



KERKENES DAĞ PROJECT

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<http://www.kerkenes.metu.edu.tr/>

The 2008 season at Kerkenes Dağ was marked by a few technical difficulties but overall excellent results. There were four different areas of focus to the research program this year: ongoing geophysical survey in the areas around the Palatial Complex and the Cappadocia Gate, excavation of further test Transportation Trenches along streets in the northeastern part of the ancient city, the ongoing conservation and analysis of architectural pieces and artifacts from previous seasons, and the construction of a brand-new museum gallery for Kerkenes Dağ in the local Yozgat Museum (fig. 1). This was in addition to the ongoing activities of the Kerkenes Eco-Center and a festival held in honor of the opening of the Kerkenes Gallery in October. To top it all off, the first monograph on the recent excavations in the Palatial Complex was published in late December.

Geophysical Investigations

For the past sixteen years geophysical surveys have been undertaken in different areas of this late Iron Age Phrygian city. With one square mile of city area filled with ancient buildings and streets, there is still a great deal that can be learned from new surveys. For the past several years specific areas have been targeted with resistivity survey, a type of survey that uses the measurement of electrical currents passing through the soil to determine what lies buried below the surface. This technique applied at Kerkenes reveals a great deal of detailed information, even

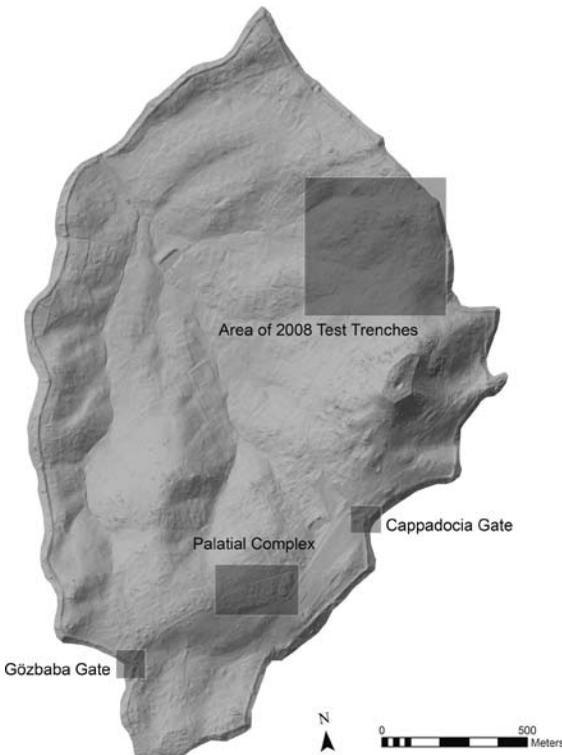


Figure 1. Locations of research at Kerkenes Dağ in 2008



Figure 2. Collecting resistivity data west of the Palatial Complex

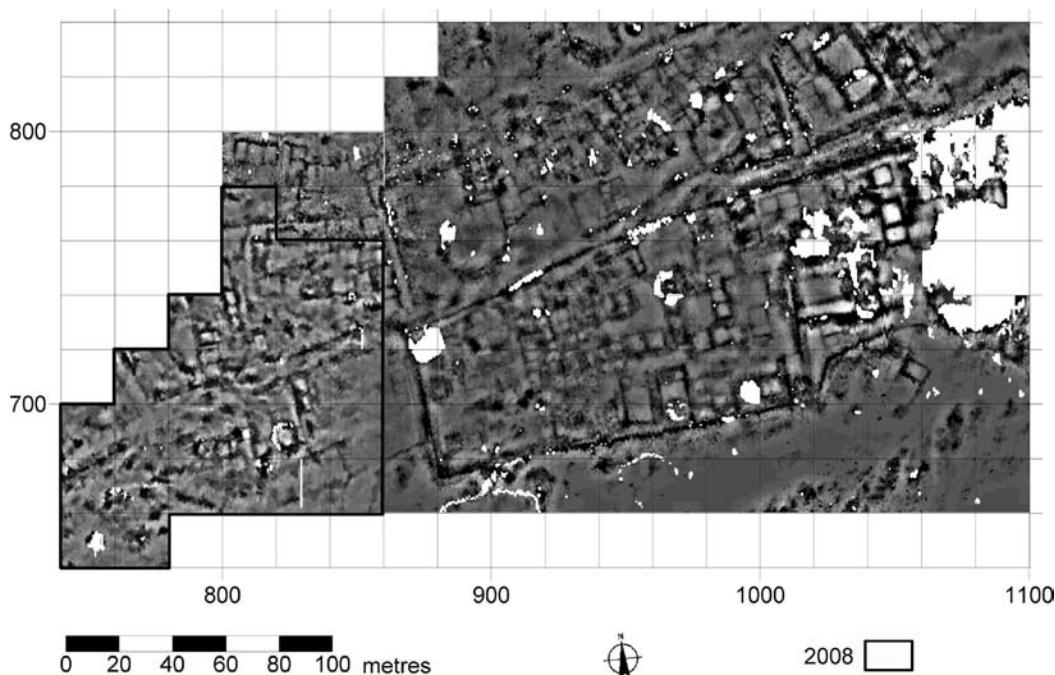


Figure 3. The results of the resistivity survey data in the area of the Palatial Complex collected in 2007 and 2008. An interpretive plan of the Palatial Complex itself can be seen in last year's Annual Report

aspects of individual buildings such as the internal arrangement of their rooms. Such data can be enormously useful in guiding future excavations as well as understanding the broader picture of the city. However, resistivity survey requires a certain amount of soil moisture to yield results and it can be slow work.

During the month of May, the only time of the year when resistivity survey is possible at Kerkenes, problems were encountered with both the resistance meter and the frame. The problems were overcome, thanks in part to the generosity of the local sugar factory in Sorgun that provided a craftsman and tools for producing a new frame. In the end, 12,800 square meters were surveyed to the west of the Palatial Complex and in the area just inside the Cappadocia Gate (fig. 2). The results from the area adjacent to the Palatial Complex reveal the internal details of some of the urban blocks along the main street that runs from there to the Gözbaba Gate (fig. 3). The portions of the urban blocks surveyed this year do not contain obvious evidence for buildings and installations with specialized functions, like the survey in the urban block to the north of the Palatial Complex did last year. However, much more work needs to be done in this vicinity, as it is a likely location for craft specialization activities within the city. The small area surveyed just within the Cappadocia Gate was designed to test the utility of future surveys in this area.

Excavations

Excavations in 2008 focused on the continued validation of the computer simulations of ancient pedestrian transportation discussed in last year's *Annual Report*. These simulations make use of the streets of the ancient city plan, reconstructed from the geophysical data collected over the past sixteen years, and then fill them with virtual human beings walking around within this urban landscape. The results can predict how the city was planned and used by its ancient inhabitants, including determining likely locations where particular activities were once undertaken in the

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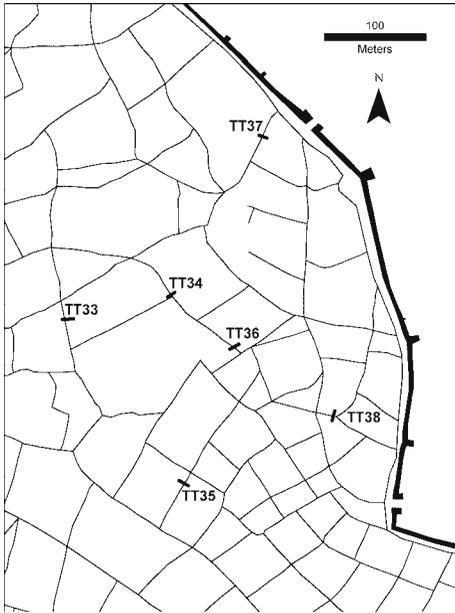
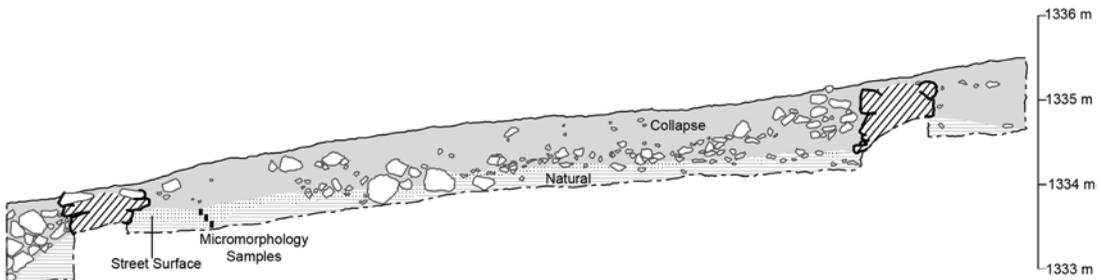


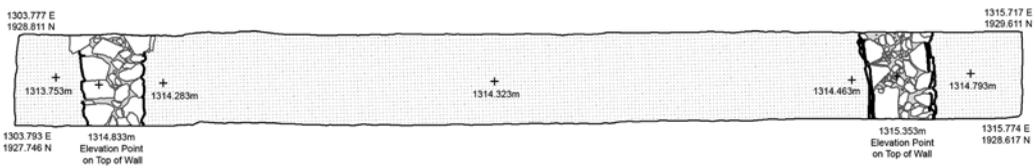
Figure 4. The locations of the Transportation Trenches excavated in the northeastern part of the city in 2008



Figure 5. Transportation Trench 33 across one of the ancient city streets. The street is running between the two walls seen in the trench



North Section



Plan



+ Elevation Point



Figure 6. The section and plan of Transportation Trench 33 showing the street running between the two urban block walls. The micromorphology soil samples taken from the street are marked on the section

city. Through a partnership with Argonne National Laboratory, who runs these simulations, we have created a software package named SHULGI after a Sumerian king noted for his prowess in the areas of road building and travel; development of the software has continued this past year. SHULGI has the potential to be used not only for ancient cities, but also to help design more pedestrian-friendly modern cities.

During the 2008 season, six test Transportation Trenches (TT33–TT38) were excavated in the northeastern portion of the city in order to evaluate the results of the computer simulations in this area (fig. 4). Each trench is situated so as to completely expose the full width of one ancient city street (fig. 5). The precise positioning of the trenches was accomplished using a GPS-enabled tablet computer, with the GPS showing in real-time where the corners of the trench would be within the reconstructed plan of the city. Using this method a specific street can be selected for excavation based on the results of the simulations. As was the case last year, the trenches were all 1 m in width and varied in length depending on the breadth of the street they were designed to bisect.

In each trench the soil covering the ancient street was completely cleared and any occupational materials were collected and recorded. The sorts of occupational materials collected this year included animal bone, pottery, seeds, and fragments of stone and metal objects. The trench was then continued down through the street surface, where possible, in order to completely bisect it (fig. 6). Soil samples were then taken from the streets and shipped to England for analysis at the University of Cambridge (fig. 7). In the testing of these soil samples Cambridge has begun to develop a method that can reveal the relative amounts of people that once walked over each street during the time the city was inhabited. This provides a useful measure by which the simulation results can be tested and validated. Five of the six trenches this year yielded well-preserved streets that were suitable for sampling in this manner. As more trenches are excavated we are becoming increasingly adept at locating portions of streets that can yield productive samples.



Figure 7. Susan Penacho collecting a micromorphology sample from Transportation Trench 33. Since the soil at Kerkenes Dağ is a very hard clay, a hammer and wooden block are needed to insert the metal box around the sample of soil. The box with the soil inside is then cut from the section and wrapped for transit to England

Conservation

While new material was being excavated, specialists continued their work on the conservation and analysis of materials collected in previous seasons. A majority of the conservation work undertaken by Noël Siver this season focused on the reconstruction and long-term preservation of the dozens of objects selected for the new Kerkenes Dağ gallery in the Yozgat Museum. The construction of the gallery is discussed further below. However, significant work was also accomplished on the ongoing conservation and restoration of the fragmentary stone architectural elements collected in the excavations within the collapsed monumental entranceway to the Palatial Complex. This includes continued join-finding and restoration of the meter-high semi-aniconic stone crenellations bearing representations interpreted as the Phrygian goddess Matar. Aiding in this endeavor was the new stone workshop building completed early in 2008. This facility has been custom-built to provide a better workspace and storage location for these large and heavy architectural pieces.



Figure 8. Susanne Berndt-Ersöz, assisted by Joseph Lehner and Erik Lindahl, photographing a block from the Cappadocia Gate that contains Phrygian graffiti

Cappadocia Gate. The drawings completed this year reveal the representations of numerous additional stelae as well as potential architectural elements similar to those found on rock-cut tombs in the Phrygian highlands. These drawings and the reinterpretation of the various elements of the graffiti will form the basis for a chapter by Susanne in the monograph on the excavations in the Cappadocia Gate now underway.

New Analysis of Metal Objects

Also during this season, Joseph Lehner began a program of sampling metal objects excavated at Kerkenes Dağ for microscopic and chemical analysis. The purpose of this analysis is to provide a better understanding of how the objects were made and where the metals used in the objects originated (fig. 9). Such studies can reveal a great deal about the political and economic reach of this ancient city as well as the practices of its metal-craft artisans. Eighty-three samples were taken for analysis at the Costen Institute of Archaeology at the University of California, Los Angeles. Fifty-eight of these samples were collected using non-invasive techniques, leaving the original objects with no noticeable signs that they had ever been sampled.



Figure 9. Joseph Lehner in the process of collecting samples from metal objects excavated at Kerkenes Dağ

The Kerkenes Dağ Gallery in the Yozgat Museum

In the middle of May, a very interesting offer was extended to the Kerkenes Dağ Project by Hasan Şenyurt, the Acting Director of the Yozgat Museum. For years the Yozgat Museum has focused on ethnographic exhibits, displaying relatively little archaeological material despite many very important sites that have been excavated within the region. This is something that several museum directors have wanted to change, however, and this year for the first time a specific space

for archaeological display was designated within the museum; this space was offered to us if we could install a permanent gallery by the end of the summer.

Thankfully, the Oriental Institute Museum's Preparator Erik Lindahl was already scheduled to work with us during June. He had intended to put together a plan for an eventual gallery showcasing Kerkenes Dağ in the next year or two. However, with the offer of permanent gallery space in the Yozgat Museum those plans had to be accelerated. In only one month Erik, with the assistance of the Kerkenes Dağ team, was able to design and install a wonderful museum gallery (figs. 10–13). Thirty-six of the most important objects uncovered at Kerkenes Dağ underwent all necessary



Figure 10. Erik Lindahl installing the Phrygian inscription in the Kerkenes Dağ gallery. A translation of the inscription by noted Phrygian expert Claude Brixhe can be found in the newly published OIP 135



Figure 11. Part of the new Kerkenes Dağ gallery in the Yozgat Museum after installation



Figure 12. The sandstone slab with eight bolsters on its sides as it appears in the Kerkenes Dağ gallery. Years of join-finding were required to piece it back together after excavation. It also required some of the most extensive conservation and restoration of any of the objects in the new gallery



Figure 13. The statue from the monumental entranceway to the Palatial Complex as it is now installed in the Kerkenes Dağ gallery. Erik Lindahl constructed a specialized interior metal frame to support the weight of the piece as it stands. Drawings and interpretations of the statue can be found in OIP 135

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— and in some cases quite extensive — conservation and restoration for permanent display. These include the large sandstone bolster slab, the bronze ibex, the stone statue, the monumental inscription, column bases, and numerous complete pots and metal artifacts. Labels, drawings, photographs, and maps accompanying the objects describe in both Turkish and English the work that has been done at Kerkenes Dağ, its importance in Anatolian history, and the purpose of each object on display. All these important pieces can now be seen year round by anyone who visits the Yozgat Museum.

Publication

The museum gallery was not the only major outreach initiative completed this year. In addition to the usual annual publications of the project, the first book on the recent excavations in the Palatial Complex appeared in late December. Published through the Oriental Institute, *Sculpture and Inscriptions from the Monumental Entrance to the Palatial Complex at Kerkenes Dağ, Turkey* (Oriental Institute Publications 135, by Catherine M. Draycott and Geoffrey D. Summers) is the first in the new Kerkenes Special Studies series and is available as a free PDF download at the Oriental Institute Web site (<http://oi.uchicago.edu/research/pubs/catalog/oip>). The volume includes the Phrygian inscriptions and sculpture, many of which can be seen on display in the new gallery of the Yozgat Museum.

Kerkenes Eco-Center

Much of the focus of the Kerkenes Eco-Center this season was on the study of more environmentally friendly building materials. Many of these are traditional materials, like mudbrick or straw bales, which could yield locally available, less expensive building alternatives to the now commonly used concrete. Sensors placed within the structures built for the Eco-Center have already begun to provide real-time data showing the superior insulation properties of many of these materials. These data can be used to help develop energy-minimization strategies for rural villages necessary for their long-term sustainability. This project has also proved useful in helping design parts of the structures in the excavation compound in such a way as to minimize the Kerkenes Dağ Project's own use of electricity and gas. Alongside this research, work continued on the drip irrigation, organic farming, and the solar drying and cooking initiatives.

Kerkenes Festival

On October 18th, 2008, an official day-long festival was organized by the Governor of Yozgat to mark the formal opening of the Kerkenes Dağ Gallery in the Yozgat Museum. Events were held in Yozgat, at Kerkenes Dağ, and in the local village of Şahmuratlı where the excavation house and Eco-Center are located. Local dignitaries and foreign ambassadors mixed with local students and the general public in a celebration of the work done by both the archaeological project and the Eco-Center. It was a fitting tribute to a long and productive year.

Acknowledgments

The Kerkenes Dağ Project is a joint undertaking between the Oriental Institute and the British Institute of Archaeology in Ankara. It is co-directed by Dr. Geoffrey Summers of Middle Eastern Technical University (METU) in Ankara and myself. The Kerkenes Eco-Center Project is directed by Françoise Summers of METU. Our thanks go to the Director and staff of the General Directorate of Cultural Assets and Museums, our official representative Mahmut Altıcan and

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