Chapter 7 – The development and character of urban communities in Prehistoric Crete in their regional context: a preliminary study.

Todd Whitelaw
The Institute of Archaeology
University College London

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Abstract

The development of urban centres in the Prehistoric Aegean is outlined, focusing on evidence for scale, centralisation and differentiation. This is followed by a preliminary attempt to develop a comparative perspective on the nature and principal organisational and material characteristics of urbanism in institution-centred polities in the Bronze Age East Mediterranean and Near East. The objective of the study is to ascertain to what degree Cretan urban communities share fundamental features with their eastern counterparts, and in what ways they are distinct. Attention focuses on population scale and differentiation, the characteristics of palaces and temples as organising institutions and urban layout. The broad similarities suggest the value of more detailed comparisons at all scales from regional settlement size and distribution to the detail of individual institutions and their spatial inter-relations within the city.

This chapter is a preliminary sketch of an approach to analysing Minoan and Aegean urbanism in the Bronze Age. It comprises two sections, the first an outline of urban development, focusing particularly on the Cretan evidence, but situating that in its southern Aegean context, on the far western fringe of Eurasian Bronze Age urban societies. The second section is a preliminary comparative exploration of the Cretan data in the context of Bronze Age urbanism in the broader East Mediterranean and Near East. This is aimed at assessing whether, despite its geographical remove, Minoan urbanism shares significant characteristics with other examples of Bronze Age, institution-focused urbanism, and whether the diversity of the latter, with their more extensive textual documentation, may potentially provide models which can help us to analyse the Cretan evidence.

7.1. Investigating urbanism

Today, urban status tends to rely on bureaucratic and legal definitions, which vary arbitrarily between jurisdictions (Roberts 1996). They are usually based on population size, sometimes on areal extent, but the underlying idea is that the size of the population interacting in a community has an impact on the nature of those interactions, with larger communities being more complex, with individuals, through spatial propinquity, being able to interact with greater numbers of other individuals, interact in more complicated ways, and require more organisation and infrastructure to facilitate these interactions (Bairoch 1988; Mumford 1966). This is well documented through recent analyses that explore the intensification of social interactions in larger cities (not just more, but more per person), whether positively, as measured through, for example, GDP or innovation rates, or negatively, through crime rates (Bettencourt et al. 2007; 2010). Moving away from modern industrial and post-industrial contexts, viewed cross-culturally, it has long been established that the largest community in a culture provides a general index of overall cultural complexity, measured in a variety of ways (Carneiro 1967; Tatje and Naroll et al. 1973; McNett 1973). The point is not to use such cross-cultural measures to make any top-down assessments of Aegean urbanism (we know MM and LM/LH society is complex and urbanised), but to highlight that trying to understand

the nature of urban society, rather than simply name or classify it, is important. On the contrary, defining new vague categories, such as 'proto-urban' (Renfrew 1972:238), which is applied in Aegean prehistory to just about any community after the Neolithic, tells us little. But this does highlight one typical approach–'urban' is used as a valuation or assertion of significance (my site is urban, so it was important, and justifies the decades devoted to investigating it), rather than analytical framework.

For informative analyses, we need a clearer idea of what characteristics are important about urban communities, why, and what focusing our analyses on such characteristics can tell us. Substantive definitions of urbanism, trying to distill the crucial characteristics which make a community urban, recognise various dimensions which can be broadly summarised as scale, concentration, and differentiation (Wirth 1938; Morley 2011). Urban centres are usually significantly larger than the norm in their culture, with abnormally large populations; the smallest (though arbitrary) cut-off I have come across in the literature is a population of 5,000 individuals. These are not just larger than other communities on a continuum, but are a distinct mode–they usually stand out from a much larger number of smaller communities, implying a different character and role. They represent a higher concentration of population (usually at greater residential densities), with all the social integrative challenges this will entail. This larger population will also, inevitably, be more differentiated than a village population, for all the reasons which are the foundation of geographical economic and social settlement models, in occupational specialisations, wealth, social groups, etc. As these communities are more complex than the bulk of those surrounding them, we need to think in terms of both intra- and inter-community differentiation. Cities create different types of social and interaction environments; through numbers, they also create new social problems or challenges, which must be met organisationally to enable individuals to interact effectively beyond purely kinship or village scales of integration (Feinman 1998; 2011; Kosse 1990; 1994).

7.2. Urbanism in southern Aegean prehistory

The urban phase in the prehistoric southern Aegean lasted most of the second millennium BC, with significantly different timescales and trajectories on Crete and the southern mainland. This was limited in time and space, but also was a very restricted phenomenon. Here we run into definitional problems, with communities as small as a hectare, with at most a few hundred residents, regularly hailed as urban. Sites such as Hagia Irini on Keos (Schofield 2011), with several hundred occupants, are nowhere close to urban, by any modern definition, but the argument is essentially that they participated in a more generally 'urban' form of culture (see chapter 14). By our earlier criteria, they are larger than the contemporary farmsteads and hamlets that surround them, but not by all that much. They represent a relative concentration of population, but again, on a small scale. Finally, we can anticipate that they had a more differentiated population than the surrounding hamlets, in this case involving elite (House A), at least part-time religious specialists (the Temple), and probably at most, part-time craft specialists pursuing cottage industries in many houses in the community. But held up against contemporary Knossos, with on the order of 22-25,000 occupants, with a palace 30 times the scale of House A at Hagia Irini, and almost certainly a comparable differential in support personnel and the resources required to construct and maintain the establishment, and administering a territory at least 25 times as large, where is it realistic to draw the divide–is Hagia Irini urban, or not? Drawing a line and assigning a classification is not particularly insightful, but thinking about what urbanisation means, raises interesting questions, encouraging us to try to understand the nature of each of these communities in terms of their own nature, but also in context.

In the following assessment, I shall draw on data from a number of the surveys that have been conducted, on Crete and the mainland (principally the Peloponnese), which are documented in a way that facilitates comparisons in terms of the definition of site size and periods of occupation. I am interested in the general site size distributions, so have excluded sites which

are complex palimpsests, where one cannot make an educated guess at the rough occupation size within the chronological period of interest. On the figures, I will add other well-known sites in each region (usually outside the surveyed regions), to serve as calibration points. In the figures, I distinguish between mainland and Cretan patterns, given the divergence in settlement behaviour on Crete from the start of the Middle Bronze Age, with the first states and urban communities. We do not see this urbanisation process until the end of the Middle Bronze Age on the mainland.

In earlier prehistory, on both Crete and the mainland, we are dealing with landscapes of farmsteads, hamlets, and generally small villages (Fig.7.1). For the Neolithic, I include a histogram of Neolithic site sizes in Thessaly, simply for reference, since so many more Neolithic sites have been studied there than in the south. There are clear similarities in scale across all regions, with most communities well under a hectare in size, indeed mostly less than half a hectare, so probably farmsteads and hamlets with less than 50 inhabitants. On both the mainland and Crete, local regions tend to have one village of up to a few hectares, but most communities were much smaller. Very few southern mainland sites have been extensively exposed, so for internal differentiation, we have to look to Thessaly. In the earlier Neolithic, all houses are small and comparable in scale, fitting what we would expect for undifferentiated egalitarian communities. At a small number of later Neolithic sites, such as Dimini and Sesklo, there is a central structure, slightly larger than the rest though with comparable features and finds, but arguably representing the start of intra- and probably inter-community differentiation.

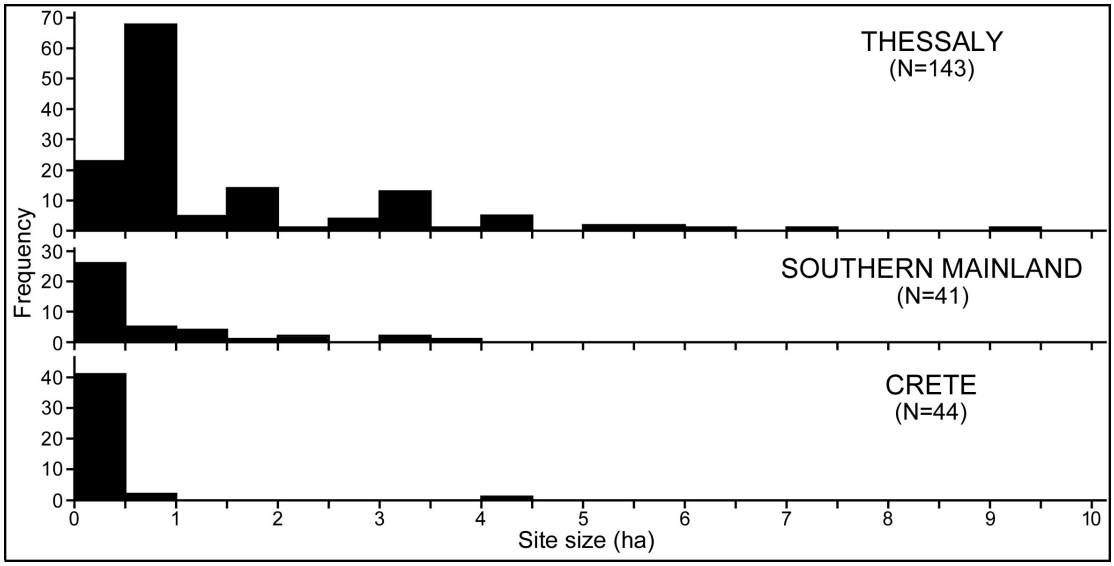

Fig.7.1. Greek Mainland and Cretan surveys: Neolithic site size.

On Crete, at Knossos and Phaistos, the only extensively explored Neolithic sites, there have been only limited area excavations. Recently, it has been suggested that there were open areas at the core of each site, perhaps venues for communal activities (Todaro and Di Tonto 2008; Tomkins 2012), though with only limited horizontal exposure away from the cores, it is far from clear that these are more significant than the spaces between houses elsewhere at each site. For Final Neolithic Phaistos, this village was considerably larger than any contemporary community nearby, and such sites may have acted as local centres for the inhabitants of neighbouring farms and hamlets.

In fact, farms and hamlets dominate the settlement record throughout most phases of prehistory in the Aegean. Based on survey data, the picture is one of long-term continuity of very small sites. What changes through time is principally the number, size, and spatial distribution of very restricted numbers of larger sites. Despite this broad, long-term continuity in site sizes, it is worth noting that, based on more extensively excavated sites, this continuity

in site size masks a significant increase in occupation density, such that from the Early Bronze Age onwards, sites will usually represent populations two to three times larger than their similarly-sized Neolithic precursors.

The most convincing evidence for EBA centralisation and differentiation comes from a small number of excavated communities on the southern mainland. Most centres were on the 1-2ha scale, though a few sites exceed this (Fig.7.7). A small number of the larger communities (still usually only 1-2 hectares), have individual monumental buildings, best represented by the House of the Tiles at Lerna. Recognition of how these sites were geographically integrated with their smaller neighbours is usually handicapped by patchy survey coverage (Whitelaw 2000: Fig. 10.4). But in surface survey data, the limited number of such central sites may be confirmed by the few sites with clay roof tiles and seal-impressed large hearth rims (Jameson et al. 1994). This hints at limited centralisation and differentiation, with obsidian production debris and imported millstones concentrated at, or even limited to, such larger villages (Kardulias 1992; Carter and Ydo 1996).

From Cretan surveys and excavated sites (Fig.7.2), we can reconstruct a few small centres of 3-6ha, most clearly represented by those that were to become the later palatial centres at Knossos, Phaistos and Malia, arguably acting as focal communities for local regions (Whitelaw 2012). This represents only minimal expansion from the Final Neolithic situation, though as noted, the continuities in settlement sizes probably mask a doubling or tripling in population, with more dense occupation, particularly at these larger centres (Whitelaw 2012: 149-51).

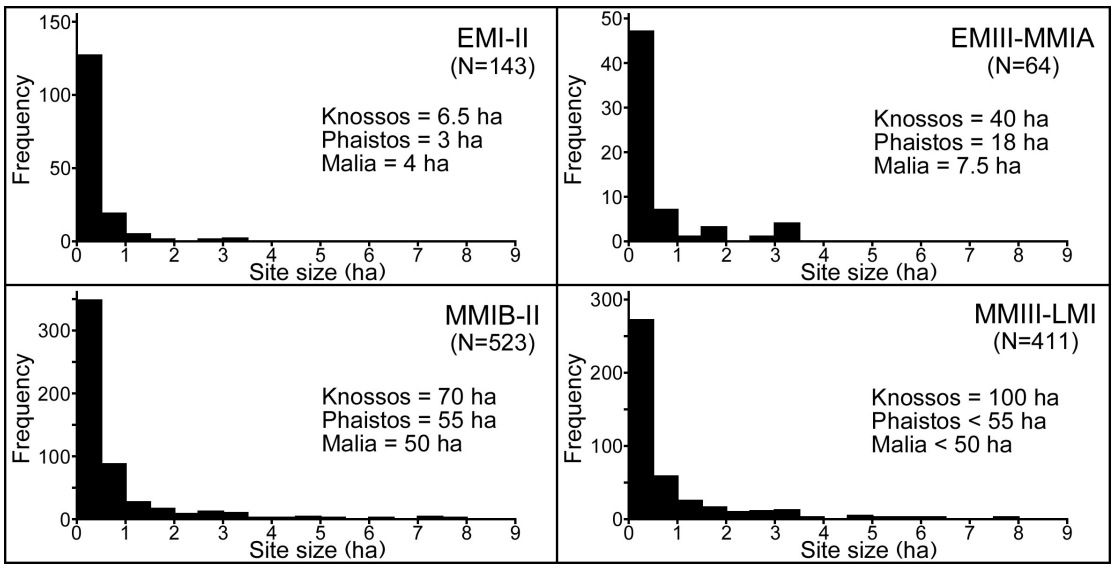

Fig.7.2. Cretan surveys, site size: A) EMI-II; B) EMIII-MMIA; C) MMIB-II; D) MMIII-LMI.

Urbanisation occurs on Crete at about 2100-2000 BC, in the Late Prepalatial (EMIII-MMIA) period, only conclusively documented so far at the extensively investigated sites of Knossos, Malia and Phaistos. Despite uncertainties due to the very different data on which these reconstructions have to be based, the three centres seem to expand in pace with each other, from the Prepalatial into the Protopalatial period (reaching about half a square kilometre in the Protopalatial period), over the course of about 250 years (Whitelaw 2012). At Knossos, this late Prepalatial transformation is represented by very significant and rapid expansion, from some 7ha to over 40ha. Data from regional surveys show this population growth is a general island-wide pattern (Fig.7.3), that the rapid urban expansion is not simply the result of local nucleation from the territories surrounding each expanding centre, though this may also have contributed (Watrous et al. 2004: 268-71).

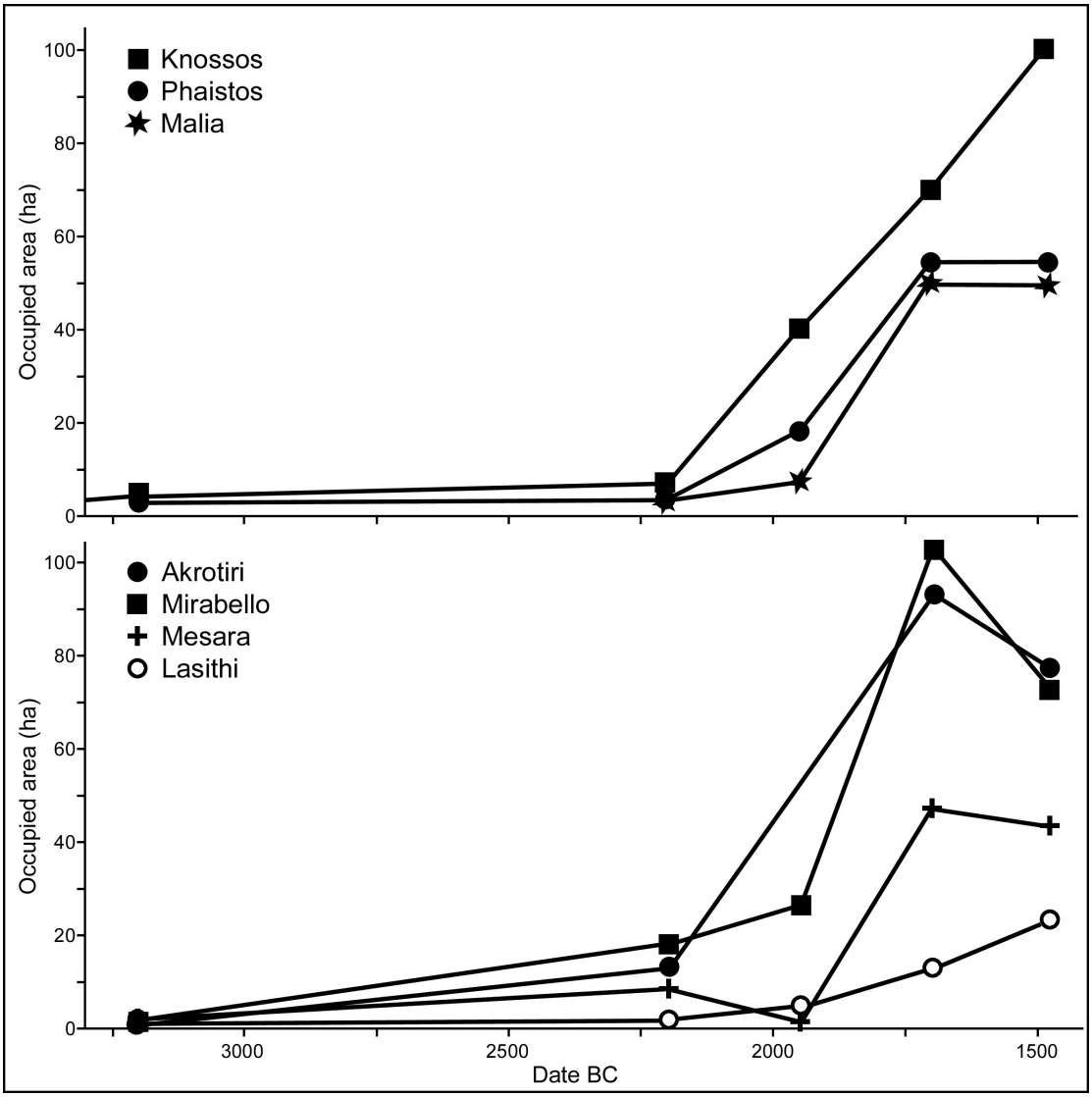

Fig.7.3. Cretan surveys, aggregate site area: A) Urban centres; B) Regional surveys.

Significant expansion at these major centres continues through the Protopalatial period. Phaistos and Malia parallel each other, but the recent survey evidence from Knossos suggests it out-paced the other two, reaching some 60-70ha by the end of the period. For Phaistos and Malia, we should be thinking of 10-12,500 inhabitants, for Knossos 12-17,500. Considered in their local contexts, while Phaistos and Malia might have been self-sustaining in deriving sufficient subsistence from their immediate territories, I think they may have been pushing the logistical limits. But Knossos probably already was having difficulty supplying itself from its immediately accessible surrounding territory (Whitelaw in press B).

Some analysts have very optimistically read a 5-level settlement hierarchy onto these site distributions (Driessen 2001; Watrous et al. 2004; Hayden 2004; Haggis 2005; Watrous et al. 2012), so it is worth emphasizing that the vast bulk of sites continued to be farmsteads and small hamlets, and the second-order communities, if they can even be called that, were just villages, less than 4ha, with at most 400-800 inhabitants. The very few urban centres were surrounded by small villages and hamlets, very much a classic, highly centralised, city-state structure (Fig.7.4).

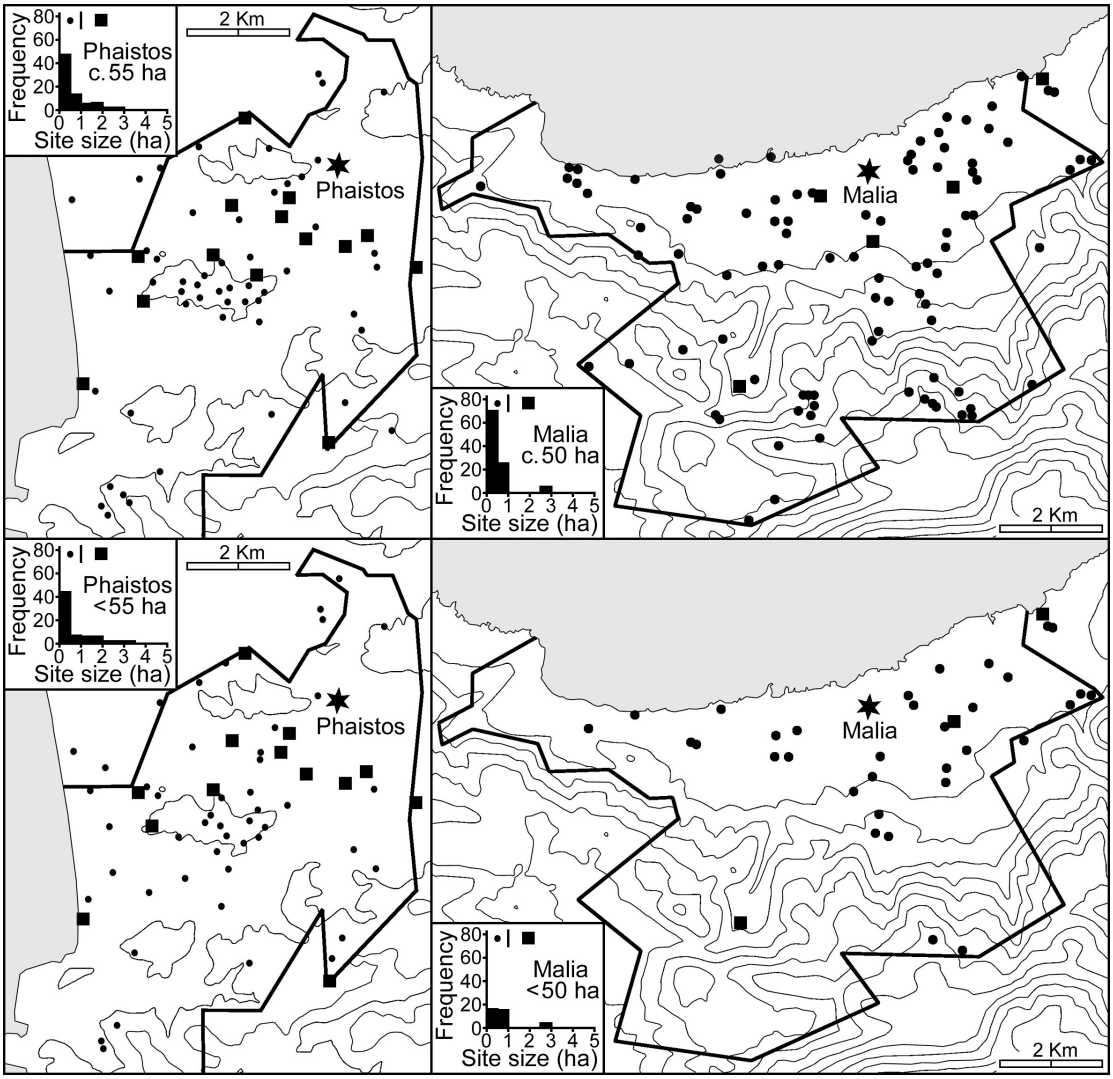

Fig.7.4. Minoan settlement patterns: A) Protopalatial West Mesara and Malia; B) Neopalatial West Mesara and Malia.

The Minoan palaces of the Protopalatial period document a completely novel scale of differentiation, within and between communities, in terms of the central palatial buildings and the organisation, resources and labour necessary to construct and sustain them. While we often assess the period primarily through the palaces themselves, the situation also changed dramatically in terms of the now fully urban cities surrounding them. For considering urban organisation, our most comprehensive picture is from Protopalatial Malia, where there have been very extensive excavations at the core of the site (Fig.7.5; van Effenterre 1980; Poursat 1988; Schoep 2002b; 2004). In addition to the palace, other specialised, non-domestic structures, so far unique to Malia, include the Agora, Centre Politique, Crypte Hypostyle, Quartier Mu, the small shrines, and the fortification wall. Quartier Mu and its associated maison-ateliers, excavated completely and being published thoroughly, holds out particular promise for understanding a major element in Minoan urban structure. Its large, spatially differentiated central structures, with evidence for administration, storage, cult and ceremony, provide precisely the sort of evidence anticipated for, but not preserved or documented well for the palace itself. The directly associated, specialised workshops (Poursat 1996) evoke a model of attached, dependent or client craft production.

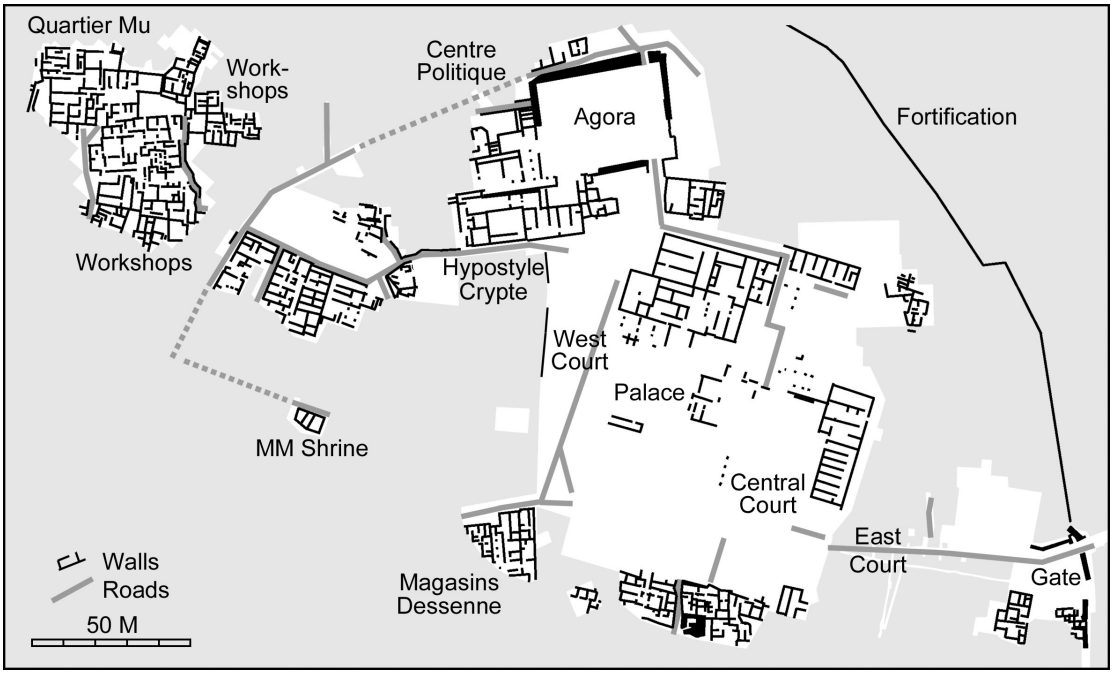

Fig.7.5. Malia Protopalatial differentiation.

There are indications that there were multiple such institutions within the town (the Magasins Dessenne, a possible predecessor of Quartier Epsilon), raising questions about how they related to each other, but also to the palace. Rarely commented upon, they are comparable in scale and elaboration to structures that we see as the foci of later Neopalatial smaller communities and indeed polities, such as the palaces at Gournia and Petras in East Crete (Fig.7.6). Malia, and by extension the other Protopalatial palatial centres, was a highly differentiated urban community.

The relatively poor documentation of early large-scale excavations limits our understanding of broader community composition and structure, but re-analysis of early records is proving fruitful. While probably over-optimistic, consideration of tools and craft production debris at Neopalatial Gournia gives an idea of widespread small-scale, part-time cottage crafting in the town (Watrous and Heimroth 2011; Branigan 1972). As another index of differentiation, I have elsewhere used the size distribution of Neopalatial houses (Whitelaw 2001a), which relates to functional distinctions in room use, but also investment in construction and elaboration, so probably representing wealth and social distinctions. This assessment by house area is now supported by explicit calculations of the labour invested in individual house construction (Devolder 2013; see also chapter 4). While limited by the highly selective areas excavated at each site, house size distinctions point to intra-site, and also inter-site distinctions, for example between the larger range of house sizes at major centers, and smaller communities such as Gournia and Pseira, composed of more uniformly small houses (Whitelaw 2001a).

In the Neopalatial period, Knossos continued to expand, reaching about 100ha. At documented Neopalatial occupation densities (Whitelaw 2004), I would estimate it had 22-25,000 occupants. Current re-evaluations at both Phaistos and Malia suggest significant declines in occupation at both sites after major MMIIB destructions. How far they contract remains unclear, but they appear to have reached their maximum extents and populations in the Protopalatial period.

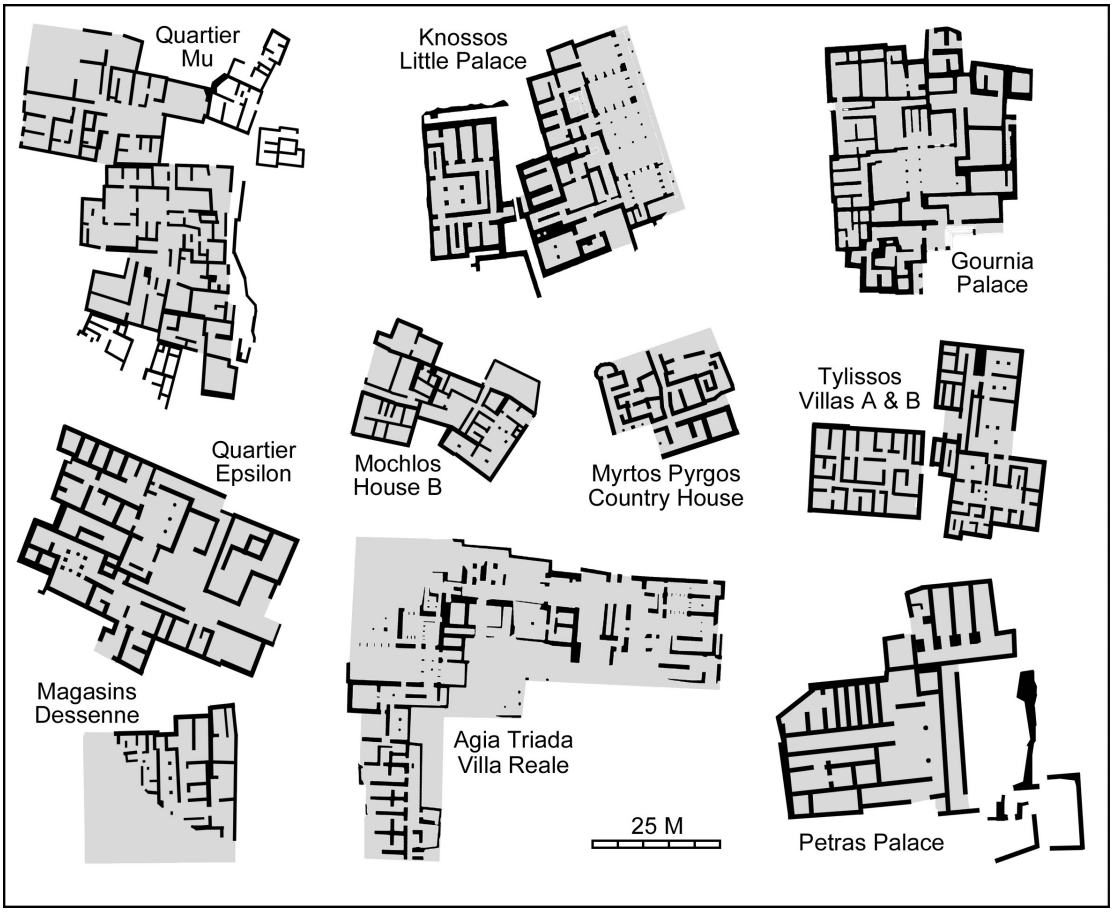

Fig.7.6. Minor institutional structures.

In most regional surveys, both site numbers and overall aggregate occupied areas decline a little from Protopalatial maxima. This seems particularly marked in preliminary data from the Malia survey (Müller-Celka et al. 2014), but since the sites that are lost are all very small, the implications in terms of population are more limited than the site numbers might suggest (Fig.7.4). Within most regions, the settlement size distribution is comparable to that in the Protopalatial period, and still extremely primate, with no development of major secondary centres (Figs 7.2C-D). But the Neopalatial period sees a significant divergence of regional trajectories alongside the continuing expansion of Knossos (Fig.7.3). This urban expansion provides new support for the frequent assertion that Knossos dominated at least the centre of the island by the later Neopalatial period (Whitelaw in press A; in press B). At twice the size of any other community, it will almost certainly have housed a more complex and differentiated population (Whitelaw in press B). In contrast to other regions, it is only in the Knossos region that we can clearly recognise second-order centres, in the 4-10ha size range (Whitelaw 2001a). This suggests Knossos stood at the head of a more complex and differentiated settlement system than is documented anywhere else on Crete. These second-order centres (e.g. Tylissos, Archanes, Poros, Amnisos, probably Galatas), like the small, probably independent palatial centres in East Crete (Gournia, Petras), are considerably scaled-down versions of the major centres, with small central buildings at their core, presumably the residences of controlling local elites.

The southern mainland witnessed much later urban development. As on Crete, in most periods of prehistory it is fundamentally a landscape of farms and hamlets (Fig.7.7). But significant centres began to develop at the very end of the Middle Bronze Age, from c. 1700 and especially in the 14th and 13th centuries BC, the palatial Late Helladic III phase.

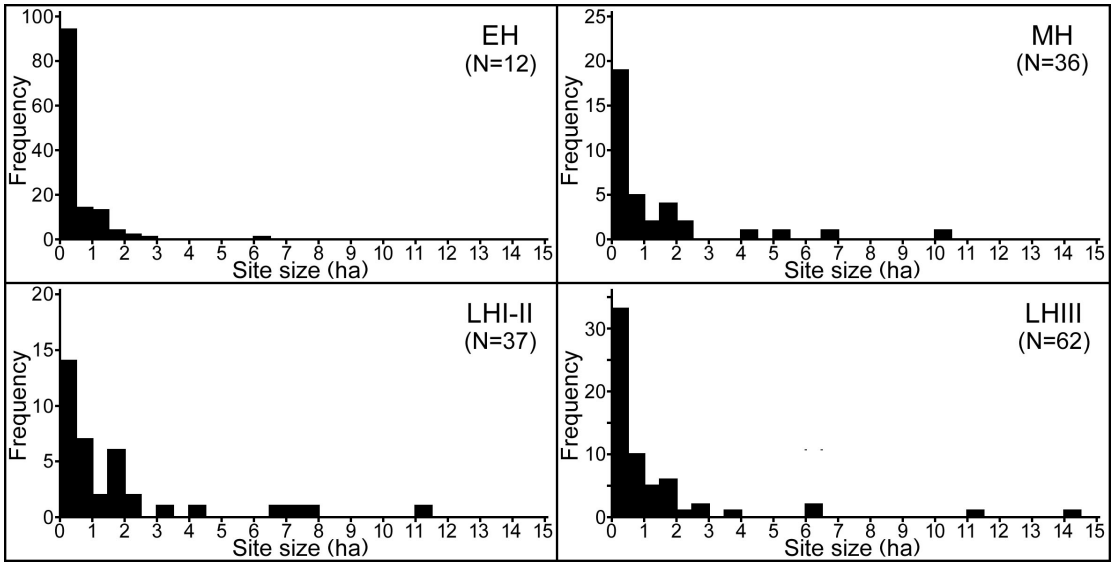

Fig7.7. Mainland Greek surveys, site size: A) EHI-II; B) EHIII-MHII; C) MHIII; D) LHI-II; E) LHIII.

We have a number of major Mycenaean palatial centres that the Linear B palace archives indicate were centers for very extensive states. Figure 7.8 plots very approximate data for the development of these centres. These document a slower, more drawn-out process than on Crete. It is also more variable, perhaps not surprising, with these centres spread out over a much larger region, though the data for most sites are also quite a bit more patchy and unreliable than for the Cretan examples. Most palatial centres are in the 20-30ha range. With lower occupation densities than on Crete (perhaps 100-150/ha), they will have had on the order of 2-4,500 residents, though Mycenae, possibly more than 40ha, will have had perhaps 4,500-6,500. These are all within the range of agriculturally self-sufficient centres, though Mycenae possibly just so, particularly given that a significant component of its immediate catchment is mountainous and uncultivable.

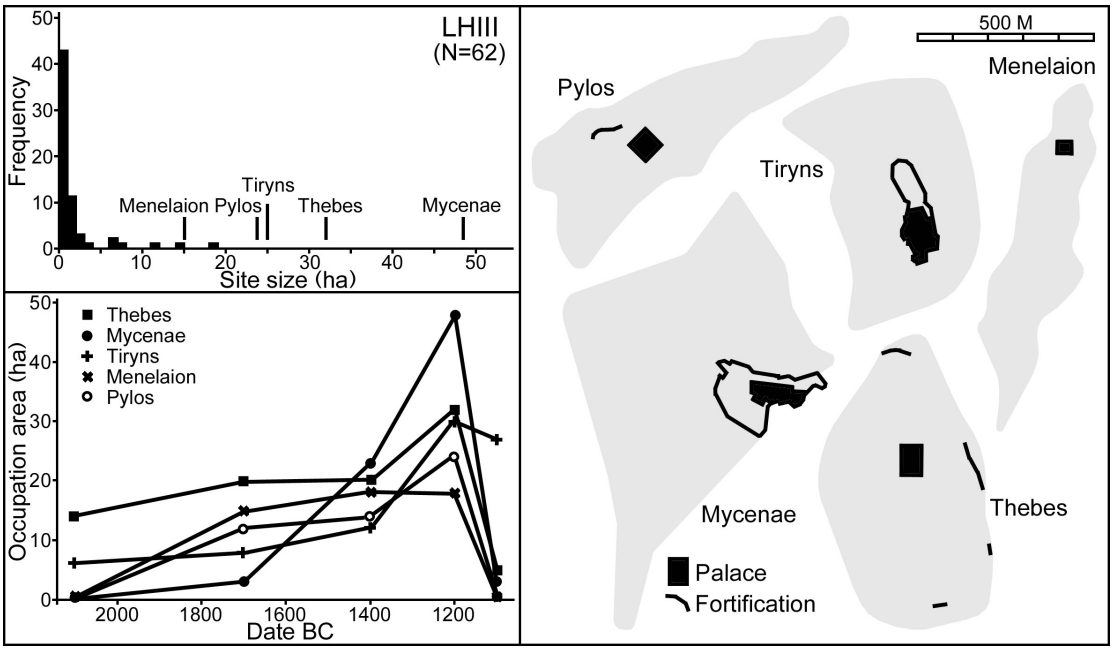

Fig.7.8. Mainland palatial centres, growth through time and site extent.

The Linear B tablets document the administrative structure of a large Mycenaean polity centred on Pylos in Messenia, organised in some 16 districts. This is the approximate number of sites larger than 2ha that we know through extensive surveys in Messenia (Whitelaw 2001b). So we can envision sites such as Nichoria and Malthi as originally politically independent local centres, incorporated as subsidiary centres into the expanding Pylian state (Bennet 1999). Bearing in mind that rapid extensive surveys tend to underestimate site size, these subsidiary centres are probably on the scale of 2-6ha, comparable to those in the wider territory of Neopalatial Knossos.

Considering site sizes, in agrarian states, maximum community size tends to be severely constrained by the productivity of the territory that can be farmed directly by the residents of the community, its agricultural catchment (Wilkinson 1994). This is basically a logistical problem, with the efficiency of agricultural labour and the transport of bulk agricultural produce dropping rapidly with distance, a fundamental tenet of geographical locational models (Chisholm 1968). These constraints can be seen clearly in the city-size distributions of other pre-industrial states, with the exceptions being administrative capitals of large empires, almost invariably situated in coastal or riverine locations, enabling bulk goods transport by water. A comparison with the size distributions of the better understood historical Mediterranean examples of Classical Greek and Roman cities supports this point, but also raises another (Fig.7.9). With occupation densities of Greek and Roman cities typically in the range of 150-200 persons/ha, one can see a marked drop in the number of cities at 20-30ha, representing communities of 3-6,000 people. In a Mediterranean landscape, if we grossly assume 1ha of agricultural land to support each person, the territory to support these small urban centres will have a radius of 3 to 4.5kms, or a one-hour walk. Cities larger than this might have a network of small hamlets and villages supplying subsistence to supplement that produced by residents of the city, satellite communities within a city state.

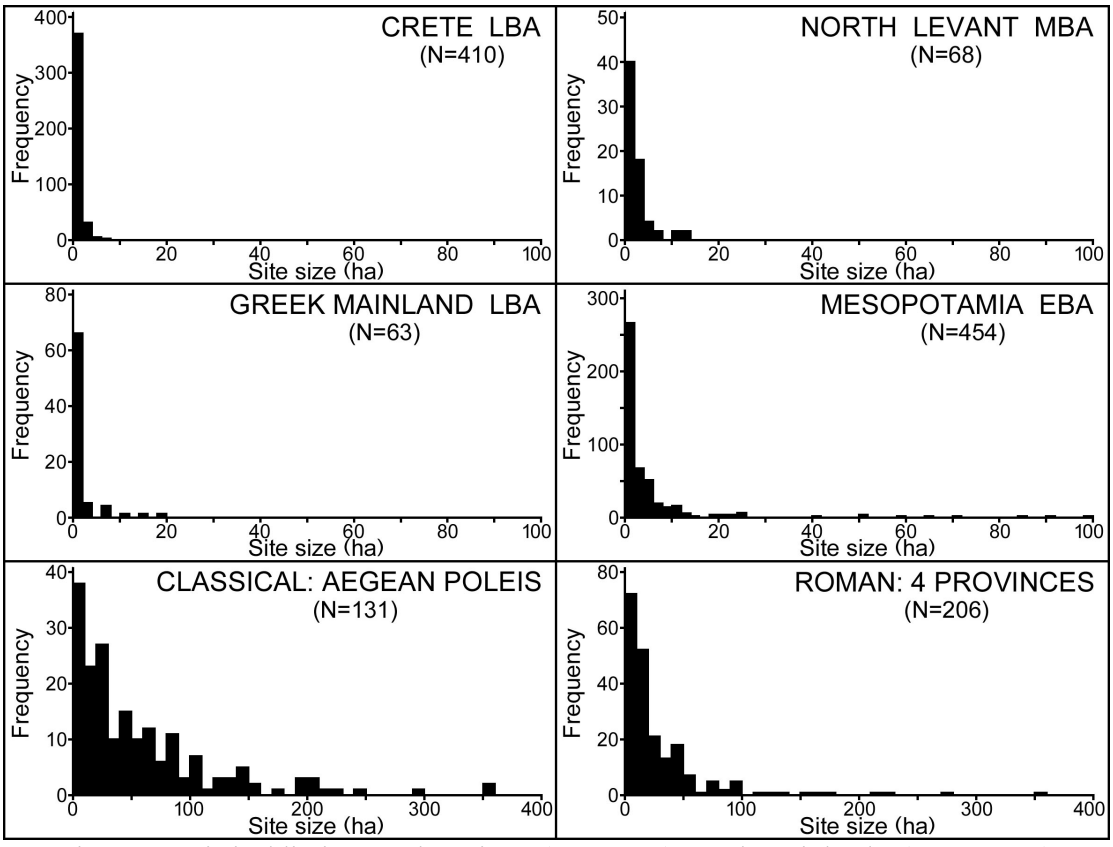

Fig.7.9. Logistical limits on urban size: A) Crete; B) Greek Mainland; C) Levant; D) Mesopotamia; E) Classical Greek (Aegean cities); F) Roman (Britain, Spain, Gaul, Anatolia).

A second point to extract from this gross comparison is the contrast in mid-sized centres, abundant in the Classical Greek world of independent small city-states and in the later Roman world of a large-scale politically integrated empire, but nearly absent in the Bronze Age, command economies of the palace-centred polities. These latter appear to suppress the development of a more mature and economically more effective settlement hierarchy, one that would fit the classic central place geographical models. Returning to the definitional question raised at the start, this marked contrast between major centres and the remaining, generally very small communities, makes it far easier to draw a distinction between urban and non-urban communities, and raises expectations about significant contrasts in population differentiation between these seemingly quite distinct categories of community.

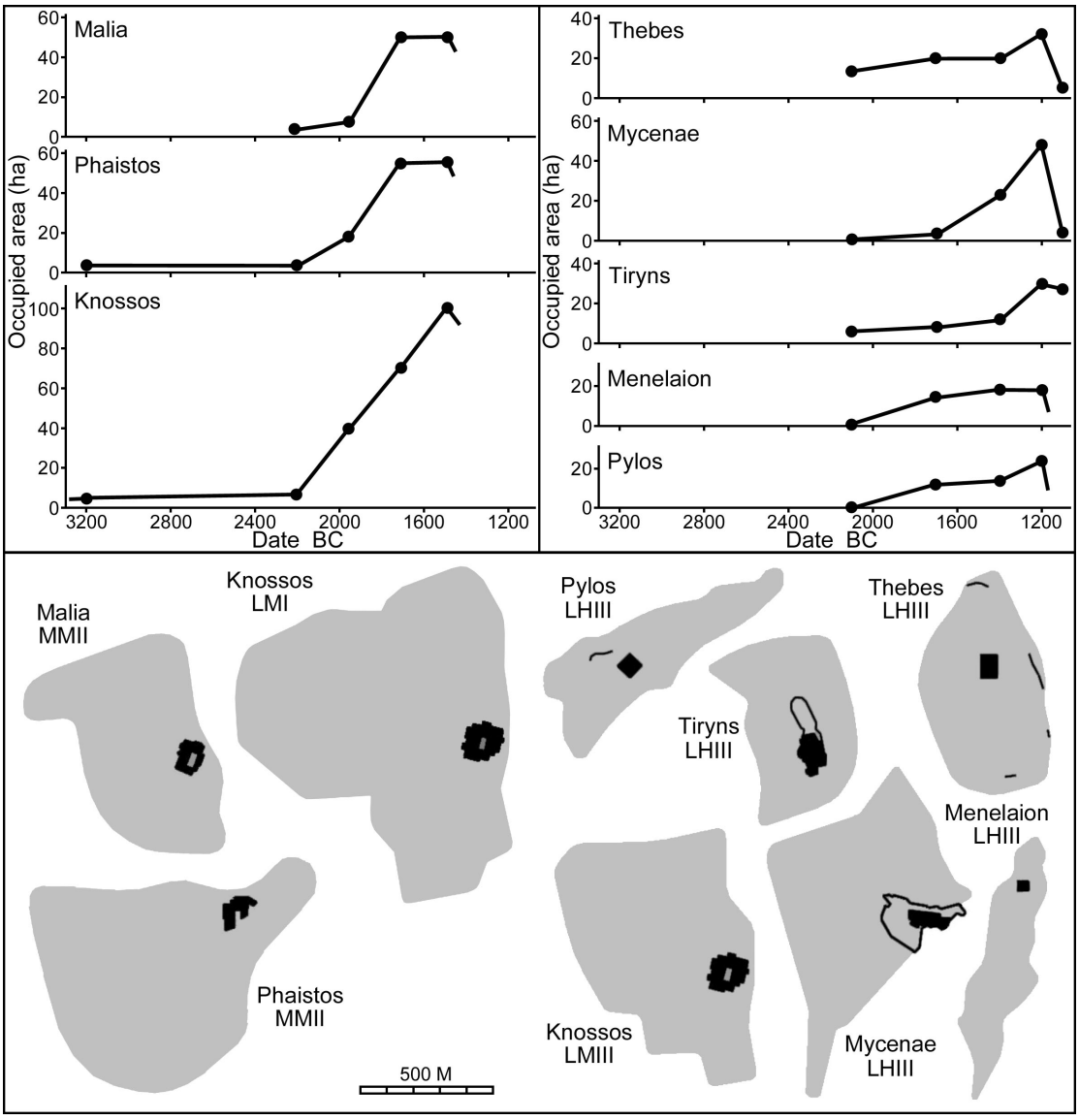

Fig.7.10. Cretan and Mainland centres: A) Growth patterns; B) Site extent.

Comparing urbanisation on Crete and the mainland (Fig.7.10), the process started earlier on Crete, but also generated larger centres, and it appears to have been a more rapid process. This would have been more of a challenge for people trying to cope with the novel demands of a rapidly expanding and increasingly differentiated urban population. This would probably require more rapid innovation, social and economic, to cope with and sustain such growth. Only at Mycenae, in the later palatial period, do we possibly see a comparably rapid process, though the excavated evidence outside the citadel to base these estimates on is extremely

patchy. Mycenae's development may, like that of the Cretan centres, have created new subsistence and logistical problems, requiring social and political, as well as potentially technological solutions. In the latter sense, we have evidence of a wholly different scale of landscape manipulation with Mycenaean dam building and the draining of the Copais (Knauss 2001), than anything documented on Crete. It is also interesting that the earlier Cretan administrative centres were larger, for smaller polities, and the later Mycenaean polities were larger, but administered from somewhat smaller centres. This may suggest these represent different types of administrative organisation, at least some variation between the regions in terms of the nature of urban centres. Interestingly, in the Final Palatial period on Crete, when the Linear B tablets indicate that Knossos dominated politically at least two-thirds of the island, the centre declined in size, perhaps suggesting that the territory could not really sustain the more extensive Neopalatial city.

7.3. Understanding urban communities: archaeological approaches and analytical models

Ancient urbanism is receiving expanding interest in archaeology world-wide, as witnessed by the increasing number of edited volumes (e.g. Storey 2006; Marcus and Sabloff 2008a; Laurence and Newsome 2011; Guadelupe Mastache et al. 2008; Osborne and Cunliffe 2005; Smith 2002; Vermeulen et al. 2012; Creekmore III and Fisher 2014). The emphasis is predominantly descriptive, rather than synthetic, analytical or interpretive, though there are some exceptions (e.g. Clark 2013; Yoffee 2015a). Some regional analytical studies (e.g. Novák 1999; Margueron 2013; Smith 2008; Laurence et al. 2011), and likewise an increasing number of site-specific studies (e.g. Kemp 2012; Luis de Rojas 2012; Farrington 2013; Masson and Peraza Lope 2014; Cowgill 2015), consider the nature of ancient urbanism. This primarily descriptive emphasis is hardly surprising, not just within a regionally and temporally highly sub-divided discipline emphasising site-based fieldwork, but also considering the urban models developed in geography and sociology, which are, unsurprisingly, addressed at industrial and post-industrial cities. While occasionally explicitly considered by archaeologists (Marcus and Sabloff 2008b), they provide little guidance, not only because of the completely different social and economic structures of the societies involved, but also because of scale. Pre-industrial cities are generally minute in comparison to modern metropoleis, so models of organisational structure fundamentally predicated on land rents, movement costs and economies of scale, tend to be largely irrelevant, except possibly in the case of exceptional mega-cities such as Memphis, Rome or Teotihuacan.

A second set of problems focuses on the purpose of the models developed. Those addressed at pre-industrial urbanism are almost exclusively designed to provide a foil to modern cities; they are not particularly aimed at analysing the nature of pre-industrial cities (Liverani 1997), as indeed guaranteed by any assumption of a uniform model of cities in all pre-industrial contexts (Sjoberg 1960; Weber 1958). These limited and largely retrospective concepts are increasingly being replaced by empirically-based studies, for example of medieval European cities (e.g. De Vries 1984; Nicholas 1997; Clark 2009), and Roman urbanism (Bowman and Wilson 2011; Parkins 1997a; Laurence et al. 2011). But it also remains the case, in considering urban history, that most Western discussions of ancient urbanism are dominated by the characteristics of Classical Greek and Roman cities, seen as ancestral to the Western urban tradition. There is far less interest in, access to, or theorisation about other early urban traditions, including Sub-Saharan African, Egyptian, West Asian, South, South-East or East Asian. In some sense, the interest in and independence of theorising on Pre-Colombian urbanism (Smith 2008; Sanders and Santley 1983; Marcus 1983; Guadelupe Mastache et al. 2008; Luis de Rojas 2012; Farrington 2013; Masson and Peraza Lope 2014; Cowgill 2015) may be prompted precisely because it is so obviously independent of the Western tradition.

Moving away from such modern Western and fundamentally inappropriate models, current archaeological research seems to be polarising in two directions. One, more traditional, is descriptive and classificatory, trying to be more systematic and comparative in recognising

material patterns (e.g. Smith 2007; 2011), but without identifying why these material patterns are substantively significant – what do they tell us about ancient societies? A second, consistent with the interpretive turn in archaeology, looks at cities as symbols (e.g. Yoffee 2015a). This can be particularly rich in contexts where literary texts or rich and abundant iconography can give us an idea of emic concepts (e.g. Baines 1995; 2015a; 2015b; O'Connor 1998; Barjamovic 2011; Grabbe and Haak 2001; Novák 1999; 2004; Hanson 1997; Purcell 2007), but in essentially prehistoric contexts, we usually end up simply projecting our own assumptions. To bring this closer to home, what evidence could actually support the regularly repeated assertion that Knossos, in the later Bronze Age, was considered to be a 'cosmological centre' (Soles 1995; see also chapter 15)? In between these extremes is a largely unexplored analytical space where we need to address what cities are, why they exist, what roles they play, and why they are important in societies. This relative lack of interest in why cities exist and their distinctive roles, is particularly curious since it has long been widely accepted that they are the principal crucibles for the development of innovations in culture in recent millennia around the globe, as they remain today (Redfield 1953; Friedmann 1966; Mumford 1966; Eisenstadt and Shachar 1987). But even this overall assumption needs to be challenged; to what degree is this relevant, and in what ways, to ancient urban centres in specific cultures and contexts? That model is largely based on modern and recent contexts, from cities within highly integrated regional, inter-regional and today, globalised systems. This question applies both at the inter-city scale, but also at the more local scale of the integration of a city with its hinterland, embodied to a degree in debates about ancient cities as producer or consumer cities, particularly developed in Roman history and increasingly in archaeology (Whittaker 1995; Parkins 1997a; Mattingly 1997; Erdkamp 2001; 2012; 2015), to a lesser extent in analyses of the Greek city (Finley 1973; Hansen 2004).

In Bronze Age contexts, similar concerns have begun to be addressed, though tangentially rather than directly, in arguments for and against the patriarchal model of ancient Near Eastern societies (Schloen 2001; Ur 2014; Stone and Kemp 2003; McGeough 2007), and are relevant to the model of fractal social structures (Lehner 2000; Kemp 2012; Knappett 2009). At first reading, this seems to imply that cities are simply aggregates–with more of the same, articulated within similar structures at a higher level–rather than more differentiated and more complex societies. But it is not just a matter of scaling-up if, as traditionally argued, there are emergent properties and structures with larger demographic scale; unique problems of integration, but also novel synergies. If the more traditional view is valid, then the patriarchal household terminology of ancient texts is primarily metaphorical, rather than practical. To a degree, a variant of the simpler model may find support in recent work on Linear B administrations, which has moved dramatically away from the traditional highly centralised redistributive model (Finley 1957; Renfrew 1972; Killen 1985), to one defining a much more limited range of palatial economic interests (Halstead 1999; 2011; Whitelaw 2001b; Bennet 2008; Voutsaki and Killen 2001; Bennet and Halstead 2014). While this may be consistent with the relatively low level of centralised taxation, with only limited relevant documents it is difficult to assess administrative reach, for example in terms of kingdom-wide property rights and corvée labour obligations. It is tempting to see the Linear B administrative system as particularly characteristic of the Mycenaean polities, and to fall back on a century of bias and assume that earlier Minoan administrative systems and urban communities were more complex. But structural similarities between Mycenaean and Levantine administrative and economic structures, as documented through texts at Ugarit and Alalakh, should caution us against assuming that Minoan administrative systems were necessarily more complex. At present, without a more systematic assessment, one returns to the contrast drawn above between Hagia Irini and Knossos–is it valid to see the village at Gournia, with its central palace, as fully comparable to Knossos, some 25 times larger?

To date, discussions of Minoan urbanism have been largely descriptive, rarely analytical or interpretive (e.g. Hutchinson 1950; Branigan 1972; 2001; van Effenterre 1980; 1990; Poursat 1988; Whitelaw 2001a; Shaw 2003; Schoep 2002b; 2004; see also chapter 15). More often, individual features are considered, such as palaces, villas, houses, courts, shrines or streets

(e.g. Graham 1962; Cadogan 1976; Driessen et al. 2002; Betancourt and Marinatos 1997; McEnroe 1982; Palyvou 2002; Driessen 2002; Warren 1994; Chrysoulaki 1990; Driessen 2009; Hood 1977). I think it will be useful to step back from the detail of the Cretan data, and look at the question more comparatively (see chapter 15).

The on-going debates about Roman urbanism, able to draw on patchy but sometimes rich written records (e.g. Alston 2002; Bagnall 1992; Bagnall and Frier 2006; Scheidel and Friesen 2009; Erdkamp 2001; 2015; Bowman and Wilson 2011), as well as abundant and highly standardised archaeological evidence, provide many points of tangency for Aegean prehistory, not least because of the comparable local and regional environmental contexts, fundamentally agrarian economies, and broadly comparable productive and transport technologies. On the other hand, the scale, economic, social and political structures of the societies were very different, so no direct analogies can be assumed. But the insights derived from a systematic and explicitly materialist and institutional perspective (Scheidel 2012; Scheidel et al. 2007; Erdkamp 2012; Morris 2004; Lo Cascio 2006), inspired by the New Institutional Economics (North 1981), have been amply demonstrated. This recent research has suggested the approach I want to tentatively start to explore in the remainder of this chapter. The basic assumption is that the fundamental institutional structures of society are integrally linked to and will be embodied in, the nature and characteristics of the focal population centres, the urban infrastructure, and manifest in the material components of the city and how they are articulated with each other, both within the city and beyond to other communities within the wider polity.

I am therefore putting centre stage the major administrative institutions that are central to Bronze Age redistributive states: palaces and temples. On the one hand, these have long been central to our archaeological investigations of such societies, in earlier phases of research because they were explicitly sought out as the likely depositional locations of dense quantities of fine artefacts, elaborated architecture and texts–so we have an over-representation of such evidence in the recovered and published archaeological record. While this bias of earlier archaeology is frequently decried, it should be productive to frame questions for which this abundant evidence is particularly suitable. On the other hand, that same material elaboration, architectural and artefactual, indicates an emic perception of the significance of such institutions. We also benefit from these past research biases, if we shift attention to textual records to gain social, economic, and ideological contextual detail to complement our understanding of the material record, with the bulk of those texts concerning the administrative workings of such institutions. This is also the case in the prehistoric Aegean, though we are severely handicapped by, on the one hand, numerically limited textual records, but also by the restricted way texts were used–almost exclusively for narrowly defined administrative records–and so what they can inform us about. We are also limited in that the Cretan Linear A and Hieroglyphic records remain undeciphered, though the format of records and continuity of some signs from Linear A to Linear B, does allow us to extract considerable information from the Linear A texts (Schoep 2002a).

From this perspective, to the degree that institutional roles and organisation are integral to understanding urban form and structure, my expectation is that we can draw upon the far better documented urban institutional infrastructure of East Mediterranean and Near Eastern Bronze Age societies, to help us understand the less thoroughly documented Cretan examples. Of course we have done this to some degree since the start of Minoan archaeology, but we have done so in very vague ways, either evoking some sort of assumed generic model, or selecting individual characteristics out of context, asserting comparability and assuming significance. We have also been caught, from the start of Minoan archaeology, in a desire on the one hand to derive Minoan cultural institutions and behaviours from East Mediterranean models, relying on diffusionary assumptions, but at the same time trying to define a Minoan exceptionality, going back to early 20th century Orientalism, for 'Europe's first civilisation' (Hamilakis and Momigliano 2006).

Bronze Age institution-centred polities across the East Mediterranean and Near East are extremely variable. This is a problem if we are hoping for easy comparisons. But this

diversity, which is patterned, should provide us with a spectrum of potential models, which we can explore to understand individual institutions, in context, and their material manifestations. A major difficulty, however, is that this fundamental comparative analysis has not yet been done in these core regions. So this can only be an extremely preliminary exploration. Its aim is first to identify whether the available evidence indicates that Bronze Age Cretan societies, particularly as assessed through their material urban characteristics, fit within the range of such characteristics of urban societies further east, to establish that such a comparative exploration is worth developing further. In other words, can systematic comparisons potentially be a basis for developing relevant models for helping us to analyse and interpret Bronze Age Aegean urbanism? The secondary aim is simply to highlight some similarities and differences, which even looked at in such a broad-brush fashion, identify interesting, even provocative, characteristics of Minoan urbanism.

Considering the primary aim, there are several fundamental points that hold out promise. Most East Mediterranean and Near Eastern polities were basically city-states, of various scales, but with a single major administrative and population centre. These were periodically amalgamated into larger territorial states or empires, particularly in Mesopotamia, but these larger polities were inherently unstable, regularly breaking down into their constituent building blocks: individual cities and their immediate territories (Marcus 1998; Garfinkle 2013; Stone 1997). For our analytical purposes, such component city-states usually retain their own administrative, economic and social structures, with an additional higher hierarchical level imposing taxation/tribute, but often leaving local structures relatively intact. Occasionally, larger political formations are able to develop greater integration, more organic solidarity, and can be sustained for longer periods: this tends to characterise the larger-scale empires of the end of the Late Bronze Age into the Iron Age (Liverani 2005a; Diakonoff 1982; Barjamovic 2013). Perhaps linked to its high-volume and integrating interactions along the Nile, Egypt was able to sustain such larger-scale integration for long periods, but still occasionally broke down into smaller regional polities. The important point is that for a long period, across a range of different ecological contexts, cities and their immediate hinterlands were the fundamental political units, providing us with a wealth of examples to look for patterns among.

While it was asserted some time ago that Aegean urban communities were significantly smaller than their eastern counterparts (Renfrew 1972:240-44), this was clearly not the case (Whitelaw 2001a). Scale was identified at the start of this chapter as a crucial dimension for understanding urban communities, so it is relevant that the major Aegean urban centres are comparable to those in other Bronze Age contexts. Significantly larger urban centres certainly existed, but these were exceptional, and tend to be the capitals of larger territorial states and empires, and are almost invariably dependent on riverine or coastal locations to be sustainable.

Throughout the period and region, urban communities were fundamentally agrarian. While pastoral groups constituted more or less significant components of such polities, at different times and places, the cities themselves were principally sustained by local agriculture. This imposes constraints on the size and complexity of populations, through limits on agricultural productivity, surplus production, and the logistics of moving bulk agricultural resources from producers to consumers (Wilkinson 1994). There were variations in constraints depending on the technology and availability of forms of agricultural intensification (e.g. crop and animal species, irrigation, terracing), but within broad constraints principally determined by access to land, water and labour. The technology available for agriculture was driven by human and animal labour, and logistically limited by animal and cart transport, except where bulk transport was possible by river or coastal shipping. These constraints allow us to anticipate significant logistical differences in potential developments between major regions (the Nile, southern vs northern Mesopotamia and inland Syria, the coastal Levant), but also major commonalities within and between such regions.

Throughout the Bronze Age, extending back into the later Chalcolithic in some regions and forward into the Iron Age in many, the polities were economically centralised, administered

by major institutions, which were major land-owners, and also often controlled considerable quantities of labour, human and animal. These were classic redistributive economies, though how centralised, and how exclusively redistributive, varied in time and space (Renger 1979; 1990; 1994; 2007; Liverani 2005b). But such control and redistribution were essential to the support of the major institutions at the core of society, whether palace or temple. Although the redistributive model of Aegean polities (Renfrew 1972; Killen 1985) has received much criticism and re-tuning in recent decades (e.g. Halstead 1999; Voutsaki and Killen 2001; Killen 2008; Pullen 2010; Nakassis et al. 2011; Parkinson et al. 2013), the scale of rations recorded in both Linear A and Linear B archives indicates redistribution was very significant in the economy (Halstead 2011; Bennet and Halstead 2014).

Together, these basic shared characteristics suggest the value of an explicitly comparative exploration. In addition, the wide range of different configurations, different scales, and differentially centralised political systems, provides a rich source of interpretive models. But in contrast to the Aegean, many of these eastern cities and polities represent far better controlled contexts, known to some degree through documentary sources. Together, the material and textual records provide a range of contexts to explore and try to understand the nature of the similarities and differences.

7.4. Bronze Age institution-centred urban societies

While broadly characterised as highly centralised, redistributive societies, power and control over land, people and other resources was usually distributed across different institutions, while independent households of various scales usually existed outside the major institutions (Garfinkle 2005; Goddeeris 2007; Liverani 2013; Renger 1979; van Driel 2000; Stein 2005; Ur 2014). The latter, in particular, have been relatively ignored by earlier investigations because textual records were less necessary, and therefore less regularly used, deposited or recovered in smaller-scale establishments. The inter-relationships between different institutions are often only poorly documented, since the surviving records are largely internal accounts, primarily concerned with the administrative workings of an individual institution. Even when recovered systematically from coherent archives, sets of inter-related tablets are usually only partially preserved. In addition, complementary records from different, even roughly contemporary institutions are rarely preserved, so cannot be played off against each other very effectively to appreciate the complementary roles of and relations between different institutions within the same city or polity. With such patchy recovery, individual well-preserved and published archives will naturally be extrapolated to what are assumed to be comparable institutions, quite widely in time and space. Finally, with such patchy records, the local meanings of terms and procedures are often reconstructed by analogy with documents from other sites, almost certainly blurring actual differences in practices. These cautions are not an argument against comparison and generalisation, but simply suggest that for our purposes, it is more productive to focus on broad structural parallels in how such institutions worked, rather than local and idiosyncratic details.

Three different types of institutions are regularly identifiable as involved in urban organisation: the palace of the ruler, temples, and an assembly, the composition of the latter unspecified, but usually assumed to be some set of citizens, elders or prominent families (Garfinkle 2005; Liverani 2013; Stein 2005; Otto 2012; Yoffee 2015b). The first two tend to be most thoroughly documented, embodied in substantial recognisable structures and with the best chance of having and preserving archives. The assembly is usually only referenced in legal documents or literature, rather than as a corporate and physically manifest institution, so unsurprisingly, the first two dominate the archaeological as well as text-based records and analyses. The relative importance of these foci for power varies in time and space, though there are very broad patterns. Generally, the temples seem to have had more power and independence early, in the Late Chalcolithic and earlier Bronze Age, with individual temples subsumed within palatial power structures through time (Diakonoff 1969; 1982; Postgate 1992: 299-301). While losing independence, in later periods early temples were often restored

or rebuilt as expressions of palatial political power, so what they represent in terms of power structures shifts. Geographically, temples physically decline in scale from east to west until they are simply small shrines in Crete and the Aegean, and there is little evidence that they independently controlled major economic resources in Levantine or Aegean polities. Egypt provides a different picture, with temples directly associated with divine kings through the Pharaonic period.

The palace as an institution is usually discussed as a unitary phenomenon, but it is clear in many cases, both textually and archaeologically, that a city could have multiple royal palaces. Some were functionally differentiated, designed as venues for specific types of activities, but others were attached to individuals: the king, individual queens, the mother or brothers of the king, the crown prince, etc. Archaeologically, but also through textual references, it is rarely clear what degree of independence or importance a specific palace had amongst its contemporaries, and this was undoubtedly variable, depending on the local system but also the power of the individuals involved at any point in time. Should these be treated as manifestations of a single source of power, different facets of the same, or as quasi-independent power centres? In many cases, independent of the status and official roles of the individual they represented, it is clear from accounts that they acted as economic establishments, with their own personnel, dependants, labourers and resources (including agricultural estates). The ruler of a polity will in some cases also have had palace establishments in subsidiary centres within the polity, even if management of that centre and its hinterland was to a degree devolved to a local ruler or governor. In some cases, regular circulation of the ruler among these subsidiary centres and the performance of specific ceremonies, sacred or secular, was integral to the maintenance of regional integration.

Short of texts detailing these relationships, it is difficult to see how these subtle power relations would be clearly manifest archaeologically. In an Aegean context, elaborate palaces at nearby Mycenae and Tiryns do not require that we consider these independent polities, and it is equally impossible to assert whether that at Tiryns represents a palace of the ruler of Mycenae in a secondary (port) community, or the palace of a subsidiary local ruler/administrator. An even more complicated situation is represented by the multiple palaces partially excavated at Ras Ibn Hani, the nearby port of Ugarit, though in this case, this was clearly a dependent subsidiary centre within the kingdom of Ugarit.

To a degree, some related questions apply to temples, of which a city might have multiple examples, ranging from the major temple of the patron deity of the city, to small neighbourhood shrines. Some were clearly major economic institutions (Fales 2013), though unlike multiple royal palaces, each is likely to have had a considerable degree of autonomy, until they were eventually largely subsumed under palatial authority by the later Bronze Age. So in this case, these can usually be treated more straightforwardly as independent, and to a degree, competing institutions. While individual cities will have had temples/shrines to various deities, processions between the palace and individual temples/shrines could integrate the different institutions within the city, but also different locations within the polity. At least some major Mesopotamian and Syrian gods and goddesses were recognised to have a primary shrine, which might require pilgrimages, consultations or dedications at temples in a different city or polity. So while we can consider individual temples and shrines as relatively independent, many were at least ritually linked, to each other and the palatial authority, and situated within networks within the city, the polity, and in some cases beyond.

While there are textual references to an assembly which might advise or be consulted by the ruler, or in specific cities actually be the central administrative authority, there are no distinctive material structures which can be clearly associated with such an institution (Otto 2012). The relevant individuals could simply have been participants in formal observances, but are not identifiable because they are not represented by a distinct material feature, such as the podia assumed to be for thrones, which are regularly recognised as a manifestation of individual authority.

In terms of distributed civic administration, there are also references in accounts of legal disputes to judges or magistrates, sometimes representing or active within segments of a community, representing some level of sub-urban organisation. There is no suggestion that these latter had a material manifestation, so will be archaeologically invisible, unless, as in some Islamic cities, physical walls actually defined city quarters (Fox 1977; Novák 1999; see Postgate 1983). Divisions based on conventions, propinquity to gates, canals, streets or landmarks may have defined the spatial jurisdiction of such authorities (Stone 1991; 1995; 1997; 2013; Postgate 1992: 80-3).

The discussion so far has drawn very loosely on both textual and archaeological information, to consider some possibilities for exploring the major structuring institutions of the city. The richness and detail, but also extreme patchiness of the texts available has been noted. The archaeological record has the potential to provide a more comprehensive and representative database, provided we explore and document it systematically. Ideally, we would be able to directly link the archaeological and textual records for specific institutions; in practice this is difficult. Many texts have no archaeological context, having been bought on the market. Even when excavated, the direct chronological correlation between the two datasets may be difficult to establish, with documents regularly retained as medium-term records, while sets were often discarded in later contexts. Stratigraphic records from early excavations are often minimal or problematic, and the contextual details will not have been published, even if originally recorded. Because major temples were often elaborated through time and restored repeatedly, often much later, it is also difficult to define their detailed histories. These same limitations apply when trying to assess the relative importance of different institutions within a city. It is extremely rare that we will have rich textual evidence from different institutions that we can consider even roughly contemporary. Archaeologically, the periods which can be defined ceramically are rarely less than a century, usually rather more, and their correlation with text-defined historical phases or events depends on direct stratigraphical links, or the assumption that archaeologically-defined destructions relate to historically claimed conquests. So we need to adapt our expectations to phases rather than events or horizons, and constantly bear in mind this coarse resolution.

In considering texts and archaeology, we obviously play off detail against abundance, but the archaeological data has the potential to provide a far more representative sample, though still biased in its survival, recovery and documentation. Archaeologically, for evidence like housing, we can explore extensive samples of houses to detect and contextualise patterns. But until very recently, this has not been not a priority, which explains the tremendous recent focus on the few cases of early extensive explorations of housing, whether at Ur (Brusasco 1999-2000; 2007; Stone 1996; Battini-Villard 1999), Nuzi (Novák 1994; 1999; Dosch 1993; Bracci 2008; 2009; Battini 2009; 2012; Mönninghoff 2014) or Amarna (Crocker 1985; Shaw 1985; 1992; Tietze 1985; 2010; Kemp 2012), increasingly being redressed by a range of projects (e.g. Pfalzner 2001; Otto 2006). An alternative has been period-specific comparative analyses of limited quantities of data documented across many sites (Battini-Villard 1999; Miglus 1999; McClellan 1997; Chiti 2015; Foucault-Forest 1996). For less abundant and more exceptional monuments, we need to work at the inter-site, comparative level, and quantification and comparison is necessary to understand the role and significance of such monuments and the institutions they represent (e.g. Margueron 1982; Heinrich 1982; 1984; Kempinski 1992). This may be relatively straightforward within a particular culture at a particular period of time, where we can expect that they recognised the same norms and held similar values. But inter-cultural or inter-period comparisons would seem to be less justifiable, since different standards and expectations may have been culturally defined. On the other hand, much of the significance broadcast by the physical form of these institutions is in their monumentality, evident in the past as much as to us as analysts. Basically, it costs to build, in terms of materials, resources, capital and labour, so monumentality is a manifestation of power, over people and resources (Trigger 1990; DeMarrais et al. 1996; see also chapter 15). Those costs may have been evaluated differently in different cultures, but labour also has opportunity costs–what else could have been done with it. In primary

production, agriculture, these are broadly standardised costs, because of the long-term stability of agricultural technology and logistics. This is why long-term and continent-wide patterns can be established by converting costs to human labour for staple production, calibrated against biologically-based standard subsistence needs (Maddison 2007; Scheidel 2005; Lo Cascio and Malanima 2014; Kron 2011). I would push this one step further, and suggest that in addition to construction costs, the monuments themselves also provide an index of maintenance costs and the scale of an institution should be a proxy for the support personnel needed to maintain it and sustain its functions (cf. Davies 2005; Barjamovic 2011; Spence 2007).

This perspective has a further simplifying implication, since in investigating major monuments in this study region, we are primarily looking at two distinct forms of institutions, palaces and temples. Archaeologically, we can often distinguish these, based on the degree to which they are standardised in distinct ways within a culture, and have repeated features which align with our often intuitive assumptions of how such institutions work. In practice, it can be difficult to distinguish them, since so many features are shared by common practices involving controlling, impressing or intimidating groups of people, the architectural facilitation of distinctions in activities and circulation patterns between institutional personnel and visitors (insiders and outsiders), common needs for storage, and a common vocabulary of architectural elaboration. The distinction can be particularly difficult if structures are only poorly preserved or partially excavated. There are also cross-overs and hybrids, for example in palatial residences of the priestly elite associated with a temple (e.g. Ur), temples associated with royal cults within Syrian palaces (e.g. Mari), or palaces incorporated into mortuary temple complexes in Egypt.

We can expect multiple examples of both types of institutions in at least many cities, and because of labour costs in construction, maintenance and sustaining daily activities, we can anticipate these will scale, with more important institutions, controlling more resources, being larger. At the lower end, we can expect small palaces may overlap with the largest houses of the non-royal elite, as seen with the eventual identification of the South Palace at Ugarit as the residence of an important merchant, who also served as the kingdom's vizier (Yon 2006). There need not be any significant break along such a scale, with institutional offices often held by members of elite households. We can expect similar scaling among the range of religious institutions within a city. While we might anticipate different rules guiding the construction and elaboration for each type of institution, they will share common cultural expectations for the expression of status, and a vocabulary expressed through architectural elaboration, so we can expect a degree of comparability justifying material comparisons. This will be particularly important in evaluating the organisational significance of different institutions within a city. While an assessment of investment, in materials or labour, would best be done with full information on three dimensional wall volumes (e.g. Devolder 2013; see also chapter 4), the ambiguities involved in reconstructing monumental structures from their foundations introduce considerable uncertainties, so for a first approximation, simple plan areas will be used here, allowing very rough comparisons.

This should enable an approach to urban institutions through a very broad-brush cross-cultural analysis, allowing us to assess the relative significance of monuments, and the institutions they represent, on the basis of architectural scale. It will also allow us to exploit our long-term investigative bias on temples and palaces productively. Obviously, different cultures, polities, institutions and the individuals making the relevant decisions will vary enormously in how they decide to allocate their resources, but this is at least a starting point to think comparatively about the relative importance of individual institutions within ancient urban centres. The question is whether similar institutions are central to urban organisation in the Aegean and Crete, and if so, whether we can draw on the better documented understanding of such institutions elsewhere to help us to understand their roles and relative significance. The focus of this very preliminary exploration is therefore to make very roughly quantified comparisons of a limited range of characteristics drawn from an accessible sample of East Mediterranean and Near Eastern Bronze Age cities (Fig.7.11; Table 7.1), to see

whether the Cretan evidence sits within that broad range, to establish whether further, more detailed comparisons will be relevant, and might be helpful in investigating the nature of Minoan and Aegean urbanism. The sample analysed is opportunistic rather than representative, to include sites across the study area, a few from the late Chalcolithic, but principally spread through the Bronze Age. To include sites with palaces and temples, the focus has been on more extensively investigated sites, which also biases the sample toward large sites, appropriate since the purpose is to ascertain whether Aegean urban communities fit within the range of behaviours documented for eastern cities. Seventy-eight sites are considered, which provide information on 119 palaces and 147 temples and shrines. The sites are located in Figure 7.11A, and listed in Table 7.1.

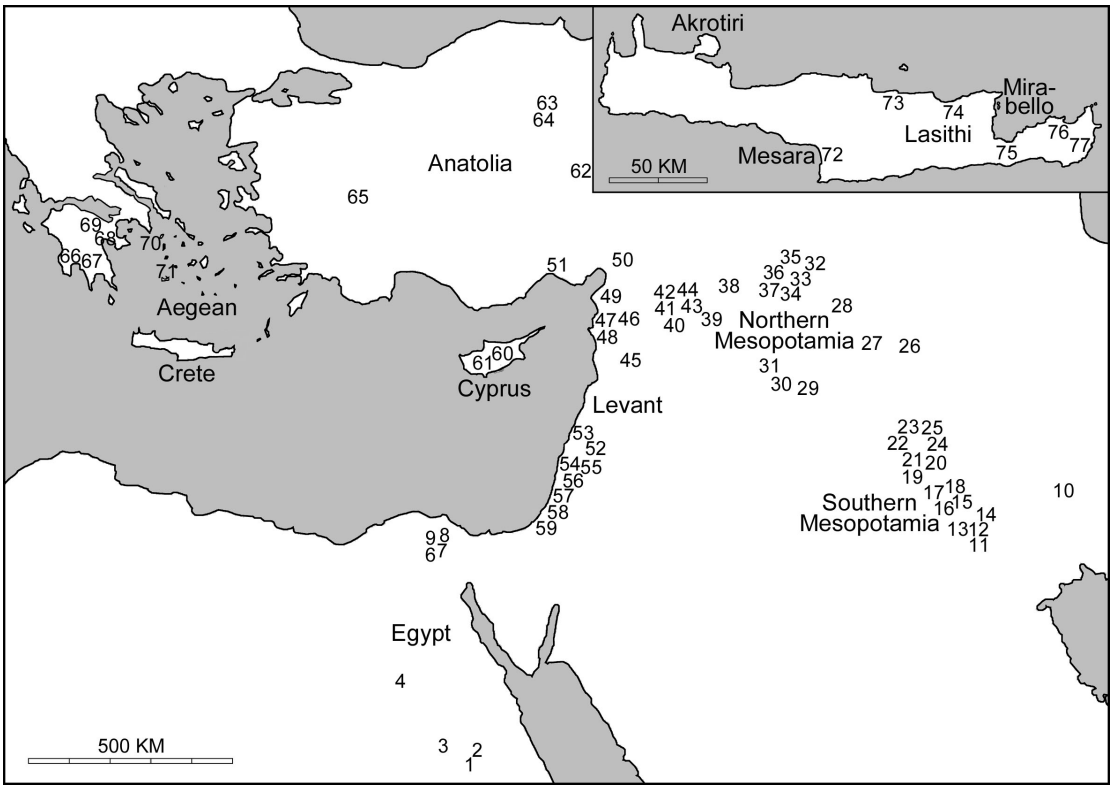

Fig.7.11. A) East Mediterranean and Near East with sites analysed; B) Detail of Crete with sites mentioned in text.

Table 7.1: Sites analysed.

No.	Modern name	Ancient name	Region
1	Malkata		Egypt
2	Deir El-Ballas		Egypt
3	South Abydos	Wah Sut	Egypt
4	Amarna	Aketaten	Egypt
5	Memphis	Inbu-Hedj	Egypt
6	Tell Bastis	Bubastis	Egypt
7	Tell el-Dab'a	Avaris/Peru-nefer	Egypt
8	Tanis	Tanis	Egypt
9	Mendes	Per-Banebdjedet	Egypt
10	Choga Zanbil	Dur Untash	Iran
11	Tell el-Muqayyar	Ur	South Mesopotamia
12	Tell es-Senkereh	Larsa	South Mesopotamia

13	Warka	Uruk	South Mesopotamia
14	Tello	Girsu	South Mesopotamia
15	Tell Bismaya	Adab	South Mesopotamia
16	Isan al-Bahrijat	Isin	South Mesopotamia
17	Nuffar	Nippur	South Mesopotamia
18	Tell Abu Duwari	Mashkan-shapir	South Mesopotamia
19	El-Okheimer	Kish	South Mesopotamia
20	Jemdat Nasr		South Mesopotamia
21	Tell Ishchali	Neribtum	South Mesopotamia
22	Tell Abu Harmal	Shaduppum	South Mesopotamia
23	Tell Khafajah	Tutub	South Mesopotamia
24	Tell Agrab		South Mesopotamia
25	Tell Asmar	Eshnunna	South Mesopotamia
26	Yorgan Tepe	Nuzi	South Mesopotamia
27	Qal'at Sirqat	Assur	South Mesopotamia
28	Tell al-Rimah	Karana	South Mesopotamia
29	Khirbet Ed-Diniye	Haradum	North Mesopotamia
30	Tell Hariri	Mari	North Mesopotamia
31	Tell Ashara	Terqa	North Mesopotamia
32	Tell Leilan	Shubat Enlil	North Mesopotamia
33	Tell al-Hamidiya	Ta'idu	South Mesopotamia
34	Tell Brak	Nagar	North Mesopotamia
35	Tell Mozan	Urkesh	North Mesopotamia
36	Chagar Bazar	Asnakkum	North Mesopotamia
37	Tell Beydar	Nabada	North Mesopotamia
38	Tell Chuera	Harbe	North Mesopotamia
39	Tell Bi'a	Tuttul	Inland Syria
40	Tell Meskine	Emar	Inland Syria
41	Halawa A		Inland Syria
41	Halawa B		Inland Syria
42	Tell es-Sweyhat		Inland Syria
43	Tell Munbaqa	Ekalte	North Mesopotamia
44	Tell Bazi		North Mesopotamia
45	Tell el-Mishrifeh	Qatna	Inland Syria
46	Tell Mardikh	Ebla	Inland Syria
47	Ras Shamra	Ugarit	Levant
48	Ras Ibn Hani	Apu?	Levant
49	Tell Atchana	Alalakh	Levant
50	Tilmen Höyük		Anatolia
51	Tarsus	Tarsa	Anatolia
52	Tell el-Qedah	Hazor	Levant
53	Tel Kabri	Rehov?	Levant
54	Tell al-Mutesellim	Megiddo	Levant
55	Beit She'an		Levant
56	Tell Balata	Shechem	Levant
57	Tell Aphek	Aphik	Levant

58	Tell ed-Duweir	Lachish	Levant
59	Tell al-Ajjul	Sharuhen?	Levant
60	Ayios Dimitrios		Cyprus
61	Maroni		Cyprus
62	Kültepe	Kanesh	Anatolia
63	Alaca Höyük		Anatolia
64	Boğazköy	Hattusa	Anatolia
65	Beycesultan		Anatolia
66	Ano Englianos	Pu-ro	Greece
67	Menelaion		Greece
68	Tiryns	Tirynthos	Greece
69	Mycenae	Mykenae	Greece
70	Ayia Irini		Cyclades
71	Phylakopi		Cyclades
72	Phaistos	Pa-i-to	Crete
73	Knossos	Knossos	Crete
74	Mallia		Crete
75	Gournia		Crete
76	Petras		Crete
77	Zakros		Crete

Table 7.1. Sites included in the analysis.

For the remainder of this preliminary exploration, I will focus on two basic characteristics of urban centres (overall scale and population differentiation), two principal types of institutions (palaces and temples), and finally consider spatial layout.

7.5. Urban scale and demography

Populations aggregate for various reasons, voluntarily to assist co-operation, or involuntarily to facilitate control and administration by others. The frequency of fortifications around early urban centres highlights one particular rationale for nucleation and co-operation. The overall distribution of settlement sizes can provide some insight into the dominant decisions determining a specific settlement pattern. The agricultural carrying capacity of a landscape, in terms of soils, water availability, crops, agricultural and transport technologies will put upper limits on the population that can be supported. Production intensity and transport technologies will constrain the maximum size of cities, in terms of what concentration of population can be supported from local resources. This will vary across the vast study region, with particular distinctions between sub-regions such as southern Mesopotamia and the Nile valley where intensive irrigation or flood water agriculture can be practiced, and most other regions, limited to rain-fed agriculture. While the sample studied here is not representative of city size, this regional difference in scale of the larger cities can be seen when the sample is divided by broad region (Fig. 7.12; compare with more representative samples from survey data in Fig. 7.9).

Southern Mesopotamia and Egypt also stand out because of the ease of bulk transport by river or canal. But for most regions, beyond about a 5km radius of a city, transport costs, for farmers commuting to their fields or bringing bulk agricultural products to the city, put serious constraints on agricultural productivity (Chisholm 1968; Wilkinson 1994; Whitelaw in press B). These encourage, on the one hand, a regular spacing of agricultural communities so they are not competing for the same territory, but also put limits on viable self-sustaining city size. While subject to local conditions and agricultural strategies, across this region and

under different regimes, non-mechanised agricultural production generally requires on the order of 0.5-1.0ha of cultivated land per person. A notional 5km radius of fields from the city, suggests city residential population limits on the order of 8-16,000 individuals.

To convert these constraints into archaeological expectations, we need estimates of city occupation density. These vary considerably, with different cultural concepts of crowding, with the scale of the community, and the range of activities conducted within the household, as opposed to outside the city among the fields. The latter two interact, with households generally larger in rural communities, where a wider range of agricultural processing activities may take place within the household, often in larger courtyard spaces, and animals may also be brought into the yard. Urban space is usually more crowded, with expansion limited by fortification walls, or intensively cultivated, highly valued gardens immediately surrounding the city. Archaeological estimates are often based on ethnographic data from the same region, though this rarely considers the actual relevance of such analogies. More appropriate estimates can be made based on excavated areas of ancient housing, though this requires information on or estimates of household and family size. These can sometimes be based on textual records or general demographic analogies from other pre-industrial contexts (e.g. Bagnall and Frier 2006; Frier 2000; Scheidel 2001; Schloen 2001). Across this region, urban occupation density estimates, derived through different arguments, are rarely lower than 150 persons/ha or above 400 persons/ha. Taking these extremes provides non-controversial brackets: at 150/ha, our maximum estimates of 8-16,000 individuals would produce expected maximum city sizes of 50-100ha, at 400/ha, 20-40ha. Not surprisingly, very few Bronze Age cities exceed these limits (Fig.7.9). With occupation densities in the 200-250 persons/ha range (Whitelaw 2001a), the major Minoan sites are pushing, or in the case of Knossos (at 100ha), probably well beyond this limit, almost certainly creating provisioning problems (Whitelaw in press B).

A second point, touched-on in section 7.1, concerns the distribution of settlement sizes. Regional survey techniques, particularly the extensive strategies used in the early decades of such research, systematically over-looked smaller, and in the Near East, non-mound sites. This is now being rectified, with both pedestrian surveys and satellite imagery, which is increasingly being used to re-assess and complement earlier ground surveys (e.g. Casana and Cothren 2013; Bonocassi and Iamoni 2015). But even using the large-scale early surveys, Adams (1981) was able to point to significantly different settlement size distributions in Mesopotamia in periods characterised by many independent city states, and those in which the region was subsumed within larger empires. The latter phases were strongly dominated by small sites, a more effective distribution of population for efficient agricultural production. A second gloss on these contrasts would emphasise settlement nucleation in the competitive environment of endemic raiding or warfare among city states, and the impact in terms of settlement dispersion, of pacification within a large territorial state or empire. But as noted in section 7.2, the settlement patterns of Bronze Age institution-focused polities are intriguingly characterised by hollowed-out settlement hierarchies: the urban centres that are the focus of city states, and much smaller villages and hamlets, but very few of the intermediate towns which we would expect for a well-developed settlement hierarchy. This emphasises that settlement patterns are the result of explicit strategies, not in any sense ‘natural’, and so should be able to inform us about the economic and political structuring of society. The classic central place models were developed to analyse large, modern systems within unified states, with regional spatial behaviour dominated by economic costs. Early, much smaller political systems, while not independent of logistical constraints, may be more significantly affected by administrative and political concerns. In this case, the polarised distributions suggest the strongly centralised power of these administrative institutions, and, justifying this whole investigation, the centrality of cities and city-life in these cultures. Adams’ analysis also provides strong advocacy for the approach suggested here, exploring the material characteristics of well-documented Near Eastern contexts to develop empirically-based models of economic and political landscapes, in systems organised in ways largely alien to our own and best documented experience.

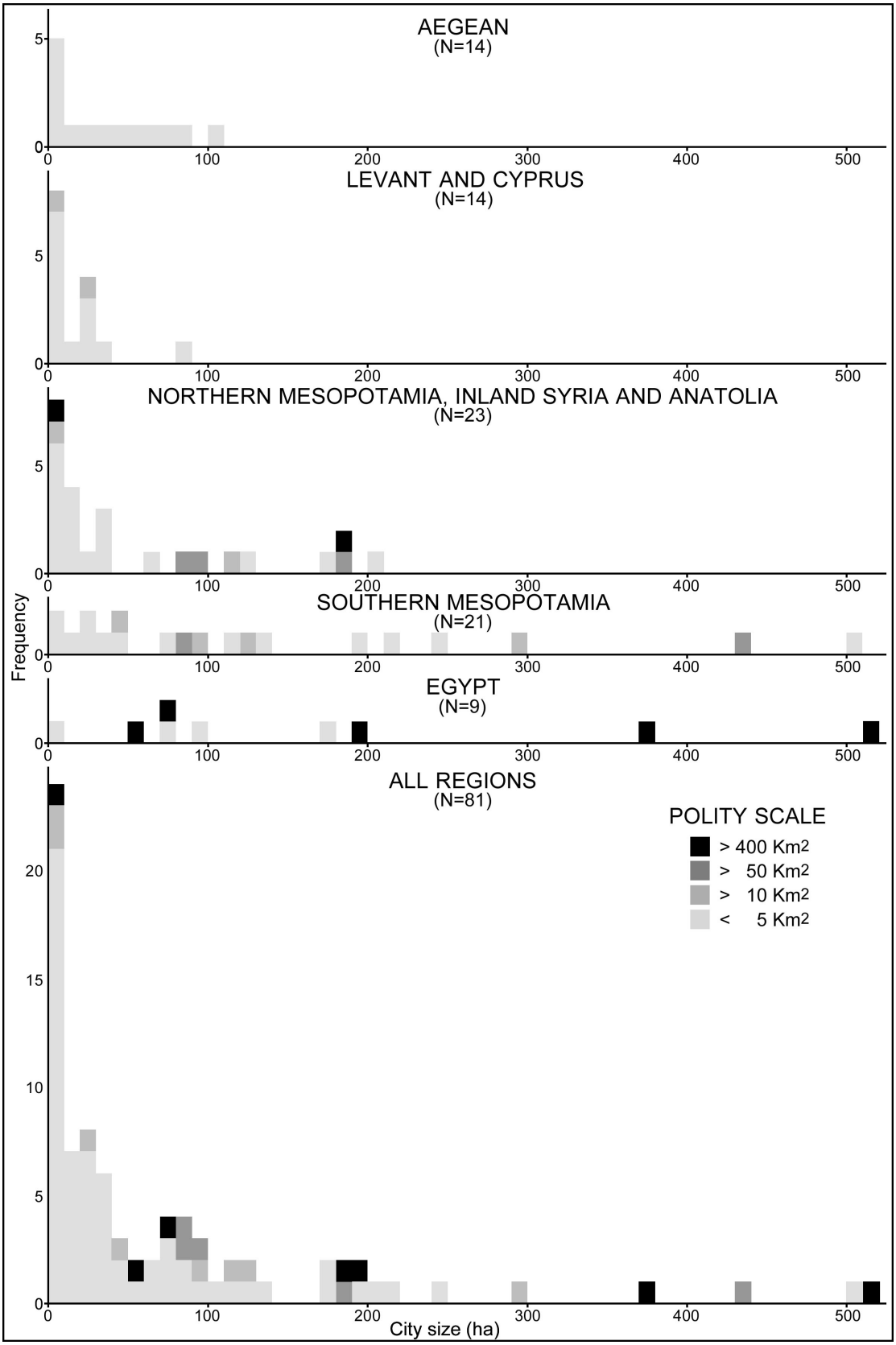

Fig.7.12. City size by region and estimated polity extent (polity sizes are in thousands of km^2).

As a final perspective on urban scale, in agrarian states, the population will be supported by the agricultural production of the entire polity, with an urban population potentially supported

through the import of resources from beyond its immediate vicinity, with such resources channeled up the settlement hierarchy. Given the logistical costs, such resource support may be transferred through taxes or tribute in the form of lower bulk/higher value raw materials or finished goods–wealth rather than staple finance (d'Altroy and Earle 1985), but the necessary subsistence resources will still have to be acquired, with the associated logistical costs. Despite high expectations based on the quality rather than quantity of fine crafted goods in palatial Crete, even in the Roman Empire, urban economies were primarily agricultural (Erdkamp 2015; cf. London 1992). So a polity's population should relate fairly directly to the area under cultivation, and we should expect a generally linear relationship between population (represented by total settlement occupied area) and a polity's agricultural territory. Documenting such a relationship will be complicated archaeologically by the incompleteness of our settlement samples, by uncertainties about the percentage of territory which was cultivated in the period of interest, and by subsidiary consuming centres in larger polities (Fig.7.13). But the interest in even gross approximations is that deviations from such a simple expected relationship can point to exceptional situations, for example, when polities or specific capital cities are significantly sustained by extra-territorial tribute (e.g. Brumfiel 1976; Steponaitis 1981; Wright 2000), or commercial relations–for example the few anomalous mega-cities of antiquity known historically (cf. Clark and Lepetit 1996; Ringrose 1998). The decline in site numbers (though representing lesser declines in regional populations) between the Protopalatial and Neopalatial periods, monitored by survey data, may hint at some changes in productive and political relations between sub-regions on Crete (Fig.7.3), but this will require detailed systematic analysis to explore effectively.

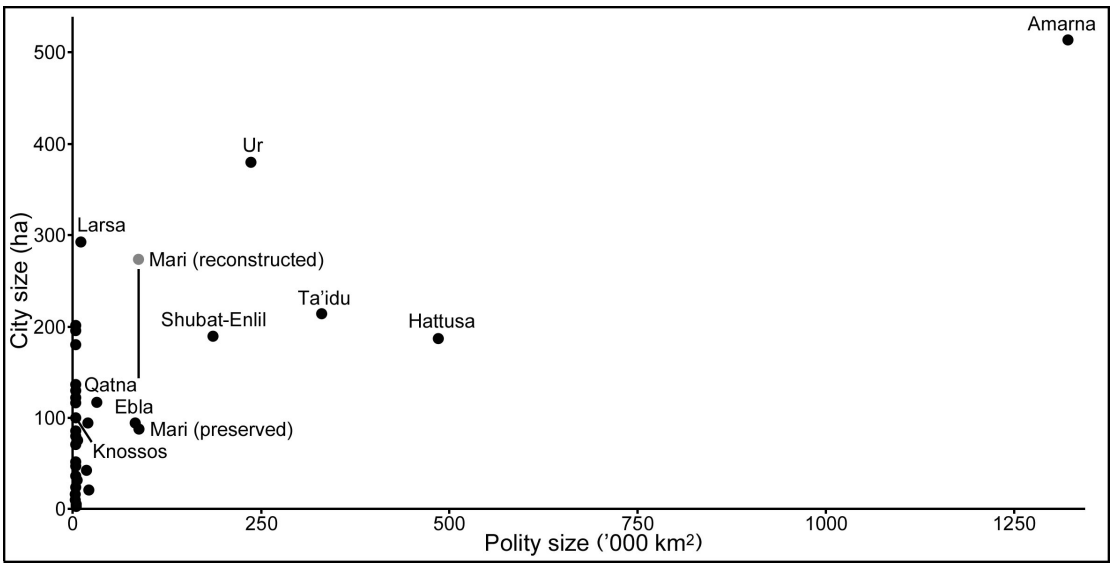

Fig.7.13. Relation of city size with estimated polity extent.

7.6. Urban centralisation and differentiation

Urban centres represent centralised populations, and they are characterised by differentiated populations, as outlined in sections 7.1-2. While we may take this as assumed, we will want to know how this is manifest in the communities of interest, and what this tells us about them. In what ways did the residents, or the relative mix of residents, in urban communities differ from those of smaller associated rural communities? In what ways did this contribute to a distinct character for urban populations? Unfortunately, we have relatively restricted textual data that explicitly informs on these questions because of the largely institutional contexts and contents of the texts. In limited examples, texts recovered from household contexts can inform us about the nature, occupations and activities of members of individual households (e.g. Ur: Brusasco 1999-2000; 2007; Nuzi: Bracci 2008; 2009; Ugarit: van Soldt 2000; Yon 2006). In other cases, census and taxation records can give us overviews of population

composition and demographic characteristics (e.g. Heltzer 1976; 1982; von Dassow 2008; Schloen 2001), which permit reconstruction of family forms and the relative frequency of broad occupational categories. Roman, medieval and other pre-industrial censuses may provide more detailed models on which to develop expectations (e.g. Bagnall and Frier 2006; Scheidel 2001; Cippola 1981; De Vries 1984; Luis de Rojas 2012), including differences between communities of different scales and even different census districts of a city (Alston 2002).

Drawing upon a range of data from pre-industrial contexts, in most agrarian-based urban societies some 5-20% of the overall population is not engaged in primary agricultural production, either as elites, crafters, merchants, or providing services (Whitelaw in press B). These non-agricultural occupations and statuses will be preferentially concentrated in the urban centres with their central-place administrative functions, accounting for the much greater differentiation of urban populations.

Focusing on the urban residents, in what way were they differentiated and how were they organised within the city? In some cases, some institutional personnel were actually housed in the institutions, suggested for example for modular room-sets in some Egyptian temple compounds (Lacovara 1997). In other cases (e.g. Ur: Mallowan, Mitchell and Woolley 1976; Nippur: Stone 1987), documents in excavated houses suggest priestly neighbourhoods outside the temples. Evidence for some clustering of crafts, particularly pyrotechnical, has been produced by the surface surveys of a few sites (Stone and Zimanski 2004; Tosi 1984), while the balance of different craft production evidence varies in different excavated areas at Amarna (Shaw 1985). But a crucial problem is archaeological recognition, since few crafts have distinctive associated production facilities (hence the preferential recognition of pyrotechnological crafts), and until recently archaeological recovery, through excavation or survey, was not detailed enough to document craft production debris. Modern sectorial models of commerce and industry, which can be traced back to at least the medieval period in Europe (Carter 1983; De Vries 1984), are based on the logistics of specialised production, economies of scale, and reinforced by social structures embodied in guilds or castes. These may have limited parallels in institutional workshops, but comparable organisations of independent crafters are not documented in our study area, except to the degree that some associations of traders had a degree of organisational autonomy for harbour or trading quarters. In commercialised civic environments such as some Roman cities, spatial patterns are readily recognised relative to access routes and fora (Laurence 2007; Poehler et al. 2011; Laurence and Newsome 2011). Whether these have any relevance to less commercialised Bronze Age cities needs to be established, not assumed.

For independent residents, we might anticipate variations in wealth, but also in the scale of family, lineage or other kinship-based associations, potentially reinforced by residential propinquity. House size provides one index of variation between households, though as noted in section 7.2, different cultures will have different concepts of crowding and organise their activities in space in different ways. However, in the same way that architectural elaboration for major institutions should provide a scale of relative wealth and power because of the common costs of materials, resources and labour, domestic house size should scale with wealth, particularly within the same culture, but at a gross level, also inter-culturally, and house size has been used as a cross-cultural index of per capita wealth (Morris 2004).

The distribution of house sizes within individual sites, where there is an extensive sample, or groups of contemporary sites within a region, inevitably follow an exponential distribution, comparable to that documented for Neopalatial Crete (Fig.7.14). This shape of curve also characterises wealth distributions for limited Roman data (Scheidel and Friesen 2009; Bagnall 1992), and medieval European cities (Cipolla 1981). From Sjoberg (1960), we might expect concentric residential zonation by wealth or class, with wealthier residents clustered near the centres of cities, and poorer near the peripheries. There are relatively few cases where we can assess this, but the extensive excavations at sites such as Amarna and Ugarit document a thorough mixing of large and small houses in most parts of the city. While we cannot usually document the relationships between residents in adjacent houses, Kemp (2012) has argued at

Amarna for a pattern of 'urban villages', essentially micro-communities within the city, structured around patronage relationships, with elite establishments surrounded by those of affiliated dependents. At Nippur, Stone (1987) has identified both localised kin groups, and a priestly (occupationally defined) quarter. In contrast, at Chuera, houses within the inner fortification of the old city tend to be smaller than those located in the outer city (Pfalzner 2001; Chiti 2015). This may simply be the long-term result of crowding and house sub-divisions (Stone 1996) within longer-occupied areas of the city, but may also represent a contrast between institutionally dependent vs more independent families (Tamm 2014). In Roman contexts, some spatial differences in house size, material consumption and wealth/status can be recognised, yielding both broad patterns within the city, but also arguably the result of patronage relations linking adjacent large and small houses in the same blocks (Wallace-Hadrill 1994).

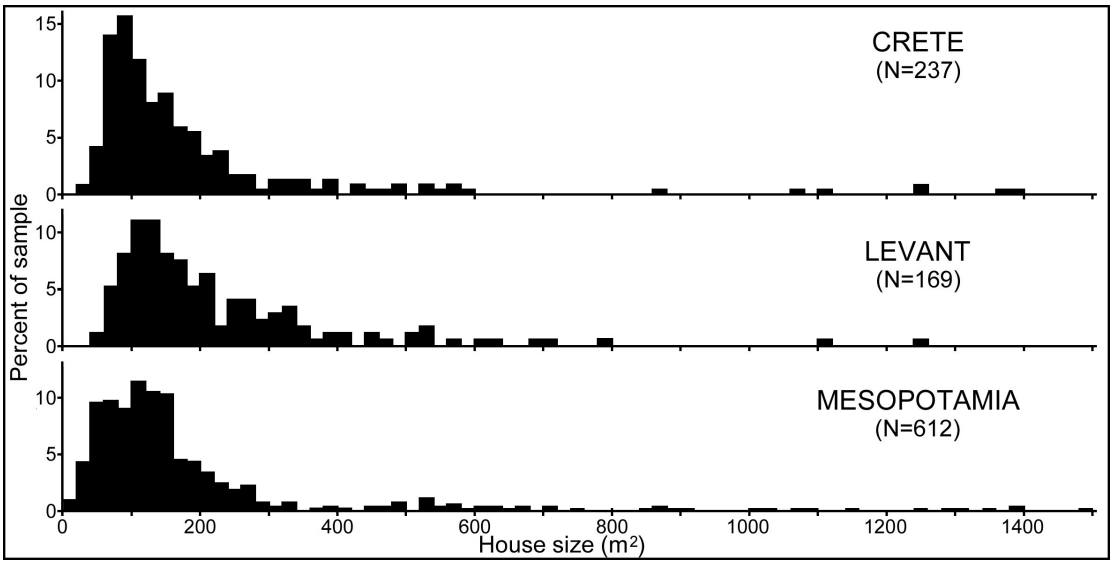

Fig.7.14. House size distributions by region: A) Crete; B) Levant; C) Mesopotamia.

In the Minoan context, plotting house sizes at palatial sites, some clustering of larger houses near the palaces and main access routes can be detected (Whitelaw 2001a; see also chapter 15), though we must also recognise excavation biases working out from the palatial foci, whereby larger houses or those with more elaborate facades, tended to be preferentially excavated or documented in more detail (e.g. at Knossos, Malia, Zakros, Palaikastro). The largest urban establishments bear comparison with a small number of large rural villas (Whitelaw 2001a), where the extra floor area tends to be devoted to exceptional storage (Christakis 2008). Quartier Mu was mentioned in section 7.2, along with probably comparable establishments at Protopalatial Malia. Mu, the most thoroughly and extensively investigated, is immediately surrounded by what appear to be attached workshops (Poursat 1996), recalling Kemp's model for Amarna (2012). This complex compares in scale with the Neopalatial Little Palace at Knossos, and Quartier Epsilon at Malia, and the small palaces central to sites such as Gournia and Petras (Fig.7.6). This latter comparison should give an idea of the economic and social importance of these individual components of the urban landscape.

Schoep has taken these institutions as evidence for some form of heterarchical organisation of Minoan polities (2002b; 2006). While this seems proposed as an alternative to an hierarchical structure, the concept of heterarchy was designed to draw attention to non-hierarchical, cross-cutting integration within hierarchically structured societies, not positing an alternative structure (Crumley 1995). In fact, the original heterarchical model appears potentially relevant for thinking about the interconnections and variable dynamics which would have been necessary to integrate multiple palace and temple institutions, as well as elite families

and a quasi-independent assembly, in Near Eastern Bronze Age cities. In this context, urban establishments such as Mu fit comfortably within Near Eastern and Levantine patterns which entail multiple institutions of different types and varying scales within a city, and require no new and otherwise undocumented formulations. Indeed, with rulers having palaces within subsidiary cities as well as the central city of their polity, the existence of palaces at both major and minor Minoan centres is not necessarily an argument for the political independence of each such community. While it seems extremely improbable that the island was politically united from the start of the palatial period (Whitelaw 2012; in press A), incorporation of formerly independent polities into an expanding Knossian polity would require a continuing administrative presence within the now secondary, local administrative centres.

7.7. Institutions

7.7.1. Palaces

Palaces are characterised by their monumental construction and usually formalised layout (Margueron 1982; Heinrich 1984; Al-Khalesi 1975). They may incorporate larger-scale versions of components of domestic houses (residential quarters, kitchens, bathrooms), but will also have many other components which indicate their distinct, larger-scale, more public and interactive/performative roles (reception rooms, courts, large-scale kitchens), and may have extra-domestic, functionally-specific quarters (storage, workshops, archives, ritual), which may be included within the palatial structure or closely associated, though other such facilities may be distributed outside the palace itself. The activities documented directly by specialised spaces within the palace structure/compound will probably indicate a range of activities the palace is engaged in, but need not include all the activities in which it has a direct interest. Palaces are usually recognised because of standardised elements of their plan which are seen in cities even within other polities, indicating shared behavioural and organisational concepts and a common vocabulary of power and performance. This standardisation obviously helps their archaeological recognition, but without systematic analysis in well understood contexts, the significance of variations in layout is unlikely to be obvious.

It was noted in section 7.4 that various sites document multiple palaces in roughly contemporary use, though exact synchronisations can be difficult to establish without site-wide destruction horizons. Similarly, without associated texts, it is difficult to determine the roles (duplicate or complementary) of each palace, or their users. Finally, excavations within any one city are not extensive enough to establish the total of such palaces, or potentially the full range of activities and investment and consumption of resources within the palatial sector. It may also be difficult to establish to what extent royal palaces are clearly distinct from the houses of the wealthiest other urban elite residents–would they have been clearly distinguishable to residents or visitors to the city, and were such distinctions important?

Palaces world-wide often share features related to their public functions and their multi-functional institutional roles (Evans and Pillsbury 2004; Nielsen 1999). In the region under study, there are many parallels between palaces and temples, due to common activities and shared cultural conventions and semiotic vocabulary. These standard non-verbal cues will, on the one hand, have projected a shared ideology, while also clearly distinguishing the palace from everyday domestic contexts. Some palatial characteristics may be reproduced in the houses of the elite, supporting claims of affiliation and status by the latter. Also cross-culturally, we should expect scale to translate into relative importance, in terms of resources and labour necessary to construct, maintain and function (cf. Davies 2005). This should on the one hand allow intra- and inter-community comparisons, and a rough assignment of relative importance to different examples, as an index of the resources available to each institution. Ideally, as with city size, there should be a base-line relationship with the resources controlled by the institution, so we might anticipate that palace scale would be linked to city and ultimately polity size. But analytically, this will be difficult to assess, as

accurate analysis would require knowing the full extent of the contemporary palaces managed by the city or polity rulers, and being able to distinguish these from other elite establishments.

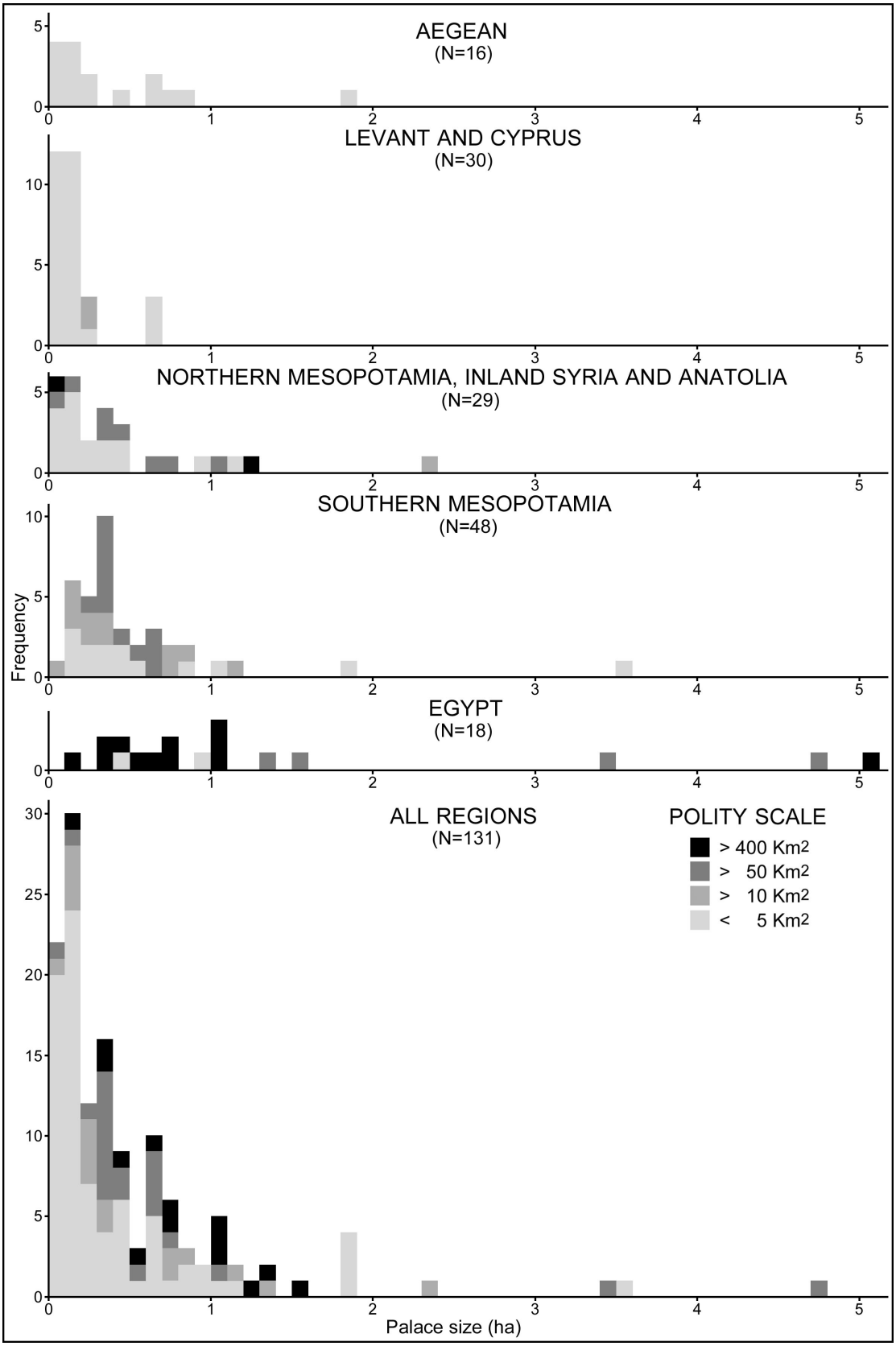

Fig.7.15. Palace size by region and estimated polity extent (polity sizes are in thousands of km^2).

Figure 7.15 graphs the area of individual palaces for the entire sample, and broken down by broad regions; the scale of each polity is also indicated. A general decrease in both maximum size and central tendency can be traced from south-east to north-west, from Egypt through southern Mesopotamia, northern Mesopotamia and the Levant, to the Aegean. Outside Egypt, with the exceptional resources of the New Kingdom, very few palaces extend over more than 1ha. Unsurprisingly, the larger palaces are associated with the larger polities, though a few city states could support substantial palaces. But the major Minoan palaces are surprisingly large, particularly as focal administrative centres for relatively small states. Knossos is particularly remarkable, since the palace footprint was established in the Protopalatial period, when Knossos only dominated its immediate hinterland, an area of hundreds, not even thousands of square kilometres.

Looking at the more immediate indicator of local resources, city size (Fig.7.16), provides some provocative patterns. Again excepting Egyptian royal palaces, at the left, a diagonal ceiling appears to define the limits of what a polity could sustain, with the peak represented by the palace of Naram-Sim at Mari, considered a wonder in its own time. The clear limit at 1.5-2.0ha applies to polities of all scales, presumably with very variable resources. The actual scale of palatial establishments sustained by a polity will be masked by multiple palaces within the same city, here assessed independently, since contemporaneity can rarely be guaranteed, and no cities have been completely excavated. However this raises questions about such ceilings – was this the scale of individual institution (as an index for numbers of staff, rooms and functions) that could be effectively integrated? For larger polities, some palaces will represent some duplication (establishments for specific elite individuals), but some (e.g. Ebla, Qatna, Beydar) suggest functional specialisation, essentially distributed functionality. The exceptionality of the Cretan palaces, particularly of Knossos, also stands out. It is within the ceiling defined by Mari, but for a much smaller polity. It may be that all administrative functions in Cretan polities were concentrated within a single palace, though the Little Palace at Knossos (and any unknown equivalents) may represent some distributed functions. So in terms of palace scale, Crete is within the expectations of East Mediterranean and Near Eastern urbanism, but is, interestingly, pushing the boundary.

Some limits on palace size might be imposed by constraints on development within crowded cities, and the ability to clear space for construction may be an index of political power. However, exceptionally large palaces are also associated with the policy in some large empires of constructing new royal cities, relevant here for Egypt, but also later Assyria and some Chinese dynasties. Were there organisational innovations in such large empires that, while allowing effective integration of extensive territories, also had ramifications at the small scale, allowing more effective integration of individual institutions?

Considering their status within the city, palaces may be positioned at a prominent point in the city, to be visible from within and from the countryside when approaching the city. But in a relatively flat context, the palace might only be visible if it extended upwards beyond the normal 1-2 storey houses surrounding it, though this visibility might be limited within the city to views from rooftops. Even with greater height, city streets were almost invariably narrow and winding, providing no clear vistas; Amarna was an exception, which may be due to its layout as a new city. Architecturally distinctive or elaborated, tall facades distinguished most palaces from domestic structures, and often will have shared some architectural elements with temples.

Rarely are there extensive courts outside palaces that would have provided performance areas for crowds, for which the palace could provide a symbolic focus or backdrop. In most cases, individuals or relatively restricted groups had to be admitted to the more constrained interior courts for ceremonies or more everyday business, as participants or observers. While emphasising power and control, this would have limited direct participation, and served both to exclude and differentiate (Baines 2006). The elaboration, often monumentalisation, of the gates of palaces and temples emphasises this element of control. To some extent, this exclusion might have been countered by processional rituals, noted in some texts (Hundley 2013; Dolce 2010; Ristvet 2011; Pardee 2002). These linked palaces to temples, but also to

other cities, and to temples or shrines in other cities and the countryside, providing potential opportunities for participation or at least observance and some engagement by large numbers of city and potentially rural residents.

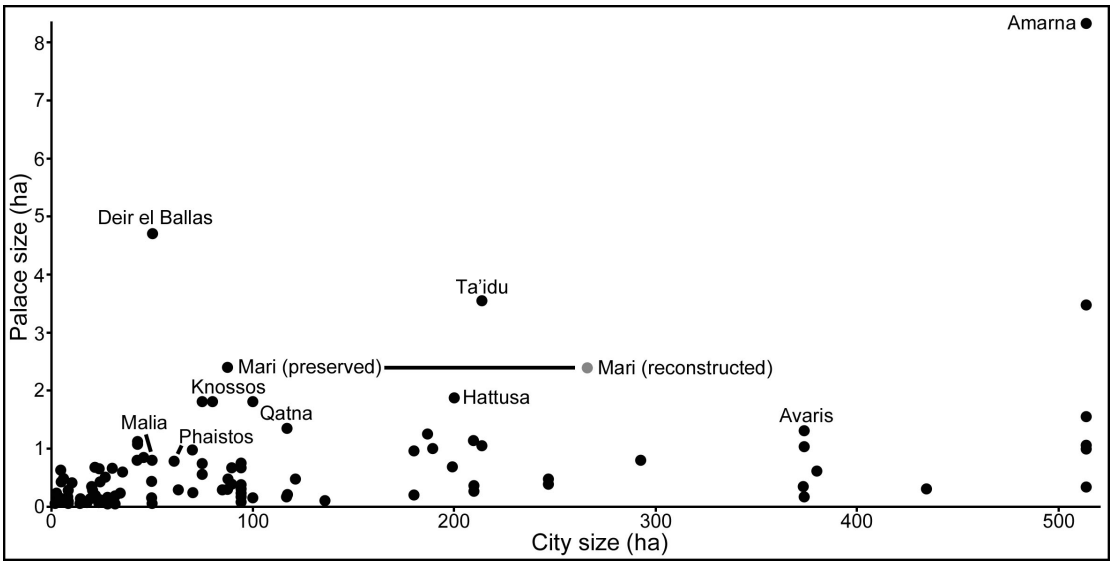

Fig.7.16. Palace size relative to city size.

In Crete, the three major palaces are relatively large compared with most contemporary eastern examples (Fig.7.15). This may, to a degree, compensate for the absence of multiple palaces with more distributed palatial functions, though structures such as Mu or the Little Palace may have had such roles. However, the good correlation between palace size and city size in the Aegean (Fig.7.17), suggests a more direct relationship between resource base and palatial monumentality than in many eastern polities. Also standing out is the very high degree of similarity among at least Knossos, Malia and Phaistos, extending not just to layout and specific architectural components, but also orientation. While these general parallels have long been noted, less attention has been paid to trying to understand what is more or less standardised and why. The west court, west wing and central court configuration in these three palaces is very standardised in location, association and configuration. Other elements such as other magazines, domestic quarters, and pillar halls need to be present, but their location within each complex is not fixed, and other features vary: the convoluted access to the central court at Knossos, but direct access at Malia. Some elements may be unique to one palace, e.g. the Malia silos. Smaller palaces share these elements to varying degrees. The exceptional degree of standardisation has been explained as convergence due to Peer Polity Interaction emulation (Cherry 1986), though the recent re-evaluations of the phasing of the final phases of the Neopalatial palaces (Driessen et al. 2002) now hold out the possibility that this convergence may be relatively late, and potentially due to explicit Knossian imposition.

The visibility and accessibility of each palace varies considerably. Phaistos was very visible, perched on the hill at the north-east of the city (a situation duplicated at Galatas), but access through the city will have been more laboured. Access into the palace from the well-defined and monumentalised west court was direct into both the second storey of the palace and the central court. At Knossos, the palace lay below much of the town on the low hill above the Kairatos and Vlychia streams, but potentially visible from gaps in buildings around the town, from the surrounding hills, and from the main route into the city from the south. Access to the relatively small west court was through a much larger paved court further west, with the palace façade providing an impressive backdrop for ceremonies, which only a limited audience could observe. Access beyond, into the palace, was through the central court, accessed through a circuitous passage. Paved walkways will have allowed more of the civic population to observe processions to and from the palace, but only limited scope for active

participation (see chapter 8). Malia would have been the least visible palace, on only the slightest of rises, though this is to a degree compensated for by having the largest west court, and an even larger eastern court, making the palace visible from the main eastern entrance to the city. The large west court had the monumental palace west façade as backdrop, though curiously the main and wide direct entrances to the central court are from the south and southeast, through less impressive facades. At Malia, additional civic buildings constructed in the Protopalatial period, but continuing in use into the Neopalatial period, represent a more complex civic environment at the core of the city, not (so far) recognised at the other, less extensively investigated sites.

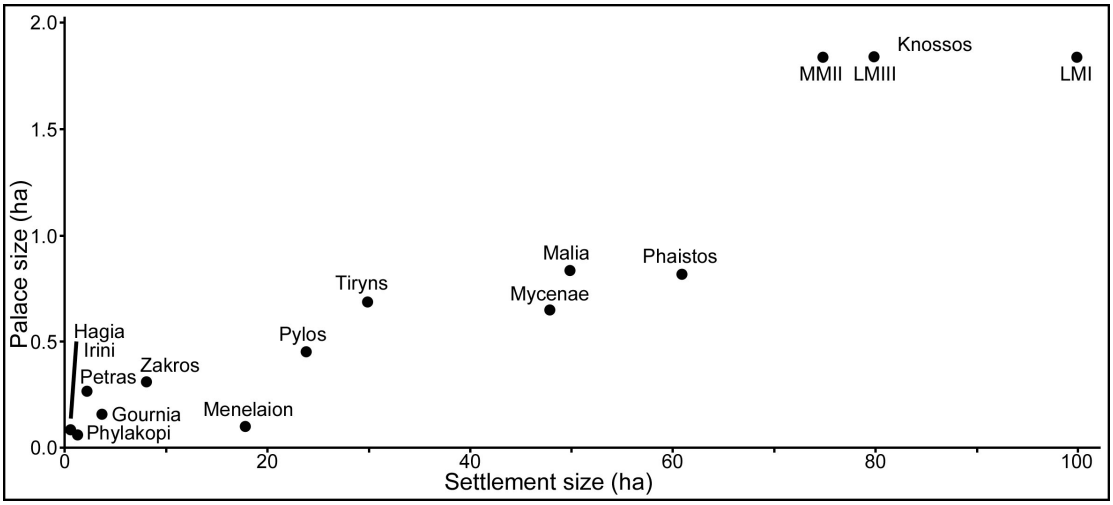

Fig.7.17. Palace size relative to settlement size in the Aegean.

These similarities, but also differences, the latter exacerbated when we also consider the smaller palaces (e.g. Zakros, Galatas, Gournia, Petras, Hagia Triada), provide cues to the role of the palaces which have yet to be fully explored. Recent studies exploring experiential approaches (Adams 2007; Letesson and Vansteenhuyse 2006; Haciguzeller 2007) need to be expanded and could usefully be approached comparatively, considering what characteristics are shared with other Bronze Age, and indeed other palaces elsewhere.

7.7.2. Temples

Temples share elements with palaces, but are also more variable inter-regionally, both physically and as institutions (Hundley 2013), and their significance varies through time, initially larger and more clearly identifiable than palaces, though eventually largely subsumed within palatial power, at least within Mesopotamia.

In Mesopotamia, temples could be major institutions, though each city would have multiple temples, some exceedingly large (some with ziggurats), but others considerably smaller, down to the scale of neighbourhood shrines (Fig.7.18). The largest were diverse institutions, with extensive agricultural holdings, subsidiary rural farms and some had urban workshops. Most of the latter are identifiable only in texts, not archaeologically recognisable either within the temple precincts, nor, without texts, able to be linked to the temple if physically independent, elsewhere in the city. The largest temples share many features with palaces, from monumentality and architectural elaborations, to functional spaces such as courts, reception rooms, storage areas, archives and residential suites, sometimes including adjacent residential palaces for religious personnel. Major temples may be spatially associated with others, but, particularly smaller examples, may be distributed through the city. Temples, like palaces, are rarely associated with large open public spaces, but regularly are defined by walled enclosures or precincts. These internal spaces are often considerably larger than the courts of palaces, suggesting at least occasional controlled engagement with larger numbers

of the public. A few temples are directly associated with or incorporated within the precincts of palaces, particularly in Syria, with royal cults and royal burials within or associated with palaces. Texts mention rulers engaged in ceremonies at or in association with temples, and processions between palaces and temples, tying these institutions together in public performances. As with palaces, temples would not have been particularly visible within cities,

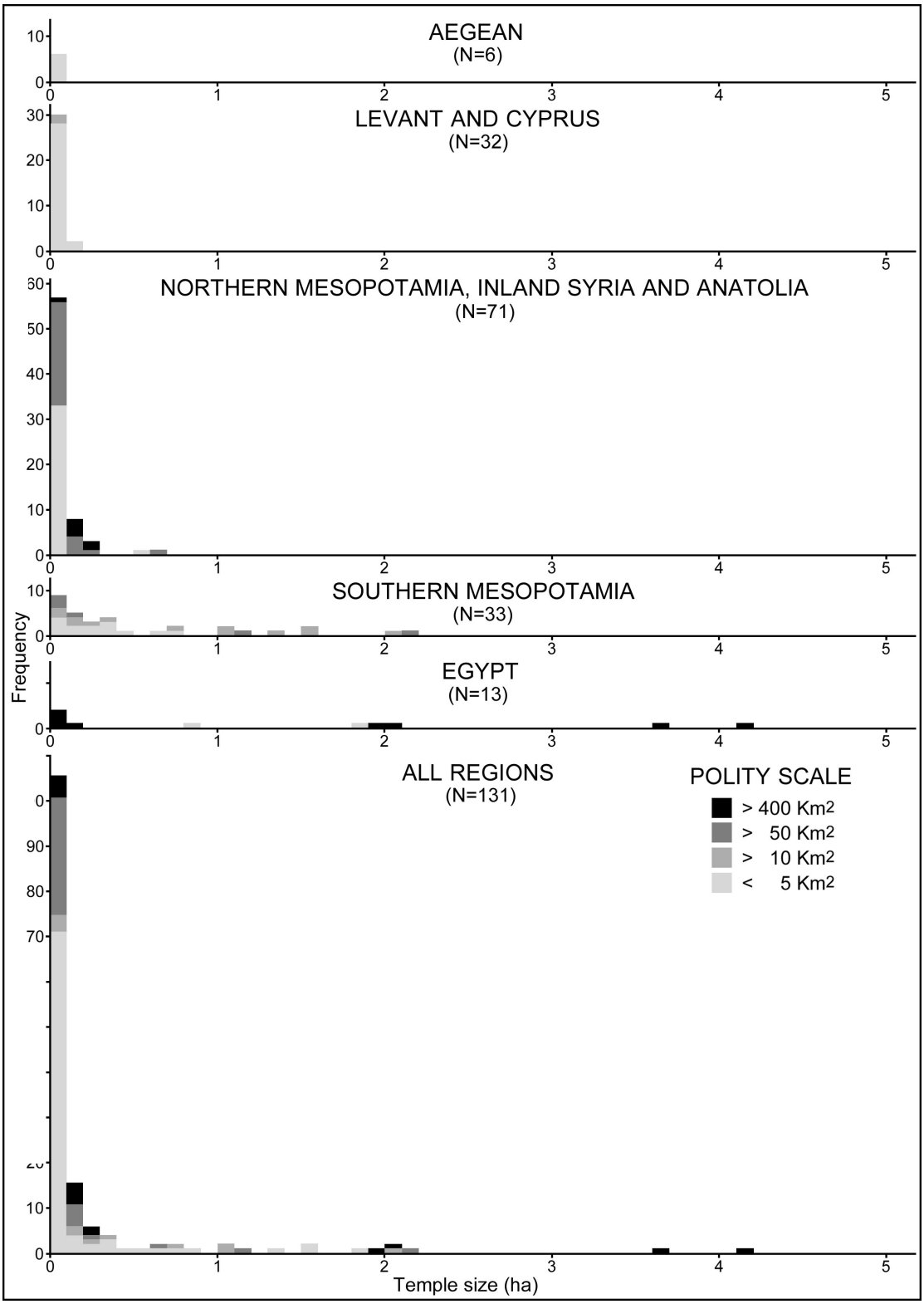

Fig.7.18. Temple size by region and estimated polity extent (polity sizes are in thousands of km^2).

though outside the Mesopotamian alluvium, they may be on natural elevations, or on accumulated tells. In flatter locations, they may be artificially elevated on massive podia or in Mesopotamia, incorporate a ziggurat. Visibility and association with a 'high place' appears to have been more important, at least for major temples, than it was for palaces. In inland Syria and the coastal Levant, temples were generally much smaller than further east and in comparison with palaces. There is little textual information to indicate that they controlled major estates, as in early phases in Mesopotamia. Any associated structures are usually limited, and they may stand in small precincts or in relatively open locations.

Figure 7.18, in parallel with Figure 7.15, graphs temple area for the entire sample, again broken down by broad regions; the scale of each polity is also indicated. The similar scales of each graph allow direct comparison. The same decrease in both maximum size and central tendency can be traced from south-east to north-west, but is far more rapid and extreme. Egypt again clearly had the ability to construct exceptionally large temples (though a more detailed analysis will need to distinguish between constructed space (representing labour and maintenance costs), and the very large walled but largely open precincts common for the larger Egyptian temples). A similar 2.0ha ceiling to that for palaces can be seen for temples in southern Mesopotamia, but other regions have a very much lower ceiling. So some of the same construction/maintenance and also administrative costs/integrative limits may apply as for palaces, though this particularly applies to Egypt and southern Mesopotamia, but clearly not elsewhere. In southern Mesopotamia, this may suggest that, particularly early on when temples were independent establishments, they commanded resources to rival those of the palatial institutions. However, this will be complicated by the multiplicity of palaces linked to the central administration, whereas multiple temples were independent institutions. But perhaps the limiting scale of the resources available to individual temples set an ideological norm to which palaces responded, regardless of the resources potentially available to them. But similarities in organisational structure may also have imposed comparable limits to functional scale. Unlike palaces, there is no clear association of larger temples with larger polities.

Again considering city size (Fig.7.19), the separation of very large temples, in southern Mesopotamia (usually that of a city's patron deity), from the remaining temples is very clear. Similarly, the 2.0ha limit can be seen to be very constant, once a city reaches about 50ha, perhaps 10,000 occupants.

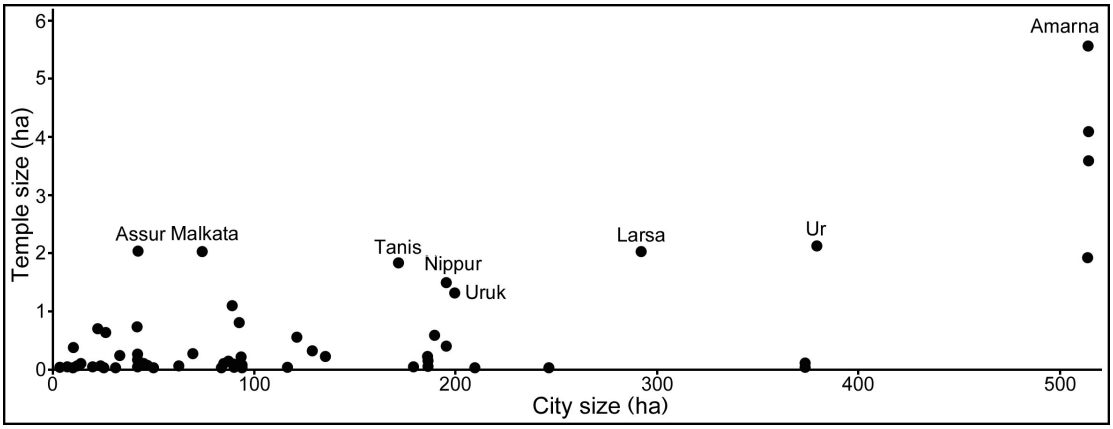

Fig.7.19. Temple size relative to city size.

While in one sense fitting with this broad pattern of the decline in temple scale to the west, in fact, Prehistoric Crete stands out from this tradition remarkably, since there are no major monumental temples. Traditionally, it has been assumed that the institutions of the palace and temple were integrated in Crete (Hägg and Marinatos 1987; Schoep 2010), however there is little material evidence, in the form of offerings, which obviously represent religious ritual activity in the palaces (though to be fair, little artefactual material is recorded from the early

excavations as in situ on the Neopalatial palace floors). There is also nothing in the layout or associated artefacts recovered in the palaces that is necessarily incompatible with purely secular palatial functions. This interpretation was established in the early 20th century, when Near Eastern polities were assumed to be theocracies, and has not recognised the rejection of this assumption in the later 20th century. It may be legitimate to assume a combined role, but even so, this still stands out from the other regional traditions. We may have trouble distinguishing palaces from temples in some eastern contexts (particularly in Egypt, with royal mortuary temples explicitly linking the institutions), but these usually are distinct physical institutions, even later when temples were effectively subsumed under palatial authority, and the questions seem to be about our clear recognition in specific cases, not the original conflation of functions. If Minoan palaces functioned as integrated administrative palaces and temples, as commonly assumed, the combination of resources otherwise divided between the two types of institution in other regions, might help account for the larger than expected Minoan palaces.

The ritual establishments which can be recognised on Crete are a limited number of small urban shrines, particularly two at Protopalatial Malia. Neither is directly associated with the palace or focused civic core of the city, nor clearly connected with these by wide roadways, documenting any sort of intended direct linkage (Fig.7.5). Both structures are small and only a limited number of individuals would have been able to participate in any rituals undertaken inside, nor are there large associated spaces directly outside for participants, or storerooms for supplies or equipment to cater to numbers. The best known shrines are the extramural cave and peak sanctuaries, chronologically associated with the period of the palaces. A very few other extra-mural shrines have been recognised (Haysom 2014-2015), but are undoubtedly drastically under-represented, since, unlike the cave and peak sanctuaries, they are not associated with readily identified locations in the landscape, so their discovery is far more due to chance rather than explicit prospection. The location of some extra-mural sanctuaries well away from the palaces may invoke the idea of boundary shrines, with processions to them designed to define and regularly re-inscribe territories, aligning them with eastern practices (Dolce 2010; Ristvet 2011). The spatial association of several of the more elaborate peak sanctuaries, with palaces or major settlements, supports the idea of a direct political role for processions between palace or city and shrine (Cherry 1978; Peatfield 1987; 1990). The space at individual sanctuaries is usually limited but not enclosed, and participants could have processed sequentially through the sanctuary area, allowing participation by many. Interestingly, the imagery usually interpreted as religious, emphasises individual or small group ceremonies, rather than mass events.

7.8. Putting together the pieces: materialist perspectives on Bronze Age urbanism

The strength of an empirical archaeological study is that we can use patterns in the data to learn what the active decision-making individuals and institutions in the past society considered to be important, within their logic, not ours–what they chose to associate, integrate or differentiate, and the distinctions they drew. The strength of a broad comparative study is that we can see at what scales, chronological or geographical, patterns occur. These can indicate which behaviours are culture specific, but also which are not. So by considering patterns in terms of contextual variables, we can learn which broader ecological, economic, political or institutional parameters may be determining or influencing specific behaviours.

We have looked very sketchily at several overall characteristics of Bronze Age urbanism, and two central institutions that structured institution-focused societies in the Eastern Mediterranean and Near East. Are there patterns in how the pieces have been fit together, and if so, what can these tell us about these societies, and by comparison palatial Minoan urban culture? With assumptions from our own society, and previous suggestions about pre-industrial cities, we might expect the spatial organisation of early cities to be basically concentric, with the most important components at the core, dictating the structure of the rest

of the city. But these models are principally informed by modern urban organisation, where, in large modern cities, centrality translates into accessibility, and focal institutions will be connected by significant communication infrastructure. In early, small cities, these intra-city transport and interaction costs were smaller, and appear to be relatively unimportant. Rarely were long avenues laid-out connecting major institutions, markets and gates, unless, as at Amarna, the city was laid out *de novo*. Rather, crooked lanes, developing through time, made every journey somewhat tortuous, but on the scale of cities usually only a few hundred metres across, rarely very long.

In fact, there is considerable variability, and some sort of concentric layout is only one pattern, occasionally seen (Chuera, Beydar; Meyer 2011; Margueron 2013). To some degree, this depends on the nature of power structures. In some contexts, where an imperial authority administers cities, such as in the Assyrian and Ottoman empires, and in some periods in China, the administrative focus is located at one periphery of the city, in a clearly defined position, and with access both into and therefore through the city, but also directly to the outside world. This is essentially slightly removed and disconnected from the daily organisation of the city, and highlights the external, non-local administrative and military aspects of control (Stone 1995; Novák 1999; 2004; Kark 1981). In other contexts, centrality may have been symbolic, with temples sometimes located centrally, but visibility often seems to have been more important. This may have been dictated by the earlier development of a tell, which the city expanded around, but the institution's location on the tell, centrally (Ebla, Brak, Beydar) or peripherally (Leilan), seems to have been more important than physical centrality per se, with the emphasis on elevation and visibility. Where this could not be achieved naturally, temples might be raised on artificial platforms to make them more visible, both from within and outside the city. Palaces seem not to have needed to be as visible, and physically over-looking the city seems not as important to their significance (though see later Assyrian citadels: Novák 1999; 2004). So contrasting modern economic expediency with actual ancient practice, ideology and to some extent history, continuity and potentially legitimation appear often to be more important.

How about the relations between major institutions? Here, there are very variable patterns, but these resolve somewhat if larger-scale temporal and geographical contexts are considered. In early Mesopotamian cities, palaces and temples are usually spatially distinct, in some cases at opposite ends of the city (Stone 1997; 2013; Novák 1999). With each type of institution complex and largely economically independent, their roles overlap to a significant degree, and they represent different poles of power within the city, at least in some senses in competition. Later, there can be more direct association in precincts within the city, as temples were brought under palatial patronage or control, though traditional locations may have physically fossilised the earlier, seemingly more distinct status. In north Mesopotamia, inland Syria and the Levant, where temples were comparatively smaller and we have little evidence that they were economically as significant as the palace, there may be more direct associations (e.g. Mari, Beydar), including some temples associated with the palace for the royal cult (e.g. Mari, Ebla, Alalakh).

Courts provide an interesting contrast between the two institutions. In both cases, there are usually only limited or no public spaces outside but directly associated with either institution– one had to enter the precincts to engage with the institution, subject to its control, emphasised by often monumental gateways. In Mesopotamia and Egypt, some temples could have relatively large enclosed spaces suggesting the potential participation, at least on some occasions, of relatively large groups of people, though not the entire populace of the city. Palaces usually had much smaller courts and ceremonial rooms, suggesting engagement with more limited, so probably more tightly defined and controlled groups. In both cases, public engagement was explicitly physically controlled. Such engagement may have been more frequent for both types of institutions outside their precincts, with processions, whether royal, sacred or linking both institutions. But such processions, while outside the formal bounded precincts, would be scheduled and thereby still choreographed and controlled by the institutions. Overall, planned city layouts are rarely encountered, the clearest being Amarna,

where the core of the city was highly structured around the institutions, with housing more informally filling-in (O'Connor 1998; Kemp 2012; Lacovara 1997; Routledge 1997). The formal layout can be expected to embody actual or anticipated interactions between different institutional components of the community. Otherwise, cities usually had relatively long histories, with layouts being adapted in only limited ways to changing social and political structures. Large, formally defined open spaces seem to have had little role in most cities. While potentially useful for markets, no obvious examples have been uncovered, and it is presumed that such activities will have taken place outside or at the fringes of the city, as seems to have been the case with harbours and trading enclaves.

Rather than produce a specific model of the Bronze Age institution-centred city, we can see some patterns, but also differences. But bringing-in additional contextual information, we can get hints of what concepts may have underlain these differences. Without a second phase of detailed documentation and analysis, it is not possible to distill these into a series of alternative interpretive urban models, but there are enough patterns to suggest that such an exercise will be worth undertaking.

7.9. Conclusion: Minoan urbanism - typical or anomalous?

How well do Minoan cities fit within this range of behaviour? In terms of overall scale and internal differentiation, we seem to be dealing with a comparable phenomenon, with considerable parallels. In terms of size, the major Minoan cities are comparable in scale to the city-state centers to the east; a limited number of those push or exceed the limits of what are likely to have been agriculturally self-sustaining, and on Crete, Knossos is likely to have fallen into that exceptional category (Fig.7.9). In terms of community size distributions, Crete, like many Bronze Age city-state societies, is characterised by highly centralised cities, surrounded by much smaller villages and hamlets. While this distribution differs for larger-scale, very integrated settlement systems, Minoan Crete sits at the highly centralised and primate end of the scale, giving us an expectation of a distinct character for the relatively few urban centres. This raises interesting questions about the character of the smaller palace-centred towns, such as Zakros, Gournia or Petras, which may have had political autonomy and a central administrative role for their small associated territories, but seem unlikely to have had as differentiated a population as centres like Knossos, Phaistos or Malia. This may be represented in the contrasts in the size distributions of houses in these different communities (Whitelaw 2001a:Fig. 2.4). While our archaeological investigations to date provide only limited evidence for occupational specialisations, the limited textual evidence from Crete and the mainland, primarily Linear B, paints a picture not dissimilar to that which can be derived from various East Mediterranean and Near Eastern contexts (Whitelaw in press B), while also supporting the alignment of Aegean palace-centred societies with a redistributive model.

Turning to institutions, the Minoan palaces throw up some interesting comparisons. Knossos in particular, seems large compared to most eastern palaces (Figs7.15-16), particularly when considered in the context of the size of the relatively small polity which must have mobilised the resources to support it. Counter-balancing this somewhat would be the frequent existence of multiple contemporary palaces in many eastern cities–a more distributed physical manifestation of centralised royal power. Institutions like Quartier Mu at Malia, or the Little Palace at Knossos, may be evidence of comparable manifestations of power, but we simply do not know whether they are so directly associated, or represent independent elite establishments, also well documented in eastern cities. The Linear B tablets from the LMII-IIIA phase of the Little Palace may suggest a connection with the palace, but this remains uncertain, and should not, in any case, be projected back into the Neopalatial period.

The major Minoan palaces also stand out to the degree that they are so closely comparable in layout and orientation (see also chapter 8); this is not even obvious with contemporary multiple palaces within specific cities, such as Amarna, Ebla, Qatna, Beydar or Mari, let alone between different contemporary cities. So there appears to be an exceptional degree of

ideological unity; is this a specific manifestation of Knossian hegemony (political or merely cultural), or perhaps a corollary of Crete's inward focus, isolated at the extreme fringe of the Bronze Age palatial *koine*? But this high degree of standardisation of the major palaces then raises new questions about why there is variation in the location of some regular components of palatial architecture, and why the smaller palaces and grand houses in other communities did not need to conform to the same conventions to the same degree. How significant were these architectural elements, and to whom?

The anomalous absence of monumental temples in Crete has already been noted. While we may choose to accept the traditional assumption that the palaces were both rulers' palaces and temples, there is little or nothing to obviously support their use as temples conceived as the house of a god(s) or for their worship (Hundley 2013). But even accepting this long-standing assumption recognises a unique synthesis among Bronze Age societies across our broad study region, so deserves emphasis. The small urban shrines known so far are distinctly unimpressive, and clearly not designed to cater to large numbers of visitors or worshipers, perhaps a stronger argument for a dual role for the palaces than can be based on the evidence from the palaces themselves. From an urban organisational perspective, there is no evidence for distinct temple or religious institutions with a significant role in urban organisation or structure. Perhaps surprising given recent arguments, this characteristic in particular suggests that power in Minoan Crete was probably *less* heterarchical than in most other Bronze Age polities in the East Mediterranean and Near East. While on the one hand, an absence of competing institutions may account for the larger than expected Minoan palaces, it also raises questions about a potentially exceptional concentration of power, in comparison with other Bronze Age palace-centred polities.

Courts and public spaces can be distributed along a rough scale of association with the palaces, from the central courts to west courts and other urban spaces, such as the Agora at Malia, the east court at Malia, and the outer west court at Knossos (see also chapter 15). That these were clearly differentiated, spatially and architecturally, suggests they played different roles in the urban and social structure. The most obvious differences for us, are their degrees of spatial association with the palaces and accessibility from the city, but the latter are simply our principal points of reference, whereas for occupants, they will have been understood in terms of their experience of the activities which took place in each, potentially different activities at different times and bringing together different participants, for different reasons. The raised walkways seem designed to channel processions, as depicted in late frescoes at Knossos, though if the 'Sacred Grove and Dance' fresco is correctly interpreted as representing a performance in a west court, then not all ceremonial activity was confined to the walkways. From our comparative perspective, there are equivalents for the interior central court in eastern palaces and temple compounds. In eastern cities, significantly less provision is made for courts outside major institutions such as palaces or temples, suggesting a more important social and political role for semi-accessible performances and displays in Crete. Clues to their roles may come from the ways in which different spaces are adapted or combined at other sites, with the size and orientation of the public court at Gournia suggesting some combination of palace-associated central court, with more public space. The latter is then generalised further, as a central communal space at Pseira and possibly Myrtos Pyrgos, though also directly associated with the mansion or most elaborate house in the community.

In terms of urban infrastructure, the Stepped Portico at Knossos, as reconstructed by Evans, at least in earlier phases would have led directly to the palace, with a branch possibly leading to the large western external court but not to the ceremonial west court. At Malia there was a raised walkway, as well as visual link to the east entrance to the palace, direct from the east gate of the city, which would have connected most directly with the probable port at Hagia Varvara to the north-east. This sort of direct and obvious access to major institutions is not usually an element of eastern cities, though examples exist such as Chuera, Beydar, Ugarit and Amarna, and possibly other major New Kingdom cities (Creekmore III 2014; Routledge 1997). In contrast, the entrances to palaces and the larger temples in most eastern cities are considerably more elaborated, often with elaborate, quasi-defensive gateways, which are not

prominent in Cretan palaces, so control over access to the palaces was less obviously manifest architecturally. Is this more open presentation a reflection of the absence of alternative or competing institutions?

Malia provides provocative evidence for other institutions and activity spaces, clustered near the palace and seemingly constituting the core of the city: the Agora, the Crypte Hypostyle and the Portico opening onto the Agora (notably not the west court). Equivalents have so far not been found at the other major or minor centres, though Building CV-CVII at Phaistos has some parallels with the Crypte, though it is not directly associated with the palace or west court (Levi 1976: 600). Because no comparable complexes have been identified at the other major centres, we do not know whether these structures and the activities or institutions they represent were unique to Malia, or are simply a consequence of the far less extensive excavations at Knossos and Phaistos. Hagia Triada provides a smaller-scale but equally structured environment, with courts associated with the Villa Reale and separately with the Bastione. This latter focus may be designed to project a quite distinct message if during the later Neopalatial period, Hagia Triada was developed as a local centre for Knossian administration of the Mesara (Privitera 2014; Whitelaw in press B).

The interpretation of Quartier Mu at Malia varies considerably, with some seeing it as affiliated with the palace, others as an independent institution (Poursat 1983; 1988; Schoep 2002b; 2006). Parallels supporting either option can be identified, for example at Ugarit. If structures such as the Magasins Dessenne, and later Quartier Epsilon (and any Protopalatial precursor) are comparable to Mu, this might support identification as non-palatial elite foci. Neither interpretation would be out of place in eastern urban centres, so require no unique social models.

I have highlighted points of both similarity and difference between Minoan urban centres and their Bronze Age contemporaries further east. In a few characteristics, the Minoan cities stand out, but in others they broadly conform, particularly in overall scale and scale of investment in institutional structures (at least palaces). In specific characteristics, some parallels can be found but differences as well. This is the obvious limitation of a preliminary, superficial examination. But with such variation among Bronze Age institution-centred cities, further investigation of the detailed contexts of these similarities and differences should demonstrate whether these can provide a stronger comparative context for understanding Minoan and Aegean urbanism. I think there is considerable promise in pursuing this through far more detailed comparative investigations, at all scales, from regional settlement patterns, to cities as a whole, to the details of individual institutions. Such an investigation can also encourage us to engage with a wider range of questions, hinted at variously in previous sections. For example, which characteristics of the major urban centres, and individual components, were duplicated, and to what degree of detail, at smaller centres or other communities, and what does this tell us about the nature, scope and pervasiveness of the social and political institutions and ideological structures of Minoan society? In turn, this can help us to appreciate the distinct characteristics of Minoan cities, the social contexts they created, and the life of their residents.

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