For over 25 years Ancient Egypt Research Associates (AERA) has brought together archaeologists and specialists from around the world to address the question: What is the origin, nature, and development of the Egyptian state, one of the earliest states of the ancient world.

We seek answers in our excavations of three ancient settlements at the base of the Giza Plateau: the “Lost City of the Pyramids” (also called Heit el-Ghurab) and the communities associated with the tombs of the pharaoh Menkaure and queen Khentkawes. Through multi-disciplinary analysis and rigorous archaeological field methods we open windows on the everyday lives of Egyptians who built and administered the Giza Pyramids and Sphinx during the 4th–5th Dynasties (circa 2543–2306 BC) of the Old Kingdom.

Publication and educational outreach are central to our mission in Egypt. In 2005, with the sponsorship of the American Research Center in Egypt (ARCE) and the generous funding of USAID through ARCE, we began an archaeological training program for Inspectors in the Egyptian Ministry of Antiquities. In 2015 with a grant from USAID, we began a two-year program at Memphis, the capital of ancient Egypt, to both improve the site for a better tourist experience and to train Inspectors in site preparation and management and in community outreach.

The AERA-Egypt Center, located a few blocks from the entrance to the Pyramids, serves not only as a year-round center for our excavations and field school, but also offers library and meeting facilities.

Ancient Egypt Research Associates, Inc.
26 Lincoln Street, Suite 5
Boston, MA 02135-2608 USA
E-mail: info@aeraweb.org
Website: http://www.aeraweb.org

© 2016 Ancient Egypt Research Associates
While we worked on the walking circuit, we also trained Ministry of Antiquities Inspectors. With Dr. Sara Perry, from the University of York, taking the lead, we taught young Inspectors how to prepare sites for tourism, enhance the visitor experience, and engage the local community.

The first year of the MSCD proved challenging (as described on page 5). But this foray outside our comfort zone sparked growth and wrought positive “mutations” in AERA’s DNA. We finished Year 1 with new awareness, understanding, and more resilience.

We turn our thoughts to how best to present sites to convey their stories and how visitors might view them. We think about the living communities adjacent to archaeological sites and how to engage them in their heritage.

The MSCD staff deserves the greatest credit for accomplishing so much in the project’s first year, in spite of significant challenges, with special mention of Field Directors Freya Sadarangani and Mohsen Kamel, Archaeology Supervisor Dan Jones, and Grants and Financial Manager Safinaz Ouri. I am truly impressed with their flexibility, determination, and resilience.

In February, we were back in research mode for another excavation season at our flagship Heit el-Ghurab site at Giza. We resumed work in Area SW1, where we discovered in 2015 the office-residence of a high official. This season we learned that food production and storage were important foci within the house. We also found more evidence of the official’s high status.

With the Glen Dash Foundation Survey, AERA also returned to the Great Pyramid, where we had surveyed the base of the monument in 2015. This season the team focused on the array of marks left by the builders that offer insights into their methods.

I hope you enjoy our annual report and update on our work over the past year. And I thank all our supporters for making this work possible.

Mark Lehner
Sara Perry, of the University of York, regularly brought field school students to Memphis for a practicum after lectures at our AERA-Egypt Center in Giza. Here in the Ptah Temple West Gate, the class discusses how to design graphics to explain the site and set it in its ancient context.

Co-Field Director Freya Sadarangani (lower right) orients a visitor to the Ramesses II Chapel, while local workmen continue to clear the ruins of dirt and vegetation.

Co-Field Director Freya Sadarangani records information about an inscribed panel in the hypostyle hall at the Ptah Temple West Gate.
Memphis (modern Mit Rahina), situated just 14 miles south of Cairo, was the administrative capital of Egypt during much of Pharaonic history and a major urban center that once spanned 23 square miles. Yet today, the only site open to visitors is the Memphis Museum, a sculpture garden exhibiting pieces from various areas of the city.

We are working to change that—to broaden and enrich the visitor’s experience—through our Memphis Site and Community Development (MSCD) project, led by Co-Field Directors Freya Sadarangani and Mohsen Kamel. Launched in August 2015, funded by a generous usaid-Egypt grant and aera’s private donors, the project is developing the Memphis Walking Circuit for visitors, within a wider heritage and outreach training program for Inspectors in the Egyptian Ministry of Antiquities (MoA).

In carrying out the MSCD project, we are also blazing a new trail for aera, taking on new challenges. While we have run field schools since 2005, including two at Memphis, we are new to heritage archaeology, community outreach, and site management for tourism. Thus we teamed up with a specialist in heritage archaeology, Sara Perry, of the University of York.

Our first year of the MSCD was challenging, stimulating, and productive. We selected eight sites that would offer visitors the opportunity to see and learn about some of the most important components of “downtown” Memphis, such as the Great Temple of Ptah and the Apis House. Thinking of sites in terms of a visitor’s experience rather than their research significance required looking at them in a new way. But preparing the sites for visitors, which we accomplished in our first year, was familiar work: cleaning, surveying, mapping, digitizing data in a gis (geographic information system), and extensively documenting.

Cleaning these sites, however, posed challenges far more daunting than those we have encountered at Giza. Reeds and camelthorn grew rampantly over some of the sites and reemerged soon after being cut. Standing water plagued some areas of our circuit, partially submerging ancient ruins and making for difficult working conditions. Modern garbage—great accumulations of trash around the sites—had to be collected and hauled away.

While our site work was progressing, Sara Perry ran two sessions of the MSCD training program, teaching 32 students an ambitious syllabus. It included guide book writing, social media promotion, interviewing local people involved in Memphis, use of focus groups, path design, visitor flow, signage, and more.

The students, working with team members, produced information packets on ancient Memphis and for the circuit sites, prepared signs, and developed test pathways (see cover). With Memphis Museum officials they created content in English and Arabic for websites and social media. Unfortunately they were unable to implement some of the community outreach plans as the MoA could not grant permission for this work.

Despite the setbacks and the challenges of our first year, we made important contributions to Egyptian archaeology and tourism. We created an invaluable, detailed record of the circuit sites, which augments the Survey of Memphis’s work in the 1980s and 1990s (directed by David Jeffreys for the Egypt Exploration Society). We pulled together a vast trove of information from excavation reports, historic records, and old maps and created a historical environmental record of Memphis. Once our Memphis Walking Circuit opens with its accompanying signage and brochures, it will help visitors appreciate the city and grasp its significance, making Memphis a more inviting tourist stop.

Our MoA students left the MSCD with valuable skills in site preparation, documentation, and management—skills that they will put into practice at their home inspectorates across Egypt.
The ES2 house, in the northeast corner of the SWI complex, at the end of the 2016 excavations. We believe ES2 was the office-residence of a high official who oversaw the workings of SWI, which may have been a stockyard and slaughterhouse. The north end of the stockyard, or corral, can be seen at the top of the photo. To the right was another enclosure, the possible slaughterhouse. View to the south-southeast.

View of Room D to the north-northwest, showing the deep bin and the remains of the poorly preserved oven. Senior Archaeologist Dan Jones photographs Room E.

View of Room E to the south-southwest, showing the rectangular bin, with a storage pot embedded in the floor, and a large vat encased in a mudbrick box.
FOOD STORAGE, FOOD PREPARATION: STANDING WALL ISLAND EXCAVATIONS

This past February we were eager to return to the Heit el-Ghurab (HeG) settlement site and resume work in Standing Wall Island (SWI) (map on page 2), where in 2015 we made a major breakthrough in understanding the community structure. We realized that large houses, as office-residences of high officials, served as organizing nodes for the whole HeG site. The officials each oversaw an operation or facility for the town and royal building works.

Our insight into HeG’s organization came during excavations in a compound we designated ES2 at the north end of SWI (photo 1 on facing page). We concluded that it was the office-residence of the official who managed the workings of SWI, the purpose of which we believe was supplying meat to the town. We had hypothesized in previous seasons that SWI was a slaughterhouse and stockyard, based on its configuration. More than half of the SWI complex is a large, corral-like enclosure with features remarkably similar to livestock pens depicted in ancient Egyptian art; hence we dubbed it the OK (Old Kingdom) Corral.

The clincher for the office-residence was a chamber we uncovered in the center of ES2 (A in the photos on the facing page). It bore the hallmark of an official residence: a long chamber with a niche at the south end framed by pilasters—the audience hall where the master received visitors and conducted business. In addition, we found collapsed pieces of a red-painted frame that once decorated the niche, as well as limestone furniture supports that would have stood under the legs of a high-ranking person’s chair or bed. The reception hall was part of a suite that also included a second niche—perhaps for sleeping—in addition to a closet and a zigzag entrance.

During 2015 we partially cleared all of the rooms in ES2. This season, led by Field Director Mohsen Kamel, we went down to the final floor level, opening a window onto the activities and the people who worked here.

Food seems to have been a major focus. ES2 was crammed with built-in food storage and preparation facilities, as well as food preparation tools. The largest storage facilities, probably used for grain, were two mudbrick silos, nearly 5 feet wide and perhaps originally 6 feet high, filling Room B.

A courtyard (C) featured four more silos—but small affairs built of clay—and an ad hoc silo, a pot partially buried upside down in the floor, bottom removed, as well as a large D-shaped bin. The built-ins along the west side of the courtyard stood in a row like stations in an assembly line (photo 3). Some of these containers may have held ingredients, such as malt, dried fruits, or legumes, which were probably removed.

Hanan Mahmoud excavates the contents of a large vat in a mudbrick box in Room E (see photos on facing page).
in measured quantities, as suggested by two ceramic “calibration” pots we found lying in the bottom of one of the silos (photo facing page, bottom left). These types of vessels were used to measure specific volumes of goods. The ingredients stored here may have been combined in a very large, deep vat at the north end of the “assembly line.” This type of vat appears in tomb relief scenes depicting bread production and has turned up in bakery rooms in HeG.

Another type of bin stood in Room D (photos 1 and 3): a large, high-walled container—perhaps a fuel store for an oven that once stood along the chamber’s east wall.

Next door, Room E (photo 4) housed a rectangular bin, as well as another “bread” vat, like the one mentioned above, but encased in a mudbrick box (photo page 5). This room also featured two built-in storage jars, one embedded in the bin and another in the floor. In addition, we also found here a low rectangular limestone table, bearing what appeared to be knife marks, suggesting that its surface was used for cutting (photo facing page, bottom right).

The high official who presided over SWI probably oversaw the redistribution of food stored and produced here, possibly to his entourage, the people who would have come with him to Giza. Note that the only door into the silo room, B, was accessed from the official suite. The silos would have been filled from the top, perhaps via a staircase on the outside of the compound, but the hatch for removing grain would have been at the bottom.

The high status of the official was further confirmed this season by the animal bones found in ES2—assuming they reflect the diet enjoyed here. Cattle—the choicest of meats—dominated, far outweighing sheep, goats, and pigs. The fish bone likewise came predominantly from high-quality species.

This overview of the season’s work is not the whole story. We also discovered that ES2 had a complex history, marked by renovations and alterations. But we have only scratched the surface with our excavation to the floor level. We look forward to next season and the chance to trace the evolution of ES2 through time.
This limestone table found in ES2 would probably have been used to serve food. The striations appear to be knife marks, suggesting that food was also cut here. Tables holding assorted foods are common in offering scenes in ancient Egyptian tombs.
Ambassador Robert S. Beecroft, accompanied by staff from the Embassy and USAID, visited Giza on September 3, 2015, to see the substantial results of a joint US-Egyptian project, funded by USAID-Egypt, to lower the groundwater. The water table had risen over a period of seven years, between 2005 and 2012, threatening the monuments at the southeast base of the plateau, as well as the Heit el-Ghurab site. The dewatering project, through a system of strategically located pumps, brought the groundwater down to earlier levels, and ongoing pumping has been keeping it in check.

AERA team members Dan Jones and Ana Tavares toured the group across Heit el-Ghurab, pointing out how the dewatering project saved the mudbrick ruins from deterioration and allowed our team to return to the site after a three-year hiatus imposed by flooding, and made it possible for us to resume training Ministry of Antiquities Inspectors in settlement archaeology and burial excavation here.
AERA IN THE POPULAR PRESS

AERA's work was featured in two prominent magazines this year. In October 2015, *Smithsonian* published Alexander Stille’s article “The Power and the Glory,” which discusses the newly discovered 4th Dynasty port at Wadi al-Jarf on the Red Sea and the light it sheds on our work at Giza. In the November 2015 issue of *Scientific American*, Zach Zorich wrote “The Pyramid Effect” on the Heit el-Ghurab site and how pyramid-building shaped “a social organization that changed the world.”

AERA IN TV DOCUMENTARIES

This past field season two film crews joined us at Giza. In February a team from TBS (Tokyo Broadcasting System Television, Inc.) filmed our excavators working in SW1 (described on pages 6–7) for “The Nile River Special” in the TBS “World Heritage” series. The program follows the Nile from its source all the way to the Mediterranean, visiting ruins along the way, including the Heit el-Ghurab site. The installment featuring Giza aired in Japan in April.

During March a crew from Windfall Films shot footage for “Unearthed: Dark Secrets of the Pyramid.” The documentary, shown on the Science Channel in July, features Mark Lehner, AERA president and author of *The Complete Pyramids*, and Glen Dash, AERA board secretary and team member. This past season, and in 2015, Glen and the Glen Dash Foundation Survey team surveyed the area around the base of the Great Pyramid (discussed on page 8). The documentary can be seen on YouTube.com; search for “Unearthed: Dark Secrets of the Pyramid.”

As the Windfall Films camera rolls, Glen Dash describes the remarkable feat achieved by the ancient Egyptian builders: the base of the Great Pyramid is a near perfect square.
PUBLICATIONS & PRESENTATIONS

Publications

MOHSEN KAMEL

YUKINORI KAWAE
*Excavating the Pyramid Town,* Tokyo: Shinchosha Publishing Co., 2015. (This is the first book in Japanese on AERA’s work at the Heit el-Ghurab site. Cover on the right.)

MARK LEHNER


CLAIRE MALLESON


FREYA SADARANGANI and ALEXANDRA WITSELL (eds.)
*Settlement and Cemetery at Giza: Papers from the 2010 AERA-ARCE Field School,* Boston: Ancient Egypt Research Associates. (See facing page.)

Excavating the Pyramid Town, the first book in Japanese on AERA’s work at the Heit el-Ghurab site. The author, Yukinori Kawae, has worked with AERA as an excavation supervisor, photographer, and laser scanning surveyor.

ANA TAVARES, DANIEL JONES, FREYA SADARANGANI, HANAN MAHMOUD, MOHSEN KAMEL, RABEE EISSA, HUSSEIN RIKHABY, ALEXANDRA WITSELL, SHERIF ABD EL-MONEIM, MAHMOUD EL-SHAFEY, NERMEEN SHABAN ABA YAZEED, RUDEINA BAYOUMI, RICHARD REDDING, CLAIRE MALLESON, and EMMY MALAK

Lectures & Conference Presentations

MARK LEHNER


CLAIRE MALLESON

RICHARD REDDING
This 300-page+ volume is the culmination of the AERA-ARCE Analysis and Publication Field School held in 2010. After preaching during all of our field schools, starting with the first one in 2005, that it is imperative—a moral obligation—to publish the results of one's work, we finally offered a publication field school for our students, who are inspectors in the Ministry of Antiquities. The course guided them through the entire process of analyzing their data, writing it up, and preparing the manuscript for publication. Students prepared preliminary reports on excavations carried out by field school teams at the Heit el-Ghurab site and specialist reports on material largely from field school excavations.

In 2013 the students completed and polished their papers for inclusion in Settlement and Cemetery, edited by Freya Sadarangani and Alexandra Witsell and released in February 2016. We are proud of our students’ hard work and proud that their papers make an important contribution to the corpus of Giza data in addition to enriching our understanding of Old Kingdom and Late Period Giza.

Settlement and Cemetery can be downloaded for free at our website: aeraweb.org.
Scenes from 2015-2016
THANKS TO OUR DONORS

The generous contributions of our benefactors and members have made our work possible. Every tax-deductible donation supports AERA’s archaeological excavations, publication of our findings, and educational programs aimed at advancing knowledge about our common human heritage. We are extremely grateful to the following foundations, businesses, and individuals who support our work.

LEADERS CIRCLE: $100,000 and up
USAID
David H. Koch
Ann Lurie
Anonymous
Douglas Rawles and Reed Smith LLP
Peter Norton
Charles and Lisa Simonyi Fund for Arts and Sciences
American Research Center in Egypt

KHUFU SOCIETY: $10,000 to $99,999
Glen and Joan Dash
Ed and Kathy Fries
Janice Jerde
Piers Litherland
Bruce Ludwig
Cameron and Linda Myhrvold

KHAFRE SOCIETY: $5,000 to $9,999
Michael and Lois Craig
Marjorie M. Fisher Fund
Ann Thompson

MENKAURE SOCIETY: $1,000 to $4,999
Raymond Arce
Richard S. Harwood
Louis Hughes
Nathan Myhrvold and Rosemarie Havranek
Jeffrey Raikes
Dr. Bonnie M. Sampsell
Craig Smith

SUPPORTING MEMBERSHIP: $250 to $999
Roger Atkinson
Sergio Barassi
Herbert Boudreau
Susan Davy
Frances Dilks
Florence Friedman
Kaarel Kaljot
Yukinori Kawae
Charles Keeling
Donald Kunz
Jeffrey A. Lamia
Norrene Leary
Daniel Lehner
Michael K. MacDonald
Douglas McKenzie
Tina Miracle
Rufus Mosely
Richard Redding
Charles Rigano
Peter Serchuk
Richard Vedder

DIANE HAGNER
Tristine Hayward
Linda Kimball
Nicholas McAfee
Naomi Miller
Marilynn Oleck
David Pepper
Pamela Reynolds
Judith Salkovitz
Rita Satz
Penelope Urru
Sara Waldheim
Brian Wright
Ayano Yamada
Robin Young

BUILDING FUND 2012–2015
Charles Thomas Cayce
Norma Kershaw
Dr. Bonnie M. Sampsell

CAIRO CENTER PURCHASE & RENOVATION FUND 2009–2010
Dr. Marjorie Fisher
David H. Koch Foundation
Ann and Robert H. Lurie Foundation
Peter Norton and the Isambard Kingdom Brunel Society
Charles and Lisa Simonyi Fund for Arts and Sciences
Urban Land Institute members on behalf of Bruce Ludwig
Waitt Family Foundation

1. AERA thanks Douglas Rawles of Reed Smith LLP for providing advice and counsel on a myriad of legal matters.
2015-2016 AERA Team

PRESIDENT
Dr. Mark Lehner

SENIOR STAFF
Dr. Richard Redding, Chief Research Officer, Archaeozoologist
Dr. Mohsen Kamel, Field Director, Executive Director of AERA-Egypt
Dr. Wilma Wetterstrom, Art and Science Editor, Publications
Dr. John Nolan, Financial Manager (July 1–Nov. 13, 2015)
Safinaz Ouri, Grants & Financial Manager
Alexandra Witsell, Managing Editor, Publications, Clay Sealings Specialist

PUBLICATIONS
Dr. Mark Lehner, Executive Editor
Alexandra Witsell, Managing Editor
Dr. Wilma Wetterstrom, Art and Science Editor

BOSTON OFFICE
Megan Flowers, Business Manager (From Nov. 2015)

GIS
Rebekah Miracle

GIZA SUPPORT STAFF
Mohamed Said, Giza IT Manager
Manami Yahata, Archivist
Sayed Salah Abd el-Hakim, House Manager
Amir Abdel Hamid, Cairo Project Manager

ARCHAEOLOGISTS
Dr. Mohsen Kamel, Field Director
Dan Jones, Senior Archaeology Supervisor
Hanan Mahmoud,* Archaeology Supervisor
Rabee Eissa,* Archaeology Supervisor

ARCHAEOLOGICAL SCIENCE TEAM
Dr. Claire Malleson, Director of Archaeological Science, Archaeobotanist
Dr. Richard Redding, Archaeozoologist
Alexandra Witsell, Clay Sealings Specialist
Emmy Malak, Objects Registrar & Analyst
Nagwan Bahaa,* Objects Assistant
Sherif Abd el-Moneim,* Ceramicist
Mahmoud el-Shafey,* Ceramicist
Aisha Mohamed Montaser Ahmed,* Ceramicist
Nermeen Shaban Hassan Abu Yazeed,* Ceramicist

GLEN DASH FOUNDATION SURVEY
Glen Dash, Engineer
Dr. Joao Dash, Assistant Surveyor
Rebecca Dash, Assistant Surveyor
Mohamed Abd el-Bassett,* Surveyor
Amr Zakaria Mohamed,* Surveyor
Dr. Mark Lehner, Archaeologist
Ashraf Abd el-Aziz,* Archaeologist

MEMPHIS SITE AND COMMUNITY DEVELOPMENT PROJECT (MSCD)
Dr. Mark Lehner, Project Director
Freya Sadarangani, Co-Field Director
Dr. Mohsen Kamel, Co-Field Director
Dr. Sara Perry, Heritage Specialist
Safinaz Ouri, Grants & Financial Manager
Rebekah Miracle, GIS Specialist
Manami Yahata, Archivist
Dan Jones, Senior Archaeologist
Aude Grazer-Ohara, Archaeologist
Hanan Mahmoud,* Archaeologist
Rabee Eissa,* Archaeologist
Amel Ewied,* Photographer
Ian Kilpatrick, Graphic Designer
Zoe Critchley, Field School Assistant
Andrew Henderson-Schwartz, Heritage Volunteer
Mohamed Adel Azziz Gabr,* Surveyor
Mohamed Addel el-Maksoud,* Assistant Surveyor
Mohamed Abd el-Basset,* Surveyor
Amr Zakaria Mohamed,* Surveyor
Mohamed el-Saidy,* Senior Supervisor
Samar Mahmoud,* Senior Supervisor
Sara Saber,* Senior Supervisor
Rana Abu Odeh,* Translator
Sayed Salah Abd el-Hakim, Foreman
Dr. David G. Jeffreys (Survey of Memphis, Egypt Exploration Society, Director), Consultant

*Inspector with the Egyptian Ministry of Antiquities

AERA BOARD MEMBERS
Dr. Mark Lehner, President and Treasurer
Glen Dash, Secretary
Matthew McCauley
Dr. James Allen
Ed Fries
Louis Hughes
Janice Jerde
Piers Litherland
Bruce Ludwig
Ann Lurie
Dr. Richard Redding