

## The Knossos Urban Landscape Project: investigating the long-term dynamics of an urban landscape

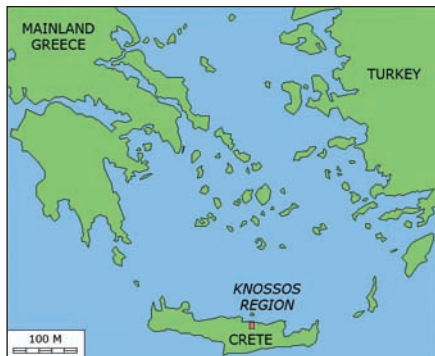
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*Knossos is one of the most famous archaeological sites in Europe, known primarily for the Minoan palace brought to light by Sir Arthur Evans. However, the area has been occupied for much longer, from the Neolithic to the present day. In this article the authors describe the Knossos Urban Landscape Project, which since 2005 has been investigating the whole valley and the entire occupational sequence, involving both new survey and assessment of earlier work. Preliminary analysis has led to significant revision*

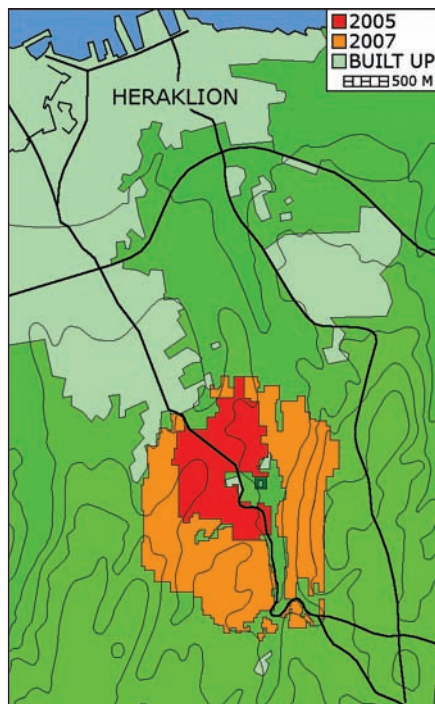
representing the British School at Athens, explored the rest of the valley, opening some 300 test pits, searching for the prehistoric cemeteries of the site.<sup>5</sup> In this, he was almost entirely unsuccessful, though his widespread tests started to provide a framework for understanding the prehistoric urban context of the palace, as well as recovering evidence for the subsequent periods of occupation.

Evans' interest was fixed firmly on the prehistoric phases of the site, but after he gave the site and his estate at Knossos to the British School at Athens in 1924, other scholars began to investigate the

For the nearly two million tourists who visit it each year, Knossos means the prehistoric palace excavated and partially reconstructed by Sir Arthur Evans in the early years of the 20th century, just south of Heraklion, on the north central coast of Crete (Figs. 1 and 2). The confusion of walls exposed by Evans, also invariably brings to mind King Minos, Theseus, the Minotaur,



**Figure 1** Crete and the Knossos area, within the southern Aegean.



**Figure 2** Knossos, the study area in relation to modern Heraklion.



**Figure 3** The Knossos valley from the southeast, the prehistoric palace at centre left, Heraklion at top right.

and particularly the Labyrinth, of later Classical tradition. In fact, the prehistoric palace was constructed on a low hill, toward the southern end of the valley of the Kairatos river, and sits within one and one-half square kilometres of archaeological site (Figs 2 and 3). Today, very few monuments or archaeological features are visible to document nearly eight millennia of occupation, the architectural remains of early structures having been re-used in later constructions. Visitors to the site from the 15th century commented on major standing Roman ruins, such as a theatre, basilica and mausolea,<sup>2</sup> but these were dismantled for construction materials for neighbouring Venetian and Ottoman Heraklion in subsequent centuries.

### Early investigations

In the late nineteenth century, early antiquarians began the systematic exploration of the site, and their observations attracted Evans' attention.<sup>3</sup> His interests focused on the hitherto largely unrecognized prehistoric culture, so richly documented by finds from the palace and the surrounding grand houses and tombs which he excavated in the first three decades of the twentieth century.<sup>4</sup>

At the same time that Evans began excavating the palace, David Hogarth,

evidence for later periods of occupation. Periodic major research excavations, and far more numerous rescue tests, filled-in our picture of the site considerably during the second half of the twentieth century, when major development of the area, linked to the expansion of Heraklion, took off. The threat to the site diminished with legal protection, but the restrictions on new construction have come under increasing pressure in recent years, as Heraklion continues to expand rapidly.

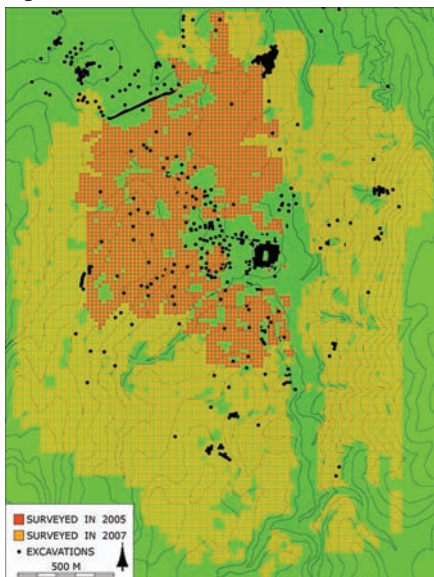
While research at the site has understandably concentrated on the unique Cretan prehistoric culture termed Minoan, the site was one of the largest and most important communities in the Aegean region throughout its long history, from its foundation by the first Neolithic occupants of the island, c.7000 BC, to its final abandonment in the 7th century AD.<sup>6</sup>

Investigations during the twentieth century have amassed a wealth of archaeological information, though this is patchy in both space and time. Because the locations of excavations away from the vicinity of the palace have been dictated primarily by rescue rather than research considerations, a large part of the site, not threatened by development, has received little or no investigation. The patchy coverage is clear from a map

of excavations in the twentieth century (Fig. 4), particularly when it is recognized that many of these simply document observations of material noted during development and not during recorded excavations, and very few of these have merited full documentation, study and publication.<sup>7</sup> In addition, many rescue tests only uncover the uppermost preserved levels, ascertaining that archaeological deposits are preserved at that spot, but do not investigate the whole history of occupation at the location.

### The Knossos Urban Landscape Project

More systematic and comprehensive investigation of the entire site was desirable, both to provide information on the gaps in previous work, but also to facilitate contextualization of the very small exposures afforded by so many of the tests. Since 2005, the British School at Athens and the 23rd Ephorate of Prehistoric and Classical Antiquities of the Greek Ministry of Culture have been conducting an intensive survey of the entire valley.<sup>8</sup> This project, a collaboration between the two institutions which have shared responsibility for investigations at Knossos throughout the past century, has three principal objectives: 1) to document systematically the visible archaeological record of the urban centre at Knossos and its associated cemeteries, creating a framework to contextualize over a century of individual excavations and to provide a baseline for future research in the valley; 2) to document the existing archaeological resources of the valley as an aid to their preservation and to inform future development in the area; and 3) to integrate previous investigations with the new survey data, to reconstruct the long-term developmental history of one of the most important centres in the Aegean region.



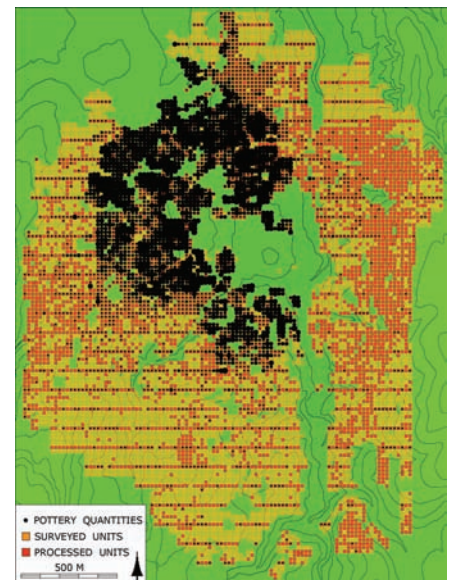
**Figure 4** Excavations, 1900-2000, and the areas surveyed in 2005 & 2007.



**Figure 5** Intensive surface collection within 20m grid, on city site.

To address both the research and management objectives of the project, it has been necessary to collect substantial, but also spatially tightly-controlled samples. Preliminary test assessments to define the overall extent of the surface scatter, and its local densities, indicated that a 2.5% sample of the surface would provide adequate collections over the urban core of the site. These are obtained by picking-up all materials one cm or larger in size in an area of 10 square metres, within every 20m by 20m unit, on a grid laid out across the site (Fig. 5). In addition, each square is scanned for archaeological features, and for exceptional materials. At the core of the city site, some units have surface ceramic densities of more than 100 sherds per square metre, though 10 to 30 is more usual. In 2005, 2,400 squares were collected, covering nearly all of the urban core of the site, and recovering 4.2 metric tons of material, largely comprised of c.350,000 sherds (Fig. 6). The 2006 season was devoted to initial sorting and documentation of the material recovered in 2005. In 2007, fieldwork was resumed, moving up into the surrounding hills, to explore the cemeteries in the southern part of the valley. Some 7,000 squares were surveyed, recovering an additional 60,000 finds (Fig. 4). 2008 is planned to be the final season of fieldwork, and survey will be extended to the north, to document any evidence which survives, before it disappears beneath expanding Heraklion (Fig. 2).

To date, only preliminary processing has been undertaken for the 400,000+ sherds recovered, but this already modifies significantly our understanding of the development of the site, particularly when the new survey evidence is integrated with that from earlier excavations. The

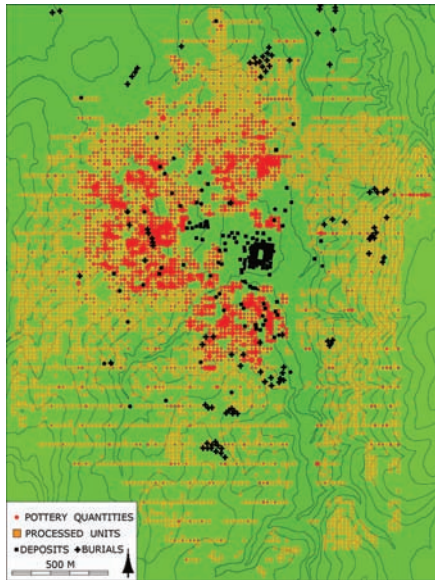


**Figure 6** Surface pottery density and excavations, processed units only.

two sources of information are directly complementary, the first providing continuous coverage and a standard sample, while the latter provides sub-surface checks, and information from areas no longer preserved, or presently unavailable for surface investigation (for instance, under the modern villages or car parks).

### Preliminary results

For the prehistoric periods (Fig. 7), where previous investigations have particularly concentrated in the vicinity of the palace, the survey data document clearly that throughout the Middle and Late Bronze Age, Knossos was the largest site within the Aegean, and comparable in scale to most urban sites around the Eastern Mediterranean, extending over nearly three-quarters of a square kilometre.<sup>9</sup>



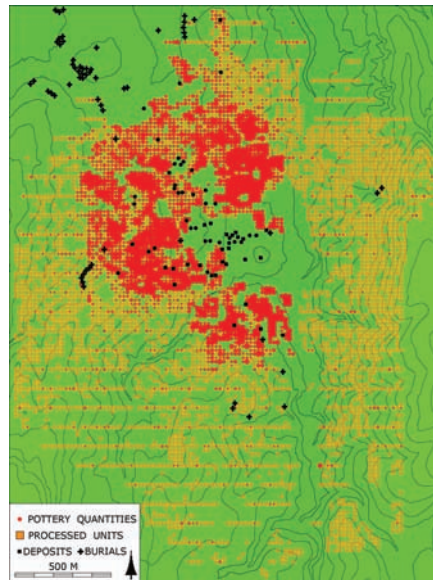
**Figure 7** Prehistoric evidence, excavations and surface pottery counts.

Preliminary breakdowns by period, considering both excavation and survey data, indicate that occupation throughout the entire Neolithic period (c.7000–3200 BC), and the earliest phases of the Bronze Age (c.3200–2100 BC), was confined to the hill on which the later palace was constructed. The centuries around the turn of the second millennium BC, saw very rapid expansion of occupation off the hilltop, creating a community up to one-quarter of a square kilometre in extent, by c.1950 BC, the traditionally accepted date for the construction of the first palace at Knossos and the other major palatial sites on Crete, and the origin of the Minoan states.

The prehistoric city reached its maximum extent and population (perhaps 15,000 individuals) about 1500 BC, when Knossos ruled an extensive polity in central Crete, and may, for at least several generations, have dominated the entire island. The site declined after the final destruction of the palace, somewhat over a century later, but probably remained the largest centre on Crete, and appears to be one of the very few sites in the Aegean that survived the widespread destructions and abandonments which marked the end of the Bronze Age. While reduced very substantially in extent and population, Knossos was one of the first Aegean communities to prosper and expand again, in the early Iron Age, after 1000 BC.<sup>10</sup>

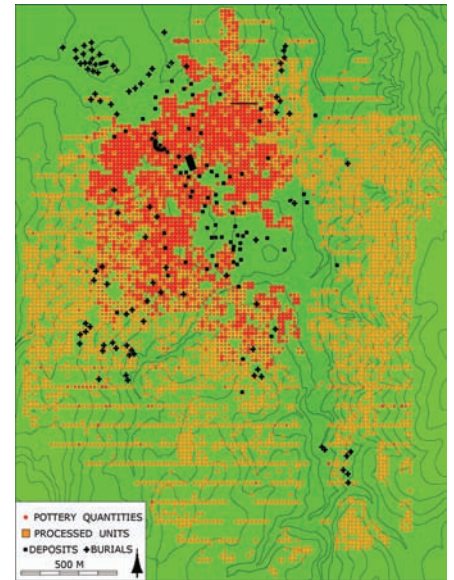
During the Hellenic period (Protogeometric to Hellenistic), Knossos again went through a cycle of expansion, developing rapidly in the early Iron Age, and reaching nearly its maximum extent by the end of the Hellenistic period, in the 1st century BC. For the post-prehistoric periods, most of our information on

the city comes from rescue excavations which have concentrated along the main modern road or in the modern villages. The more comprehensive coverage of the survey is contributing significantly to our understanding of this period, through documentation of occupation far more widely across the valley (Fig. 8). In particular, as in prehistory, the community appears to have expanded very rapidly in the century or two immediately before the traditionally-recognized date for the emergence of the polis – the Classical Greek city-state. Survey data also contribute to our understanding of the end of this period, with Hellenistic pottery over essentially all of the site documented as occupied in the subsequent Roman period. A significant expansion of the city appears likely to correspond to the rapid expansion of Knossian political dominance in central Crete during the Hellenistic period, when it again covered an area of about three-quarters of a square kilometre.



**Figure 8** Hellenic evidence, excavations and surface pottery counts.

Crete was conquered by the Romans in 67 BC, and Knossos, while not the capital of the province, remained one of its foremost cities. While traces of some of its public buildings were still visible even in 1900, these have now largely disappeared (Fig. 9). The surface evidence, however, provides clear documentation of the prosperity of the city, represented by widespread stone and glass tesserae from mosaics, fragments of wall veneers of imported marble, and much window glass. The surface evidence has also solved one serious problem of the Knossian historical and archaeological record – whether there was even a community there after the third century AD. Four late



**Figure 9** Roman evidence, excavations and surface pottery counts.

Roman/Byzantine churches are known from the valley, two excavated, and two documented as components of still standing chapels, each with contemporary graves. However, settlement evidence post-dating the middle of the third century has been extremely limited, principally a small number of deposits extending into the 5th century, and unstratified sherds in topsoil levels in excavations along the west side of the valley.<sup>11</sup> Preliminary dating of the ceramics recovered in 2005, has revealed that substantial quantities of later Roman ceramics are particularly concentrated in the north-west part of the site, well-removed from the areas most intensively tested through excavation. There was a long-term drift of the site from prehistory through the Roman period, which by late in the final phase, had seen occupation largely shift away from the areas near the Minoan palace, which have been the principal focus for major excavations.

**Prospects**

So far, we have only done the most preliminary work on the finds recovered to date by the survey, but already this can be seen to provide a new and comprehensive context for reconsidering over a century of intensive excavation. It also points toward significant revisions in our understanding of the development of the centre, by collecting evidence from major areas of the site which have not previously been investigated, and filling the gaps between limited excavations over much of the rest of the site. 2008 will see the final season of fieldwork, with the survey of the cemeteries extending north from the site toward the sea. Then the serious work really begins, fully documenting, analysing and interpreting the new data.

## Notes

- 1 23rd Ephorate of Prehistoric and Classical Antiquities, Greek Ministry of Culture, Heraklion
- 2 C. Buondelmonti *Descriptio Insule Crete et Liber Insularum*, M.-A. Spital (ed.), (1416, Heraklion, 1981); I. Beschi (ed.), *Onorio Belli a Creta: un manoscritto inedito della Scuola Archeologica Italiana di Atene (1587)*, (Athens: Scuola Archeologica Italiana, 1999); E. Falkener, *A description of some important theatres and other remains in Crete, from a MS History of Candia by Onorio Belli in 1586* (London, 1854); R. Pashley, *Travels in Crete* (London: John Murray, 1837); T.A.B. Spratt, *Travels and researches in Crete* (London: John van Voorst, 1865).
- 3 F. Halbherr, "Researches in Crete VIII: Cnossos", *The Antiquary* **28**, 110–12 1893; W. Stillman, "Extracts of letters from W.J. Stillman, respecting ancient sites in Crete", *Archaeological Institute of America, Appendix to the Second Annual Report of the Executive Committee*, 41–9, 1881; A. Brown, *Before Knossos... Arthur Evans' travels in the Balkans and Crete* (Oxford: Ashmolean Museum, 1993); A. Brown, *Arthur Evans's travels in Crete 1894–1899* (British Archaeological Reports International Series 1000, Oxford, Archaeopress, 2001).
- 4 A.J. Evans, *The Palace of Minos at Knossos*, vols 1–4 (London: Macmillan, 1921–1935); C.F. Macdonald, *Knossos* (London: The Folio Society, 2005); A. Farnoux, *Knossos. Unearthing a legend* (London: Thames and Hudson, 1996); A. Brown, *Arthur Evans and the Palace of Minos* (Oxford: Ashmolean Museum, 1983); S. Hood, 'Sir Arthur Evans and the Palace at Knossos', *Cretan Studies* **8**, 137–45, 2003; P. Warren, 'Sir Arthur Evans and his achievement', *Bulletin of the Institute of Classical Studies* **44**, 199–211, 2000; H. Catling, 'The British School at Knossos', in *Cretan Quests: British Explorers, Excavators and Historians*, D. Huxley (ed.), 203–7 (London: British School at Athens, 2000).
- 5 D.G. Hogarth, "Knossos II Early town and cemeteries", *Annual of the British School at Athens* **6**, 70–85, 1900.
- 6 Overviews of the development of the site can be found in: M.S.F. Hood & D. Smyth, *Archaeological survey of the Knossos area*. (Supplementary Volume 14, London: The British School at Athens: 1–29, 1981); D. Evelyn, H. Hughes-Brock, N. Momigliano (eds) *Knossos. A labyrinth of history*. (Oxford: The British School at Athens, 1994); G. Cadogan, E. Hatzaki, A. Vasilakis (eds), *Knossos: palace, city, state* (London: The British School at Athens, 2004).
- 7 Summary information on investigations in the Knossos valley up to 1977 is collected in M.S.F. Hood & D. Smyth, *Archaeological Survey of the Knossos Area* (Supplementary Volume 14, London: The British School at Athens, 1981). Short notices of investigations are recorded annually in *Archaeology in Greece*, compiled by the Director of the British School at Athens, and published by the Society for the Promotion of Hellenic Studies and the British School at Athens.
- 8 The project is directed by the authors, representing both institutions, authorized by a permit to the British School at Athens from the Hellenic Ministry of Culture. Financial support has been provided by the Institute for Aegean Prehistory, the British Academy, the 23rd Ephoreia of Prehistoric and Classical Antiquities, the British School at Athens, the Graduate School, UCL, and the Institute of Archaeology, UCL. Fieldwork is based at the British School's study centre at Knossos, and the assistance of the Curator and his staff is warmly acknowledged. Some 70 student volunteers have participated in the fieldwork seasons from 2005 through 2007. Preliminary reports for each year can be found in *Archaeological Reports*.
- 9 See T. Whitelaw, "Beyond the palace: a century of investigation at Europe's oldest city", *Bulletin of the Institute of Classical Studies* **44**: 223–6, 2000; T. Whitelaw, "From sites to communities: defining the human dimensions of Minoan urbanism", in *Urbanism in the Aegean Bronze Age*, K. Branigan (ed.), 15–37 (Sheffield: Sheffield Academic Press, 2001); T. Whitelaw, 2004, "Estimating the population of Neopalatial Knossos", in *Knossos: palace, city, state*, G. Cadogan, E. Hatzaki, A. Vasilakis (eds), 147–58 (London: The British School at Athens, 2004).
- 10 For Early Iron Age Knossos, see most recently: J.N. Coldstream, "Knossos in early Greek times", in *Ancient Greece: from the Mycenaean palaces to the age of Homer*, S. Deger-Jalkotzy & I. Lemos (eds), 581–96, (Edinburgh: Edinburgh University Press, 2005); J.N. Coldstream, "Evans' Greek finds: the Early Greek town of Knossos, and its encroachment on the borders of the Minoan palace", *Annual of the British School at Athens* **95**, 259–300, 2000.; A. Kotsonas, "Wealth and status in Iron Age Knossos", *Oxford Journal of Archaeology* **25**, 149–71, 2006. For Knossos' position in the Aegean and Eastern Mediterranean, see: G. Hoffman, *Imports and immigrants: Near Eastern contacts with Iron Age Crete* (Ann Arbor, University of Michigan Press, 1997); D. Jones, *External relations of Early Iron Age Crete, 1100–600 BC* (Philadelphia, University of Pennsylvania Press, 2000).
- 11 For Roman Knossos, see most recently: S. Paton, "Knossos: an imperial renaissance", in *Knossos: palace, city, state*, G. Cadogan, E. Hatzaki, A. Vasilakis (eds), 451–5 (London: British School at Athens, 2004); G. Forster, "Shadow of a city? A review of Late Roman Knossos", in *Knossos: palace, city, state*, G. Cadogan, E. Hatzaki, A. Vasilakis (eds), 489–91 (London: British School at Athens, 2004); R. Sweetman, "Late Antique Knossos. Understanding the city: evidence of mosaics and religious architecture", *Annual of the British School at Athens* **99**, 315–54, 2004; R. Sweetman, "The changing nature of Knossos: Roman to Late Antique – some problems", in *Knossos: palace, city, state*, G. Cadogan, E. Hatzaki, A. Vasilakis (eds), 481–8 (London: British School at Athens, 2004); R. Sweetman, "Roman Knossos: the nature of a globalized city", *American Journal of Archaeology* **111**, 61–82, 2007.