

Conservation of the Early Phrygian Gate, looking west. In the background are the dig house compound (UPPER LEFT) and Tumulus MM (RIGHT).  
*Photograph by Gebhard Bieg.*



# ARCHITECTURAL CONSERVATION *at Gordion*

BY ELISA DEL BONO



Following the preservation policy of many Mediterranean countries, the Ministry of Culture and Tourism in Turkey requires the directors of archaeological projects to focus not only on excavation but also on archaeological conservation and site improvement for visitors. From 2006 to 2014, this

work at Gordion was conducted under the auspices of the Architectural Conservation Laboratory of the University of Pennsylvania (ACL-UPenn), with Frank Matero as project director. Currently, architectural conservation is directed by the author, in collaboration with an international group of conservation experts.

## ARCHITECTURAL CONSERVATION AT GORDION



Situated on the Anatolian Plateau along the Sakarya River about 100 kilometers southwest of Ankara, Gordion is defined by its flat-topped Citadel Mound and over 100 surrounding tumuli. From 1950 to 1973, Rodney Young conducted an intensive excavation and research program at the site. Although most excavation took place at the Citadel and in many of the tumuli, research now confirms that the ancient Phrygian capital extended beyond its main settlement mound and across the entire valley.

The focus of the current site conservation plan at Gordion has been the Citadel Mound, a large area defined by high artificial escarpments and the impressive Citadel Gate on the southeast side. Planned terraces, freestanding and retaining masonry walls, pavement blocks, and steps characterize the excavated area. The exposed architectural features represent various phases of occupation. A mixture of building materials, especially stone, is evident. Although visitors cannot enter the excavated area, a fenced circuit atop the mound allows them to walk around the escarpment perimeter.

### THE HISTORY OF SITE CONSERVATION AT GORDION

During Rodney Young's tenure, little site preservation occurred other than some remedial cement capping of the Gate complex, a partial reburial of walls, and the removal of selected stones. Minor reconstruction of the Citadel Gate was undertaken during its excavation in 1955, and Young did make efforts to preserve the extraordinary burial of Tumulus MM by engaging the Turkish Archaeological Service to structurally reinforce the inner chamber.

In 1963, the important pebble mosaic from Megaron 2—the earliest of its type—was lifted in panels and ultimately transported to the Gordion Museum where it was re-installed under an outdoor shelter. After Young's death in 1974, excavation at Gordion ceased until 1988, and the architecture was left exposed to the extreme weather conditions of central Anatolia. During this hiatus, several site conservation initiatives were begun to try to halt the cumulative damage resulting from the unsupported baulks



TOP: Members of the 2015 team work together to conserve masonry at the Citadel Gate. Photograph by Elisa Del Bono. BOTTOM: Aerial view of the Early Phrygian Gate during conservation work. Photograph by Lucas Stephens, 2015.

## ARCHITECTURAL CONSERVATION AT GORDION



The old rusted fence (left) was replaced recently with a new fencing system and signage (right) along the visitor circuit.

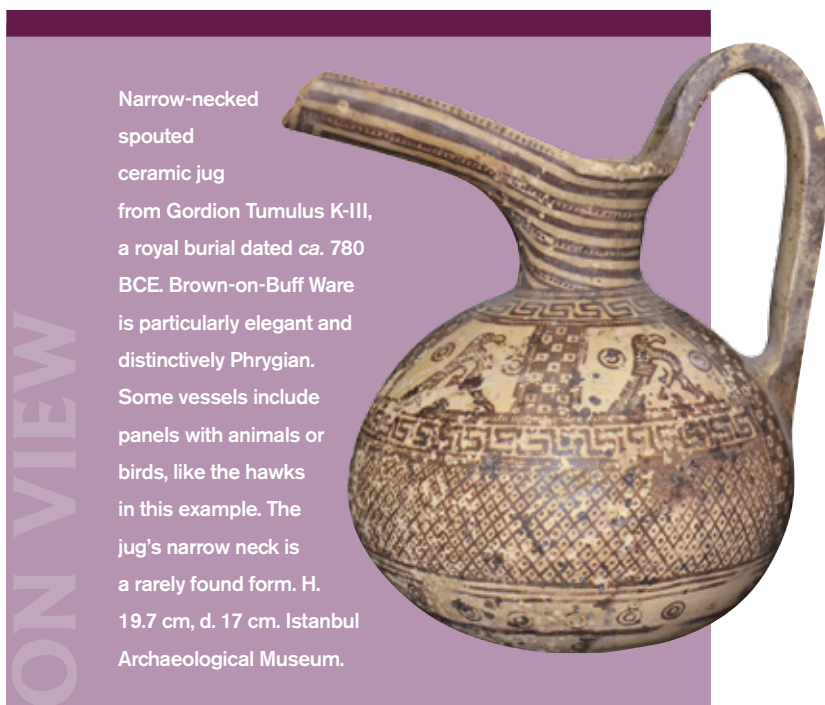
*Photographs by Elisa Del Bono for the Architectural Conservation Laboratory at Penn.*

of abandoned trenches and structural problems at the Gate complex and Tumulus MM.

Soon after excavations resumed, Director G. Kenneth Sams began a new conservation program. In 1989, Tumulus MM and the Citadel Gate became the initial focus of attention, and then, in 1993, we studied how to best stabilize and display the Terrace Buildings. In 1999, conservator Mark Goodman introduced a well-developed set of formal guidelines for site conservation and a priority program based on condition and significance. At the Gate, plumbline measurement monitoring began, a French drain was installed, and a temporary scaffolding system was built. Low-pressure gravity grouting was begun in 2002 on the dry laid masonry gate. The masonry of Terrace Building 4 was rebuilt and an elaborate system of sandbag buttressing and soil capping of the splayed walls was installed in the entire building and then extended to other masonry features.

Following the unexpected death of Goodman in 2004, ACL-UPenn was invited to the site in summer 2006 by Sams and C. Brian Rose. In 2007, a Six-Year Site Conservation Plan was developed to address architectural and site conservation, interpretation, and maintenance issues; the plan was launched in 2008 with dedicated

funds from the Penn Museum and the 1984 Foundation. Through a Cooperative Agreement signed in 2008 between the Middle East Technical University (METU) and Penn, a parallel three-year program under the direction of Evin Erder (METU) with Ayşe Gürsan-Salzmänn (Penn) was funded by TÜBİTAK (Scientific and Technological Research Council of Turkey) to



Narrow-necked  
spouted  
ceramic jug  
from Gordion Tumulus K-III,  
a royal burial dated ca. 780  
BCE. Brown-on-Buff Ware  
is particularly elegant and  
distinctively Phrygian.  
Some vessels include  
panels with animals or  
birds, like the hawks  
in this example. The  
jug's narrow neck is  
a rarely found form. H.  
19.7 cm, d. 17 cm. Istanbul  
Archaeological Museum.

## ARCHITECTURAL CONSERVATION AT GORDION

Masonry consolidation of the wall between units 5 and 6. BELOW LEFT: Masonry is consolidated along a wall in the Terrace Building Complex. BELOW, RIGHT: The original fractured blocks from a wall in the Terrace Building Complex are dismantled. *Photographs by Elisa Del Bono, 2015.*



develop a regional Conservation Management Plan for Gordion and its vicinity.

### SITE CONSERVATION TODAY

The Six-Year Site Conservation Program continues with the evaluation of past efforts and the implementation of new work using remedial masonry stabilization and advanced recording and documentation methods. We also look at ways to improve the visitor experience. The program has identified several parallel projects at the Terrace Building Complex, the visitor circuit, and the Citadel Gate, all of which represent high-priority areas in need of intervention. These conservation efforts have been possible primarily due to the assistance offered by the Penn Museum, and the generous contributions of the C.K. Williams II Foundation, the J.M. Kaplan Fund, the Selz Fund, the Global Heritage Fund, and the Morgan Family Foundation.

### The Terrace Building Complex

The Terrace Building Complex is an industrial zone of Early Phrygian date (9th century BCE). The walls of these buildings were heavily damaged in the conflagration that swept through the complex in 800 BCE. In 2009, the site program explored new methods for conservation and preservation of the complex without compromising the archaeological integrity of the existing walls and floors. A pilot conservation program on the walls in Terrace Building 2 was established to stabilize the walls in situ, improve the visitor's understanding of the original building, and limit the need for continued interventions. In the course of seven field seasons, the consolidation of walls from the first to the fifth units was completed. Conservation techniques included the use of epoxy resins as adhesives and for grout injections of fractured stones, pinning and cable support of dislodged stones, and the installation of soft "vegetative" wall caps—in consultation with

TOP: Blocks are treated during conservation. Photograph by Elisa Del Bono, 2015.  
MIDDLE: The wall separating rooms 5 and 6 of the Early Phrygian Terrace Building, prior to conservation in 2015.  
BOTTOM: The wall separating rooms 5 and 6 of the Early Phrygian Terrace Building, at the end of conservation in 2015. Photographs by Gebhard Bieg.



## ARCHITECTURAL CONSERVATION AT GORDION

archaeobotanist Naomi Miller—to protect the masonry.

### The Citadel Visitor Circuit

Encircling the site from atop the escarpments, the visitor circuit provides viewing access into the Citadel Mound excavation and outward to the surrounding landscape. Efforts since 2009 have focused on upgrading public access by installing new perimeter railings, stone steps, and signage. The upgrades have created a more welcoming experience for visitors, establishing a connection between the Citadel Mound and the rest of the site while improving the interpretation and understanding of architectural and archaeological features. To date, a new perimeter railing and stone steps have been installed along half of the visitor circuit. In addition, 11 new bilingual (Turkish and English) information signs were installed around the Citadel Mound, giving visitors access to the full history of Gordion's settlements.

### The Citadel Gate

The third major conservation project currently underway is the Early Phrygian Gate (*ca.* 850 BCE), which is the best-preserved Iron Age citadel gate in Asia Minor. A major rebuild in the Middle Phrygian period incorporated the earlier structure as the buried foundation of the new Citadel Gate. The resulting changes from subsequent loading of the new gate on top caused a series of significant problems, most notably cracking and displacement. Displacement, in particular, has continued into the present due to the region's high seismic activity and wide-ranging weather conditions.

Since 2006, ACL-UPenn has documented, monitored, and assessed the Gate's overall structural stability to determine the condition of its limestone walls. The current conservation plan, developed by Frank Matero in conjunc-



New stone steps were built at the Gordion Citadel visitor circuit in 2013. Photograph by Elisa Del Bono for the Architectural Conservation Laboratory at Penn.

tion with structural engineer David Biggs, aims to strengthen and stabilize the Gate. Installation of a soil sub-base, a timber mat as scaffolding foundation, and metal scaffolding were completed in 2014. Conservation was begun during the 2015 field season, including masonry repointing, partial dismantling of highly displaced blocks, and stabilization of original blocks. In 2016, we will continue our important work at Gordion, concentrating again on archaeological conservation and site improvement for visitors. ●

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