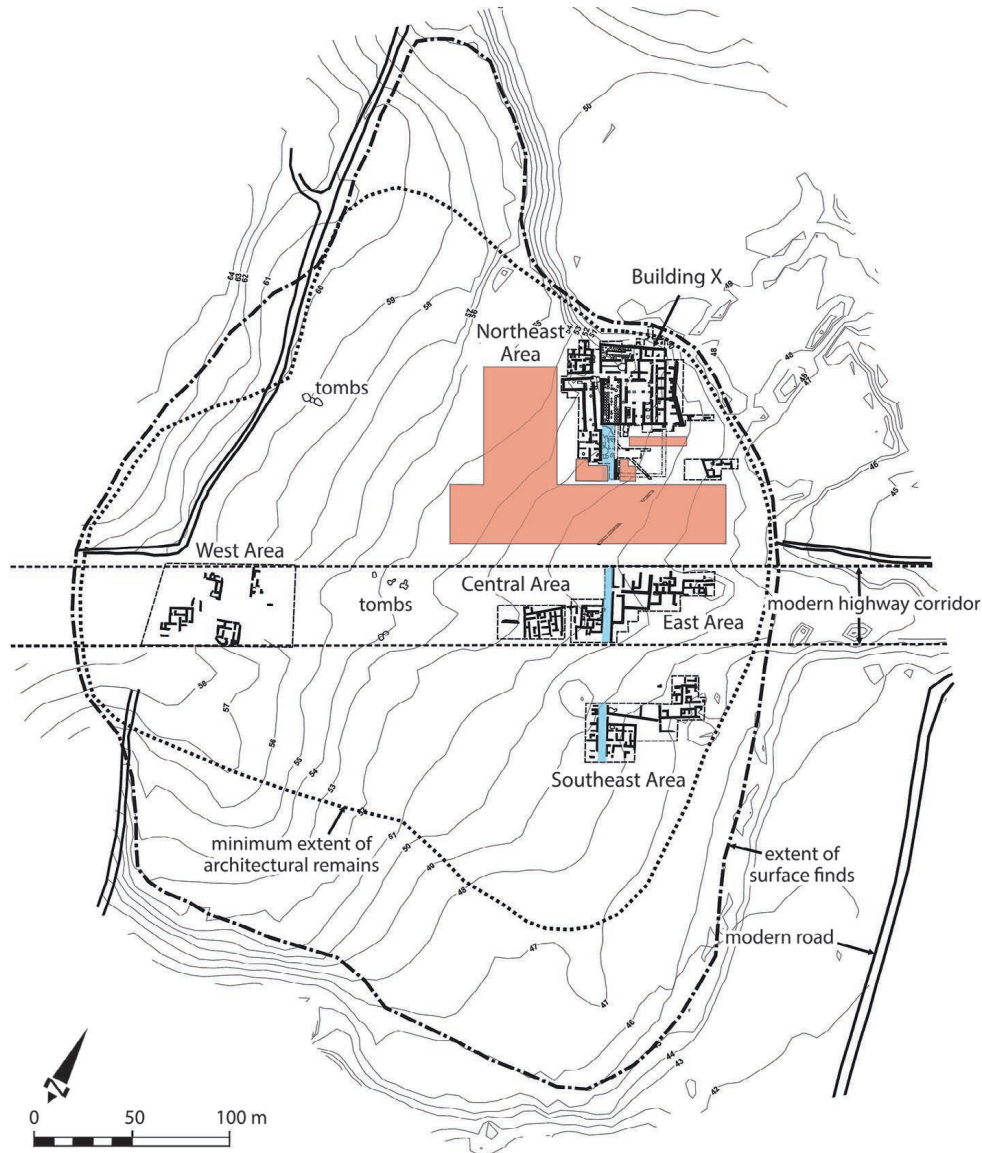


FIG. 2. Kalavassos-Ayios Dhimitrios site plan showing Vasilikos Valley Project excavations (1979–1998) and areas of the KAMBE Project geophysical survey (in red). Main north–south road shown in blue (drawing by K. Fisher using topographic data provided by A. South).

impressive ashlar masonry.⁵⁷ Building X contained evidence for large-scale olive oil production and storage. In Room 152 (the “Pithos Hall”)—the single largest space in the building—the remains of 53 massive pithoi were recovered (see fig. 3).⁵⁸ The combined capacity of these vessels would have been approximately

33,500 liters, and gas chromatography analysis suggests that they held olive oil.⁵⁹ An additional storage room (Room 161) in the northwest corner of Building X, with smaller pithoi, brings the total storage capacity to over 50,000 liters.⁶⁰ The concentration of stamp seals and several Cypro-Minoan inscriptions in Building X⁶¹

⁵⁷ South 1997, 173.

⁵⁸ Keswani 1989. These are Group III pithoi in Keswani’s (1989, 16–17) typology, the largest made in Late Bronze Age Cyprus, with many ranging from 1.5 to 2.0 m in height with rim diameters in the 50–68 cm range.

⁵⁹ Keswani 1992, 141–44. Keswani notes that olive oil residues were found in 15 of 19 pithoi sampled from the Room 156.

⁶⁰ South 1996, 42. No content analysis has been carried out with the pithoi in Room 161.

⁶¹ South 1996, 42; see also Masson 1989.

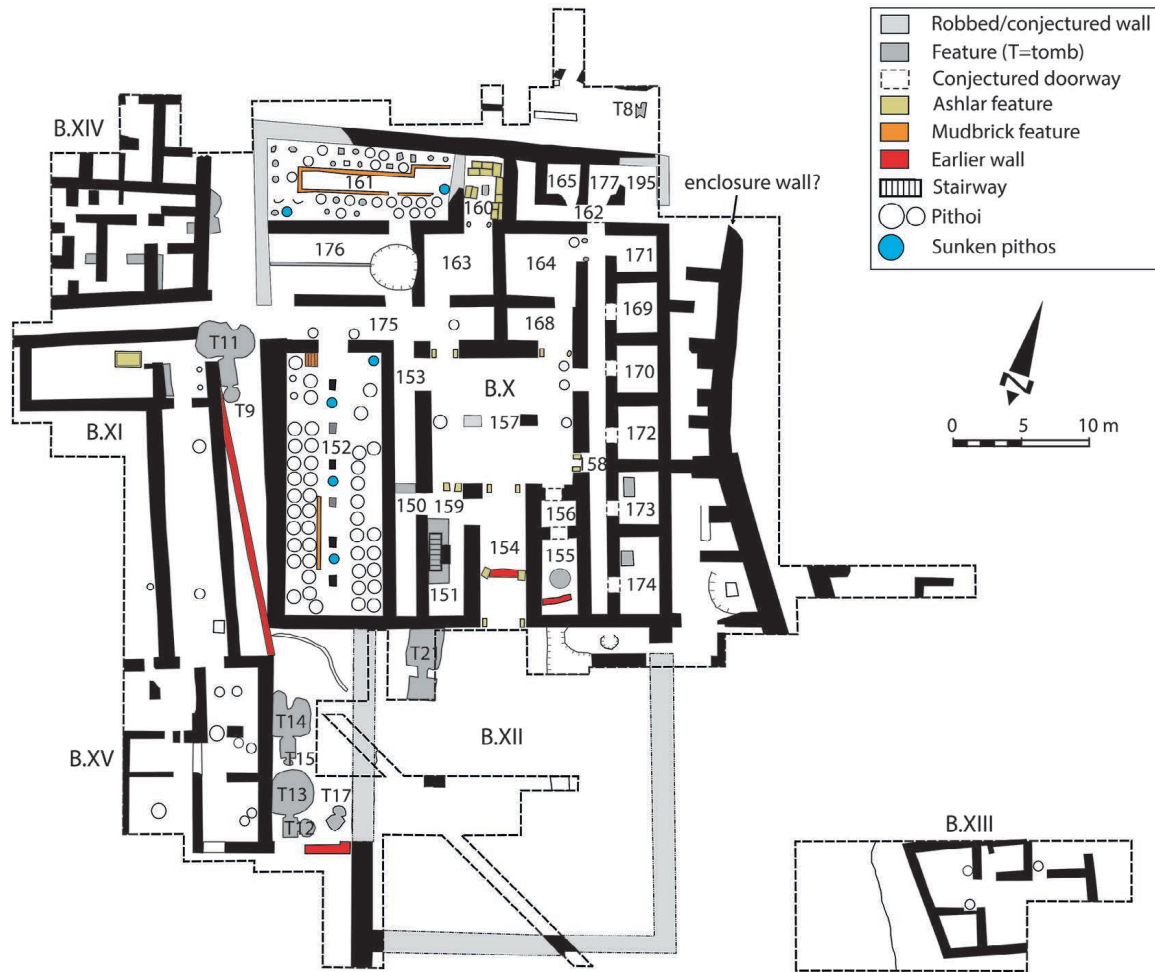


FIG. 3. Schematic plan of the Northeast Area of Ayios Dhimitrios. B. = building number (drawing by K. Fisher from plan provided by A. South).

suggests that it was the administrative center for the city, if not for the entire Vasilikos Valley.⁶²

Beyond its important economic role, Building X played a vital role as a context for social interactions through which elite status, roles, and identities were negotiated and reified.⁶³ Evidence for elite feasting was recovered from Building X, particularly a deposit found in a stone-lined pit in Room 173 that contained numerous botanical remains, 4.5 kg of animal bones (including large numbers of meat-bearing joints of sheep and goats), and the remains of at least 85 vessels,

most of which were imported Mycenaean tablewares.⁶⁴ Fisher has argued that this represents the remains of a feasting event that likely took place in Building X's central court.⁶⁵ The elite associations of Building X are further reflected in the presence of elite tombs, three of which, Tombs 11, 13, and 14 (see fig. 3), were recovered in streets adjacent to Building X and date from the LC IIA:2/IIB through LC IIC periods.⁶⁶ South has argued that the continuity of use and respect for earlier burials suggest a strong political/social continuity

⁶² South 1996, 41; Knapp 2013a, 365. South (1997, 171) further suggests that Building X was the residence for the community's most important members.

⁶³ Fisher 2009b, 2014b.

⁶⁴ South and Russell 1993, 306.

⁶⁵ Fisher 2009b, 201–2; see also South 2008.

⁶⁶ South 1997, 159–71. Tomb 11 is the earliest, dating from LC IIA:2/IIB, followed by Tomb 14 (LC IIB) and Tomb 13 (LC IIB/IIC). However, South (1997, 165) suggests that Tomb 13 might have been used as early as LC IIA.

from LC IIA through LC IIC and that Building X may have been deliberately placed next to these tombs as a statement of ancestral ties, a point we return to below.⁶⁷ The imported luxury items interred in these tombs (especially Tomb 11, which was found unlooted), including Mycenaean kraters, Egyptian glass vessels, and ivory vessels and objects from the Levant, demonstrate the long-distance connections maintained by the ruling elites at Ayios Dhimitrios.⁶⁸ These connections and the possible political importance of Ayios Dhimitrios are further emphasized by Goren et al., who, based on petrographic analysis, consider it to be one of the probable sources of the letters on clay tablets sent from the King of Alashiya to the pharaoh of Egypt in the 14th century B.C.E. and the King of Ugarit during the 13th century B.C.E.⁶⁹

How the Northeast Area articulates with the rest of the site is but one question that cannot be answered with our current state of knowledge. Using the 10 ha size estimate, only about 7.5% of the site has been excavated, leaving many unanswered questions regarding how the individual excavation areas fit into an overall urban plan, whether we are seeing a division of the site into particular neighborhoods and districts, and the implications of these configurations for social interaction and sociopolitical organization.⁷⁰ Given the time and costs involved, excavation of the remaining areas of the site is not feasible. Even if this were possible, the challenges of conserving the additional exposures makes such a proposition undesirable. Fortunately, archaeological geophysics provides a powerful means of remotely sensing subsurface archaeological features.

ARCHAEOLOGICAL GEOPHYSICS

The ability of geophysical methods to detect subterranean features, precisely map them, and suggest interpretations based on their context, form, and distribution makes them an ideal means for investigating urban landscapes.⁷¹ There are a growing number of case studies globally that demonstrate the ability of

geophysics to provide insights into the structure of large sections of ancient cities and, in some cases, entire settlements.⁷² In spite of some pioneering use at sites such as Enkomi and Hala Sultan Tekke,⁷³ geophysical survey has only recently become a more common component of archaeological research on the island.⁷⁴ Such work has typically been conducted and reported as a separate enterprise, rather than as an ongoing form of data collection and analysis integrated with the primary objectives of a research project. In contrast to most of these efforts, the KAMBE Project has implemented a program of archaeological geophysics as an essential and continuous component of multiscalar data collection and analysis at both Ayios Dhimitrios and the Maroni complex. This has allowed for the development of an evolving strategy through experimentation with various geophysical methods, instruments, and settings, as well as for adjustments to survey methodology. Similarly, the systematic and large-scale use of archaeological geophysics at both Palaepaphos and Hala Sultan Tekke is providing new insights into the form of those important Late Bronze Age Cypriot cities.⁷⁵

Our project has undertaken a multidimensional approach that uses mainly magnetometry, which can detect and measure small magnetic fields associated with subterranean archaeological remains,⁷⁶ and ground-penetrating radar (GPR), which sends high-frequency radio waves into the ground and measures the amplitude of signals reflected from subsurface features in respect to their travel time.⁷⁷ We have recently added electromagnetic induction (EM) survey as a means of detecting anomalies potentially indicative of past human activities (see below). The survey at Maroni currently uses magnetometry as a means to cover rapidly several sections of the approximately 25 ha complex at a lower resolution and GPR to survey particular areas of interest in higher resolution.⁷⁸ At Ayios Dhimitrios, magnetometry has proven largely ineffective at detecting subsurface architecture because of a lack of contrast between the magnetic properties

⁶⁷ South 1997, 171.

⁶⁸ South et al. 1989; South 1996, 43–4.

⁶⁹ Goren et al. 2003. The letters to Egypt are part of the Amarna archive and include EA 33, 34, 37, and 38 (see Moran 1992). The letter to Ugarit is RS L.1. Goren et al. argue that Ayios Dhimitrios and *Alassa-Paliotaverna* are both possible sources for the tablets.

⁷⁰ M.E. Smith 2010b; Fisher 2014a.

⁷¹ Kvamme 2005, 423.

⁷² E.g., Gaffney and Gater 2003, 150–54; Boyd et al. 2006; Kvamme and Ahler 2007; Creekmore 2010; Nishimura 2014.

⁷³ Aitken 1971; Fischer 1980.

⁷⁴ Lowe et al. 2017.

⁷⁵ Sarris et al. 2014 and Trinks et al. 2018, respectively.

⁷⁶ Aspinall et al. 2008.

⁷⁷ Annan 2009.

⁷⁸ See Manning et al. 2014, 17–22.

of the calcareous soils and the limestone and sandstone building materials that were used to construct Late Bronze Age buildings. While GPR has successfully detected buried features from the outset of the project,⁷⁹ the introduction of new instrumentation and survey methods in 2012 has yielded more impressive results. A detailed soil analysis indicated the presence of significant salt concentrations combined with high clay content, conditions known to impede GPR performance.⁸⁰ This was mitigated by switching from cart-based 400 and 500 MHz antennae to a 250 MHz antenna deployed in a sled configuration. Our current survey, conducted using 20 x 30 m units and 0.25 m transect spacing, employs a Sensors and Software Inc. Noggin series 250 MHz GPR.⁸¹

The results of this work from 2012 through 2015 indicate the presence of numerous anomalies throughout much of the survey area, appearing mainly as linear features (fig. 4). While geophysics cannot date archaeological features, the arrangement of these anomalies, most of which are rectilinear and align precisely with the extant features from South's excavations, strongly suggest that they represent buried urban buildings and infrastructure from the LC IIC period (fig. 5). A particularly important feature is the continuation of the main north-south road that links the Northeast Area with the domestic areas previously excavated to the south. The approximately 3.75 m wide road, flanked by large buildings, is shown with great clarity (see fig. 5[A]). On the west side of the road is a structure approximately 12 m wide that may be two buildings (see fig. 5[B,C]) separated by a possible street (see fig. 5[D]) running perpendicular to the north-south road. The northern half of Building B shows internal partitioning indicative of particular rooms. Structures are also apparent on the east side of the road (see fig. 5[E]), although their eastern limits are less well resolved. The pattern of anomalies suggests a number of less well-defined structures located both east and west of the north-south road, including some that are quite large (e.g., fig. 5[F]).

A notable exception to the rather dense pattern of anomalies is the field immediately to the west of the Northeast Area, where most of the Late Bronze Age

deposits were heavily disturbed by illicit bulldozing in 1983.⁸² The GPR data confirm the near total removal of subsurface remains in this part of the site. Fortunately, the area west of Building XV was undamaged, and our GPR survey detected anomalies representing a large structure measuring about 28 x 13 m and aligned with the extant LC IIC architecture. The location, large size, and atypical plan of this building, designated Building XVI (see fig. 5), suggest that it may have been intended as a monumental structure. We resurveyed this area using a 0.16 m transect spacing that permitted the mapping of Building XVI with exceptional clarity (fig. 6). The building has a large square central room (see fig. 6, Room 1) with three adjoining smaller rooms on its north and south ends. The large size of this central room suggests that it may have been an open (or partially open) court, although a large anomaly on the room's central axis (indicated by an arrow in fig. 6), could be the base for some kind of support. Room 1 was likely entered from the open space to the west (possibly a north-south road) via a doorway (see fig. 6[A]), while a wide opening in its south wall (see fig. 6[B]) provided access to Room 4. This room appears to contain a circular feature (see fig. 6[C]), about 2 m in diameter, in its east end. A doorway (see fig. 6[D]) on the north wall of Room 1 provided access to Room 2, which in turn controls access to Room 3 through another doorway (see fig. 6[E]). Some kind of structural feature (see fig. 6[F]) is apparent in the northwest corner of Room 2, and two narrow anomalies running perpendicular to the south wall of Room 2 (indicated by arrows in fig. 6) were later revealed to be the ashlar steps of a staircase. A series of small anomalies aligned with the central north-south axis of Room 3 could be bases for roof supports. Court-centered plans for domestic and monumental buildings are known from other Late Bronze Age sites, and monumental structures are typically Π(pi)-shaped, such as Building II at *Alassa-Palioaverna*,⁸³ or they have rooms entirely surrounding a central court or hall as seen in Building X at *Ayios Dhimitrios* and the *Ashlar Building* at *Enkomi*.⁸⁴ The

⁷⁹ See Fisher et al. 2011–2012; Rogers et al. 2012.

⁸⁰ Urban et al. 2014, 131–33.

⁸¹ See Urban et al. 2014 for a technical discussion and details on data processing.

⁸² South (pers. comm. 2012). An unpublished aerial photograph of this part of the site taken following the 1984 excavation season clearly shows the effects of the bulldozing of this area. Symons (1986–1987, 77) also notes “illegal leveling work next to the site.”

⁸³ Hadjisavvas 2017, 129–278.

⁸⁴ Dikaios 1969–1971, 171–90; Fisher 2009b.

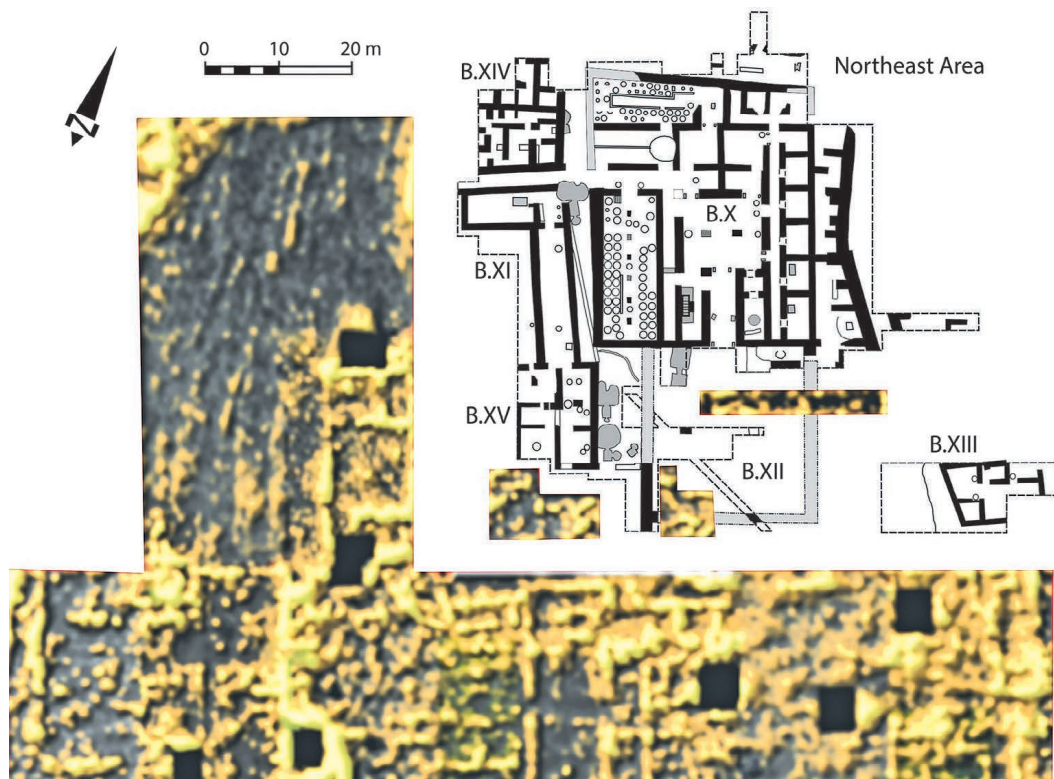


FIG. 4. Results of 2012–2015 GPR survey showing time slice at depth of 60–80 cm. Light colors indicate high amplitudes and dark colors low amplitudes. Black rectangular voids are locations of extant olive trees. B. = building number (drawing by T. Urban and K. Fisher).

layout of Building XVI is unique among known Late Bronze Age Cypriot buildings, although it does bear some general similarities to the south wing of Alassa's Building II, initially built in LC IIC, with its large central room entered from the street and flanked by smaller rooms at each end.⁸⁵

Additional GPR survey was conducted inside the Northeast Area fence in June 2015 in an effort to investigate a few of the larger areas in and around Building X that were left unexcavated following South's work (see figs. 4, 5).⁸⁶ The results show anomalies immediately to the south of Building XV that follow its general alignment, suggesting a probable continuation of that structure. Two areas surveyed within Building XII were too small to clarify the layout of this poorly understood structure but do suggest there may be some internal partitioning.⁸⁷

In June 2014, we conducted a survey of Building XVI using electromagnetic induction in an effort to obtain potential data on the use of space in the building. EM instruments have been used successfully in the archaeology of Cyprus and the broader eastern Mediterranean.⁸⁸ Under appropriate conditions, this method allows simultaneous measurement of apparent electrical conductivity and apparent magnetic susceptibility. Measurement of these properties is useful for the geomorphological characterization of soils and can serve as a proxy for the anthropogenic use of space involving, in particular, fire-based workshop activities or the introduction of organic material into the soil.⁸⁹

Using a GSSI Profiler EMP-400 instrument, two operating frequencies (15 kHz and 3 kHz) were sampled at grade level, in the horizontal co-planar (vertical dipole) sensor configuration, with a transect spacing of 0.5 m. A number of anomalies were detected, including

⁸⁵ Hadjisavvas 2017, 129–278.

⁸⁶ See South 1997 for the latest report.

⁸⁷ Cf. South 1997, 159.

⁸⁸ E.g., Witten et al. 2003; Urban et al. 2012a; Andreou et al. 2017.

⁸⁹ Simon and Moffat 2015, 29–30.



FIG. 5. Interpretation of GPR results showing probable Late Cypriot urban infrastructure and buildings in context with extant architecture from 1979–1998 excavations. KAMBE Project excavation areas are shaded red. The main north–south road (A) is shaded blue (B. = building number; T = tomb number; drawing by K. Fisher).

a large, well-defined area of high electrical conductivity in the eastern half of the central room or court (see fig. 6[G]). The increased conductivity relative to the surrounding area suggests the presence of soluble salts (electrolytes) in higher concentrations than adjacent spaces, including the western portion of the same room. The addition of salts to such a space could be the by-product of activities taking place in that space, such as feasting, with the anomaly perhaps being related to remnant salts from organic matter such as a floor mid-

den composed of food debris. Increased electrical conductivity has been observed in cases where an activity adds electrolytes and leaching is spatially constrained, thus trapping these salts in place.⁹⁰ Room 1 of Building XVI, because its structure inhibits both horizontal and vertical leaching, seems to meet this condition. The room, acting to constrain the movement of water in

⁹⁰E.g., Urban et al. 2012a, 2012b; Urban 2019.

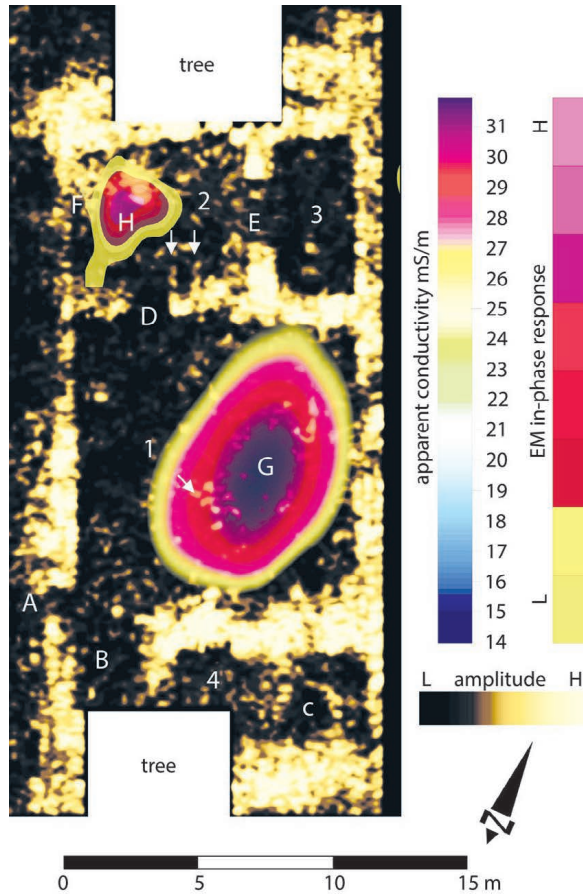


FIG. 6. Detail of GPR results for Building XVI along with associated EM anomalies. Lighter colors in the base GPR image indicate higher amplitude reflections, primarily from walls. Rooms within the building are labeled 1–4, with features discussed in the text indicated by letters A–F. The arrow in Room 1 indicates a possible base for some kind of roof support; arrows in Room 2 indicate the likely location of ashlar steps. Two anomalies detected in a broader EM survey are feature G, a region of increased electrical conductivity in Room 1, and feature H, a region of increased magnetic susceptibility (in-phase response) in Room 2 (graphic by T. Urban).

this way, could also exhibit higher conductivity simply because of increased water contained (i.e., allowing more naturally present salts to go into solution than in the surrounding unconstrained areas). Such an interpretation is not supported, however, by the fact that the other three rooms do not exhibit increased conductivity, nor does the western portion of Room 1.

The ability of heating and burning to enhance both induced and remnant magnetic properties of archaeological features is well documented and has been exploited to detect heat-intensive features since

at least the 1950s.⁹¹ The northwest corner of Room 2 exhibits an area of strong in-phase EM response (generally related to high magnetic susceptibility). The observed anomaly (see fig. 6[H]) is associated with the unidentified structural feature noted above (see fig. 6[F]). This suggests the use of this feature for some heat-intensive activity such as cooking.⁹² Of the four rooms within the structure, Room 2 is the only space that indicated increased magnetic susceptibility.

Our ongoing program of archaeological geophysics demonstrates not only the efficacy of such methods to shed light on large-scale urban form, but also their ability to move from mere detection to the high-resolution mapping of built environments. While there is a trade-off in survey time when moving to tighter transect spacing, our GPR survey of Building XVI shows that high-resolution plans can be generated, with clear resolution of internal spaces, doorways, and other features. Such plans are capable of supporting preliminary socio-spatial analysis that can highlight patterns of movement, access, and visibility among spaces.⁹³ A multidimensional approach using EM takes this further in suggesting possible uses for some spaces. Of course, geophysics cannot verify either the date of the anomalies or the exact uses of a particular space, let alone provide information on the materiality of the built environment (e.g., the use of ashlar masonry). Excavation is required for a more detailed picture of the social dynamics that took place in these urban spaces.

EXCAVATIONS

Excavations were conducted in May–June of 2012, 2015, and 2016 with the aim of elucidating the spatial configuration and use of two particular areas mapped by the geophysical survey (see fig. 5). These areas have the potential to shed light on Late Bronze Age social dynamics as the contexts for interactions through which power relations were enacted. The first is located where the main north–south road appears to narrow before widening into a monumental approach to Buildings X and XII. The other is Building XVI, a unique monumental structure in which, as discussed

⁹¹ E.g., Aitken 1958; LeBorgne 1960.

⁹² E.g., Urban et al. 2014.

⁹³ E.g., access analysis; see Hillier and Hanson 1984; Benech 2007; Fisher 2009a.

above, geophysics has suggested the possibility of feasting activities.

Building XVI (Unit 7)

Excavations in 2012 and 2015 in part of this newly discovered building, designated Unit 7 (see fig. 5), thus far have verified the general plan derived from our high-resolution GPR survey while revealing other important features not fully resolved in the GPR data shown in figures 4 and 6 (fig. 7; online fig. 1 digital 3D model, on AJA Online). Operations began in 2012 with the opening of a 10 x 3 m trench that ran from the open space at the west of Building XVI (possibly a north–south street), across the building’s outer west wall, and into the interior rooms on its north end.⁹⁴ The excavations revealed a series of rubble-built, double-faced walls, which abutted one another and were well constructed in the manner of South’s “official style” nonashlar walls encountered in the Northeast Area and elsewhere along the main north–south road.⁹⁵ The walls are about 0.9 m wide and preserved to height of several courses (over 1 m in height in some areas). Given that the tops of these walls are often no more than about 0.2 m below the surface, it is possible that the uppermost courses have been removed by modern plowing. The wall faces consist of courses of field stones—often tabular limestone with wide, flat edges, perhaps intentionally shaped in some cases, facing outward—and a core of more irregular stones.⁹⁶ These walls undoubtedly served as the base for a superstructure of plastered mudbrick, as attested elsewhere at the site and in Late Bronze Age Cypriot architecture more generally.⁹⁷ It is largely layers of decomposed and collapsed mudbrick, characterized by small white plaster inclusions, that covered the remains of the building following its abandonment. A 1.4 m wide doorway provided access between Room 2 and the central court (Room 1). A well-built 0.9 m wide rubble structure with two ashlar steps, shaped on all their exposed sides, was found along the south wall east of the doorway. This is undoubtedly the base of a staircase to an upper story, the upper part of which was likely built of wood.⁹⁸

⁹⁴The area was designated Unit 7 after the name of the 20 x 30 m geophysical unit in which Building XVI is situated.

⁹⁵South 2002, 61; see also South 1980, 32.

⁹⁶See Wright 1992, 408–10, for a detailed discussion of Cypriot rubble masonry.

⁹⁷Wright 1992, 380–81.

⁹⁸Cf. Area III at Enkomi: Dikaios 1969–1971, 60; Wright

No formal floor has yet been detected in Room 2, despite the excavation of two small tests, one of which, north of the ashlar steps, encountered sterile soil. A trampled earth floor thus seems likely, at least for this part of the room. Nevertheless, the overlying deposits of decayed mudbrick contained numerous finds, including ceramics, that were found throughout this area but do not appear to have been in situ. Many likely fell from shelves or perhaps an upper story. A particularly impressive deposit of vessel fragments was recovered from the area between the stair and the north balk, including the crushed remains of a large pithos, approximately 1.2–1.5 m high with characteristic raised wavy and horizontal bands.⁹⁹ In addition to the fragments of other smaller plain ware vessels (mainly jugs and small pithoi), fragments of several handmade Cypriot fine ware vessels were also present in this area, including Monochrome Ware cups and jugs, Base Ring II cups and jugs, White Slip II hemispherical bowls (so-called milkbowls), and a White Slip II krater. Among these finds were several fragments of a unique hollow, conical ceramic object, likely the base of a stand, broken off at its narrow end and decorated with several vertical green stripes (fig. 8).¹⁰⁰ Fragments of at least three ceramic wall brackets were also recovered from this same area, including a shaft with an incised sign (fig. 9).¹⁰¹ When complete, these objects consist of a long, narrow, vertical shaft with a rounded top pierced by a suspension hole and a bowl at the bottom. They are generally assumed to be used for lighting or burning incense and, in spite of some association with cult activi-

1992, 491.

⁹⁹This vessel was identified in a preliminary analysis by A. Georgiou as a Group II:4 pithos; see Keswani 1989, 16).

¹⁰⁰Other ceramic objects from Ayios Dhimitrios classified as “stands” consist of a shallow bowl attached to flaring, tubular stands or bases (see Keswani 1989, 20, fig. 18, nos. 10–12); see also an example from *Alassa-Paliotaverna* (PT 407; Hadjisavvas 2017, 138). It is possible that this particular object (Field Find no. KAD.2012.1011) would have been topped with some kind of bowl as well, but at present it is unique in that it is at least twice the size of the other examples, decorated, and the upper section of the base is partially solid with a ca. 1 cm diameter vertical hole through the center, ending as the base flares out into a thick rim.

¹⁰¹KAD.2012.1014. The inscribed sign resembles Cypro-Minoan sign 078 from Ferrara’s standardized sign repertoire (Ferrara 2012, table 5.10). It is also attested at Enkomi as a potmark on amphora handles (Hirschfeld 1999, table 4.5; also Hirschfeld 2011, 45, no. 3, fig. 24.3), but is not among the incised signs attested from earlier work at Ayios Dhimitrios (South et al. 1989, figs. 28–9).

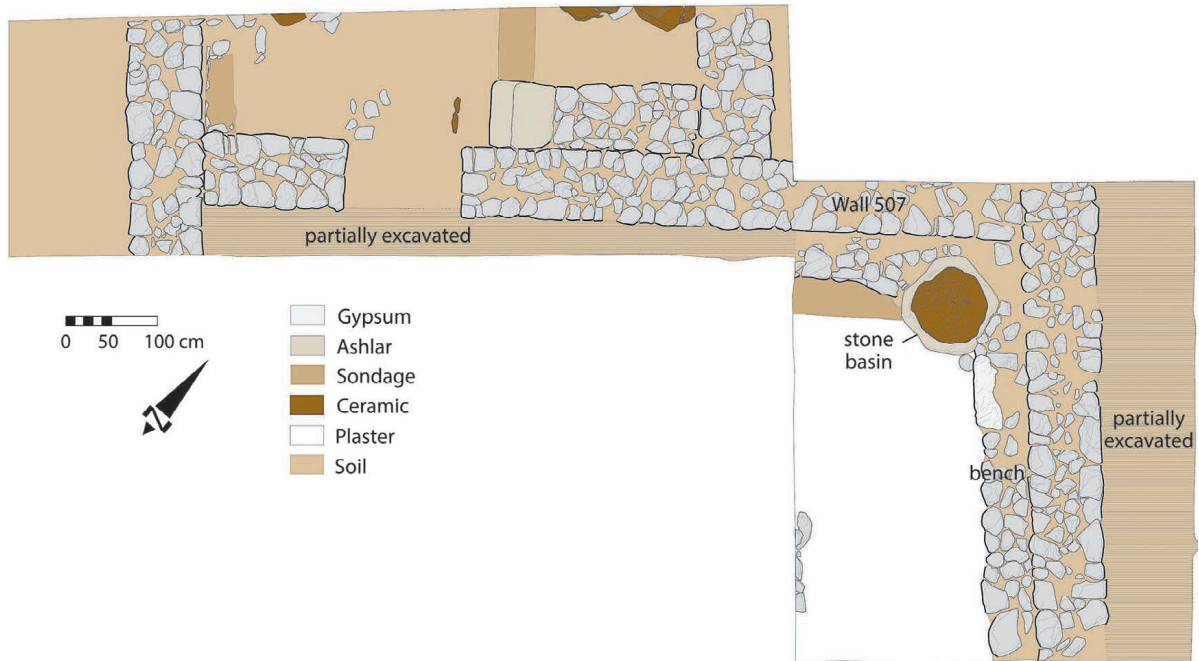


FIG. 7. State plan of Building XVI (Unit 7) excavations (drawing by S. Pak from orthorectified digital 3D model; see also online fig. 1).

ties, they are found at most Late Bronze Age Cypriot sites from LC II onward and in a variety of contexts including domestic and mortuary areas.¹⁰²

In the west end of Room 2, also within the decomposed mudbrick overlying the room's floor, was a massive deposit of ovoid objects of unfired clay, tentatively identified as sling bullets based on parallels from other Late Bronze Age sites on Cyprus (fig. 10).¹⁰³ In all, 472 complete or mostly complete examples were recovered in addition to numerous fragments, making this the largest such find from Cyprus. While generally elliptical or biconical in shape, they are handmade and there is a great deal of variation in form, size, and

weight within the group. This large corpus awaits a more detailed study, although a preliminary analysis of a subset ($n = 72$) indicates an average length of 4.9 cm, width of 2.7 cm, and weight of 31.0 g.¹⁰⁴ The sheer number of objects and the nature of their deposition suggests that these were stored in this room, presumably in some kind of organic container or containers, and spilled out following the building's abandonment, forming a deposit covering more than 1 m² in area and several centimeters thick. Within this same context, a deposit of animal bones, including at least some deer (indicated by several antler fragments), was recovered along the north balk. In an analysis of the zooarchaeological remains from South's excavations at Ayios Dhimitrios, Croft observes that very few animal bones littered the settlement contexts and suggests that the distribution and consumption of meat products may have been strictly controlled and subject to formalized disposal practices.¹⁰⁵ Steel notes that deer are rare in Late Cypriot contexts and played only a limited role in the Late Cypriot diet and that the distribution pattern indicates a degree of control more typical for luxury

¹⁰² See South et al. (1989, fig. 27) for wall bracket fragments recovered from earlier work at Ayios Dhimitrios (note the inscribed sign on K-AD 59). See Karageorghis (2011, 30–4, fig. 14) for a recent discussion of wall brackets; also D.C. Smith (2011) for a detailed contextual study.

¹⁰³ While no other examples have been recovered from Ayios Dhimitrios, smaller deposits of clay sling bullets are attested at both Enkomi (Courtois 1984, 69; Karageorghis 2011, 28–9, fig. 10) and Kition (Karageorghis and Demas 1985, 185, no. 974, pls. 151 and 215). They have also been recovered at Hala Sultan Tekke (e.g., Fischer 2017, 180, fig. 7), as have two groups of lead sling bullets (Fischer and Bürge 2016, 42, 46, fig. 14; see also Åström and Nicolaou 1980).

¹⁰⁴ Size range for this sample: 3.19–6.39 cm long, 2.08–3.17 cm wide; weight range: 25.2–31.7 g.

¹⁰⁵ Croft 1989, 70.

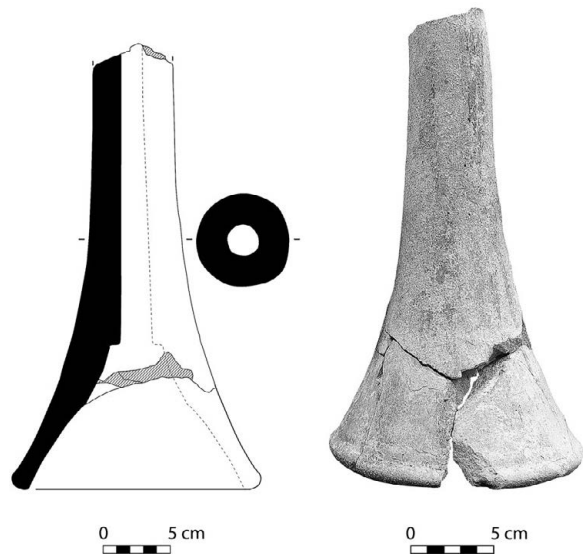


FIG. 8. Base of ceramic stand from Building XVI, Room 2 (Field Find no. KAD.2012.1011; drawing by S. Pak).

commodities used in feasting than for everyday staples.¹⁰⁶ She further argues that the elite connotations of deer and particularly deer hunting, evident as early as the Late Chalcolithic period, apparently persisted into the Late Bronze Age, when they had immense symbolic significance in exclusive feasts.¹⁰⁷ The results of ongoing geomorphological analysis will undoubtedly clarify the relationship among these deposits.

A second operation, started in 2015, involved the excavation of a new trench, 5 m east–west x 6 m north–south, that adjoins the southeast corner of the trench in Room 2 described above. The new trench covers the northeast section of the central court (Room 1) in Building XVI (see figs. 5, 7). This allowed us to uncover part of the area where our EM survey detected

¹⁰⁶ Steel 2004, 290. Deer bones have also been recovered from other Late Bronze Age sites, including *Maa-Palaiokastro* (Croft 1988), *Myrtou-Pigadhes* (Zeuner and Cornwall 1957), *Enkomi* (Dikaios 1969–1971, 216), and *Kouklia-Evreti* (Halstead 1977, 267). The latter two deposits were found in or near areas identified as cultic. The limited distribution at these sites contrasts with the relatively abundant and widespread deer remains from *Alassa*, which make up 32% of the faunal remains at *Paliotaverna* and 37% at *Pano Mantiliaris* (Croft 2017). These include both shed and unshed antlers; Croft (2017, 525) notes the use of shed antlers in craft production.

¹⁰⁷ Steel 2004, 292. There is also a well-established connection between deer and elite hunting and feasting in Mycenaean culture, seen both in elite iconography and zooarchaeological remains (e.g., Harris 2014).

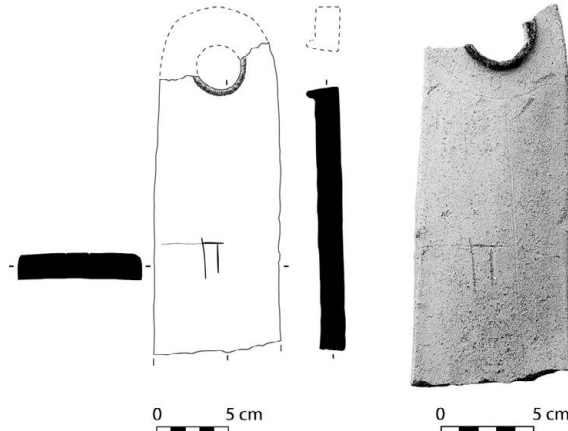


FIG. 9. Wall bracket with incised sign from Building XVI, Room 2 (KAD.2012.1014; drawing by S. Pak).

a large anomaly possibly indicative of a high concentration of soluble salts, as discussed above. The excavations revealed the eastern continuation of the east–west interior wall from the original test trench as well as the outer east wall of the building, thus confirming the building plan as interpreted from our geophysical data (see figs. 5, 6).

Some important features that were not fully resolved in the geophysical data were revealed during these excavations. A large stone basin was found integrated into the northeast corner of the room (fig. 11). It is roughly octagonal in shape with alternating longer and shorter sides, a maximum width of 1.05 m, and a height of nearly 0.35 m above the final occupation surface. Preliminary analysis in the field using Fourier transform infrared (FT-IR) spectrometry suggests that it is of the same calcareous sandstone used for ashlar construction elsewhere on the site.¹⁰⁸ Perhaps the most remarkable feature of the basin is that its round, bowl-shaped interior was covered by an approximately 12 mm thick ceramic lining, largely intact though badly cracked. The rim of the lining appeared to have originally protruded above the top of the stone rim but had largely broken off. The break revealed that the ceramic lining was of black-gray color on its interior side and reddish on its outer surface (i.e., the surface touching the stone basin). FT-IR analysis indicates that the lining contained feldspar and quartz temper and had been homogeneously fired at a temperature between 500

¹⁰⁸ This work was conducted by Francesco Berna, Department of Archaeology, Simon Fraser University.



FIG. 10. Sample of what are probably sling bullets from Building XVI, Room 2, Context 504.

and 700°C. The lining appears to have been molded to the basin's interior (rather than being a separate ceramic vessel that was fired and then set into the basin afterward), although there is a slight gap between the lining and the bottom of the basin's interior. A small piece of the lining was collected and will undergo residue analysis. The contents of the basin underwent flotation, and analyses of the light and heavy fractions are currently in progress; animal bones (some burnt) and charcoal were noted in the heavy fraction. While stone basins are known from other contexts at Ayios Dhimitrios and at other Late Cypriot sites, this one is exceptional for its size and shape and unique for the presence of a ceramic lining.

Directly abutting the stone basin were two benches, about 0.65 m wide x 0.30–0.35 m high (measuring from the latest floor surface). These ran out from the basin along the north and east walls of the room. The northern end of the bench running along the east wall, where it meets the basin, had a partially shaped slab of gypsum on its surface, with the straight side of the slab aligned with the front edge of the bench. Excavation in this unit stopped at a white plaster surface (this was not a fine, hard, plaster surface as found in the Unit 3 excavations; see below). On this surface, along the west

balk, the in situ remains of a crushed pithos were found (pieces of which still remain in the balk).¹⁰⁹ A narrow sondage was excavated through the plaster surface along the face of the northern bench. This revealed a series of thin (3.6 mm average) white plaster surfaces underlying the topmost, interspersed with thicker layers of darker sediments. Micromorphology analysis, which identified 11 such surfaces composed of pyrogenic lime plaster, with layers of crushed calcite and sediment fill in between, suggests a regular program of renewal over Building XVI's use life.¹¹⁰

Between the east side of the outer wall of Building XVI and the east balk of the trench, we excavated a thick deposit of loosely packed cobbles of the sort used for wall construction; a number of these appeared to be fire-cracked. The cobbles lay within a matrix of dark, loosely packed, ashy soil. This was sealed by

¹⁰⁹ We await formal analysis of this vessel, although its size and shape suggest that it is likely a large Group II pithos (perhaps II:4); see Keswani 1989, 16.

¹¹⁰ Wallace 2017, 80–3. Future work will focus on collecting datable organics from some of these layers in order to date more precisely the sequence of floors.

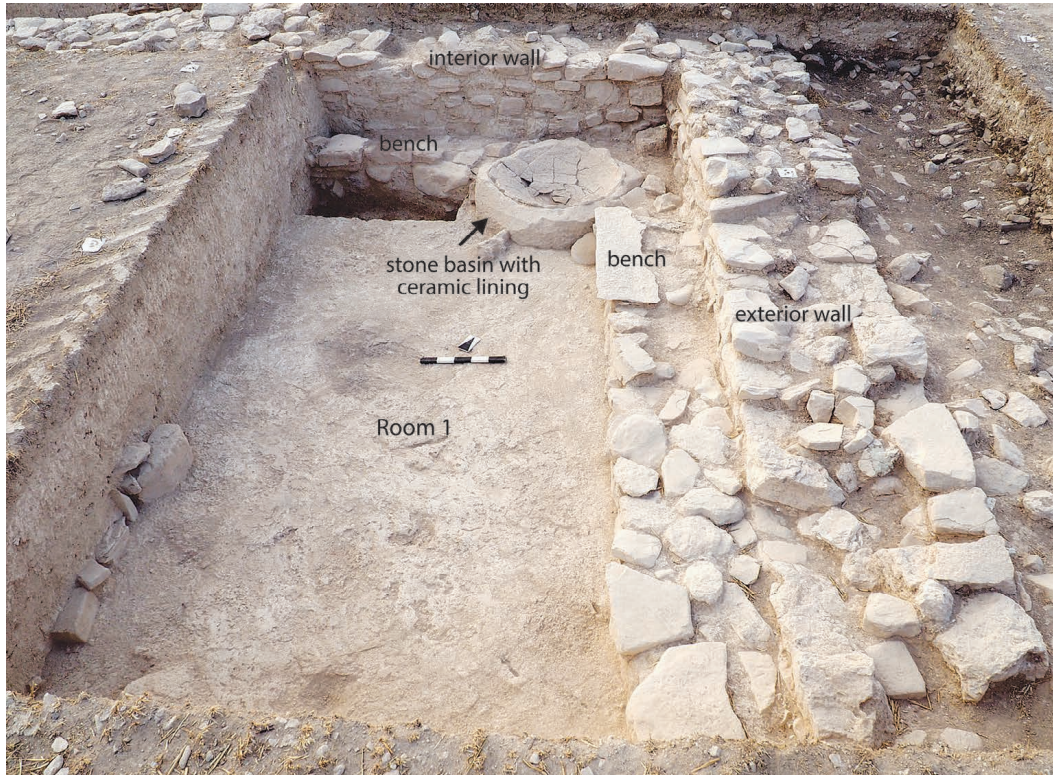


FIG. 11. Building XVI, northeast corner of central court (Room 1), showing stone basin with ceramic lining and benches.

later decayed mudbrick and so was deposited before the building's final collapse, possibly indicating a fire along the east side of the building.¹¹¹

Building XVII and Surrounding Area (Unit 3)

Excavations in our geophysical Unit 3 (see fig. 5) were carried out in 2012, 2015, and 2016 with the objective of understanding the configuration of urban space where the main north–south road approaches the monumental core. The GPR survey suggested that the road appears to narrow at this point before widening out to nearly 6 m as it approaches Building X (see figs. 4, 5), an arrangement that raises the possibility of a deliberate attempt to control access to this part of the site. An original 2 x 10 m test trench has since been expanded into a 10 x 7 m excavation area. This work confirmed several aspects of the geophysics while also

revealing a number of significant features that provide insight into the changing use of space in this important area (fig. 12; online fig. 2 digital 3D model, on AJA Online). It is clear that there were several construction phases represented in the recovered remains and, while these phases likely date to within the LC IIC period (perhaps beginning in late LC IIB), we are currently undertaking a more detailed analysis of the ceramic finds and the high-precision dating of organic samples from a number of contexts in order to assign absolute dates to these phases.

As in Unit 7, the Late Cypriot architecture in Unit 3 is found only 20–25 cm below the modern surface, and the tops of the stone foundations have been damaged by plowing. Here, too, the mudbrick superstructures of the buildings have decomposed and collapsed in multiple layers over the Late Cypriot floors, stone foundations, and the surface of the road. Removal of these deposits revealed the very hard, but eroded and uneven, plaster surface of the latest phase of the road, which slopes slightly downward as it continues into the south balk. Preliminary micromorphology results suggest that the road was made with pyrogenic lime

¹¹¹ South (e.g., 1995, 197) notes that Building X was destroyed by fire and specifically cites the presence of roof beams from the Pithos Hall in Building X “burnt in the destruction at the end of the LC IIC” (South 1997, 172).



FIG. 12. State plan of Unit 3 excavations (drawing by S. Pak from orthorectified digital 3D model; see also online fig. 2).

plaster.¹¹² During the 2015 excavations, we noted areas of the road surface along the central north-south axis that were slightly darker in color and somewhat less compact than the surrounding plaster. Excavation of this material, which appears to be made of a compact mixture of crushed calcite and sediment, revealed sections of a remarkable stone-lined drain channel, the top of which is about 10–15 cm below the final road surface at the south end but nearly 70 cm deep at the north balk, where it was exposed in what was initially thought to be an isolated pit. This suggests that the drain does not follow the slope of the road, but maintains a more consistent elevation. The channel is constructed in a trench that is about 53 cm wide;

the channel's interior is about 26 cm wide and is lined with long narrow cobbles; and the depth from the top of these cobbles to the channel's relatively flat, plaster-lined bottom is about 0.34 cm. It is roofed with a series of large, relatively thin, rectangular limestone slabs, some of which were purposefully shaped. Several of these are missing at the channel's south end.¹¹³ In order to elucidate the road's construction, a 1 m wide sondage was cut into the road near the end of the 2016

¹¹²Wallace 2017, 83–4.

¹¹³An unpublished report notes that a similar type of drain (designated S.488), with sides consisting of two parallel lines of vertical stones topped with flat stones, was found in this road in a test trench (designated N6) ca. 30 m to the south. It crosses the street at an angle, suggesting that it is not a continuation of the channel in Unit 3 (South, pers. comm. 2012). In addition, the top of S.488 was at street level.

season (see fig. 12). This operation is not yet completed, but it has revealed more of the covering slabs of the channel, in some cases with traces of plaster adhering to them that suggest an effort to seal gaps between them. The sondage also uncovered, 10 cm below the final road surface, a section of fine, white, hard plaster that likely represents a stage in the construction process. The fact that the drain channel is aligned on the center of this original road suggests that it was likely installed during the road's original construction, yet it is clear that the channel was meant to be accessible in the latest phase of the road's existence. The material used to fill in the drain trench was meant to be compact enough to support foot or wheeled traffic on the road but visible and removable in order to perform maintenance on the drain as needed. Completion of the sondage and further micromorphology study will clarify the construction and use of this important urban feature.

In its earliest phase, the road in this area was a mere 2.85 m wide, bounded on its sides at least in part by double-faced rubble walls. Wall 131 is about 85 cm thick and defined the western edge of the road although, as preserved, it fades out before reaching the south balk. Nearly 2 m from the south balk, the tops of two parallel, vertically placed, thin stone slabs about 25 cm apart and oriented east–west, are visible in the center of this wall. This is probably a drain, but it is currently unclear whether it links up with the subsurface channel in the road.¹¹⁴ Wall 174 is a remnant of what was likely a longer wall marking the eastern edge of the road. It is 85–90 cm thick and several courses high where its western face was exposed in a pit, and its top is about level with the extant surface of the road and the top of Wall 131. The east face of Wall 174 is abutted by a pitted and uneven, hard, plaster surface—the earliest in this area—that extends northward, where it continues under the fill underlying some later ashlar slabs (see below), and eastward for about half a meter where it runs beneath a later rubble wall (Wall 148). Without the removal of the later phases of construction, we know little about the form or use of spaces on either side of the original road during this earliest phase.

In the second major phase, the north end of Wall 174 was truncated by the installation of three ashlar slabs, one of which is exceptionally large. This slab

has been almost entirely exposed and measures 1.47 m east–west x 1.0 m north–south. Its exposed south face, which ranges from 7 to 20 cm thick, indicates that its bottom surface is unfinished. The function of these slabs is unclear, and in the following phase they were covered over. West of the slabs, two rectangular ashlar blocks with drafted margins on their sides were found in situ, positioned opposite one another on either side of the road. They appear to be sitting on the same level as the ashlar slabs and were also covered over when the road was widened during the final Late Bronze Age phase. This suggests that they may have been installed at the same time as the slabs, although we cannot yet discount the possibility that they date to the initial phase of the road's construction. These two blocks could have been column bases, although Fisher has noted that such pairs of ashlar blocks are frequently used to mark the passage into monumental or symbolically charged spaces.¹¹⁵

This area was completely rebuilt—indeed, monumentalized—during the next, third, phase. The road was raised and widened to 3.7 m by expanding its final plaster surface over the top of Wall 131. The west side of the road was now bordered by a new structure, which we have designated Building XVII. Its remains excavated so far consist of a small room measuring approximately 2.0 x 2.7 m (Room 1) entered from the south through an entry hall or vestibule (Room 2). Its boundaries are marked by double-faced, bonded rubble walls. The interior walls (Walls 140 and 141) were only 50–60 cm thick and made of relatively small stones. On the street-facing side of the building, Walls 104 and 108 are 95–105 cm thick and include a lower course that protruded about 20–35 cm farther into the street. Walls of this type were found elsewhere at Ayios Dhimitrios by South on the east face of Building XV in the Northeast Area and the west face of Structure 72 in the East Area—both of which are walls facing the main north–south road.¹¹⁶ The protruding courses of these walls likely supported small ashlar blocks, now missing. Three such rectangular blocks were found in the collapsed mudbrick, each with drafted margins on one long and one short side, unfinished on the back, and only finished on the sides at the front (fig. 13).¹¹⁷

¹¹⁴ This type of drain was noted by South (1992, 135; 1997, 156) in the narrow street to the west of Building X.

¹¹⁵ Fisher 2009b, 194–97.

¹¹⁶ South 1980, 32; 1997, 159.

¹¹⁷ KAD.2015.1173: ht. 30.0 cm x wdth. 45.7 cm x 13.7 cm thick; KAD.2015.1170: ht. 30.0 cm x wdth. 37.0 cm x 17.3 cm



FIG. 13. Ashlar blocks with drafted margins recovered from Unit 3, arranged in their probable original alignment.

When situated with their short sides adjoining, they give the appearance of fully drafted blocks. This masonry technique appears to have been employed along sections of the north–south road as it approached the Northeast Area.

An additional rubble wall (Wall 112) runs perpendicularly from the exterior north face of the north wall of Building XVII into the north balk and forms the west side of the road. The east face of Wall 112 also has a projecting lower course that likely held the same type of ashlar blocks and aligns with the east face of Building XV. The junction of Wall 112 with Wall 104 thus marks the point where the main north–south road expanded to 5.5 m wide and took the form of a large rectangular open space nearly 33 m long. Fisher suggests that this space was the terminus of a processional route that ended at the city's most impressive monumental buildings.¹¹⁸ The entrances to earlier elite tombs (Tombs 12–15; see fig. 3) would have been visible in this space, marked with vertically placed stones and possibly posts.¹¹⁹ The street was bounded on the east by the largely robbed ashlar facade of Building XII and ended at the southwest corner of Building X.

thick; KAD.2012.1005: ht. 29.0 cm x wdth. 43.5 cm x 14.4 cm thick. While a more detailed metrological study is needed, this small sample suggests that their height was highly standardized and their other measurements at least roughly standardized, allowing them to be aligned in multiple straight courses.

¹¹⁸ Fisher 2014a, 200.

¹¹⁹ See South 1997, 171.

Though largely robbed out, this was Building X's most impressive facade, made with a plinth of monumental ashlar blocks with drafted margins and lifting bosses that was topped by an orthostat of large blocks, also with drafted margins.¹²⁰ It is clear that the main entrance to Building X was accessed from Building XII, although the entrance to Building XII itself remains elusive in the absence of further excavation. The space defined by these facades nevertheless provided an imposing context for social occasions that took place here, including the burial of some of the city's elite, the arrival or departure of Building X's elite inhabitants, and the arrival of visitors who were permitted access to this part of the city, perhaps as participants in the feasting events, noted above, that occasionally took place within Building X and perhaps Building XII.¹²¹

Within Building XVII, Room 1 is remarkable for its very well preserved high-quality plaster floor that continued up each of the exposed interior wall faces to a height of more than 10 cm, as preserved (fig. 14). At the south end of the room, the plaster floor drops off, forming a shallow channel or gutter that runs along the south edge of the floor. The southwest corner of the room was heavily disturbed and the plaster floor there is completely missing, while some of the remaining plaster around the edges has been badly damaged. The south end of the west wall of Room 1 may have

¹²⁰ South 1984, 19.

¹²¹ See South 2008; Fisher 2009b.

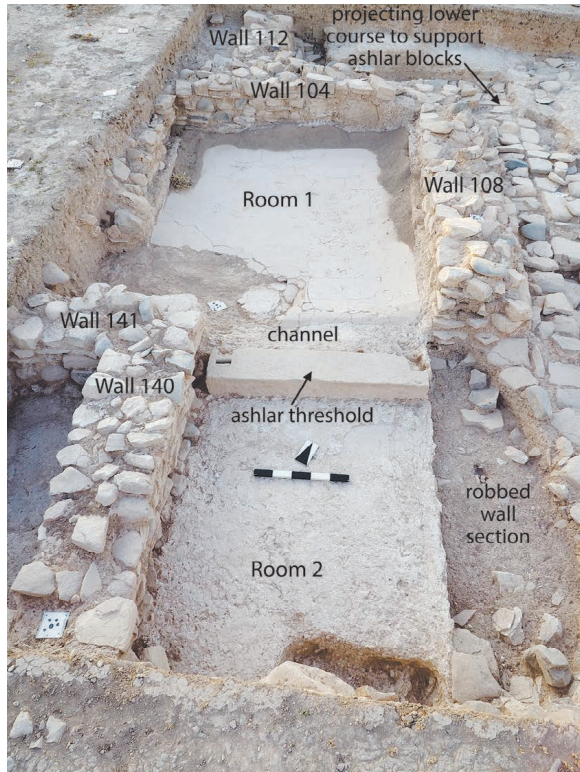


FIG. 14. Unit 3, Building XVII, Rooms 1 and 2, details of plaster floors and ashlar threshold.

been removed as part of the same process. Micromorphology analysis indicates that the 8 mm thick floor is pyrogenic lime plaster constructed in three distinct layers with slightly differing compositions.¹²² The extension of the plaster surface up the walls and the installation of a channel suggest some kind of liquid use or storage in Room 1.

The entry hall or vestibule (Room 2) is about 1.39 m wide and is bounded by a rubble wall on the west. Its coarser plaster surface was installed after the floor in Room 1 and extended into the channel. The transition between Rooms 1 and 2 is marked by an impressive ashlar threshold made of the same Tochni sandstone used to fashion the other ashlar blocks found on site. The threshold is 1.25 m long x 0.26 m wide x 0.17 m high and is abutted by the surrounding plaster floor, especially on its north face. It is remarkable for having two sets of twin, shallow, rectangular mortises on its upper surface in the northeast and northwest corners. Each mortise is approximately 8 x 2 cm and 1.5 cm deep. The set in the northeast corner is broken off, and

the northernmost mortise on the northwest corner is also broken. Presumably these would have received tenons from some kind of wooden superstructure, possibly door jambs.¹²³ The plaster floor continues southward into the balk. At the south balk (and continuing into it) is an ovoid pit, about 76 x 18 cm, as exposed. Wall 108 continues southward; however, it is largely missing along the eastern side of Room 2. Only the projecting lower course of cobbles on its east side remains intact, while the line of the plaster floor indicates its western limit. The wall may have been damaged by the same activity that affected the southwest corner of Room 1. West of Wall 140 is the corner of a largely unexcavated room with a small ash-filled deposit that likely was a hearth.

During this third phase, the northern section of the eastern edge of the road was bordered by a wall, undoubtedly of ashlar masonry, that was robbed out and has left an L-shaped trench, approximately 1.3 m wide. The L-shaped trench forms the southwest corner of a structure, the coarse plaster floor of which remains intact. Cobbles arranged in wall-like fashion at the bottom of the trench were presumably part of the foundation course for the ashlars, and they were partially overlaid by fragments of calcareous sandstone, some with finished surfaces, likely deposited during Roman robbing. South frequently notes the robbing of ashlar masonry at the site dating to Late Roman times, based on associated finds of Late Roman ceramics and glass.¹²⁴ The north–south line of this trench closely aligns with a trench identified by South as the robbed-out ashlar west wall of Building XII to the north.¹²⁵ The fact that masonry is almost entirely missing from the robber's trenches along the east side of the road suggests that they held walls of fully ashlar construction. Such exterior walls in the Northeast Area would typically be of the impressive orthostat variety, as evident in the west facade of Building X and in the remains of some large damaged blocks in the trench marking Building XII's west wall.

¹²³ Rabbets and mortises cut into ashlar blocks for wooden components are known elsewhere at Ayios Dhimitrios (e.g., Building X; South 1984, 19) and other Late Cypriot sites, including Enkomi (e.g., Dikaios 1969–1971, 180–82; Hult 1983, 17) and Kition (e.g., Karageorghis and Demas 1985, 172; Wright 1992, 385).

¹²⁴ E.g., South 1984, 19. The Late Roman site of Kalavassos-Kopetra is less than 1 km to the northeast.

¹²⁵ South 1991, 136–37.

¹²² Wallace 2017, 84–6.

A final phase of activity in this area is represented by a space defined on the west side by a narrow curvilinear rubble wall (Wall 148) and on the north by another, thicker, double-faced rubble wall running east–west into the east balk (see fig. 12). Unlike the typical architecture in Unit 3, these walls are poorly constructed directly on top of soil deposits without foundation trenches. The walls enclose an uneven and poorly made plaster floor, which extends into the east and south balks. The plaster appears to have been applied quickly in large swaths and is now badly cracked and has numerous depressions of various sizes. The northern edge of the floor is defined by a thin, vertical sheet of gypsum, the uneven top of which is visible above the level of the plaster surface. In the south end of the excavated space, set into the floor beside Wall 148 up to its broken rim, is a plain ware vessel, approximately 20 cm in diameter. The rim is surrounded by a layer of plaster that overlies a number of flat-lying stones, which appear to have been arranged to accommodate the vessel. The height of the vessel is unknown as it was left unexcavated at the end of the season. The remains are suggestive of some kind of industrial activity, but further excavation and analyses of the plaster and embedded vessel are needed to determine its function. The poorly constructed walls and floor and the curvilinear nature of Wall 148 suggest that this was part of a post–Late Bronze Age reuse of the site.

To summarize, the excavations in Unit 3 to date indicate a few broad phases of activity. Beginning with the earliest evidence, we attempt to link these phases to the relative chronology as currently established for the Northeast Area (fig. 15). This sequence will be further refined as our geoarchaeological analyses and program of absolute dating continue.¹²⁶

Phase 1. Construction of the original 2.85 m wide road (likely including the drain channel) delineated by north–south running walls lining its east (Wall 174) and west sides (Wall 131) and installation of the plaster surface that abuts the east face of Wall 174. This took place after South’s “lower phase,” represented by the original urban architecture in the Northeast Area, which was built on a different alignment and largely obliterated by subsequent rebuilding.¹²⁷ It must

¹²⁶ Absolute dating evidence at present for Ayios Dhimitrios is considered in Manning et al. 2017.

¹²⁷ A remnant of the original orientation of the architecture can be found in a long rubble wall, oriented 12° farther west than

therefore be coeval with South’s “middle phase,” which marks the original construction of Building X and dates to the late LC IIB/early LC IIC.¹²⁸

Phase 2. Installation of the large ashlar slabs to the east of the road, cutting through Wall 174. Two ashlar blocks, with drafted margins on their side faces, were installed opposite one another on either side of the road. The plaster surface associated with Wall 174 was no longer in use.

Phase 3. The area was completely rebuilt and monumentalized; the road was expanded to cover Wall 131. The road was now 3.7 m wide, expanding out to 5.5 m at the north end of the trench, with the entrance to an impressive space marking the terminus of a processional way leading up to Buildings XII and X. Building XVII, on the west side of the street, was built (or perhaps remodeled) and its eastern facade lined with small ashlar blocks with drafted margins. Across the road, another structure was erected with walls that were likely constructed of a more elaborate form of ashlar masonry. This phase was contemporaneous with South’s “upper phase,” which dates to the mid LC IIC and is represented in the Northeast Area by the latest road surface and the reconstruction and expansion of Building X and some of its neighboring structures with the large-scale use of ashlar masonry. This phase lasted until the site was abandoned at the end of the LC IIC.

Phase 4. Reuse of the southeast corner of the excavation area. Wall 148 and its associated plaster surface were installed. The date is presently undetermined, although South notes that there is evidence for some Archaic-period (750–480 B.C.E.) reuse nearby in Buildings XIV and X.¹²⁹

Phase 5. Robbing of ashlar blocks on both sides of the road. This was undoubtedly part of the same robbing in evidence in the Northeast Area and dated to the Late Roman period by South.¹³⁰

the later plan, recovered in the street to the west of Building X (seen in figs. 3, 4; designated S.450 by South, e.g., South 1997, 157). The dromos of Tomb 11 (LC IIA:2/IIB) runs parallel to this wall (supra n. 66; South 1997, 172).

¹²⁸ South 1997, 171–73. The dating is based on ceramic finds from the buildings and streets.

¹²⁹ South 1997, 158.

¹³⁰ South 1984, 19.

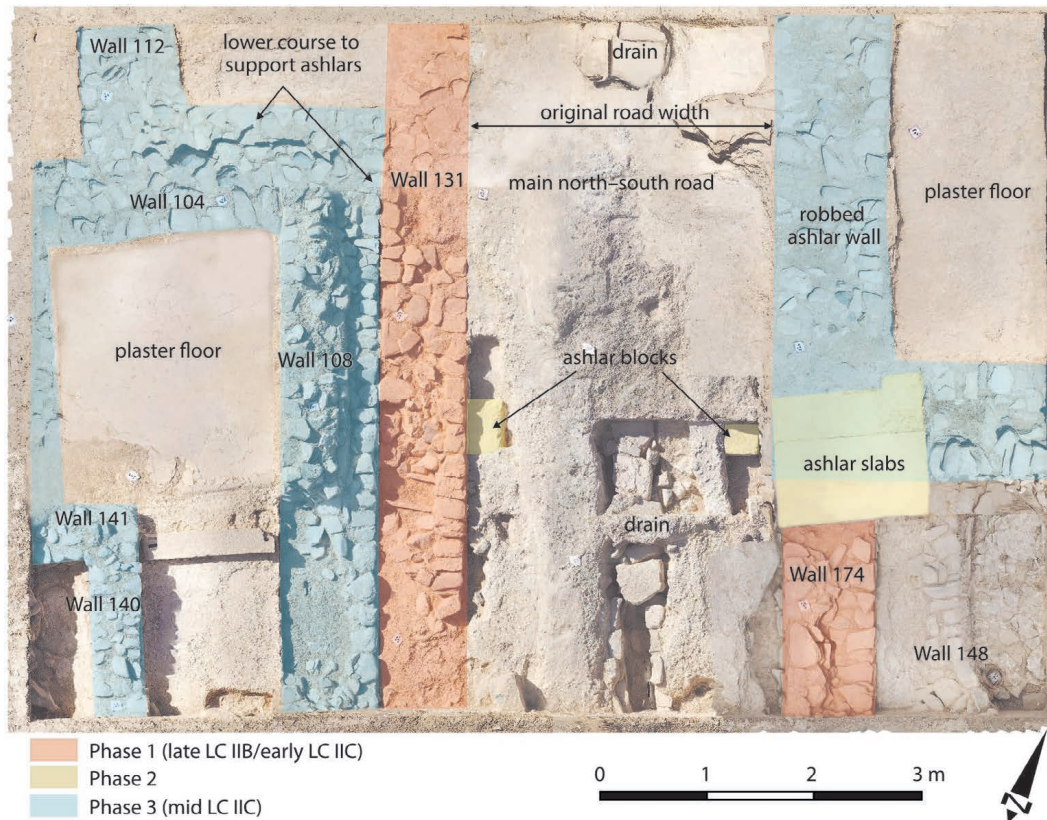


FIG. 15. Orthorectified photograph of Unit 3 excavations derived from photogrammetric 3D model showing phasing (graphic by S. Pak and K. Fisher).

KALAVASOS-AYIOS DHIMITRIOS IN CONTEXT: INSIGHTS INTO LATE CYPRIOT CITIES AND SOCIETY

Our work at Ayios Dhimitrios represents an application of high-resolution or high-definition archaeology in an effort to understand the social dynamics of urban landscapes.¹³¹ This includes the collection and analysis of high-resolution geophysical, geoarchaeological, and (eventually) chronological data and its integration within a fully digital 3D system of excavation recording.¹³² The aim is to recover data that can precisely determine the spatial and chronological extent of social interactions, how spaces were used in

¹³¹ See, e.g., Carbonell (2012) on “high-resolution archaeology”; Gowlett (1997) on “high-definition archaeology.”

¹³² This system integrates photogrammetrically derived, georeferenced digital 3D models of each excavated context (see, e.g., online figs. 1, 2) with text-based descriptive and interpretive information on the context in a GIS-based database (using ArcGIS) deployed on site using tablet computers.

daily practice, and how these uses shaped (and were shaped by) social organization and transformation. It is therefore an example of what Bolender calls an “eventful archaeology,” involving the analysis of social dynamics at multiple time scales from the broad chronological divisions typical of discussions of Late Bronze Age archaeology to a more nuanced consideration of how particular places were created and experienced in events or activity cycles of shorter duration.¹³³

This approach has begun to shed light on the social dynamics of Ayios Dhimitrios, which can be viewed through the place-making activities of Late Bronze Age Cypriotes at various scales, from the cityscape (or inner urban landscape) to individual urban spaces. The results of our GPR survey clearly show that between the Northeast Area and the modern highway lies an area of urban infrastructure and buildings, some quite large, that are on the same alignment as the extant architecture to the north and south. While the area

¹³³ Bolender 2010, 7.

immediately to the west of the Northeast Area has been heavily disturbed, we now have an area of contiguous and densely built urban fabric that extends at least 200 m north–south and 150 m east–west. The evidence is still insufficient to determine whether this is a modular orthogonal grid as evident at LC IIIA Enkomi¹³⁴ or a simpler integrated orthogonal plan in which the buildings are aligned to one or more larger-scale features,¹³⁵ but it is clear that the city’s layout is the product of urban planning. Fisher has argued that the overall plans of the Late Cypriot cities, including the layout of major streets, fortifications, and monumental buildings, were products of elite agency, particularly top-down decision making by ruling elites.¹³⁶ Such plans represent the large-scale appropriation and reshaping of space and were the most visible and permanent materialization of the power of Late Cypriot elites. They were a component of elite place making writ large. Adam Smith has highlighted the close association that exists between the constitution of the authority of political regimes and the form and aesthetic of urban landscapes.¹³⁷

Orthogonal planning is a powerful materialization of elite place making. As Pugh and Rice argue, “a grid multiplies the organization and control of the straight line as it regiments a series of lines into a harmonious rhythm, extending the power of the line over a larger area. These layouts standardize space and make it easy to understand, organize, and use. In so doing, grids promote the intensification of internal social interaction as well as interactions with outsiders familiar with its uniformity.”¹³⁸ The use of a grid has been recognized as a tool of dominance and oppression in societies with a centralizing authority.¹³⁹ Pugh and Rice note that such authorities often use the gridded space as a means of social organization and control, making it a form of what Mann calls “infrastructural power.”¹⁴⁰ Its imposi-

tion on an area that previously lacked such a tradition marks a fundamental reordering of society—a “spatial paradigm shift.”¹⁴¹ Just such a shift may have occurred at Ayios Dhimitrios in the late LC IIB/early LC IIC (South’s “middle phase”), when the original structures in the Northeast Area (South’s “lower phase”) were entirely replaced by new buildings, including the original version of Building X, which were constructed on an entirely new orientation, 12° farther east than their predecessors. This orientation was retained in the subsequent monumentalization of Building X and its surroundings. A similar shift appears to have occurred at Enkomi when the city was rebuilt in the LC IIIA period on an orthogonal plan, oriented to about 7° west of north, consisting of 20 blocks formed by a single, central north–south artery dissected by nine evenly spaced, east–west running streets, and was surrounded by a new cyclopean fortification wall.¹⁴²

While the use of straight lines and rectilinear architecture was a nearly universal feature of Late Cypriot construction, orthogonal planning was not characteristic of all Late Cypriot cities. Indeed, one of the more significant outcomes from the work of the KAMBE Project to date is the emerging picture of diverging trajectories and materializations of urbanism in the two neighboring contemporaneous cities of Ayios Dhimitrios and Maroni. Differences among Late Cypriot cities have previously been noted, and Keswani attempted to explain them as two contrasting modes of urbanization that reflected the relative heterogeneity of their founding populations.¹⁴³ Cities like Enkomi, Hala Sultan Tekke, and Morphou-Toumba tou Skourou had founding populations from multiple regions that coalesced in areas with little previous occupation and came to have a heterarchical sociopolitical organization reflected both in the burial evidence and the lack of a single obvious power center. Cities such as Ayios Dhimitrios, Maroni, and Alassa, however, were founded in areas with long settlement

¹³⁴ Courtois et al. 1986, fig. 1; Fisher 2014a, fig. 6.2.

¹³⁵ E.g., the Mesoamerican city of Teotihuacan oriented to the Street of the Dead; see M.E. Smith (2007, 12–21) for a full discussion and useful attempt to distinguish degrees of orthogonality.

¹³⁶ Fisher 2014a; Fisher and Creekmore 2014. We recognize the agency of various specialists and craftspeople involved in materializing these decisions (e.g., Pugh and Rice 2017, 579).

¹³⁷ A.T. Smith 2003; see also Kostof 1991, 33.

¹³⁸ Pugh and Rice 2017, 578.

¹³⁹ E.g., Grant 2001.

¹⁴⁰ Pugh and Rice 2017, 578; Mann 1984.

¹⁴¹ Pugh and Rice 2017, 579.

¹⁴² The fact that the outer walls of the Ashlar Building, which are defined by Streets 3 and 4 and the main north–south road, follow the boundaries of an underlying building from the previous phase (LC IIC) might suggest that at least some elements of this layout were already in place before the city’s reconstruction (see Dikaios 1969–1971, pls. 292, 293). This nevertheless represents a radical departure from the site’s initial layout (Fisher 2014a, 188–90).

¹⁴³ Keswani 1996.

histories by more homogeneous populations drawn from circumscribed areas (such as a particular valley). These cities were characterized by hierarchical forms of sociopolitical organization reflected in built environments with a single focus of power (e.g., the Northeast Area at Ayios Dhimitrios). Keswani's compelling study remains one of few comprehensive attempts to explain Cypriot urbanism, although, by her own admission, she risked "oversimplifying a diverse array of local sequences and settlement histories."¹⁴⁴ Her study also relies on the rather scant evidence for the pre-LC II formative (or "Proto-urban") period that has been documented at most of the Late Bronze Age centers.¹⁴⁵ More recently, Iacovou highlighted the diversity and complexity of Late Cypriot urban centers, emphasizing the insufficient data upon which characterizations about them (especially settlement sizes) have been made and the need for new investigations of individual site histories.¹⁴⁶ The work of the KAMBE Project has been successful in this regard, allowing new insights into the individual histories of Ayios Dhimitrios and the Maroni complex.

Located in the lower Maroni Valley approximately 7 km east of Ayios Dhimitrios, Late Bronze Age Maroni consists of a cluster of sites with Late Cypriot architectural remains and tombs, all within approximately 1 km of one another (fig. 16). On the low hillock of Maroni-*Vournes*, excavations recovered monumental LC IIC structures aligned at around 45° west of north, including the 30 x 20 m LC IIC Ashlar Building and, across a 4 m wide street from it, the 40 x 17 m West Building (fig. 17). These structures, which combined administrative, production, and storage functions, were built over differently aligned earlier structures and tombs from LC I–II.¹⁴⁷ At Maroni-*Tsaroukkas*, on the coast, LC I–II tombs and domestic, utilitarian, and production buildings aligned at 25° west of north have been recovered.¹⁴⁸ Other areas of Late Cypriot occupation include a large LC II structure at Maroni-*Aspres*, about 300 m to the west of Vournes, with evidence for processing and storage,¹⁴⁹ LC I tombs and a wall at Maroni-*Kapsaloudhia*,¹⁵⁰ and

Late Cypriot tombs found during British Museum work in the late 19th century at their Site 2 northwest of Vournes.¹⁵¹ Using large-scale fluxgate gradiometer survey integrated with high-resolution GPR, the KAMBE Project has been investigating the anatomy of Late Cypriot Maroni in an attempt to determine whether or not these various Late Cypriot sites were part of a contiguous cityscape. Combined with data from an earlier pedestrian survey,¹⁵² current results from the KAMBE Project indicate a contiguous urban area of about 25 ha that was generally low-density or dispersed but had several densely built zones—including a monumental core that developed around Vournes—interspersed with numerous open areas.¹⁵³ Such low-density urbanism has been attested in other regions of the ancient world,¹⁵⁴ and large intraurban open spaces may represent gardens¹⁵⁵ or other green or gray space.¹⁵⁶ The urban form with multiple nuclei indicated at Maroni, which might also be present at Palaepaphos, stands in marked contrast with the highly integrated, single-nucleus configuration evident so far at Ayios Dhimitrios.¹⁵⁷ While we noted above that cities are products of the place-making activities of various groups and individuals, we might begin to explain these differences in terms of the divergent trajectories of urbanization produced by the longer-term place-making activities of the ruling elites who emerged in each center.

Maroni had a longer formative period, with its origins dating back to LC I. The earliest Late Bronze Age evidence in the valley consists of various cemeteries, some with associated settlement remains, as noted above at Tsaroukkas, Vournes, Kapsaloudhia, and the British Museum's Site 2. Manning has characterized the LC I through LC IIB period at Maroni as one of intense competition among rival elite lineages, played out through conspicuous consumption in the funerary sphere.¹⁵⁸ In addition to its role as a cemetery, the hillock at Vournes provides evidence, toward the end

¹⁴⁴ Keswani 1996, 236.

¹⁴⁵ Fisher 2014a, 187–90.

¹⁴⁶ Iacovou 2007.

¹⁴⁷ Cadogan 1983, 1996.

¹⁴⁸ Manning and De Mita 1997.

¹⁴⁹ Manning 1998a.

¹⁵⁰ Cadogan 1984.

¹⁵¹ Cadogan 1992a.

¹⁵² Manning et al. 1994; Manning and DeMita 1997.

¹⁵³ Manning et al. 2014.

¹⁵⁴ McIntosh 2005; Fletcher 2012; Isendahl and Smith 2013.

¹⁵⁵ Stark 2014.

¹⁵⁶ See Al-Hagla (2008, 164), who defines gray space as paved or hard landscaped open space with a civic function, e.g., an urban square or marketplace.

¹⁵⁷ Iacovou 2007, 3–7; 2014.

¹⁵⁸ Manning 1998b.

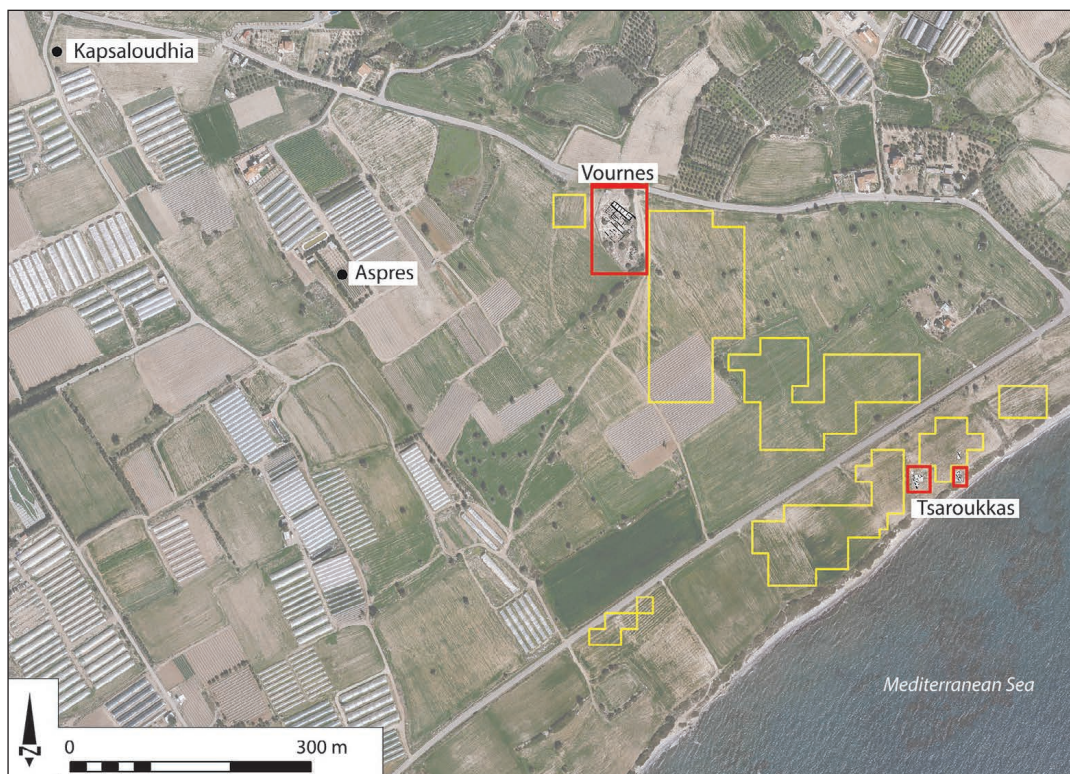


FIG. 16. Satellite image showing Maroni complex sites. Visible archaeological remains are highlighted in red; KAMBE Project geophysical survey areas are shown in yellow (graphic by C. Kearns).

of this Proto-urban period (LC IIA–B), for monumental construction, including the Basin Building and a poorly understood precursor to the later Ashlar Building, that materializes the success of one of these local lineages. Nearby at Ayios Dhimitrios, the Proto-urban period appears to have been much more contracted, with the earliest evidence for habitation dating from LC II. This evidence comes from the Northeast Area and consists of LC II elite tombs and architecture built on a slightly different alignment than the later buildings (South’s “lower phase” discussed above).

Things changed drastically at both sites (and elsewhere on the island) during the local processes leading to the fully urban LC IIC period. At Maroni, a single lineage marks its ascendancy over the old order by constructing the Ashlar Building and West Building on a new alignment (45° west of north) directly on top of the earlier Proto-urban tombs and buildings and thereby obliterating from memory part of a built environment that had developed over two centuries. Manning has argued that this process marks a deliberate erasure and forgetting of the previous sociopolitical system and the emergence of a new order based on

the centralized rule of a single individual or group with power concentrated at Vournes.¹⁵⁹ These new buildings replaced the mortuary sphere as the primary arenas in which social dynamics were enacted.¹⁶⁰ Nearby, the LC IIC architecture at Aspres to the west and a large structure to the east detected through geophysics followed this new alignment, contrasting with the LC I structures excavated at Vournes, excavated buildings at Tsaroukkas, and buildings imaged between Vournes and Tsaroukkas that are aligned roughly at 25° west of north.¹⁶¹ The use of monumentality and urban planning by the new regime as a means of structuring movement and interaction did not seem to extend much beyond Vournes and its immediate environs, as the rest of the city retained a different, presumably earlier, alignment.

At Ayios Dhimitrios, the LC IIC is also characterized by the emergence of a single elite group (or indi-

¹⁵⁹ Manning 1998b.

¹⁶⁰ Fisher 2009b.

¹⁶¹ Manning et al. 2014, 21–2, figs. 9 (Block A) and 12.

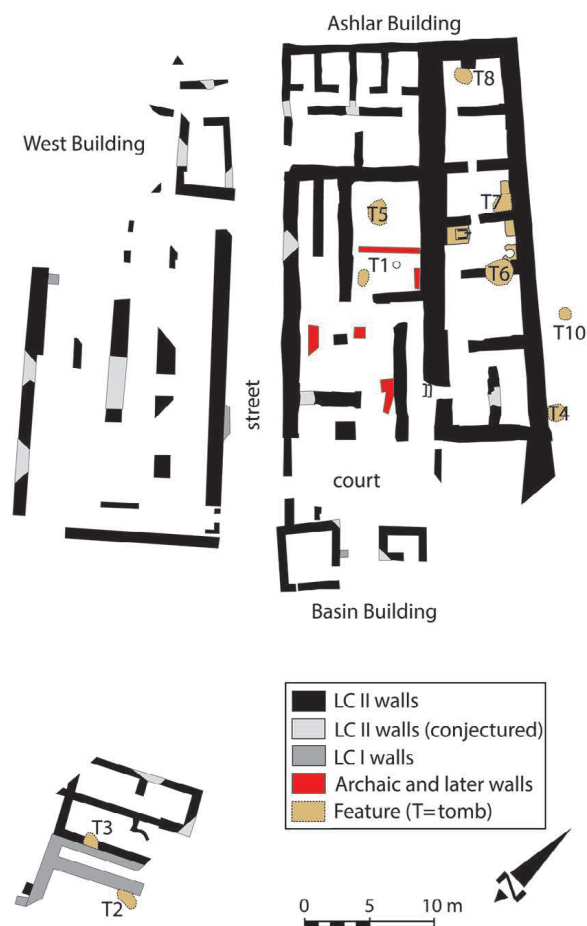


FIG. 17. Schematic plan of Maroni-Vournes (drawing by K. Fisher based on Cadogan 1992b, fig. 2, and Manning 1998a, fig. 4).

vidual) but one that promulgated a different type of relationship with their predecessors. Building X was constructed at this time (South's "middle phase"), on a different orientation than the existing architecture, and achieved its final monumentalized form soon thereafter (South's "upper phase"). It was located in such a way that it retained the integrity of the earlier elite tombs, some of which continued to be used by the LC IIC elites. The maintenance and continued use of these tombs suggests a deliberate attempt to lay claim to these ancestors, whether the relationship was one of real or fictive kinship.¹⁶²

We have, then, compelling evidence for divergent trajectories of urbanization at contemporaneous sites

in neighboring valleys. These cities, like objects and individual buildings, can be seen as each having a unique life history or biography.¹⁶³ Our work in south-central Cyprus enhances a growing body of research that recognizes the importance of understanding trajectories of urbanism at individual sites.¹⁶⁴ While culture- or region-specific models of urbanism have largely replaced the generalizing models of the 1970s, even these ultimately fail to account for local, historically contingent processes of urbanization and place making. As our investigations at Ayios Dhimitrios demonstrate, these processes play out not only at the level of the overall urban plan but also at the micro scale—within particular areas of the city, its buildings, and their constituent spaces.

Our work in Unit 3 is revealing the process by which the approach to the administrative core of the site along the main north–south road was monumentalized over several phases of activity during the LC IIC period. This began with the initial construction of the road on a new alignment that matched the newly constructed Building X. The process continued with the addition of ashlar masonry, including the placement of a pair of ashlar blocks with drafted margins on either side of the street along with massive ashlar slabs on the east side of the street. The monumentalization culminated with the construction of new ashlar and ashlar-faced buildings on both sides of a widened street, which marked the entrance to a newly widened processional way lined with tombs and the ashlar versions of Buildings X and XII. Nearby, in Unit 7, a combination of remote sensing, excavation, and geoarchaeology is being used to shed light on Building XVI, a new type of monumental, albeit largely nonashlar, building. The excavated part of its central court was lined with benches that met at a unique, ceramic-lined, ashlar basin. The plaster floor of this space was renewed on a regular basis—11 times over the building's life history. Electromagnetic induction survey suggests that this space may have hosted activities associated with food consumption, and the ceramic and faunal assemblage

¹⁶³ Kopytoff 1986; for applications to built environments, see, e.g., Hendon 2004, 276; Düring 2005.

¹⁶⁴ E.g., Cowgill 2004, 528; Wynne-Jones 2007; Lawrence and Wilkinson 2015.

¹⁶² South 1997, 171; Fisher 2014a, 198–99.

recovered to date from the adjoining room suggests this likely took the form of elite feasting.

CONCLUSIONS AND FUTURE WORK

Marcus and Sabloff noted that ancient cities are often treated as snapshots of a particular period rather than as palimpsests.¹⁶⁵ The latter concept more accurately captures the dynamic and diachronic processes by which urban life and urban form are mutually constituted and a city's biography is materialized. Ayios Dhimitrios is most often seen through the lens of published plans that fossilize the city in its final and static LC IIC form.¹⁶⁶ More than a decade ago, Iacovou illustrated just how little we really know about the form and development of any of the Late Bronze Age urban centers on Cyprus and emphasized the importance of understanding individual site histories.¹⁶⁷ Ongoing remote sensing, excavation, and geoarchaeological analyses conducted by the KAMBE Project are successfully addressing these issues. Our recovery of high-resolution data is providing new insights into the site history of Ayios Dhimitrios by facilitating a multi-scalar investigation of urban form and development and an understanding of their implications for social interaction and the organization and reproduction of social structures. These efforts complement and build on the important Vasilikos Valley Project work at the site, weaving together some of the disparate areas excavated by South to reveal a highly planned and integrated urban fabric, while expanding our understanding of the city's formative stages as reflected in the Northeast Area. Combined with our mapping and excavation of new monumental contexts at Buildings XVI and XVII, this work has been valuable in elucidating the role of the built environment in negotiating the power relations that were integral to the profound sociopolitical changes that characterized the Late Bronze Age on Cyprus.

While excavations will continue in the current areas under investigation, the focus on monumental spaces highlights the need to apply our approach to nonelite domestic areas of the site in order to achieve a more

holistic understanding of urban place-making practices. Moving forward, the project will expand the scope of our investigations to consider the city's relationship with and impacts on the outer urban landscape of the Vasilikos Valley. This work will focus on socio-environmental dynamics enacted through the process of constructing and maintaining the urban landscape. Various material components of the built environment, including wood, mud, plaster, and stone, will be examined using a *chaîne opératoire* approach¹⁶⁸ that considers both the constraints of the natural environment (i.e., the spatial distribution of such materials) and the material agency or affordances of the materials themselves.¹⁶⁹ This will involve a systematic study using geoarchaeological data collection and analyses to obtain a high-resolution picture of these processes through time. These data will also provide new insights into the management of water resources—a vital element of the urban landscape that is implicated in power relations, particularly in an environment with immense seasonal variation in water availability.¹⁷⁰ The large investment seen in the construction of wells and sophisticated drainage systems revealed in the excavations at Ayios Dhimitrios indicate that water management was of great importance to urban life.

Beyond the Vasilikos Valley, the work of the KAMBE Project is providing important new evidence for a comparative perspective on Cypriot urbanism. As we have argued here, a single narrative cannot adequately explain the rise of cities on Cyprus. Even contemporaneous and neighboring urban centers such as Ayios Dhimitrios and Maroni took divergent paths to becoming urban. And though this was due in no small part to the place-making strategies of various elites, making a city was a complex process that involved the actions of various groups and individuals at various spatial scales. The methodology developed by the KAMBE Project is allowing us to collect the kind of data needed to gain insight into how urban landscapes were produced and, at the same time, how they actively shaped social interactions and daily practice during this revolutionary period of the Cypriot past. Our work at Ayios Dhimitrios and Maroni dovetails with ongoing studies of the

¹⁶⁵ Marcus and Sabloff 2008b, 325.

¹⁶⁶ See Webb (1999, 305) regarding this issue at other Late Bronze Age Cypriot sites.

¹⁶⁷ Iacovou 2007.

¹⁶⁸ E.g., Knappett 2012, 196–201.

¹⁶⁹ Gibson 1986, 119–36.

¹⁷⁰ Todd 2004, 10–11; 2013; M.L. Smith 2014, 310.

nearby coastscape, including the site of Tochni-Lakkia, which likely served as the port and entrepôt locus for Ayios Dhimitrios, and also with new research that emphasizes the importance and agency of rural actors in the economy of the Vasilikos Valley.¹⁷¹ Taken together, these investigations are providing the fullest picture yet of a Late Cypriot landscape.

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¹⁷¹ Andreou 2016; Andreou et al. (forthcoming).

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