

KERKENES DAĞ PROJECT

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The ongoing archaeological project at the ancient Iron Age city at Kerkenes Dağ in central Turkey is both the newest and one of the oldest Oriental Institute projects. The site first caught the attention of the Oriental Institute when it was visited by one of our early faculty members, Hans Henning von der Osten, in 1926. He returned with several members of the Oriental Institute's Hittite Expedition staff in 1927 to survey in the ruined course of the city's massive wall and a few of the more prominent features within this enormous city. The results of this survey intrigued the Institute's founder James Henry Breasted enough that in 1928 he dispatched Erich Schmidt to undertake limited excavations within this mysterious metropolis in order to determine if the city was in fact a contemporary rival of the Hittites. Over eight days Schmidt was able to excavate eighteen trenches within the city and arrive at the conclusion that the city was not a contemporary of the Hittites but was rather a later city dating to somewhere within the 800 year span of the Iron Age.

Sixty-five years later, in 1993, archaeologists again returned to investigate this ancient city which some scholars had since identified with Herodotus' city of Pteria. A project under the direction of Dr. Geoffrey Summers of Middle Eastern Technical University in Ankara was started in that year and has continued every year since. In 1995, while a student at the Oriental Institute, I began working with this international project and I now serve as its co-director. With my return to the Institute this past year Kerkenes Dağ has also returned to the fold of Institute projects. Yet the emphasis of the current project has been slightly different from that of the 1920s, largely due to advancements in available technology. Rather than merely trying to determine the date of this ancient city by digging countless trenches, we started the project by first employing a wide range of innovative techniques to see exactly what lay beneath the surface of the ground before we excavated on a large scale (fig. 1). To do this a whole range of remote sensing techniques were used to map out the urban blocks and streets within the entire ancient city including: aerial photography, magnetometry survey, resistivity survey, electromagnetic-induction survey, satellite images, and GPS survey. This data was combined within geographic information system (GIS) software, specifically ArcGIS and ERDAS Imagine, to produce these remarkably detailed pictures of the urban fabric of the city, something lacking to this day at nearly all comparable ancient cities (fig. 2).

This strategy of investing the time and effort upfront to collect these illuminative datasets has already begun to yield impressive dividends. Rather than blindly digging small holes all over the city we now possess the necessary knowledge about where things are in the city to make optimal use of present and future investments of time and available funding. We can do this by first exploring the data through visualization, analytical techniques, analysis of parallels, or through simulation. We can then use this knowledge of the urban fabric to guide where to place precision excavation trenches. These can be focused so as to excavate only what is necessary to answer particular questions about the political and social fabric of this city as well as to provide us with a better understanding of the daily lives of its numerous inhabitants.

Starting in 2003 we used this approach to guide our first large-scale excavations within this ancient city. Two areas in particular were selected for excavation given our desire to understand more about who the people were that built and controlled this ancient city as well as who the people were that inhabited it. The first area selected was in a potentially residential area of the

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Figure 1. Virtual reality reconstruction of Kerkenes Dağ based on GPS survey data

city that the remote sensing showed had structures that looked like megarons, a building style with parallels to the west in Phrygian areas of Anatolia. We excavated precisely one half of one of these structures and were able to confirm that they were in fact megarons, providing important clues as to who some of the urban inhabitants were.

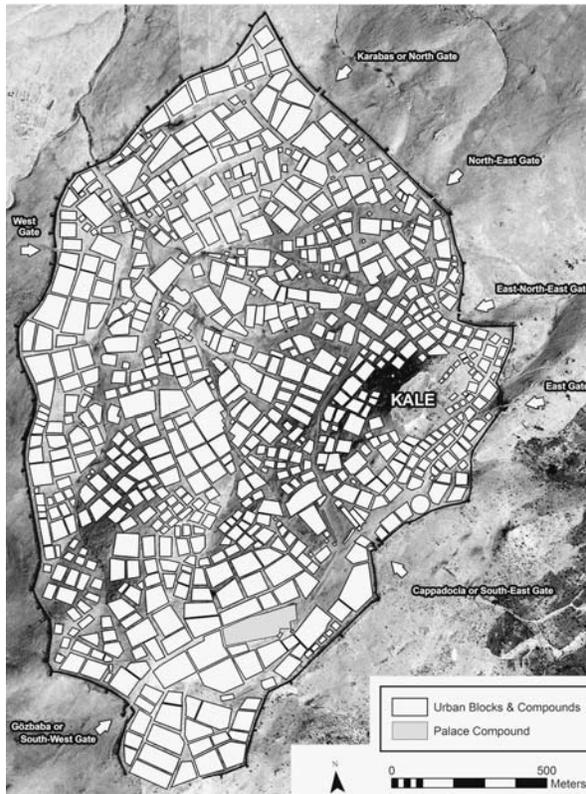


Figure 2. Map of urban blocks reconstructed from remote sensing at Kerkenes Dağ

The second area we selected in 2003 was in the monumental entranceway to the Palace Compound, where remote sensing had shown a great deal of burning in the final destruction of the city. Our reasons for excavating here were twofold. Firstly, it was expected that in such a critical place, where everyone entering the Palace would have had to pass by, the leader(s) of the city would most likely have placed symbols of their power and might. At comparable ancient cities such locations have often yielded monumental sculptures, reliefs, and even inscriptions. By excavating here clues were expected to be found that would shed light on the methods and motives of those who constructed and controlled the city during its brief life as well as perhaps of those who destroyed it. Secondly, this was an area that we suspected might yield charred hardwood timbers from which we might be able to get tree ring dates through dendrochronological analysis to pin down the precise date of the foundation and perhaps destruction of

this short-lived city. Limited excavations in a third of the gateway in 2003 yielded all that we had hoped and more. In addition to a portion of the impressive gateway itself we found several burnt timbers, pieces of reliefs in stone and bronze, and fragments of an Old Phrygian inscription (fig. 3).

During the 2004 season work progressed on four different aspects of the project: the continuation of the resistivity remote sensing survey, continued excavations within the monumental entranceway to the Palace, new excavations along the streets of the city, and the further development of the Kerkenes Eco-center. Of these, the majority of effort was centered on excavating the second third of the Palace gateway in hopes of recovering more of the important sources of information found in 2003, especially the inscriptions (fig. 4). Our excavations here did yield more joins to the existing inscription as well as fragments of a unique meter high sculpture in the round of a human (fig. 5) and a single large fragment of a monumental sculpture of possibly a sphinx (fig. 6). Of the gateway itself we uncovered the extent of the doorway where two large double-leaved wooden doors would have stood at the top of the 10 m wide stone-paved walkway. On either side of these doors were two large plinths carved from single conglomerate stones, bases upon which perhaps statues of lions or sphinxes once stood. Rising up behind these plinths were stone walls of granite and limestone that supported the two flanking towers on either side and perhaps the superstructure of the gateway as well. With further excavation in 2005 we will finish clearing out this impressive gateway and hopefully recover the final fragments of the inscription and of these sculptures. But already our excavations here have yielded critical information that points towards Phrygian speaking peoples as those who controlled and at least partially inhabited this ancient city.

Beyond the Palace, excavations also took place along three of the streets of this ancient city. This new initiative is an outgrowth of my own research entailing simulations of ancient pedestrians moving around within the urban fabric of the city. Just as modern city planners use tools such as this with virtual automobiles to determine where to site new roads or new shopping malls or industries, I have been working with ways to



Figure 3. Small portion of Old Phrygian inscription from palace gateway with joining fragments recovered in 2003 and 2004



Figure 4. 2004 excavation area in the palace gateway

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Figure 5. Upper half of 1 m high statue of a human figure from palace gateway



Figure 6. Fragment of a large statue of a sphinx

use them in order to understand how an ancient city was used by its inhabitants. Using only models of how different people walk and the form of the street network itself we have been able to predict which streets, and which urban blocks on them, were the main streets filled with the

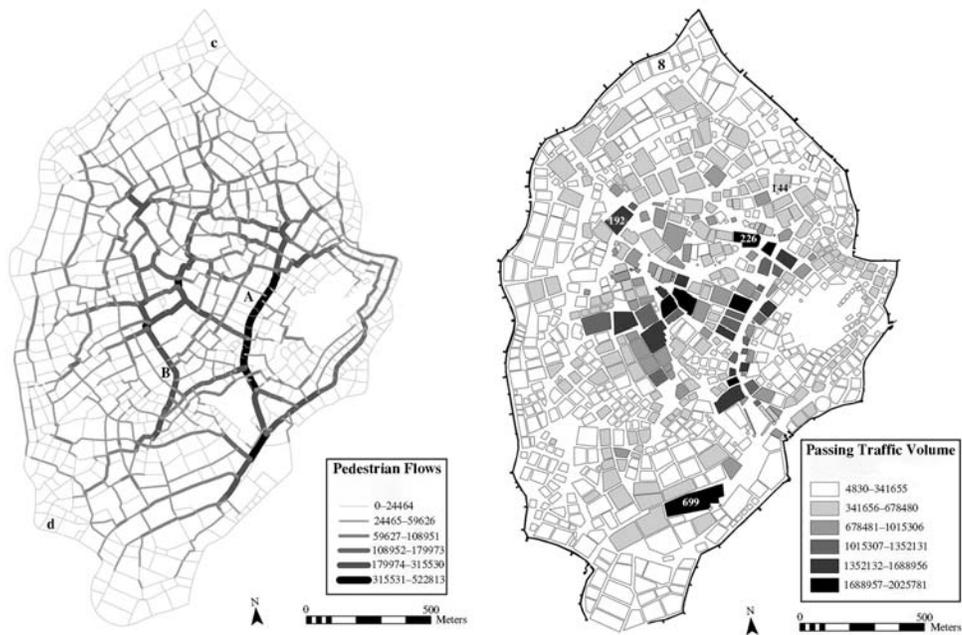


Figure 7. Results of simulations of pedestrians on the street network (left) and urban block maps (right) of Kerkenes Dağ

hustle and bustle of people moving around and which were the quiet back streets or even alleys (fig. 7). The excavations we undertook this year were designed to test these simulations of virtual pedestrians against traces of ancient walking over these streets in the past, especially looking at different amounts of compaction of the dirt street surfaces as more and more people once walked over them. Excavations cut through three different streets: the predicted main street of the city, a side



Figure 8. Taking a micromorphology sample from a buried street at Kerkenes Dağ

street with predicted middle range amounts of traffic, and a back alley with very little predicted traffic. In each location the street surface was found and cut through, and geomorphology samples were taken of the street surface and core (fig. 8). These samples, analyzed over this year at the Charles McBurney Laboratory for Geoarchaeology at Cambridge University proved to yield significant correlations with the predicted simulations! With such promising results we hope to be able to attract funding to continue this work in the years ahead and eventually confirm the promise of this innovative new way in which to analyze transportation and the use of space within ancient cities, towns, and regions.

Alongside these excavations we also continued work on the resistivity remote sensing survey within the vicinity of the Büyük Göl and along a small portion of the western slopes. Of particular interest in the data from this year was a single large buried structure on the western slopes that had been heavily and intentionally burnt during the destruction of the city. In future seasons we hope to excavate within this structure to find out why it was so singled out by those who destroyed the city. Work also progressed on the parallel Eco-center project down around our excavation house. While more architectural and ecological rather than archaeological in its research goals, the Eco-center project does provide the archaeological project with additional living and working facilities produced using traditional and more environmentally friendly building techniques. It will also eventually provide greater self-sufficiency and lower costs to the Kerkenes Project in terms of our food and energy requirements during the year. On the latter front, over the next year we will be looking in particular at acquiring solar powered ultraviolet water filters and wind powered pumps for our newly drilled water wells. Additional information on all of our activities as well as the latest news and reports and lists of participants and sponsors can be found on our Web site at www.kerkenes.metu.edu.tr