

# AERAGRAM



Newsletter of the Ancient Egypt Research Associates

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## The Class of 2005: From All of Egypt



Field school students and their instructors. Front row from left to right: El-Tayeb Mohammed Khudary, Mohammed Abd al-Basat, Afifi Ruhaiem (instructor), Mohammed Aly Abd el-Hakeem, Hoda Abdallah Bakry. Second row: Sherif Mohammed Abd al-Moneem, Momen Saad Mohammed, Shaima Rasheed Salem, Abd Al-Ghafar Wagdi (instructor), Justine Gesell (instructor), Amer Gad el-Kareem Abu el-Hasan. Third row: Sayd Mohammed Abd al-Raheem, Mohammed Abd al-Moeen Kellawy, Susan Sobhi Azeer, Lauren Bruning (instructor), El-Said Abd Al-Fatah Amin, Essam Mohammed Shihab, Abeer Abdallah Bakri (SCA Inspector). Back row: Rabea Eissa Mohammed, Ahmed Mohammed el-Lathiy, James Taylor (instructor), Gaber Abd al-Dayem Ali Omar, Amira Fawzy Ahmed, Mohammed Hatem Aly. Not pictured: Jihan Abd al-Raheem, Amani Abd al-Hamid, Ana Tavares (instructor), Mansour Boraik (instructor) and Mohsen Kamel (field-school director).

**D**uring the heyday of pyramid building men came from all over Egypt to work on Pharaoh's tomb. During our 2005 field season, 20 SCA (Supreme Council of Antiquities) inspectors came from inspectorates all across Egypt to help excavate the city of those pyramid builders. But this was no ordinary excavation. It was our first field school for SCA inspectors, supported by the American Research Center in Egypt (ARCE) USAID grant (#263 A 00 04 00018 00), with additional funding from our generous donors. The inspectors, selected from a pool

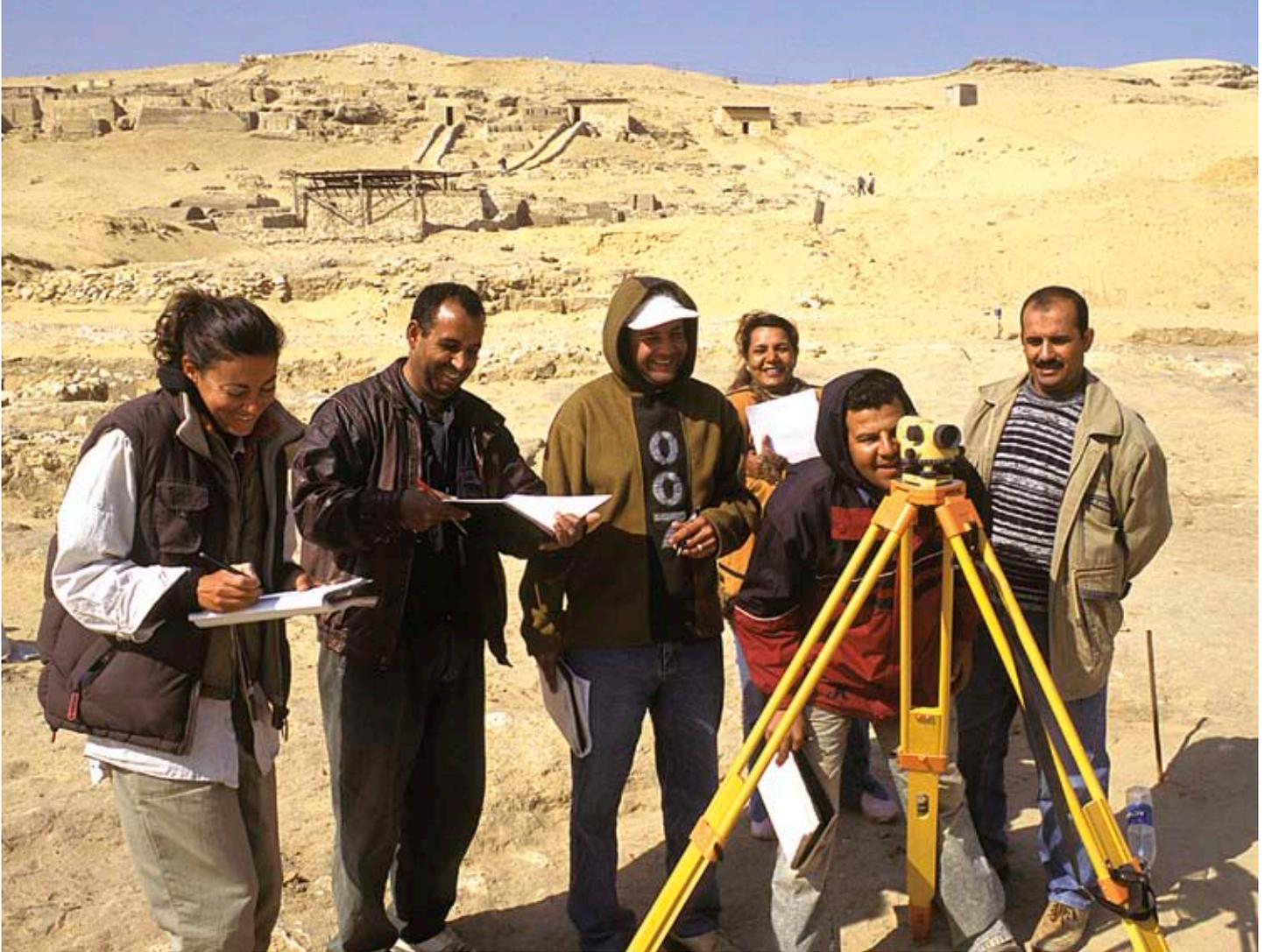
of 150 candidates, spent eight weeks in the field, lab, and classroom learning the basics of standard archaeological practice.

Our rigorous program, run by Mohsen Kamel and Ana Tavares, included full days of excavation in the field or tutorials in the lab-storeroom, in tandem with our regular Giza Plateau Mapping Project (GPMP) excavations, followed by evening lectures. Students were required to write weekly reports and at the end of the program prepare a data structure report on their excavation area, like the ones area supervisors write each field season.



The Egyptian Antiquities Conservation Fund, which helped support our field school, is a program of the U.S. Agency for International Development (USAID).

The students worked in four teams, each led by one of our seasoned excavators and an experienced SCA inspector. One of our goals  
*(continued on page 2)*



Mark Lehner

Ana Tavares (far left) teaches students to do traverse using differential levelling. From left to right: El-Said Abd Al-Fatah Amin, Essam Mohammed Shihab, Mohammed Abd al-Moeen Kellawy (reading elevations), Sayd Mohammed Abd al-Raheem, and Susan Sobhi Azeer behind.

**The Class of 2005: From All of Egypt** *(continued from page 1)*

was to integrate the field school into the overall excavation so we did not have isolated “practice” squares. Thus, each team worked in an excavation square adjacent to a main excavation area, as well as working on Late Period burials with osteo-archaeologists Jessica Kaiser and Tom Westlin. The students’ results were as important as everyone else’s work in helping us understand the site.

Our inspector-students all have degrees in Egyptology; our aim was to teach them the standard practices that are used in the field for stratigraphic excavation and recording in Britain, France, other European countries, and the U. S. Such practice is the methodological ideal of the GPMP excavations, with discrete tag numbers given to each and every depositional feature arranged in matrices of chronological relationships. Field school students learned these GPMP excavation and recording techniques, as outlined in the MOLAS (Museum of London Archaeological Service) Manual, which is our standard. They each received English and Arabic copies of the GPMP field manual, which is partially based on the MOLAS. We assumed no prior knowledge and focused on the basics, the standard practices, in order to ensure that each student had the most comprehensive training possible. The core teaching included how

to take measurements, lay out grids, and record features by hand. For example, the students set out grids for recording and excavation, took readings with surveyor’s levels, documented their excavations with photography, and made surface maps at a scale of 1:20 by taking off-set measurements and using a planning frame. In addition, the students also learned how to record using feature forms, registers, and notebooks, all critical daily records of excavation.

We assumed no limits to learning and trained students to construct stratigraphic matrices, using digital cameras and a surveyor’s level. Since high-tech equipment is not readily available throughout Egypt, however, we emphasized basic techniques and methods that students could take back to their inspectorates.

The other component of the field school was specialized study. Our approach at Giza has always been interdisciplinary; we retrieve and analyze botanical remains, animal bone, lithics (chipped stone), sealings, ceramics, objects, human bone, and environmental data as an intrinsic part of our procedures. We introduced students to the various specialties with lectures, workshops, and manuals prepared by our staff members. Through the course of the program, each team rotated through a series of laboratory tutorials taught by our specialists. The students followed the analysis of the



Above: Mohammed Hatem Aly and Rabea Eissa Mohammed map their excavation square by off-set measurements using tapes and a plumb bob.



Dr. Gerry Scott (left), Dr. Mark Lehner, and Dr. Zahi Hawass, Undersecretary of State and Secretary General of the SCA, congratulate student Jihan Abd al-Raheem for completing the GPMP field school.

various classes of material from the site to the lab and finally to the drawing table, where they learned the basics of archaeological illustration.

Our evening lectures supplemented the fieldwork. Each night a lecturer addressed different aspects of fieldwork—mapping, survey, site formation, salvage archaeology, and specialist studies—as well as work on other sites and projects. Our lecturers included both our own staff and distinguished scholars working throughout Egypt.

We introduced the students to ethnoarchaeology with a field trip to el-Nazla, a potters' village in the Fayum. Ethnoarchaeologists attempt to understand and interpret archaeo-

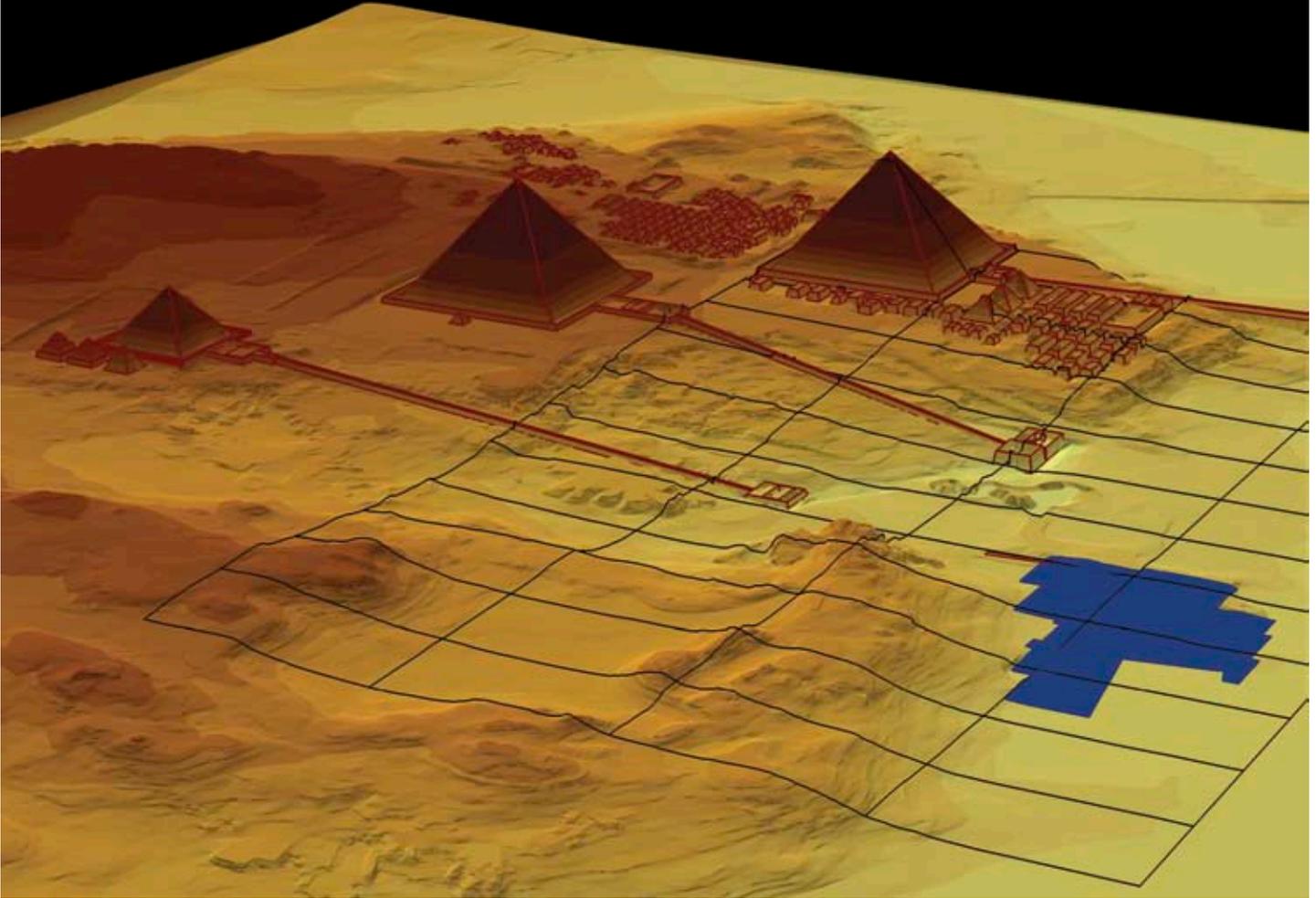
logical sites and features by looking at living examples of similar sites or features. We asked the students to examine the living pottery production at el-Nazla with an eye toward understanding the 4<sup>th</sup> Dynasty pottery from our site. We assigned them a series of questions about pottery manufacture, such as how do the potters obtain raw materials, how do they use or mix different types of clay, who controls production and distribution, why use chaff temper, and what are the functions of different vessels? Several days later, each of the four field school units presented a report on their ethnoarchaeological research. Afterward we discussed how their findings might be used to understand production and distribution of the pottery we find across our site (thanks to the Fayum Field School, run by Dr. Willeke Wendrich, for the idea).

On March 15<sup>th</sup> the students received certificates in a graduation ceremony held at the ARCE headquarters in Cairo. We were pleased to have Dr. Zahi Hawass, Director of the Supreme Council of Antiquities, attend our ceremony. It meant a great deal to the students to shake hands with Dr. Hawass. Dr. Gerry Scott, director of ARCE, handed out the certificates, which had the imprimatur of both ARCE and the SCA. It was a particularly memorable day for the students, especially those who were part-time inspectors, as only SCA inspectors that graduate from field school are able to accompany foreign missions working in Egypt. Dr. Hawass promoted them to full inspectors on contract that day.

Over the next two and a half days, before returning to their inspectorates across Egypt, the students completed their data structure reports and took a final exam. They also gave a tour of their excavation squares to Dr. Gerry Scott and Michael Jones and Shari Saunders, also from ARCE.

The field school turned out to be a rich and rewarding experience for all of us—the students, the instructors, field supervisors, lecturers, and directors. Although we were formally students and instructors, a genuine collegiality emerged over the weeks as we worked together. We all learned from our cultural exchange and built bridges between Egypt and the West. 

# GIS: DIGITIZING ARCHAEOLOGY



Using 1-meter contours of the plateau and CAD data to depict the architectural components, we created a nearly three-dimensional surface over which we can lay other data layers, such as maps. Here, you see the GMP survey grid draped over the surface of the plateau. The Lost City of the Pyramid Builders is in blue on the right.

*The Geographic Information System (GIS) that Farrab Brown, our GIS team leader, began developing in 2005 is bringing together our collection of drawings, photographs, notebooks, feature-description forms, and artifacts in a comprehensive way that will enable us to store, review, and interpret the enormous body of data we have collected over the last 15 years (and will continue to collect). Completing the GIS will take years, but the results of the enormous effort will be a great boon to our project. All of the information we have gathered about the pyramid-builders' city will be digitally available in one place, organized and integrated. It will allow us to map patterns of architecture, artifacts, and other material culture distributions and help us analyze the relationships among them. The possibilities for research, interpretation, and publication are very exciting. Here Farrab reports on the progress of the Giza Plateau Mapping Project GIS and explains how we will use it.*

Like a map, GIS displays information identified according to a location, but the similarity ends there. GIS can also capture, store, and analyze this information and display it in three dimensions. Its real power lies in its ability to integrate. By combining methods and theories from geography and other disciplines with specialized hardware and software, GIS provides the tools necessary to store, retrieve, and analyze data for

which location is an essential characteristic.

GIS technology provides many choices not possible with conventional mapping by giving us a real-time view of an integrated data source that can include tables, imagery, photographs, as well as links to documents, in addition to the spatially-accurate representation of the archaeology itself.

Thus far we have successfully created a 3-D digital basemap of the Giza Plateau

(shown above) and completed a pilot project GIS of four test areas around the site. We are already able to visualize patterns in these areas using tools available in the GIS software and continue to digitize additional areas as archaeologists complete their final reports.

As we pull all of our data together using GIS, we hope to begin seeing patterns and relationships, unlocking information about the past previously not available with conven-

tional mapping and analysis methods. The capabilities of GIS will provide great benefits for analysis and management of the important archaeological and World Heritage site at Giza.

### Feature-Level GIS

Beyond the basemap, we are creating a feature-level GIS, in which the stratum or feature (i.e. floors, walls, hearths, pits, and all other deposits) is the smallest element described. We have scanned and archived our field drawings of these features and now we are bringing these images into the ArcGIS software, positioning them according to their geographical coordinates and digitizing various characteristics of the drawings, including the locations of elevation points, objects, and the outlines of the features.

We link the features in the GIS to the database of feature descriptions (color, composition, and inclusions of a layer; name of excavator; date of removal; relationship to adjacent layers; etc). We then link the digitized features in the GIS to information about the lithics, ceramics, sealings, and archaeobotanical and faunal remains provided by our specialists' databases. Then we can produce color-coded graphs and charts to represent the densities and distributions of each artifact type in a given area, excavation unit, room, or feature. By bringing together these different kinds of information about one specific feature, we are able to use GIS technology to answer three basic questions: What is it? Where is it? What is its relationship to other features?

### Pilot Project

For last year's pilot project we decided to focus our initial efforts on completing the GIS process for four test areas: Gallery III.4, Wall of the Crow East (WCE), the Buttress Building (BB), and the Eastern Town House (ETH). This development strategy allowed us to first develop the GIS for the test areas and then refine the design based upon what we learned. This way we could see results sooner and have the opportunity to provide feedback to the excavators and specialists about collection methods and data management.

This strategy proved useful in many ways, making our pilot project a success. We finalized the GIS structure based on the results of the project, made several recommendations regarding data collection methods, and have implemented quality control checks on the drawings being produced by the excavators. Due to the success of the pilot project, we are modifying work flows and establishing a GIS management model, which will help maintain the data and the GIS process in the future. We are currently documenting our GIS design and the management model in a way that will make it simple to understand and change in the future. We hope that this documentation will be useful for other archaeological projects.

### Efficient and Accurate Reporting Online

Developing a mapping application that GPMP team members can access via a user-friendly online interface is one of our goals for this year. We plan for this application to accept many different data formats and have tools for turning on and off data layers, identifying, zooming, panning, and querying. The user will be able to search for features and perform analyses based on attributes. GPMP

team members will also have the ability to create layouts that can be printed, saved, and used in reports.

### The Future of the GIS Project

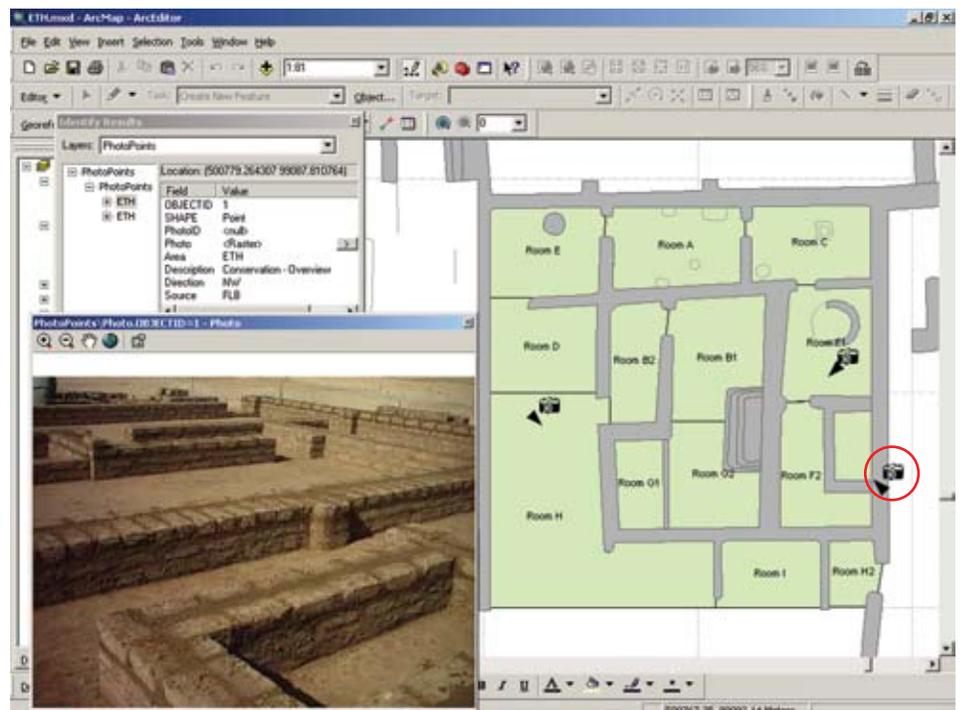
Although it is an enormous undertaking, a feature-level GIS will provide great benefits for analysis and management of this important site. Over the course of this project, we aim to disseminate methods, lessons learned, and results to the broader GIS and archaeological communities. We hope that these efforts will stimulate discussion and contribute to a more detailed "best practice" of GIS implementation in archaeology.

GIS is a powerful tool that is already opening doors to an entirely new aspect of analysis at Giza. We made considerable progress in the first year of development, and the potential of the project continues to grow. Our efforts succeeded in understanding and accurately representing the GPMP data, constructing a GIS basemap for the excavation, and testing and refining our design.

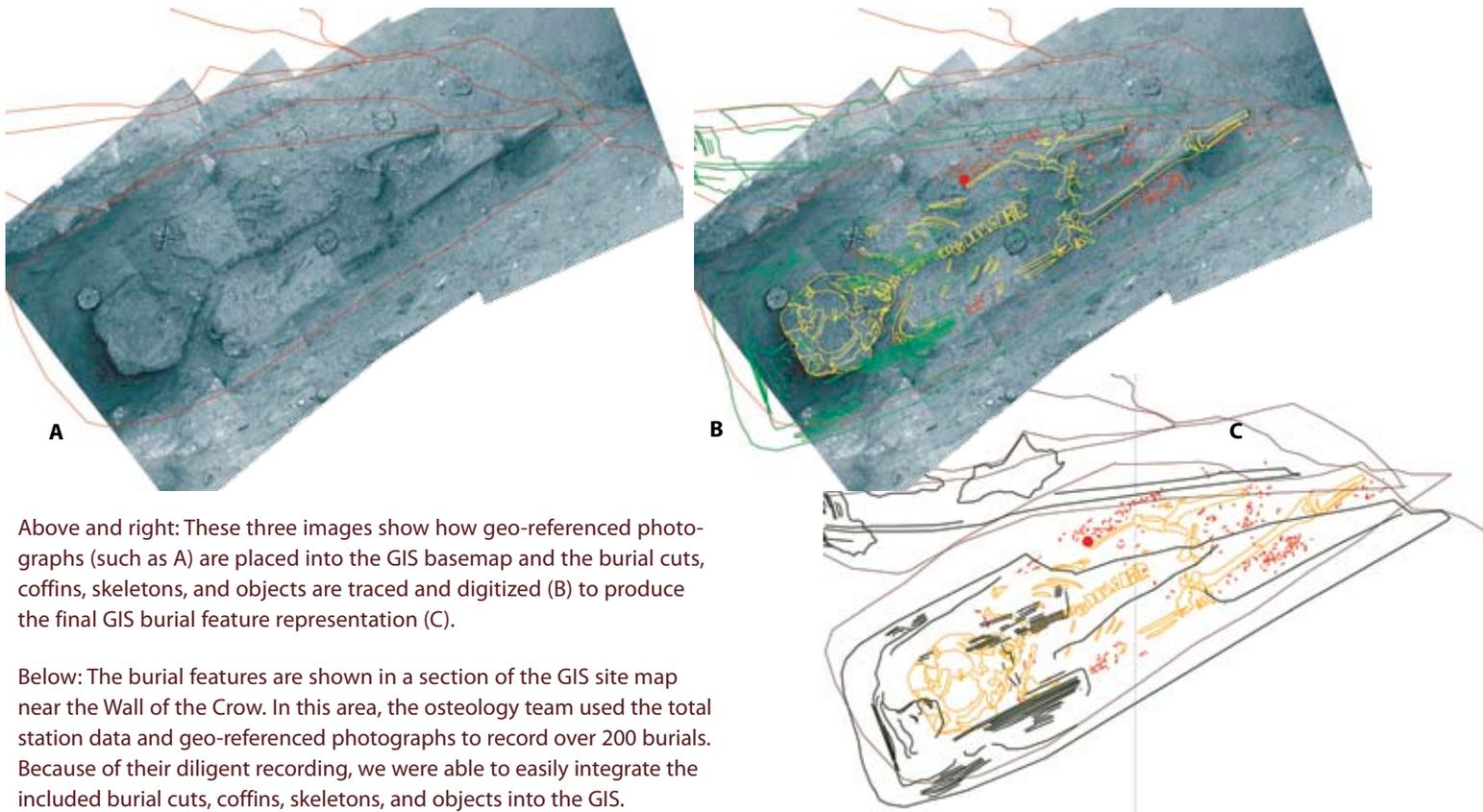
Our data model design seems to overcome many problems that archaeologists face when attempting to transfer field drawings

*(continued on page 7)*

The ArcGIS 9 computer interface shows a photo linked to an area of the site. The plan on the right is the Eastern Town House. The camera icons shows where shots were taken and one of these photos (icon circled in red) is displayed on the left.

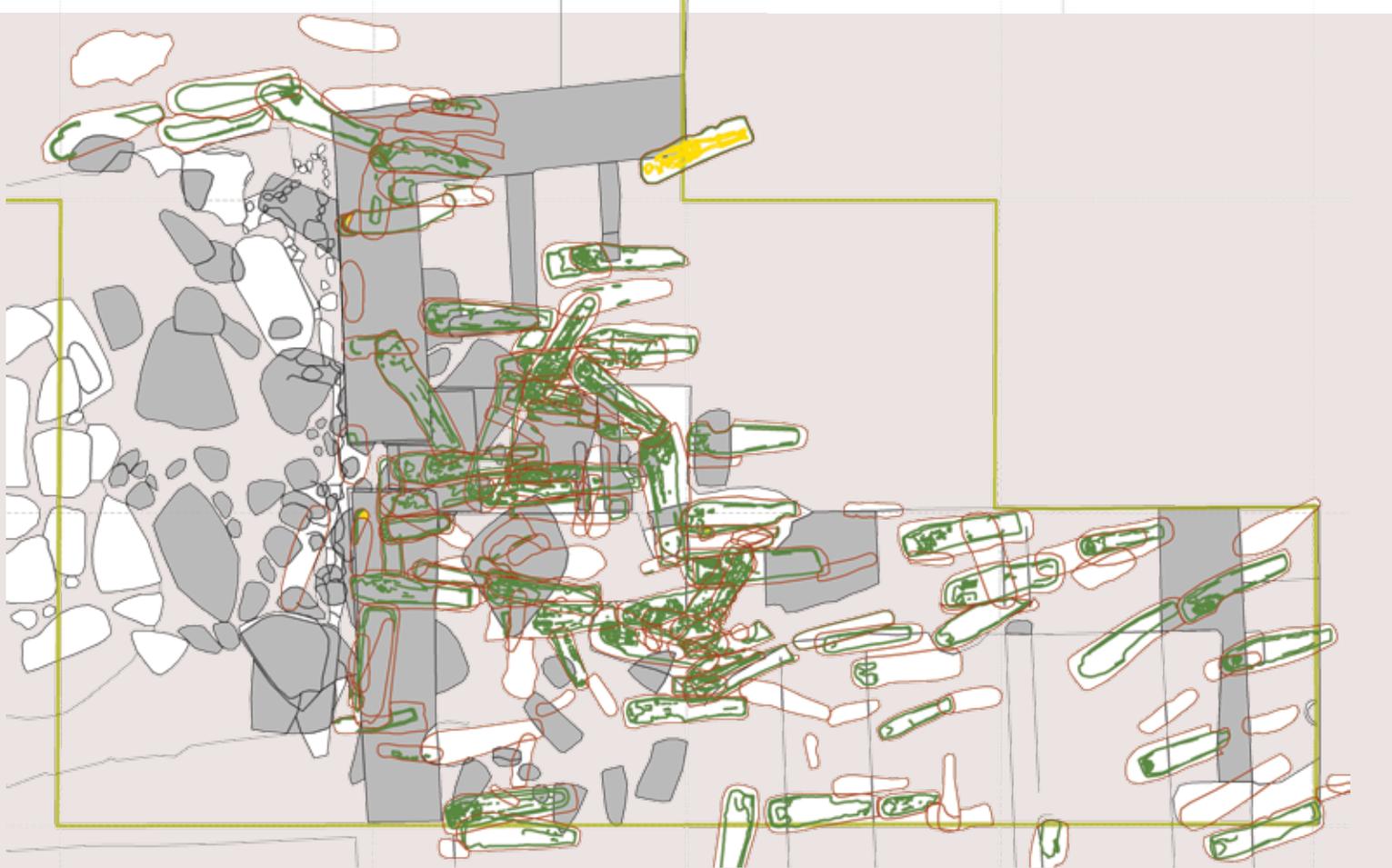


## GIS IN ACTION: Placing Geo-Referenced Photos in the GIS Basemap



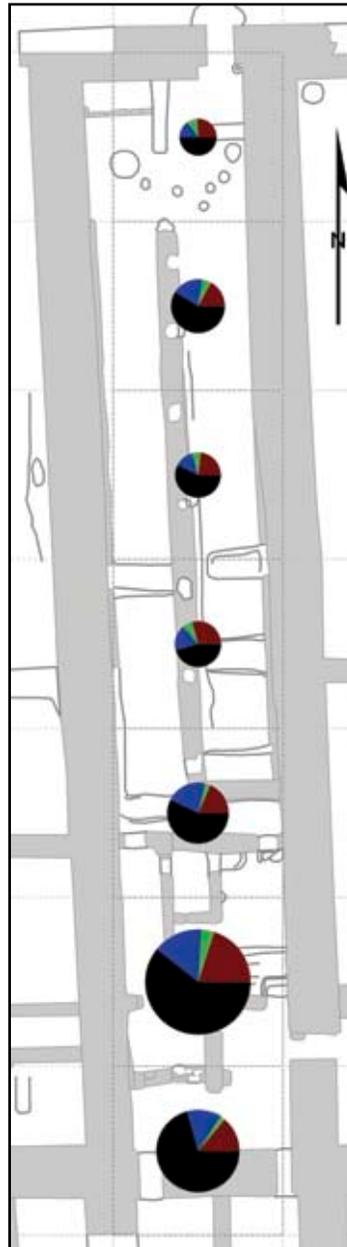
Above and right: These three images show how geo-referenced photographs (such as A) are placed into the GIS basemap and the burial cuts, coffins, skeletons, and objects are traced and digitized (B) to produce the final GIS burial feature representation (C).

Below: The burial features are shown in a section of the GIS site map near the Wall of the Crow. In this area, the osteology team used the total station data and geo-referenced photographs to record over 200 burials. Because of their diligent recording, we were able to easily integrate the included burial cuts, coffins, skeletons, and objects into the GIS.





Pot Density (1 pot = 10 pieces)



Ratios/Pie Charts

## Mapping Spatial Distributions

GIS can be used to show the spatial distribution of artifacts. Here the distribution of common pottery types is shown by square across the map of Gallery III.4. This is one of the structures in the Gallery Complex that may have served as a barracks for workmen. On the left the distribution is illustrated with dot density pots and on the right with proportional pie charts.

The charts show that pots were evenly distributed throughout the long, open (barracks) area in the northern part of the gallery. But they are far more abundant in the southern end, especially bread molds, suggesting to our ceramic specialist that bread may have been baked here.

Bread mold



Beer jar



Red carinated bowl



White carinated bowl



Key for Pottery Type Distributions

## GIS: Digitizing Archaeology *(continued from page 5)*

to a digital GPMP format. We therefore think it is important that we share our challenges and progress with others. This sharing will be the key to the further success of this project and to establishing more detailed guidelines for the archaeological community.

This year we will continue to digitize more features, develop and implement an online mapping application, and document the GIS design and development process.

~ *Farrah Brown*

## Acknowledgements

We are truly grateful to the Charles Simonyi Fund for Arts and Sciences for making this project possible and to Environmental Systems Research Institute (ESRI) for their generous donation of ArcGIS 9 software.

## Drowning in Data

We have amassed in 15 years of work:

- ✓ 2600+ field drawings
- ✓ 11,900+ digital photographs
- ✓ 12,200+ non-burial features
- ✓ 1000+ burial features
- ✓ 190+ supervisors' notebooks
- ✓ Survey and remote sensing data
- ✓ Artifact/ecofact content and distribution information for every feature

All of this will be incorporated in our GIS.

**W**hen we return to our site season after season, we often wish that we could easily view the buildings that we excavated in previous years. It would be very helpful to be able to see them for study and comparison and to show other scholars. But, alas, they are buried under a protective blanket of clean sand that we spread over our excavations at the end of every field season. If only we could conserve and protect while also displaying.

In the spring of 2004 we proposed a program that would do just that: preserve the site for posterity, while displaying standing ancient architecture year-round. In September 2005, we launched this program with the Eastern Town House (ETH) as a pilot project. We chose this humble compound in the Eastern Town area because it is a small, discrete complex with a core house surrounded by courtyards for storage and work. It is also particularly well-preserved and had been fully excavated—an ideal example to use as a demonstration.

### Conservation Choices, Decisions

Before we began the project we researched options for conservation. The type of backfilling that we do at the end of each season is the best

## CONSERVATION PILOT PROJECT

way to preserve a site, protecting it from any and all open-air disturbances, but it also obscures the site permanently. Other archaeological projects in Egypt have struggled with this same problem. Some have chosen to cap the existing ancient walls with new material to protect them, while also allowing them to remain visible. However, this capping drastically changes the ancient dimensions of the walls, making them taller and thicker than originally intended, as well as reducing the interior dimensions of the structure. This also requires the application of modern material directly onto the ancient walls, a controversial technique. We considered other methods, such as applying chemical consolidants or constructing large, protective structures, but eventually deemed them unsatisfactory. Instead, we decided to cover the house completely with clean sand—backfilling it, as usual—and to construct a replica of the house on top of the backfill, using ancient materials and methods. With this approach we are able to protect the ancient structure as well as display an exact, but less precious, version for future study and for visitors and researchers.

One of the major problems we faced was moisture, something one might not expect in arid Egypt. As it turns out, the groundwater in this area, not far from the Nile floodplain, is high and appears to be rising. In addition, the small amount of winter rain that falls on Cairo percolates into the ground, which can cause even backfill-covered mudbrick to deteriorate. To elude the water, we began our reconstruction project by building up the area with 40 to 80 centimeters of clean, packed sand, supported by a mudbrick retaining wall. On top of this new level we laid two layers of mudbrick to form a platform, which will minimize the amount of water that may seep



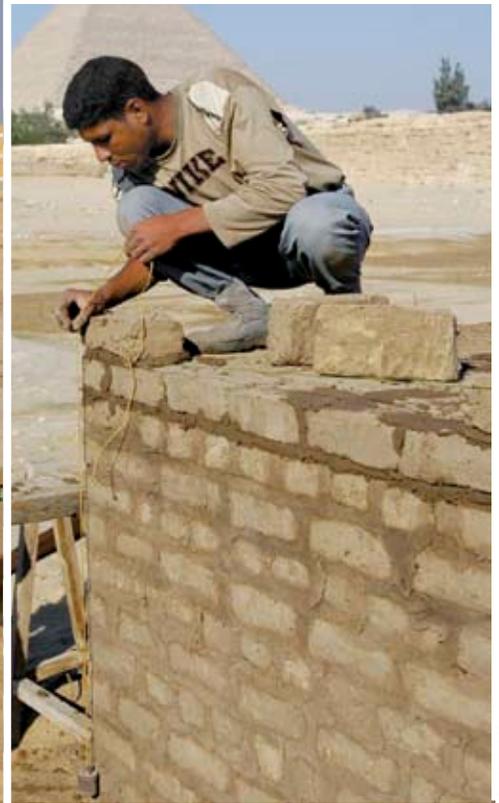
Yukinori Kawae

## A Humble Compound

down to the ancient walls below. It also serves as a convenient surface for our replica. Upon this platform, we drew the lines of the ETH walls precisely atop their ancient counterparts, using the exact dimensions of the latest phase of the building as we know it.

### Making Bricks

We wanted to make our replica even more authentic by using bricks as close to the composition and dimensions of the original ones as possible. So we made our own, using specs from an on-going study that Ashraf Abd el-Aziz is carrying out on the ancient bricks at our site. Drawing upon Ashraf's data on the dimensions, weight, and composition of the clay and artifact inclusions in the various types of mudbricks, we were able to produce bricks that are quite similar to the ancient versions. We hired local brick makers to manufacture the bricks, and in 19 days they produced 21,550 bricks. We used 18,150 of them to reconstruct the ETH.



Yukinori Kawae

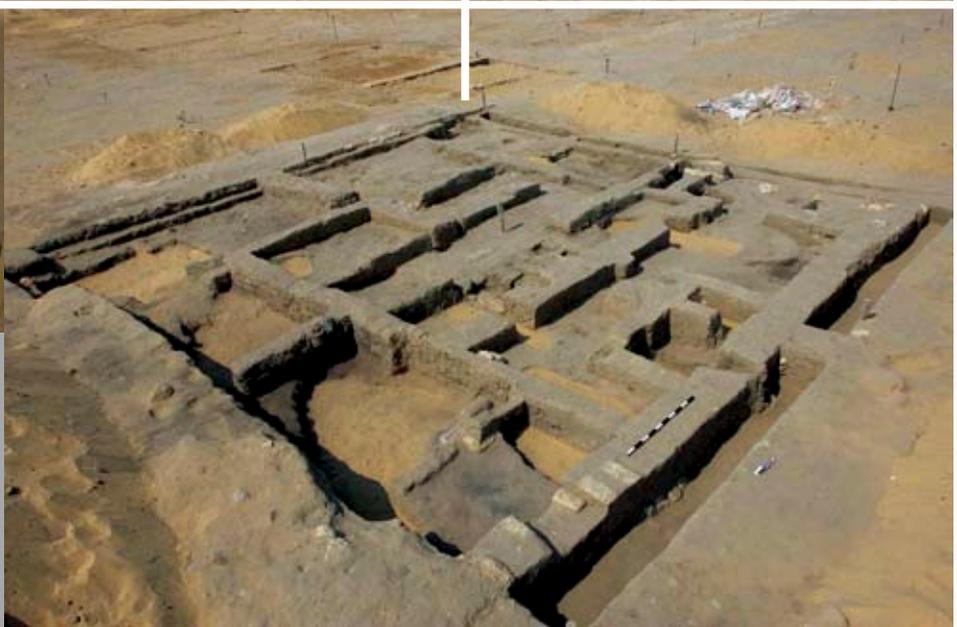


# Reborn

Above: The reconstructed Eastern Town House, built on a platform of sand and mudbrick to protect the ancient ETH underneath.

Above right: A bricklayer working on the reconstruction checks to see that the mudbrick wall is plumb.

Right: The ancient ETH as it looked after we completed excavations in 1995.



Yukinori Kawae

## Reconstruction, Results

We reconstructed the house to replicate its final phase of use, taking only six weeks at the end of 2005 to complete the work. In addition to the walls, we also reconstructed the last phase's uneven floor level, the remains of a silo, limestone thresholds, a stone door socket, and an elevated bed platform. This reconstruction is as exact a model of the ancient remains beneath as we were able to create.

Visiting scholars will now be able to study this urban compound during our off-season, when the remainder of the site is covered by backfill. In the future, we plan to reconstruct more buildings at our

site. As we continue with this type of conservation and reconstruction, we will be creating and developing a way to permanently share the findings of our work while also preserving the site. Most importantly, our reconstruction is wholly reversible—if needed, future archaeologists will be able to simply remove the new mudbrick walls and clear the fill in order to re-excavate the preserved, original ETH, discovering its ancient features protected by the stable environment in which we first found them.

*Compiled from reports by Edward Johnson, Günter Heindl, and Ashraf Abd el-Aziz*

# RESCUE ARCHAEOLOGY

## Deep Gouge Offers Clues to High Wall

*Every season we set out with a plan for our excavation operations. But we often end up also carrying out rescue archaeology because modern activities on the plateau present an opportunity or require remediation. This season we undertook a large salvage operation north of the Wall of the Crow.*

**A**s part of a plan to reorganize the Giza Plateau archaeological district and to isolate it from the activities of the townspeople and the modern Muslim and Coptic cemeteries at the western end of the Wall of the Crow, work began last year on a cement corridor that would connect the town with the cemeteries. So as not to detract from the view of the monuments, much of the corridor would be contained within a trench below grade.

During a visit to Cairo in October 2004 to interview applicants for the field school, we found a deep, long trench (aka DDT), which a contractor had excavated for the foundation of the corridor. The Giza Inspectorate of the Supreme Council of Antiquities (SCA) determined that the corridor would be too close to the Wall of the

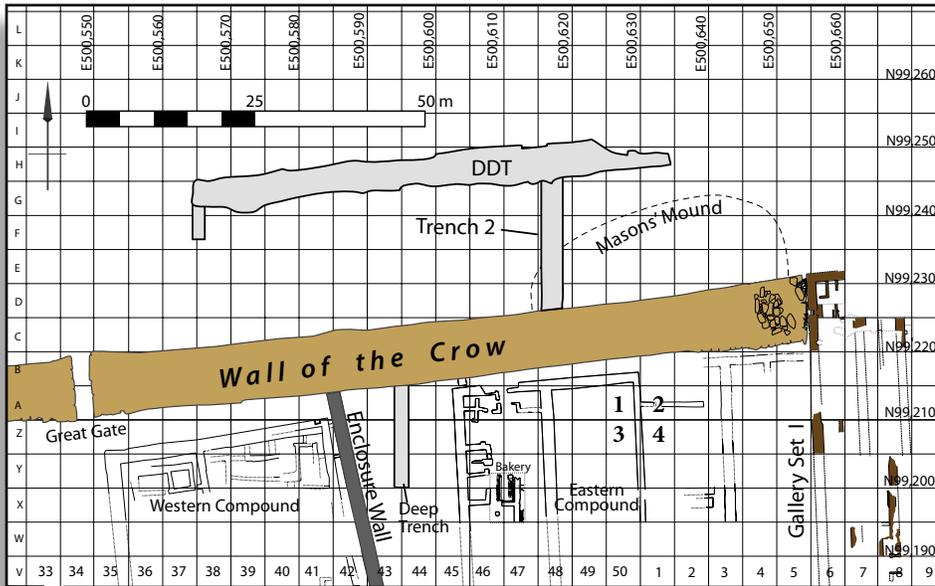
Crow. So the SCA suspended work and chose a new line for the corridor farther north, away from the wall. This allowed us to examine the archaeological layers in the trench in collaboration with the Giza Inspectorate. Recording the information in this trench became one of our main operations during the 2005 season.

The trench runs roughly parallel to the Wall of the Crow, 19 to 24 meters to the north (shown below and in the map on the facing page). Measuring 4.5 to 7 meters wide, it ran east-west for 90.5 meters before we filled it with clean sand at the end of the 2005 fieldwork. The trench drops from 1.5 to more than 2 meters below the compact Old Kingdom surface that we exposed in 2004 (see AERAGRAM 7/2, pp. 8-9). This gaping cut gave us an excellent opportunity to study the deeper layers.

When we arrived in January for the start of the 2005 field season, the sides of the trench had collapsed and sloped into the bottom where water and trash had accumulated. The water table had risen markedly since our 2004 fieldwork. In short order, our workmen

The Wall of the Crow and the 64-meter-long, deep contractor's trench. At the start of the field season the trench was awash with the rising water table. To keep us out of the water, visible on the right, workmen created a platform. In January 2006 we removed the spoil heaps (left).





high mound—Masons’ Mound—which is the remains of an ancient ramp that the builders were using to construct the Wall of the Crow. About half way down the length of the trench, a lower, older layer of masons’ debris separated from the Upper Rubble Layer and sloped markedly down to the east. A thickening layer of slightly reddish sand, which contained small bits and clumps of mudbrick, separated the two compact rubble layers. We believe that the workers intentionally spread out the Upper and Lower Rubble Layers to provide a hard working surface for building the Wall of the Crow. In the Lower Rubble Layer, we could see the “tip lines” where the workers dumped individual loads of the desert marl clay and limestone debris to make this surface.



Map of the operations north of the Wall of the Crow. The site map shows the location of the excavations. Peggy Sanders of Archaeological Graphics Services and Wilma Wetterstrom prepared the site map. Lacey Wallace modified Derek Watson’s original detail map.

cleaned the trench and created a raised working platform of sand running the length of the trench for our team to work without getting their feet wet. Derek Watson supervised work in the trench with Ali Witsell. Geologist Ken Lajoie documented the sedimentology of the layers. Pieter Collet drew the entire north and south sections at 1:20 while Ali and Derek drafted selected patches at 1:10. Katherine Piquet joined the team midway through the season to help with excavation.

### Ancient Stone Working

During the 2004 season we found traces of ancient stone working north of the Wall of the Crow upon, and embedded within, a layer of compact sand and masons’ debris that formed a hard, terrace-like surface. The contractor’s trench cut through this layer, which we dubbed the Upper Rubble Layer. Toward the eastern end of the northern side of the Wall of the Crow, the Upper Rubble Layer expands into a

### Builders’ Camp

In the Lower Rubble Layer we saw traces of the workers’ camp, or at least the temporary occupation of the area, probably dating from the time when the workers built the Wall of the Crow. The contractor’s trench sliced right through a brick-lined hearth, a mud-lined shallow pit, larger pits filled with pottery waste, and patches of burning from hearths and camp fires.

### Trench 2

In order to determine the relationship between the layers in the contractor’s trench and the Wall of the Crow, we excavated north-south Trench 2 (18.5 x 3 meters) between them. Trench 2 cut across the lower tail end of Masons’ Mound, allowing us to examine its internal structure. Trench 2 also clipped the western edge of a prominent, wide channel that showed in the southern section of the contractor’s trench and cut through the Lower Rubble Horizon. We hypothesized that a wadi stream might have cut the channel, and this related to ideas that the inhabitants might have built the Wall of the Crow to defend the settlement south of the Wall against wadi flash floods.

We found the continuation of the Lower Rubble Layer toward the Wall of the Crow. It appeared that people may have dumped the sand forming the separation layer between the Lower and Upper Rubble layers as a preparation for the upper surface and for building Masons’ Mound as a construction ramp or embankment. Upon the sand separation layer workers built crude limestone walls that formed compartments, which they filled with limestone, sand, and mudbrick debris to build up Masons’ Mound. They may have built up the ramp or embankment incrementally as they heightened the Wall of the Crow with successive courses of large limestone blocks.

### Wadi Floods in Question

For several years we have debated hypotheses about the purpose of the Wall of the Crow. One hypothesis *(continued on next page)*

## Rescue Archaeology (continued from page 11)

is that the ancient builders constructed the wall, 10 meters wide, 10 meters tall, with huge banks of masons' debris left against both sides, to deflect episodic desert flood waters washing down the wadi and threatening the town to the south of the wall. We considered that the channel under Masons' Mound, cut by the contractor's trench, was evidence of a stream that trended east-southeast toward the town. The exposure of this channel, into the surface of the Lower Rubble Layer, in Trench 2, does not negate the idea that it was cut by a wadi stream. It could also be a large pit that people, rather than natural forces cut. So far we only have the western edge of the channel.

Team members are not certain, nor entirely in agreement, about the force and threat of wadi flooding at the time that the inhabitants built the Wall of the Crow, or why they constructed the wall. In addition to other reasons, those in control might have intended the mighty wall to separate the more sacred pyramids necropolis to the north from the more "back stage" activities and infrastructure of our "Lost City" to the south. The wall certainly would have helped to control the movement of people and goods in either direction.

We did not finish Trench 2 in 2005 by excavating it to the very bottom of the foundation of the Wall of the Crow. We are determined to complete this task in our 2006 season. What we find may test our hypotheses about the huge stone construction, which we know was begun after the mudbrick Gallery Complex already existed. Or we may be in for a surprise that leads our thinking in new directions about this most remarkable, gigantic northwestern boundary to the Lost City of the Pyramids.

Derek Watson and Ali Witsell sit in the contractor's trench holding the end of Collet's 3.2-meter-long, color-coded 1:20 drawing of the trench's south section.



## THE 2005 FIELD SEASON TEAM

Mark Lehner	<i>Project Director</i>
Mohsen Kamel	<i>Field Director</i>
Ana Tavares	<i>Assistant Field Director, object registrar</i>
Ashraf Abd el-Aziz	<i>Archaeologist</i>
Amir Abdel Hamid	<i>Project manager</i>
Banu Aydinoglugil	<i>Archaeologist</i>
Kathryn Bandy	<i>Archaeologist</i>
Tove Björk	<i>Osteoarchaeologist</i>
Farrah Brown	<i>GIS specialist</i>
Lauren Bruning	<i>Archaeologist, area supervisor</i>
Marie-Astrid Calmettes	<i>Object registrar, area supervisor</i>
Pieter Collet	<i>Draftsman, surveyor</i>
Jonathan Digby	<i>Assistant archaeobotanist</i>
Stephanie Durning	<i>Archivist and data entry</i>
Menna el-Dorri	<i>Assistant archaeobotanist</i>
Amelia Fairman	<i>Archaeologist</i>
Nick Fieller	<i>Statistician</i>
Rainer Gerisch	<i>Wood charcoal specialist</i>
Justine Gesell	<i>Archaeologist, area supervisor</i>
Katharine Habbot	<i>Archaeologist</i>
Monica Hanna	<i>GIS technician</i>
Nicole Hansen	<i>Archivist and data entry</i>
Anies Hassan	<i>Archaeologist</i>
Brenna Hassett	<i>Archivist and data entry</i>
Günter Heindl	<i>Architect</i>
Daniel Hounsell	<i>Archaeologist, area supervisor</i>
Astride Huser	<i>Archaeologist</i>
Fatma Hussein	<i>SCA archaeologist</i>
Edward Johnson	<i>Conservator</i>
Jessica Kaiser	<i>Osteoarchaeology team leader</i>
Johnny Karlsson	<i>Archaeological illustrator, GIS technician</i>
Yukinori Kawae	<i>Archaeologist, photographer</i>
Ken Lajoie	<i>Geologist</i>
Luke Lehner	<i>GIS technician</i>
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Henan Mahmoud	<i>SCA archaeologist</i>
Emmy Malak	<i>Object registrar, archivist</i>
Rebekah Miracle	<i>GIS analyst</i>
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Erin Nell	<i>Cairo business manager</i>
John Nolan	<i>Epigrapher, sealings specialist</i>
Petter Nyberg	<i>Osteologist</i>
Kathryn Piquette	<i>Archaeologist</i>
Richard Redding	<i>Faunal specialist</i>
Freya Sadarangani	<i>Archaeologist, area supervisor</i>
Will Schenck	<i>Archaeological illustrator</i>
Tim Stevens	<i>Archaeologist, area supervisor, ithics analyst</i>
Carolyn Swan	<i>GIS technician</i>
James Taylor	<i>Archaeologist, area supervisor</i>
Tobias Tonner	<i>Database manager</i>
Derek Watson	<i>Archaeologist, area supervisor</i>
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Tom Westlin	<i>Osteoarchaeologist</i>
Ali Witsell	<i>Archaeologist, sealings assistant</i>
Anna Wodzińska	<i>Ceramicist, storeroom manager</i>

# Season 2005: Thanks to Our Supporters

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## AERAGRAM

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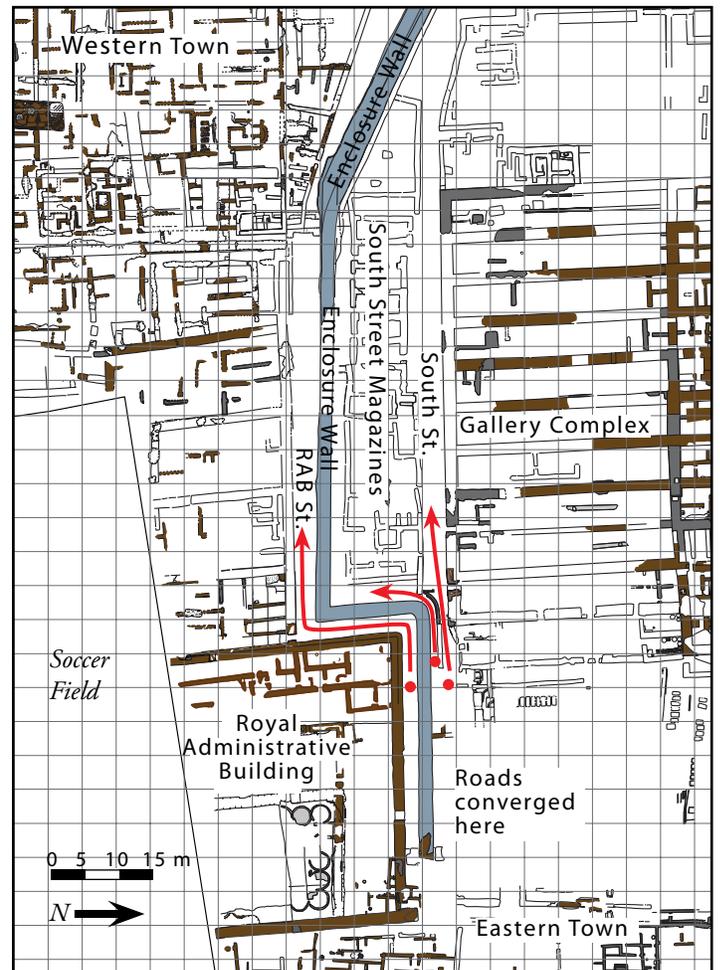
For a very successful 2005 season we are grateful to Dr. Zahi Hawass, Undersecretary of State and Secretary General of the Supreme Council of Antiquities (SCA). We thank Sabry Abd al-Aziz, General Director of Pharaonic Monuments; Atef Abu Dahab, Director of Giza and Saqqara; Adel Hussein, Director of Giza; Mansour Boraik, Chief Inspector of Giza; and Inspector Mohammed Shiha. We thank Magdi Ghandour, Director of the Foreign Missions Department, and Shaaban Abdel Gaad for their assistance. We thank Osama Hamid, Esmat Abd El-Ghani, Abeer Abdallah Bakri, Gaber Abd El-Dayem Ali Omar, Sherif Mohammed Abd al-Moneem, Ahmed Eiz, and Hanan Mahmoud Soliman for being our SCA inspectors. We are grateful to Eng. Abd al-Hamid Kotb for assistance with mechanized equipment and to Mohammed Musilhi for operating the loader and clearing modern overburden from our site so that we could carry out our excavations. Reis Ahmed Abd al-Basat did a remarkable job supervising our specialist workers and skilled excavators from Luxor.

We are grateful to Dr. Gil Stein, Director of the Oriental Institute, University of Chicago, and Dr. Larry Stager, Director of the Harvard Semitic Museum, for the support of their institutions. We also thank Dr. Joe Greene and Dr. James Armstrong of the Semitic Museum.



The workers' settlement encompassed separate and distinctly different zones: the Gallery Complex, housing rotating laborers; the Western Town, home to administrators; and the Eastern Town, where craftsmen may have lived. The archaeological evidence indicates that the lives and sustenance of the social groups of these three zones were very different. With our 2005 field work we now suspect that over time these districts and their residents became increasingly more segregated. The clues lie in three roadways that converged just north of the Royal Administrative Building (RAB) and the walls that separated them.

The 2-meter-thick Enclosure Wall isolated the Gallery Complex, and its worker population, from the Western Town and administrators. But the two districts were not always so separated from each other; the Enclosure Wall went up sometime after the Western Town and Gallery Complex were built. Once the wall was in place the only way to access the Western Town from the Gallery Complex was via RAB Street (shown in the map on the right). Starting just north of the RAB, *(continued on next page)*

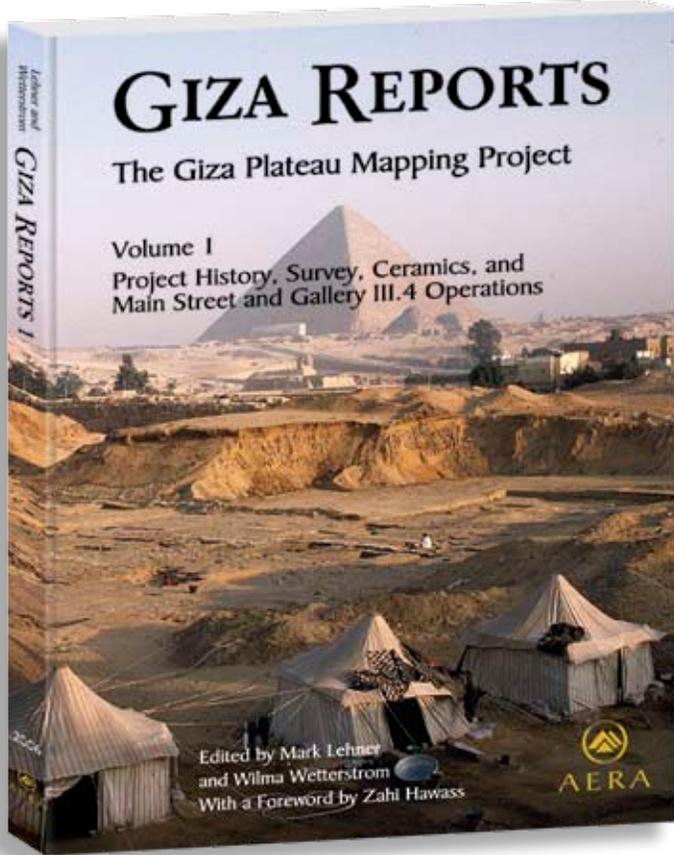


Above: A 3-D computer model of the site shows three men walking the diverging roadways. View to the west. The structures are shown without roofs since we do not have enough information to reconstruct them.

Right: A detail map shows the area where the three roads converged. The red circles indicate the approximate location of the men in the 3-D model.

# Rolling off the Presses

## *Giza Reports* Volume 1



The first volume in our monograph series, *Giza Reports: The Giza Plateau Mapping Project*, is coming out this winter. The volume is a 344-page collection of papers on some of our work since 1984 including the survey on the plateau and excavations at the workers' city. The volume, edited by Mark Lehner and Wilma Wetterstrom, features a foreword by Dr. Zahi Hawass, Director of the Supreme Council of Antiquities.

The volume includes a history of the excavations, written by Lehner; reports on the preliminary survey work across the plateau, completed by Lehner and David Goodman; a preliminary ceramics report by Anna Wodzińska; and detailed accounts of the excavation operations in Main Street and Gallery III.4, both by Ashraf Abd el-Aziz.

There are also short reports on the artifacts from the two operations: ceramics by Wodzińska, lithics by Cordula Werschkun, flora by Mary Anne Murray, fauna by Richard Redding, charcoal by Rainer Gerisch, and sealings by John Nolan.

*Giza Reports I* is richly illustrated with 196 line drawings and 96 black and white photographs, as well as large fold-out maps of the site and of the Giza Plateau. Oxbow Books (known as David Brown Books in the U.S.) will be distributing the volume for \$60 (<http://www.oxbowbooks.com/>) (phone: 800 791 9354).

## **AERA at the Smithsonian:** **The Lost City of the Pyramid Builders Seminar**

This past April, six members of our team gave an all-day seminar for the Smithsonian Associates. This cultural, educational, and membership division of the Smithsonian Institution frequently offers continuing education programs and chose AERA to lead one on the emerging story of our workmen's city at the Pyramids.

Starting off the morning, Mark Lehner gave an overview of the city and its critical role in the history of the Giza Plateau. Ana Tavares, assistant field director, delivered Mohsen Kamel's presentation on houses. Mohsen, our field director, had to miss the symposium as he was in Egypt, carrying out critical salvage archaeology. John Nolan, our epigrapher, discussed the text and images on the mud sealings that were used to secure goods shipped to Giza. Ana Tavares described artifacts that shed light on daily life in the city. Mary Anne Murray, archaeobotanist and assistant director of archaeological science, and Richard Redding, faunal analyst and AERA board member, described how the city was fed. Glen Dash, geophysics specialist and AERA board member, discussed his study of the Wall of the Crow using remote sensing. The seminar ended with a summary by Mark Lehner and audience questions.

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### **Three Roads Diverged** *(continued from page 14)*

this road ran into the heart of the Western town and may have had a guard to monitor and restrict access to the entrance.

Authorities further isolated the Gallery Complex by nearly choking off the east end of South Street, which ran along the south end of the Galley Complex into the area north of the RAB. They built a narrow, curving wall, shrinking the passageway from 4 meters to just under 1 meter wide, barely big enough to accommodate more than a single individual.

When authorities put up this small wall, they created a new pathway that only went into the magazines just south of South Street. This may have been an effort to control and monitor access into the storage facilities and limit it to people coming from the area just north of the RAB.

The effect of these diverging roadways and the walls was to isolate the laborers, living a regimented existence in the galleries, and prevent them from interacting with the administrators who lived in spacious homes in the Western Town. Residents of the Eastern Town, however, would have had easier access to the Western Town and could have interacted with, and provided goods and services for, its residents. They might have done the same for some of the gallery inhabitants. Still, the Eastern Town residents, the high-status inhabitants of the Western Town, and the workers behind the thick walls of the RAB were highly segregated from each other. ▲▲▲

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VISIT THE AERA WEBSITE. Last fall we launched our website thanks to a very substantial grant from the Charles Simonyi Fund for Arts and Sciences and thanks to the hard work of Brian Hunt. Please visit <http://www.aeraweb.org>.

