



## KERKENES DAĞ PROJECT

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The 2014 season marks an important moment in research at Kerkenes Dağ. In 1928, Erich Schmidt from the Oriental Institute came to this enormous ancient city for nearly two weeks of excavation. He brought with him the team from nearby Alişar Höyük, with the entire group crossing the 23 km distance between Alişar Höyük and Kerkenes Dağ (fig. 1). The purpose of the excavations, authorized by Breasted, was to date the site and see if it was perhaps the capital of a rival of the Hittite Empire. With only a brief time at their disposal, they nonetheless were able to achieve this important objective. They found that the material for the site was nearly all Iron Age with a Byzantine castle covering only a small portion of the city. In 2014, our new team from the Oriental Institute and partner institutions was likewise presented with a short amount of time in which to accomplish our objectives within this enormous city. We too were able to achieve our objectives and in the process set ourselves up for years of productive excavations yet to come.

Our return to the site in 2014 was both very welcomed and a bit unexpected. After a two-year hiatus, during the transition of the permit from the former director of the project, we were once again asked to come and work at the site under a museum permit in the late spring. Issuing the permit took several weeks, and it wasn't until the very end of June that the permission was issued, research visas collected, and the government representative available to come to the site. By the first of July we were back on site and pushing ahead with our long-term plans for research and development at Kerkenes Dağ, making the most of the three and a half weeks that we had before our research visas expired in the last week of July. During this time we accomplished a number of priorities including: excavation, facilities maintenance, conservation, and the expansion of our new program of site monitoring. We also were able to assist other projects in the region, during our spare time, through the use of the Kerkenes Dağ drone for undertaking aerial photography.

### Geophysical Survey

Kerkenes Dağ is known for its early adoption and extensive use of geophysical techniques to reveal the buried plan of this enormous city. The ongoing geophysical surveys are, and will continue to be, an extremely im-



*Figure 1. Original Oriental Institute excavation team led by Erich Schmidt at Kerkenes Dağ in 1928 (courtesy of the Oriental Institute of the University of Chicago)*

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portant part of the research at Kerkenes Dağ moving forward. They are critical to our efforts to understand the urban dynamics of this city and they also afford a unique opportunity for students and researchers to learn existing techniques and to experiment with newly developing technologies. Unfortunately, the resistivity survey that was planned for 2014 was unable to take place due to the late start to the season. The survey requires a certain amount of soil moisture in order to insert the probes and conduct the necessary electricity through the soil. At Kerkenes Dağ, there is a narrow window of time between April and early June when the conditions are sufficient to undertake this sort of survey. Consequently, with the start of the season in late June, we have shifted our plans for continuing the survey to next spring.

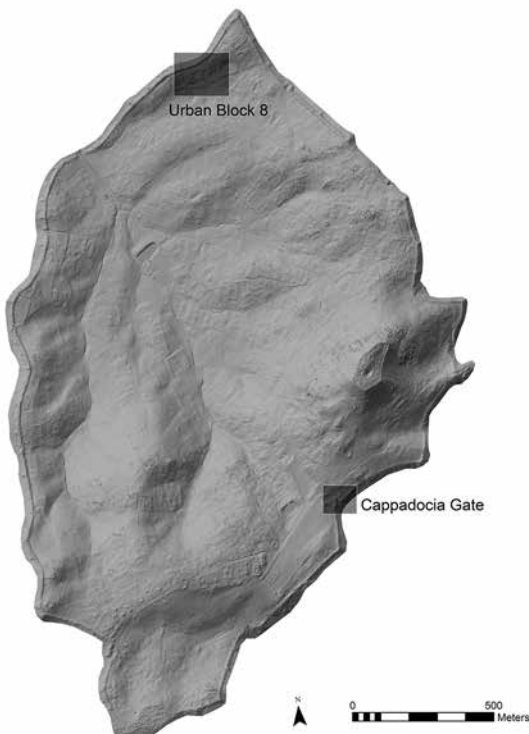
## Excavation

Excavations in 2011 and 2012 focused on Urban Block 8, one of the 757 urban blocks that greatly define the structure and organization of this city (fig. 2). While previous excavations at Kerkenes Dağ have sampled parts of various different urban blocks or the spaces between them, we still know very little about who lived in an urban block or how the large area contained within the block was used. Were these walled areas the habitation and work spaces for a single or extended family group? Or did more than one family inhabit each block? Were some of these urban blocks not for habitation at all, but instead held workshops or storage facilities that served a neighborhood or the entire city? Only by excavating the full extents of at least one of these blocks, and then clearing or sampling some additional blocks to test what we learn, will we begin to answer these basic questions and larger questions concerning

the number of people that lived in this city, its social organization, and the broad range of its connections to the world outside the city walls.

During the three and a half week season, we were able to more than double the total area of Urban Block 8 that has been excavated. The focus of both trenches excavated in 2014, Trench 33 (TR33) and Trench 40 (TR40), were a large columned building that dominates the block as well as the area directly around the building (fig. 3). This includes expanding a stretch of stone paving at the front of the building, which was initially uncovered in 2012. Stone paving is a common feature found around many structures in the city and may have served as a surface upon which different activities were accomplished as well as a nice surface to walk over when the rains turn the heavy clay soil into a very messy mud.

TR33 expanded the exposure of this stone paving from 40 sq. m to 190 sq. m and out to a distance of 8.5 m from the front of



*Figure 2. Map of Kerkenes Dağ showing major areas of work in 2014*

the building. Evidence of the structure and adornment of the almost completely incinerated wooden superstructure of the building, which collapsed over this paving, was found in the presence of several iron nails and some pieces of bronze sheet, including one found with a nail, among the ashy deposit. Other evidence that was found pointed to the people that inhabited this area including a plain bead, a pin, a spiral, an iron arrowhead (fig. 4), and scattered pieces of pottery. One piece of worked bone, perhaps an inlay was also found in front of the building, portending things to come once excavations began within the building.

TR33 also included an extension of the trench to the east of the front corner of the building, an extension intended to uncover the continuation of the stone paving running between the building and a multi-roomed structure that curls around the north and east side of the building. One of the back rooms of this multi-roomed structure yielded, during test excavations in 1996, the important carved ivory plaque that is now on display in the Museum of Anatolian Civilizations in Ankara. It was subsequently the focus of further limited excavations in 1997, 2011, and 2012. Future excavations are planned to complete this structure as well as the entire area between it and the main building.

The most notable find from the excavation within this area of TR33 in 2014 was a covered stone drain running beneath the pavement. It runs north-south immediately beside the large building and likely links up with a smaller open drain found in TR31 in 2012. We know that water management was an important part of the planning of the city, as evidenced in the large ponds and channels seen throughout the city, and it is exciting to see aspects of construction and planning tying together different areas within a single urban block. Future excavations might reveal more about how individuals in urban blocks managed storm runoff and the melting of the winter snows in order to provide themselves with the water necessary to live within the city through the dryer summer months.

TR40 extended along part of the northern edge of TR33, exposing a 216 sq. m area of the columned building. This included a majority of the antechamber at the front of the building and a large part of the interior columned hall. Both areas exhibited ample evidence of the heavy burning that consumed this building during the destruction of the city, including flows of vitrified material over and around some of the stone column bases. The burning also preserved

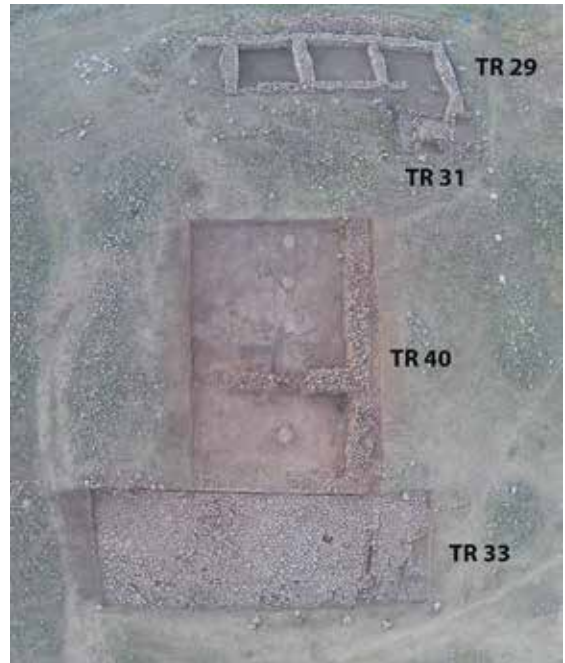


Figure 3. Final photograph of Trenches 33 and 40 excavated in 2014



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Figure 4. Iron arrowhead found on the stone paving in Trench 33

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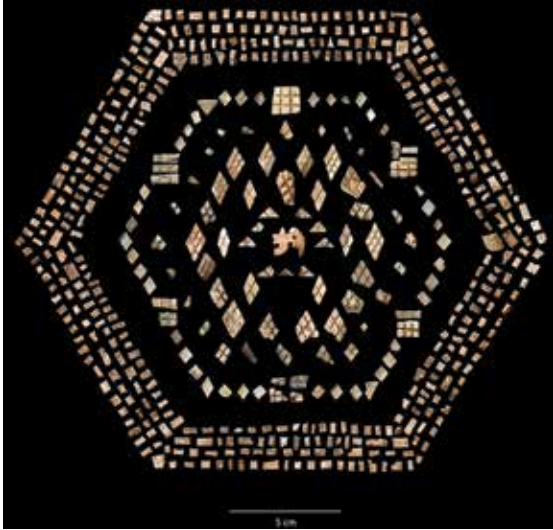


Figure 5. Selection of the over 500 ivory and bone inlays found in Trench 40

possible human figures in framed relief (fig. 6), and a single example of a carved palmette (fig. 7). This is, as noted above, not the first time that worked ivory has been found in this urban block. The ivory plaque and additional pieces of worked bone and ivory were found in 1996 and two small pieces of worked ivory were found in 2012. However, the quantity of the inlays and the context, suggesting that they did not come from a single object or group

of objects, could indicate that some level of ivory production or assembly was taking place within the urban block. This would be a very exciting result, one that our intensive soil sampling strategy paired with further excavation is designed to better reveal. Other finds from within TR40 include a sherd with an incised marking (fig. 8), an iron ax head in the eastern wall collapse (fig. 9), an iron awl and pin, and an iron hand-scythe with a serrated edge (fig. 10).

Following excavation, plastered surfaces and walls were covered with geotextile and the floors and lower wall courses were back-filled in order to preserve them during the cold winter months. Stone paved surfaces in TR33 were left open in order to provide visitors with the visual impact that they provide, and because they are less susceptible to the changing seasons and temperatures on the site. Fencing was then installed around the entire excavation area within Urban Block 8.



Figure 6. Fragments of inlays with possible human figures in a framed area



## Site Monitoring

On a site the size of Kerkenes Dağ, technology is necessary to understand the city as a whole. The geophysical survey is a perfect example, exposing the full plan of the city through years of hard work. However, the use of technology to deal with this issue is not limited to understanding what happened in antiquity. Conservation and restoration work, as well as other aspects of site management, can also benefit from the use of new technologies for enhanced monitoring and planning. Sometimes this is done using satellite imagery, as was discussed last year in the annual report, particularly when the team is not physically present at the site. However, starting in 2012 we began to actively incorporate the use of drones into our research. In 2014, more extensive use was made of a DJI Phantom for aerial photography of areas of previous and current excavations and areas of restoration (fig. 11). In addition, overlapping photographs taken by the drone can be processed in order to generate clouds of point data along the surfaces and edges of features seen in the photographs. In the Cappadocia Gate, this point data can be compared with earlier total station surveys of the restoration work in the gate, and similar data from future seasons can be used to monitor shifts in the stonework (fig. 12). In partnership with Abdullah Gül University in Kayseri, we hope to use this new data in future seasons to monitor and guide future restoration work in this gate and elsewhere in the city.

While the drone was used to great effect within the walls of Kerkenes Dağ, we also found time to share our resources with other projects in the Sorgun region. Aerial photography has always been an excellent way to provide an overview of the latest results of excavations. Indeed in 1993 and 1994, when the project was undertaking balloon photography, a number of excavations benefited from Geoff and Francoise Summers bringing the balloon to the different sites being excavated and taking photographs for the directors of these Turkish and foreign projects. In 2014, we were able to carry on with this legacy and were invited to take imagery with



Figure 7. Carved palmette inlay

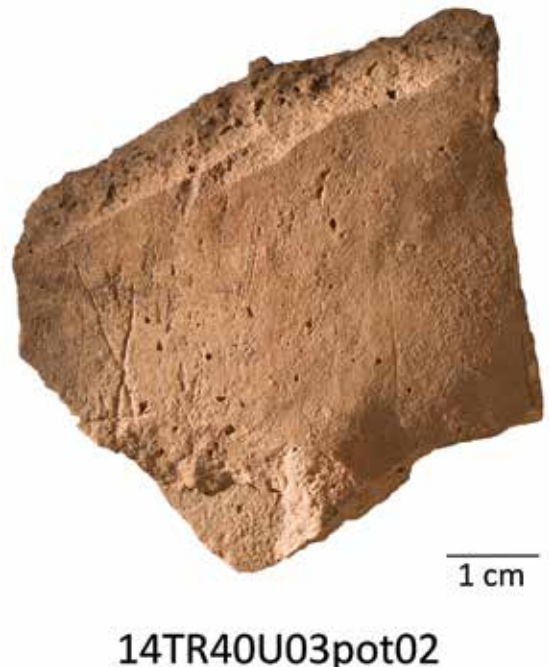


Figure 8. Sherd with incised marking above the handle attachment

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Figure 9. Iron ax head after conservation

field season and some additional work on objects from earlier seasons. Iron objects, like the ax head, proved particularly challenging. But the years of work on similar objects at the site by our conservator Noël Siver, allowed them to be successfully stabilized in the short amount of time that she had at her disposal. She was also able to continue the program started in 2010 of encasing iron objects in custom made bags of specialized sealing material. With the oxygen removed from within these bags, these objects can be stabilized and preserved for the long-term. For example, iron bands that we first encased in 2010 continue to remain remarkable stable compared to those fragments that have not yet been so encased. More of these earlier iron objects were also encased this year, and we plan to continue to work through encasing this material from earlier seasons.

## Excavation House Maintenance

Our return to the excavation compound after the hiatus was not without some surprises. One of the first days back a torrential downpour revealed numerous leaks in the roof of the main house, and we ran out of buckets while frantically trying to collect the water pouring down inside most of the rooms. In addition, a few of the windows were damaged and in need of repair or replacement. Without more time and constrained by the museum permit we were limited in what we could accomplish, but emergency repairs were carried out as needed to various parts of the facilities. Next year, with the help of our gracious sponsors, we hope to be

able to accelerate and expand these repairs in order to set the project up with the facilities it needs to undertake all aspects of the work before us for years to come.

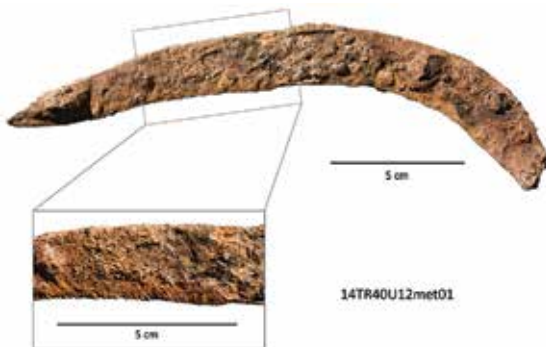


Figure 10. Iron hand-scythe with a serrated edge

our drone on behalf of three projects in the region: the Yozgat Museum project at the roman bath at Sarıkaya, Dr. Stefania Mazzoni's project at Uşaklı Höyük, and Dr. Gregory McMahon's project at Çadır Höyük. With the Çadır Höyük imagery we were also able to assist by undertaking basic 3D modeling for display and analysis.

## Conservation

Conservation and registration work in 2014 included the cleaning, stabilization, recording, and processing of all the finds from the

## Acknowledgments

The 2014 season at Kerkenes Dağ was only possible with the gracious support of the Ministry of Tourism and Culture of Turkey and especially the Yozgat Museum which facilitated the issuance of the permit. We are

very grateful to both Hasan K. Şenyurt, Director of the Yozgat Museum, and the museum's staff. Adem Bedir of the Sivas Museum served as the Ministry Representative, and we thank him for all his assistance. The Yozgat Governor Abdulkadir Yazıcı, the Sorgun District Governor Levent Kılıç, the Sorgun Mayor Ahmet Şimşek, and the Yozgat Director of Culture and Tourism Lütfi İbiş were all instrumental in facilitating and supporting the work of the project during this season. We are very grateful to each of them and to our team of collaborators and students from the University of Chicago, Istanbul Technical University, Abdullah Gül University, Koç University, UCLA, the University of Toronto, and Anadolu University in Eskişehir.



*Figure 11. University of Chicago student Susan Penacho flying the drone for aerial photography at Kerkenes Dağ*



*Figure 12. Low oblique aerial photograph of the Cappadocia Gate taken by the drone*

In addition, our financial supporters are critical members of our team. The 2014 season would not have been possible without the generous financial support of the Oriental Institute, the Merops Foundation, the Loeb Classical Library Foundation, the Archaeocommunity Foundation, Catherine Novotny Brehm, Hazel Bertz, Andrea Dudek, and Virginia O'Neill.