



## KERKENES DAĞ PROJECT

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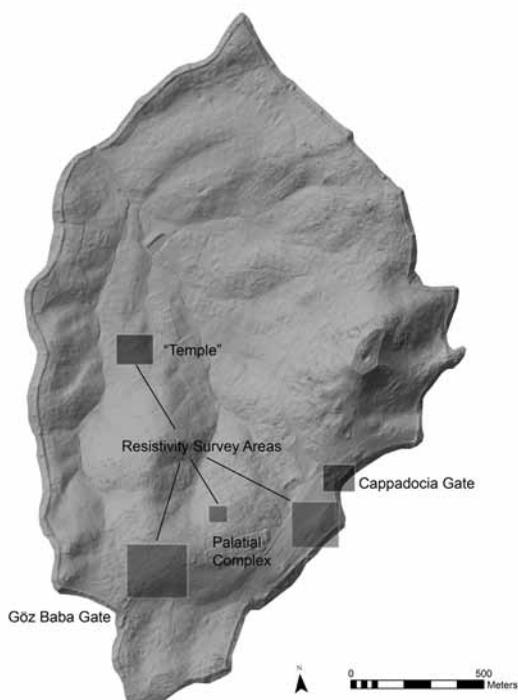


Figure 1. Locations of research at Kerkenes Dağ in 2010

The 2010 season at Kerkenes Dağ saw the continuation of the multi-year program of excavation and restoration within the Cappadocia Gate as well as the undertaking of larger-scale excavations within the west-central portion of the city (fig. 1). Dr. Sevil Baltalı Tırpan was added to the project staff this year as Assistant Director. Sevil and I were once graduate students together here at the University of Chicago and I am extremely pleased to welcome her as a collaborator on the project. In addition to the excavations, geophysical surveys were conducted in the southern and west-central portion of the city and restoration work was undertaken both at the Cappadocia Gate and in the Kerkenes gallery of the Yozgat Museum. Complimenting this extensive program were new paleoenvironmental and ethnographic research projects and continuing projects involving Anatolian metallurgy and the Kerkenes Eco-Center.

### Geophysical Investigations

Four areas of resistivity survey covering a total of 69,200 sq m (6.9 ha) were completed in May of 2010. Three of these areas are in the southern portion of the city (fig. 2). The first area, to the east of the Palatial Complex and just south of the Cappadocia Gate, extends to the south the area surveyed in 2009 (see *2009-2010 Annual Report*, p. 66). The second area, to the north of the Palatial Complex, extends the western extent of the 2009 survey. The third area, between the Palatial Complex and the Göz Baba Gate, extends the western extent of the 2007 and 2008 surveys (see *2007-2008 Annual Report*, pp. 86-87, and *2008-2009 Annual Report*, pp. 88-89). In addition, a fourth small area was surveyed around the “Temple” in the lower west-central part of the city in preparation for the excavation undertaken there in June and July.

All told, the past four seasons have surveyed 18 ha of the high southern ridge between the Kale, the Cappadocia Gate, and the Göz Baba Gate. This includes the entire Palatial Complex and many of the urban blocks in its vicinity. A good portion of the urban blocks facing the street running between the Cappadocia Gate and the Göz Baba Gate have also now been

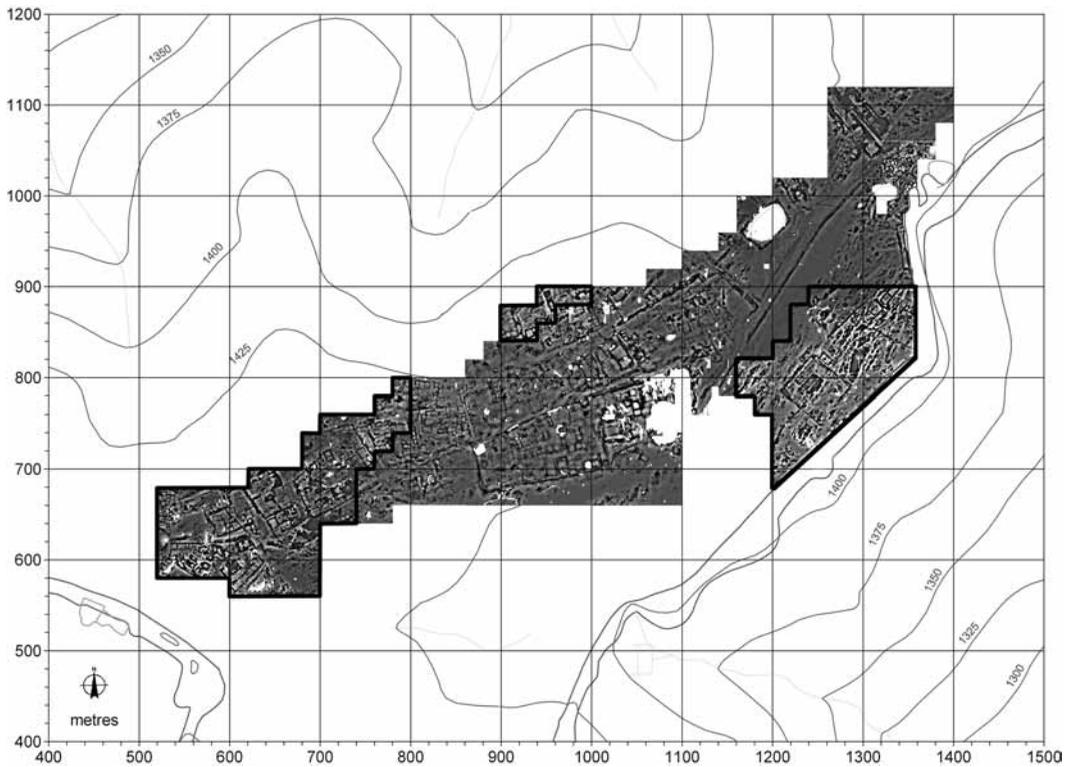


Figure 2. The resistivity survey data collected between 2007 and 2011 on the southern ridge of the city. The areas covered in 2010 are outlined in black

surveyed, as well as the open areas in front of the Palatial Complex and the Cappadocia Gate. This includes the urban block and associated structures on a small rise just inside the city wall to the south of the Cappadocia Gate, which may have had some special relationship to the Palatial Complex, given their isolated position opposite it in a wide open area. It also includes the narrow structures and water storage ponds surveyed last year opposite the Cappadocia Gate. The characteristics noted in the urban blocks across this area are varied. In the Palatial Complex and adjacent urban blocks there do seem to be more large structures, perhaps with a public or elite function. In more distant urban blocks, back toward the Göz Baba Gate, the buildings within the urban blocks are more in keeping with the character of urban blocks seen elsewhere in the city. Of course the uses to which these more typical buildings were put remains unknown. This area may have been filled with workshops and storerooms in the long narrow rows of rooms seen throughout the area, and interspersed with residences for craft specialists and others linked to the palace. While the resistivity survey provides us with knowledge of the forms of the structures, their functions remain a mystery. Just beyond the westernmost extent of this survey area is a large and likely important urban block just inside the Göz Baba Gate. Survey here in future years may well change interpretations of the urban blocks in its vicinity.

On the slopes to the west of the central part of the city, a small area of resistivity survey revealed a range of buildings around a large burnt hall (fig. 3). This impressive structure was clearly visible in the magnetometry data, yet the buildings in the urban blocks around it were very difficult to discern. Surveying this area in May allowed better decisions to be made as to

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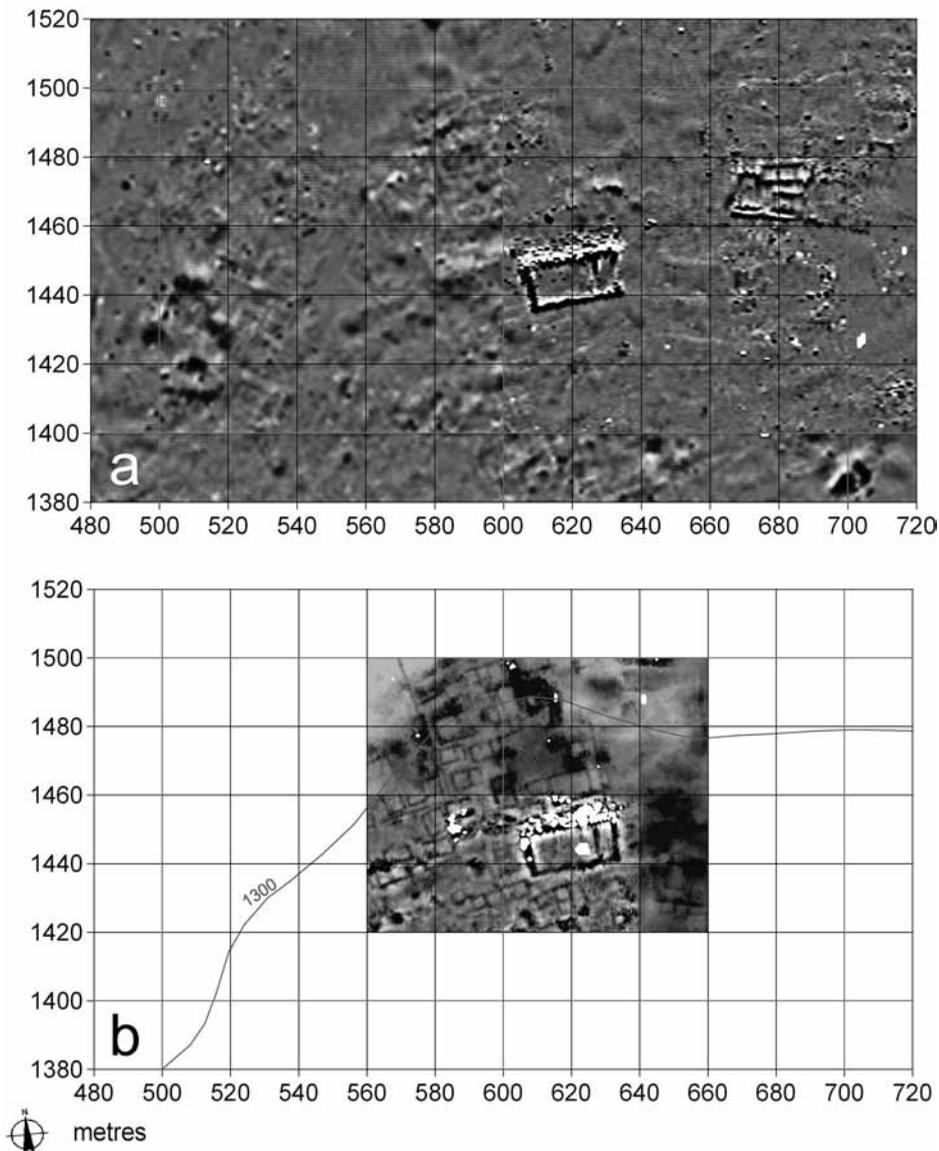


Figure 3. The results of the earlier magnetometry survey (a) and the resistivity survey (b) around the “Temple”

where to place the trenches excavated in June and July, including identifying a small square building behind the large hall that was a focus of the excavations.

### Excavations in the “Temple”

Using the results of the geophysical surveys, trenches TR27 and TR28 were situated so as to uncover precisely half of a large two-roomed hall (Structure A) and a quarter of a square building behind it (Structure B) (figs. 4 and 5). Structure A, measuring 26.5 x 12.5 m, is one of the largest buildings so far seen at Kerkenes Dağ. Parallels for similar free-standing halls on this scale at Kerkenes Dağ are found within the Palatial Complex, in an adjacent urban block



Figure 4. Photograph of Trenches TR27 and TR28 after excavation

to the Palatial Complex, and in two urban blocks in the north of the city including the one in which the unique carved ivory plaque was found in 1996. While these contexts for similar large halls suggest their use by elites, Structure A is unique among the large halls in being situated outside of any of the walled urban blocks that fill an overwhelming majority of space within the city. Evidence from the magnetometry survey also revealed that Structure A was intentionally set on fire in the final destruction of the city. Given this evidence it has

been suggested that Structure A might be an important public structure such as a temple.

Trench TR27 exposed not only Structure A but also an area in front of the building, a narrow alleyway running along its northern side, and the wall of the adjacent urban block to the north. This expanded area allowed a majority of the stone collapse from the structure to be examined for any evidence of decoration or inscription that may have once been on or in the building. The excavations, however, revealed no such finds. The meter-wide foundation wall terracing the northern side of Structure A was preserved up to 1.4 m, but erosion over the past two millennia had washed away nearly all evidence of the floors, installations, and superstructure. Scattered nails and some charcoal were all that remained in the area, evidence of the large wooden superstructure and presumed thatch roof. Given the level of erosion in this area, excavations in TR27 were stopped after exposing half of the anteroom

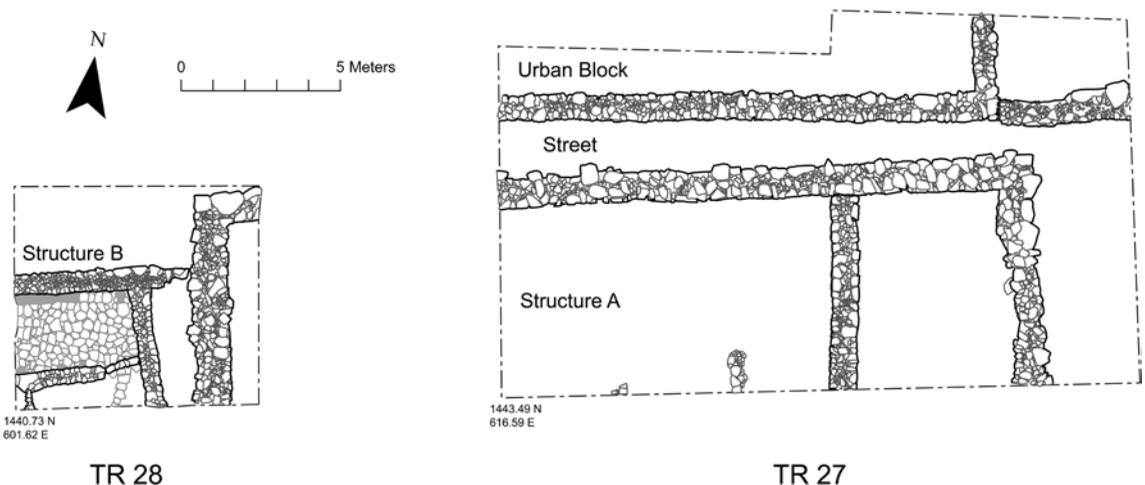


Figure 5. Plans of trenches TR27 and TR28

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and over a quarter of the large internal room. One benefit of this destruction is that the collapse of the building had very effectively sealed the surface of the alleyway alongside it and prevented any erosion. The alley was unpaved and had clear evidence of layering and soil formation similar to streets excavated elsewhere in the city (fig. 6). Soil and micromorphological samples were collected from this alleyway for analysis at Cambridge University as part of an ongoing study of transportation in the city.



Figure 6. Section in trench TR27 bisecting the alleyway running to the north of Structure A

Trench TR28 was originally situated so as to expose one quarter of Structure B. It was subsequently expanded to include a portion of Structure A in order to examine the state of preservation in the back of the large room and to examine stratigraphic sequencing. The back end of Structure A exhibited the same extensive erosion as was found in TR27. No traces of flooring or installations were preserved. However, at the base of the northwest foundation wall evidence was found for older layers of the same distinctive street surface, noted in the adjacent alleyway, running beneath the lowest course of stone before natural soil was reached. This evidence, combined with the position of the structure outside of an urban block and the lack of the characteristic external stone paving in front of the structure suggests that this building was constructed well after the foundation of the city.

Structure B, unlike the terraced Structure A, was well preserved. A portion of two adjoining rooms with a doorway connecting them were uncovered. The wooden door that originally stood in the doorway was found burned on the floor in the northern room together with a short iron strip and nails that may have held it together. Inside the northern room a raised stone floor with recessed slots and stones for the bases of the wooden posts that supported the wooden superstructure were discovered. Several medium and larger-sized broken pottery vessels, a tripod-footed stone bowl, a copper alloy arrowhead, a small tin-antimony alloy bead, and two star-shaped silver objects were found on the paved floor along with carbonized wheat and grape pips recovered by flotation (figs. 7 and 8). In the southern room, a raised paving stone walkway laid back across the room from the doorway was the only feature of note in an otherwise empty portion of the room.

Following excavation and recording the walls and surfaces were covered with geotextile and backfilled. The tops of the walls were rebuilt to extend three courses above the modern ground surface so as to allow visitors to the site to see the locations and orientations of the ancient structures while preserving the Iron Age walls.



Figure 7. One of the star-shaped silver objects from the paving in TR28



Figure 8. The stone tripod-footed bowl found in TR28

## Paleoenvironmental Research

A new program of paleoenvironmental research was begun at Kerkenes Dağ by Mac Marston of Brown University during the excavations in TR27 and TR28. This program encompasses not only flotation of excavated contexts for fauna and flora using a SMAP-style flotation machine, but also an ecological survey of the modern landscape within the boundaries of the ancient city and in the surrounding region. Mac, along with Naomi Miller, was able to conduct basic field identification and collection of plant species at Kerkenes Dağ and to identify tentative locations for systematic botanical survey transects in future seasons. The beginnings of a comparative collection of local seeds were also collected as a reference for identifying seeds recovered in the excavations. A similar type of ecological research program, involving both the ancient and modern environment, has been successfully undertaken for years by Naomi and Mac at the site of Gordion. It is hoped that the results of the intrasite research at Kerkenes Dağ, as well as intersite comparisons between the ecology of these two different Phrygian cities will yield fruitful results.

## Metallurgical Analysis

Joseph Lehner continued his program of analyzing metal objects and fragments excavated at Kerkenes Dağ. This season he was able to make use of a portable x-ray fluorescence device to give characterizations of objects in the field in order to guide additional discrete sampling for more detailed analysis at the Costen Institute of Archaeology and the Laboratory for Molecular and Nanoarchaeology at the University of California, Los Angeles (UCLA). This program is a part of a larger project involving material from both Kerkenes Dağ and Boğazkale that is looking at changing patterns of metal sources and production across the Late Bronze and Iron Ages in Central Anatolia.

## Ethnographic Studies

A new program of ethnographic research was also started in 2010 under the direction of Assistant Director Sevil Baltali Tirpan of Istanbul Technical University. The primary focus of

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this research is to better understand how the site and the archaeological project have been and are perceived and integrated into the village of Şahmuratlı. Additional work this year involved explorations of past agricultural practices, knowledge that will play a critical role in the new paleoenvironmental research program.

### Restoration and Installation of Objects in the Yozgat Museum

In 2008, a Kerkenes Dağ gallery was established in the local Yozgat Museum (see *2008–2009 Annual Report*, pp. 92–94). Thirty-six of the most important excavated pieces were installed within this gallery under the direction of Oriental Institute Museum Preparator Erik Lindahl. Two notable pieces not ready for installation in 2008 were the semi-iconic stela discovered in situ in the Cappadocia Gate and one of the various large semi-iconic idols found in the Monumental Entranceway to the Palatial Complex. This year, we were able to make use of Erik's services once again and complete their installation within the Yozgat Museum (fig. 9). Conservation of both large pieces was completed by Noël Siver, assisted by Oriental Institute Conservator Alison Whyte (fig. 10). Steel frames were constructed by Erik for support, and missing portions of both pieces were restored by Noël, Erik, and Alison. Both pieces are now proudly on display in Yozgat (figs. 11 and 12).



*Clockwise from upper left: (Figure 9) Erik Lindahl installing the idol block from the Palatial Complex Entranceway in the Yozgat Museum; (Figure 10) Noël Siver and Alison Whyte completing the restoration of the idol block; (Figure 11) Noël Siver standing next to the restored idol block installed in the Yozgat Museum; (Figure 12) The restored Cappadocia Gate stela installed in the Yozgat Museum*

## Excavations in the Cappadocia Gate

The central focus of excavations during the 2009 season was to start the multi-year clearance of collapse from the Cappadocia Gate in preparation for a major restoration initiative (see *2009-2010 Annual Report*, pp. 67-69). Masses of burnt and fallen stone were removed from the gate passage in 2009, evidence of the final fiery destruction of the city. Care had to be taken, both because of the instability of the high, freestanding walls left behind by the clearance and to protect the stone paved floor of the gate. In addition, work was undertaken along the glacis on the outside of the gate.

Excavation resumed within the Cappadocia Gate in the later part of the 2010 summer season (figs. 13 and 14). The remainder of the gate passage was cleared to a point in line with the platform upon which the semi-ionic stela had been found. Here a line of large threshold stones were uncovered at the edge of the paving, spanning much of the width of the gate passage. An iron band, similar to those found in the entranceway to the Palatial Complex, was also found here as clear evidence of the doorway to which the threshold belonged. Clearance inside this doorway and in the area between the North and West Towers was left for 2011.

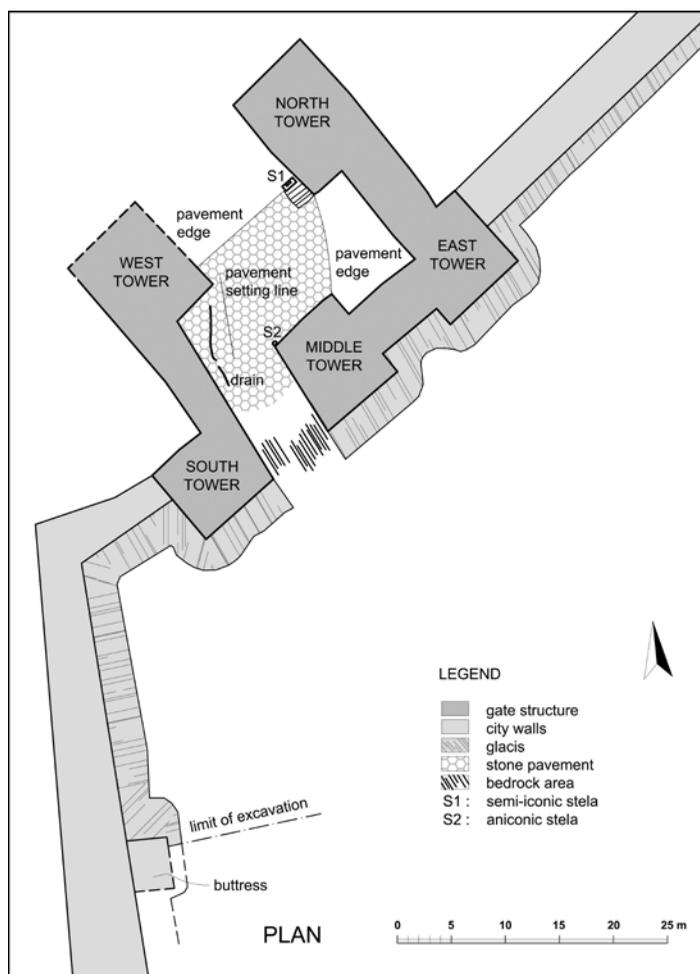


Figure 13. Plan of the Cappadocia Gate that incorporates the results of this year's excavations

While this work was ongoing the remainder of the gate chamber was also cleared of collapse. This left the original walls of the chamber standing in places over 4 m high. The structural integrity of these walls had been compromised when the horizontal timbers, originally set into the faces of the walls at roughly 1 m vertical intervals and covered with plaster, were destroyed during the intense burning of the gate. Smaller stones from the core of the wall slid over time into the ca. 25 cm gaps left by the burnt beams, and this makeshift fill has supported the walls after clearance. However, the overall structural integrity of the walls is suspect. This was demonstrated all too clearly when a portion of the wall of the Middle Tower collapsed during the heavy rains that brought the season to a close. Restoration work within the Cappadocia Gate will make these walls more stable.

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The stone paving that was uncovered within the gate passage extended well into the gate chamber. It had been laid up to a line running from the southern corner of the North Tower down to the northern corner of the Middle Tower. The pavement clearly was meant to end here, with the dirt floor in the rest of the gate chamber pocked by the heavy stones that fell from the gate during its destruction and collapse. On this dirt surface a second victim of the destruction of the city was found (fig. 15). This skeleton, like the first one uncovered in the gate passage last year, was apparently killed by the collapsing stones and beams of the gate. No objects were discovered with either body. While both individuals were found in the gate, there is some distance between the locations of their bodies. There is no evidence that they were together. However, how they came to be in the gate during its destruction still remains a mystery. This individual's body was so badly crushed beneath the falling stones that the position is difficult to discern. The heavy rains that brought down the wall of the Middle Tower in the last days of the season made lifting the skeleton this year impossible. It was covered and reburied awaiting full excavation and analysis in 2011.



Figure 14. The extents of the Cappadocia Gate passage so far exposed and the full gate chamber



Figure 15. The skeleton, knees bent, was crushed by the large stones falling from the top of the walls

## Restoration of the Cappadocia Gate

While excavations continued inside the Cappadocia Gate, the start of an extensive program of conservation and restoration on the outside of the gate commenced (fig. 16). The work has been the subject of architectural and engineering studies for the past several years. It was supervised by Nilüfer Baturayoğlu Yöney of Istanbul Technical University and undertaken by Erkan Kambeck and five master stone masons from Manisa. Heavy machinery generously provided by the Sorgun District governor and the Sorgun mayor allowed the masons to remove and replace several of the large granite glacis stones along a sizable stretch of wall as



*Figure 16. The Cappadocia Gate glacis before the start of restoration work*



*Figure 17. Reconstruction of the Cappadocia Gate glacis in progress*



*Figure 18. Restored section of the Cappadocia Gate glacis and wall*

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well as shore up the loose rubble core behind the glacis (fig. 17). Once the base was stabilized, the glacis was reconstructed back to its original height, all the way up to the face of the outer wall of the gate. The wall itself was rebuilt several courses above this point (fig. 18). It is expected that this reworked section will help to stabilize not only the glacis but also the structural walls of the gate. At the same time, it provides an extremely impressive vision of what the city wall and gates would have looked like during the life of the city.

### Kerkenes Eco-Center

This sister project to the archaeological excavations continues to promote and explore new avenues for rural sustainability. With funding from the United Nations Development Programme's (UNDP) Global Environment Fund (GEF) several new designs for solar cookers and driers were produced by Güner Mutaf of Middle East Technical University and his team. One of these designs minimizes a key issue with the earlier designs, needing to continuously turn the parabolic device to keep it optimally focusing the sun's rays. The new cooker has a solar-powered motor and automatically turns to follow the sun during the day. This work was in addition to ongoing educational activities and public outreach efforts.

### Acknowledgments

The Kerkenes Dağ Project is a joint project between the Oriental Institute and the British Institute of Archaeology in Ankara. It is co-directed by Dr. Geoffrey Summers of Middle East Technical University (METU) and myself. Dr. Sevil Baltalı Tırpan of Istanbul Technical University (ITU) is Assistant Director. The Kerkenes Eco-Center Project is directed by Françoise Summers of METU, who is also jointly directing the restoration work within the Cappadocia Gate with Geoffrey Summers and Dr. Nilüfer Baturayoğlu Yöney of ITU.

Our thanks go to General Director Murat Süslü and staff of the General Directorate of Cultural Assets and Museums and to their representatives, Özge Yurdakul, Kenan Sürül, and Resul İbiş. Thanks are also due to former Yozgat Director of Culture and Tourism, Bahri Akbulut, his successor Lütfi İbiş, and to the staff of the Yozgat Museum, especially Director Hasan Şenyurt. We are grateful to the Governor of Yozgat, Necati Şentürk, the Yozgat Mayor, Yusuf Başer, the Directors of the Provincial Authority, TEDAŞ, and Türk Telekom, who with their staff continue to support the project in many ways. We thank the Sorgun district governor, Levent Kılıç, and Sorgun mayor, Ahmet Şimşek, and their staff for their continuing assistance.

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