Borja Legarra Herrero

Knossos from the Neolithic to the end of the Prepalatial period

ABSTRACT

This paper offers an updated look at the early history of the settlement of Knossos and its immediate hinterland based on the combination of new survey material and a review of legacy data from the long history of excavations in the area. The approach aims to provide a better understanding of the Prepalatial (Neolithic to Middle Minoan IA) settlement history at the Kephala Hill and nearby areas that complements the traditional focus on stratigraphic excavations under and around the later Bronze Age palace. The Prepalatial material collected and analysed by the Knossos Urban Landscape Project (KULP)is presented in a preliminary form but already sheds new light on the initial process of urbanisation at the site. The analysed data identify a sizeable community at Knossos from the Final Neolithic that slowly grew during the 3rd millennium BCE. The settlement experienced a rapid period of growth at the start of the 2nd millennium BCE that marks the beginning of its development as an urban centre. This is also a moment at which we can identify a major re-organisation in the occupation of the valley and possibly also in the funerary landscape around the settlement.

KEYWORDS: Knossos, Crete, Aegean, Greece, Neolithic, Early Minoan, Prepalatial, urbanism, urbanisation, surface survey, urban survey

RATIONALE OF THE PROJECT AND MAIN AIMS

The early history of the site of Knossos, as for many of its later periods, has been dominated by the Bronze Age palace, even though the architectural complex did not exist in the Prepalatial period. The work of Arthur Evans on the Prepalatial period was mainly concerned to explore the archaeology beneath the palace in order to date its construction (Evans 1921). In practice this meant assembling a ceramic sequence for the Prepalatial period at the site. In the final publication of his work at the palace, Evans had to rely on the data from Prepalatial tombs elsewhere on Crete to construct a narrative for the Prepalatial period as a whole (Evans 1921), as the tests under and around the palace only provided a very limited amount of information.

Evans' preoccupation with the definition of the Prepalatial periods through material culture, mainly pottery, dominated the study of the Prepalatial period at Knossos during the 20th century. Most work has been oriented to better understanding the stratigraphy of the earlier periods, and

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the sequence of material culture (Cadogan *et al.* 1993; Hood and Cadogan 2011; Momigliano 2007; Wilson 2007). We could say that Prepalatial Knossos has been studied 'vertically' and the restricted soundings have generally provided very little contextual information to complement the material studies.

In the last twenty years, as the material sequence has been more securely understood, more substantial questions about the Knossian community during the Prepalatial period have been debated, such as the extent of the community and how its size (as a proxy for socio-political complexity) evolved through time. Recent debates about the size and nature of the Neolithic (Broodbank 1992; Whitelaw 1992; Tomkins 2004) and Prepalatial community (Tomkins 2012; Whitelaw 2012) demonstrate two things. First, the relatively limited amount of generally poorquality information available to reconstruct the early community. Second, the key role that Knossos plays in our understanding of the Prepalatial period, and in particular for the early appearance of complex societies in the southern Aegean.

The Knossos Urban Landscape Project (KULP) aimed to provide a new set of data that complements the partial information provided by the long history of excavation at the site. The surface survey would collect new information to connect for the first time the dots on the map produced by numerous excavations in the Kairatos valley. The main outcome is to construct a more accurate reconstruction of the size of the community through time. Size is a key proxy to investigate the nature of the community, and one that can be used to follow the development of the city over a unique deep-time scale. The date, extent and rates of growth and contraction all constitute fundamental information for the investigation of the history of the community that occupied the site. With respect to the Prepalatial period there are other period-specific aims. First, to better relate the Prepalatial period with the Protopalatial period in a coherent history of the site, superseding the compartmentalisation typical of material-culture-focused studies. Second, to place the community in its immediate hinterland, gaining a first insight into settlement patterns and exploitation strategies. Third, to identify the possible location of Prepalatial cemeteries, a significant part of the archaeological record of the period (Legarra Herrero 2014) for which we have almost no information from Knossos.

METHODOLOGICAL ISSUES

There are several methodological challenges that are particularly relevant to this project. The use of intensive survey to investigate early urbanism has been tried in the Near East (e.g. Al Quntar and Ur 2012; Stone and Zimansky 2004; Ur 2012) but it has never been a priority in urban survey in the Aegean. Moreover, the Near Eastern projects investigated sites that had, in general, relatively limited evidence for occupation after the Early Bronze Age. At Knossos this is not the case, quite the opposite - the main occupation of the site peaks in the Middle and Late Bronze Ages, and again in the Classical to Hellenistic periods.

This means that the Neolithic and Prepalatial material in most places is buried under metres of later occupation (Evans 1921, 33, Fig. 4; Hood and Cadogan 2011). This fact affects one of the main pillars of any survey methodology, the taphonomic dynamics that bring material to the surface. Neolithic and Prepalatial material will be less well represented on the surface than that of

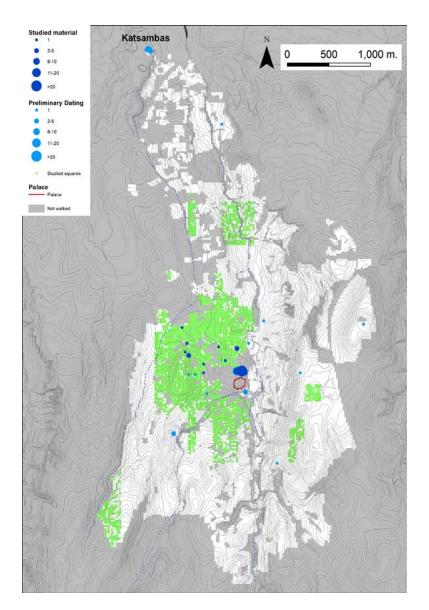


Fig. 1. Neolithic material from the entire survey area.

later phases as the typical processes that bring the material to the surface may have been diffused by the later over-burden. A first look at the figures seems to corroborate the case. Other issues, such as the comparatively low firing of the Neolithic and early Prepalatial pottery that makes it particularly fragile, may also contribute to the low recovery figures. On the other hand, as long as this under-representation is relatively homogeneous,

it does not present a major problem. While we know that total numbers may be underrepresented, the project is most interested in patterns in the distribution and diachronic changes, which are not directly dependent on absolute numbers, though obviously larger samples will usually produce clearer patterns. With this latter in mind, given the small numbers in any survey collection unit, in order to strengthen the analyses, the material has been amalgamated into broad categories: Neolithic, EM I-II and EM III-MM IA, following the groupings that most authors use for the study of the Prepalatial period, and are most easily justified by physical similarities and the distinctions most reliably made within the material.

NEOLITHIC

The Neolithic material in the valley (Fig. 1) is focused in two areas that have been long known to have Neolithic habitation. At the north end of the survey, at Katsambas, the Neolithic concentration discovered by the survey coincides with the Neolithic houses and rock shelter excavated by Alexiou in the 1950s (Alexiou 1953; Galanidou and Manteli 2008; Iliopoulos et al.

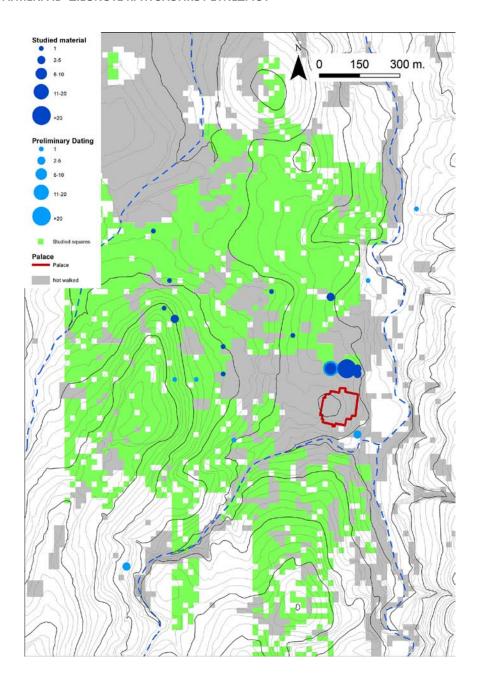


Fig. 2. Neolithic material from the site centre.

2010). The second concentration is on and around the Kephala hill, under the Bronze Age palace. There are very small numbers of Neolithic sherds scattered across the valley that are difficult to interpret as they do not group in any discernible pattern.

The survey has confirmed the significance of the Kephala hill Neolithic site, as much material was recovered from the northern edge of the hill, just outside the modern fence of the archaeological site (Fig. 2). This concentration of Neolithic sherds is situated beyond Evans' spoil heaps and cannot be easily explained by taphonomic processes, so we would suggest that this marks the northern end of the settlement, on this gently sloping side of the hill. Since the Neolithic sherds

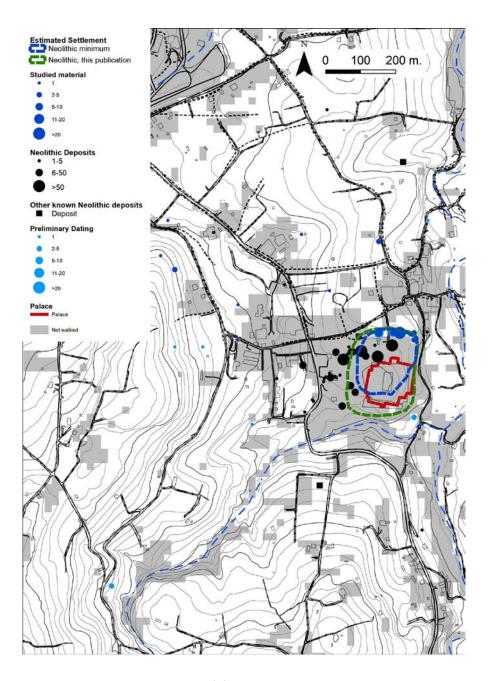


Fig. 3. Neolithic extent estimates.

can all be dated LN-FN, and a comparable amount of material can be identified as late FN-early EM I, the distribution appears to represent the extent of the later stages of the Neolithic site. The other boundaries of the site are more difficult to define since they are at the edge or beyond the area of dense soundings by A. Evans and J. D. Evans, and they have been debated in detail in recent studies (Tomkins 2007; 2012; Whitelaw 2012). It has been proposed that the site was no larger than 2.5 ha. (Tomkins 2012, Fig. 3), but if we follow the newly discovered north boundary of the site around the contours of the hill, and include outlying test trenches that have abundant Neolithic sherds, albeit as kick-ups in later deposits (Whitelaw 2012, 129-136), the estimated extent would grow to ca. 4.5 ha (Fig. 3).

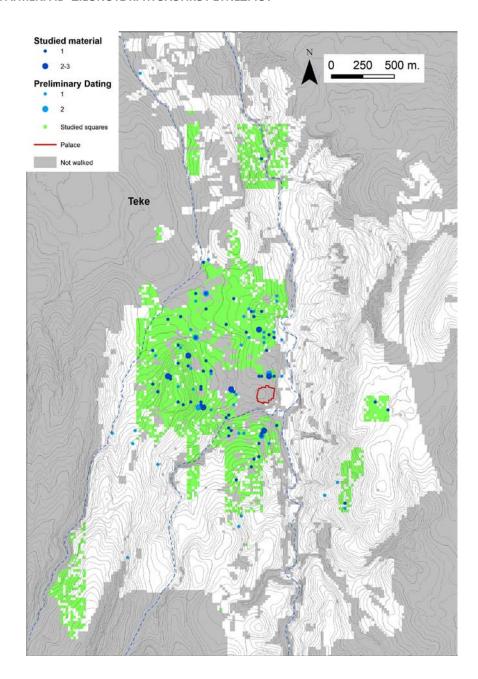


Fig. 4. EM I-II material from the entire survey area.

EM I-II

The number of identified sherds for this period is slightly larger than for the Neolithic, but this number could be limited by identification problems (Fig. 4). For the most part, we cannot rely on distinctive fabrics as in the Neolithic period, and fragmentation and erosion make it difficult to identify distinctive surface finishes and decoration.

The general picture across the valley is that there is no strong evidence for significant concentrated use of the landscape (habitation or funeral) beyond the main settlement on the Kephala hill. The survey could not investigate the completely built-over area of Teke (Fig. 4), the

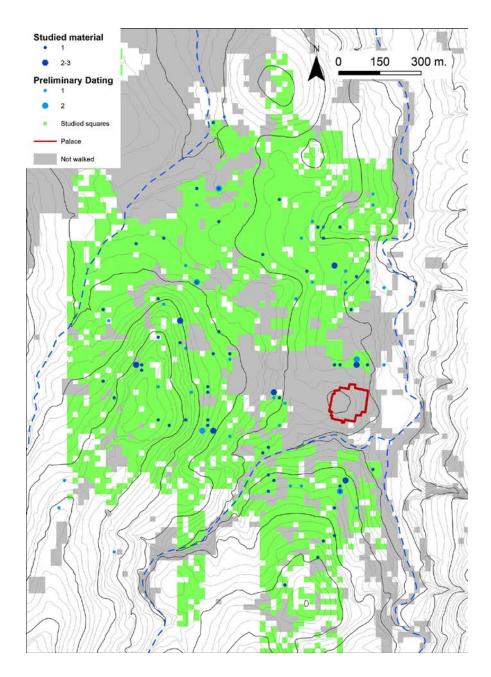


Fig. 5. EM I-II material from the site centre.

only location in the valley beyond the Kephala hill where a significant deposit of EM II material has been reported (Marinatos 1933). A single sherd discovered in the survey near the EM material excavated by Howell south of Lower Gypsadhes (Hood and Smyth 1981, KS2.330), does little to shed light on the nature of the excavated deposit. There are indications that some of the areas that would be heavily used in later periods, such as Lower Gypsadhes or the Ailias ridge, already saw some activity in these periods, but the few scattered sherds are not sufficient to suggest areas of occupation. Moreover, the location of some of the material in areas with marked slopes, particularly the Acropolis hill and the southwest slope of Ailias, could indicate the presence of cemeteries in these locations. This is consistent with what we know from EMII cemeteries in other

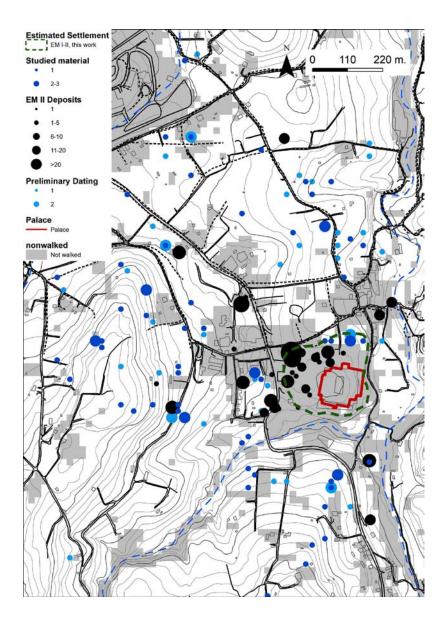


Fig. 6. EM I-II site extent estimates.

locations across Crete in terms of location on hills near the settlement, such as the case of Petras (Tsipopoulou 2017) and Palaikastro (Legarra Herrero 2014). It should be noted that the material recovered by Marinatos at Teke (Marinatos 1933), while consistent with a funerary deposit, is located much further away from the Kephala hill, and it is possible that this deposit relates to another EM II community in the valley, perhaps located some-

where near, underneath the southern suburbs of modern Herakleion, or is already marking some sort of relationship between Knossos and the EM II community at Poros (Wilson *et al.* 2004).

At the Kephala hill (Fig. 5), the survey had only very limited access to possible areas of EM II occupation, as these lay within the boundaries of the archaeological site or underneath the site car park and entrance. Warren's Royal Road South excavation (Warren 1972) and a test under the palace car park indicate EM IIA expansion west along the ridge, nearly to the modern road (Whitelaw 2012). There is little evidence from under Bougadha village, where tests have only produced scattered EM II sherds, and no deposits or architecture have been documented for this period (Whitelaw 2012). This contrasts with the significant deposits found north and south of the eastern half of the Royal Road (Hood and Cadogan 2011; Warren 1972) and it seems unlikely that the settlement reached the modern road or extended west of it. The stray sherds in test excavations under the modern village, and the scattered surface finds north, west and south

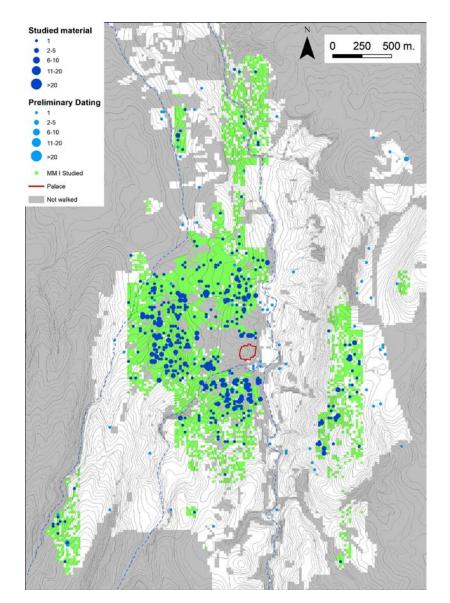


Fig. 7. EM III-MM IA material from the entire survey area.

of the Kephala, probably document a very low density halo of activity surrounding the settlement (intensive gardening, disposal of waste) extending somewhat more than 500m from the community, the radius suggested by Isaakidou as effective for manuring around the Neolithic tell (Isaakidou 2008). Based on information from the tests underneath the car park and along the Royal Road (Whitelaw 2012), and the dense distribution of surface

material recovered immediately north of the site, our best estimate of the extent of the site during the EM I-II period is around 5.5-6.5 ha. (Fig. 6).

Despite our best efforts, specifically EM IIB material was rarely distinguished among the survey material, and there is little indication that major changes occurred in this period.

EM III - MM IA

The survey has identified much more EM III-MMIA material than from earlier periods, attesting to a major change in the intensity of deposition and activity patterns in the valley (Fig. 7). There is a significant amount of material across the whole valley with a couple of outlying concentrations beyond a large central settlement. This situation contrasts starkly with the earlier periods, and while the preservation of harder fired pottery and taphonomic processes can explain to a certain degree the larger amount of material identified, they are not enough to explain such a significant

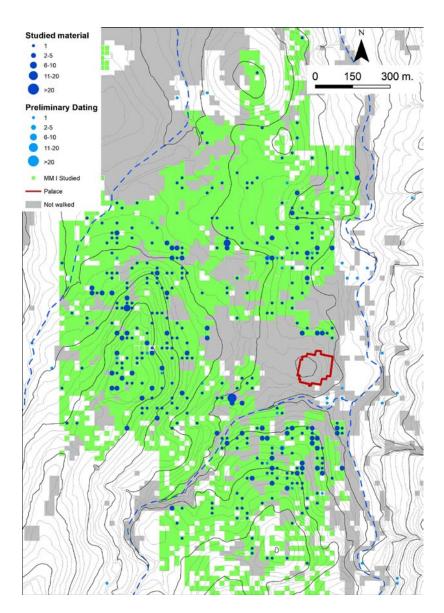


Fig. 8. EM III-MM IA material from the site centre.

change in overall distribution. The EM III-MM IA period presents a major departure in the way the valley was occupied and exploited, together with a very significant expansion in population.

The distribution of material is densest around the Kephala hill (Figs. 7-8), but now we can recognise several minor concentrations in other parts of the valley. A large but low density scatter appears at the far southwest corner of the survey area, which shows similar evidence through most later periods; it may represent a focus for somewhat dispersed occupation. At the top of the Ailias ridge, particularly on the flat north summit of the ridge, the conditions were good for a small hamlet to exploit this arable area and perhaps to conduct industrial activities that took advantage of the prevailing winds. The concentrations of material at the top and east slope of the Acropolis and also on the southern west slope of Ailias are in terrain less conductive to agriculture due to the slope. The recently published Monastiriako Kephali tomb shows that the Acropolis was used from MM IA-LM IA for funerary activities (Preston 2013), and the use in MM IB of the Ailias slopes for burial (Hood 2010) would suggest that these areas could have

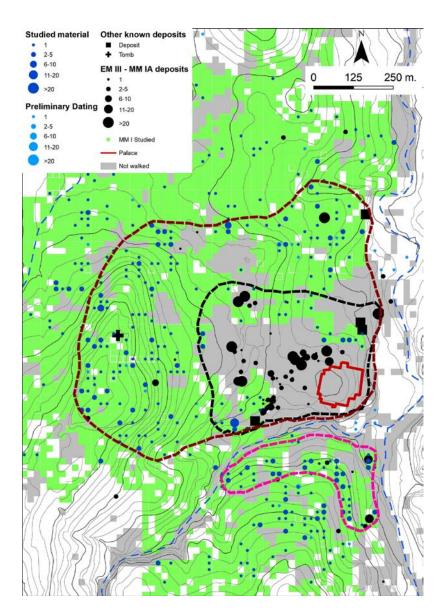


Fig. 9. EM III-MM IA site extent estimates.

had a funerary use earlier. This may also be the case for areas north of the city, near where several small rock-cut cavities with EM III-MM IA material were dug by Mackenzie (material published by Momigliano 1991, 176-184). The good preservation of this material and a small sheet gold disk are consistent with it being recovered from tombs. This picture of a much more intensive use of areas surrounding the settlement for burial would replicate what we know from other significant MM IA settlements such as Mallia and Palaikastro (Legarra Herrero 2014).

At the centre of the valley we find a much-enlarged settlement, that, given the material on the surface and the known test excavations in the area, may extend over a minimum of 20-22 ha (Fig. 9: black dashed outline; red dashed outline represents the maximum possible extent). Tests under the modern villages of Bougadha and Makryteikhos, the BSA Taverna and the Villa Dionysus provide consistently significant amounts of EM III-MM IA material (Whitelaw 2012). The survey has also found amounts of material south of Bougadha village, near excavations where significant EM III-MM IA material has been recovered (e.g. Hood and Smyth 1981, KS2.207, KS2.208), that would confirm the southwest limit of the expanded settlement. The lower slope of Lower Gypsadhes represents the principal approach to the Kephala hill, and here the survey found much late Prepalatial material. Excavations on the lower slopes of the hill consistently produce EM III-MM IA material (e.g. Hood and Smyth 1981, KS2.299), and this area may need to be considered part of the settlement (Fig. 9: pink dashed outline). The southern extent of the Gypsadhes surface distribution may indicate funerary use, as the MM IIB tholos tomb dug here (Hood 2010) would suggest. Adding the northern edges of Lower Gypsadhes to the town size estimate brings the settled area near to 30 ha.

This estimate is slightly qualified by the difficulty in defining where the settlement may have ended and where the cemeteries that surrounded the city may have started. At other MM IA sites, the cemeteries sit at different distances from the settlement, such as at Palaikastro (Legarra Herrero 2014), and there is evidence at Gournia that in MM IA cemeteries that were close to the town were superseded by new tombs placed at a distance (Buell and McEnroe 2017; Soles 1992), probably to give the settlement room to expand. There may be a similar situation at Mallia, where new MM IA tombs appear away from the fringes of the city (Baurain 1987). It may be useful to think about MM IA Knossos as a very dynamic community in constant growth, a process that would continue in the Protopalatial period. This rapid expansion would have meant that the use of certain areas around the Kephala hill may have changed rapidly, from funerary to habitational use, pushing new cemeteries further away. This would explain the appearance of MM IB tombs on the Ailias hill (Hood 2010), and further south on Lower Gypsadhes. The size of the city in EM III-MM IA may be therefore difficult to define as it grew continuously, and the 30 ha. should be considered as a mid-estimate, perhaps too large for the EM III period, but that is already too conservative as we move into the MM IB period. The exceptional growth that we observe in the MM IA period will continue without any discernible hiatus in the Protopalatial period.

CONCLUSIONS

The survey, while conservative in its estimates, supports the suggestion that Knossos was one of the largest, if not the largest community in the southern Aegean from the 7th millennium BCE to ca. 1800 BCE (and beyond). The settlement was in continuous growth for most of this period (barring potential short contractions that would not be identifiable by survey material alone), although this did not necessarily follow a gradual or steady pace. Changes are attested in the EM II period, but it is only in the EM III-MM IA period that the community made a major leap, approaching an urban scale with a population on the order of 4-7,000 individuals. There is a marked change in the uses and occupation pattern of the valley that reinforces the suggestion of major demographic growth in the area (Whitelaw 2012). In many ways what we see in the MM IA period seems to be the beginning of an expansion that will continue through the Protopalatial period. This dynamism may have affected the funerary landscape surrounding the town and could explain the difficulties in locating the earlier cemeteries. Following a typical MM IA pattern, many more tombs and cemeteries seem to have been constructed, but given the rapid and

exceptional growth of the settlement, they would need to be relocated into new areas during the Protopalatial period. The use of steep slopes such as Ailias may be a solution to fit tombs into a densely occupied landscape. This rapid pattern of growth in the later Prepalatial period poses questions about the demographic mechanisms that fuelled it, both internal and external (Whitelaw 2012; 2017), and the social, economic and political changes that were required to make such an expansion sustainable.

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