



# AERA

Ancient Egypt Research Associates

## Annual Report 2016–2017

SUCCESSFUL  
ENDINGS

EXCITING  
BEGINNINGS



# AERA: WHO WE ARE



For almost 30 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 on the Giza Plateau, at sites such as our flagship “Lost City of the Pyramids” (also called Heit el-Ghurab, HeG), as well as the communities associated with the tombs of the pharaoh Menkaure and queen Khentkawes. Through extensive excavation, geomorphological survey, and drill core sampling, we have constructed a nuanced interpretation of how the Egyptians supplied and transported the raw goods and materials necessary to build the pyramids and maintain the HeG settlement, a large urban city—likely a pyramid town—

dating to the reigns of Khafre and Menkaure, builders of the second and third Giza pyramids.

Excavation, analysis, publication, and educational outreach are the pillars of our mission in Egypt. Through multi-disciplinary analysis and rigorous archaeological field and laboratory science methods we open windows on the everyday lives of Egyptians who built and administered the Giza Pyramids and Sphinx during the 4<sup>th</sup>–5<sup>th</sup> Dynasties (c. 2543–2306 BC) of the Old Kingdom. In 2005, with the sponsorship of the American Research Center in Egypt (ARCE), we began an archaeological training program for Inspectors in the Egyptian Ministry of Antiquities. After 16 completed field school sessions and almost 300 graduated students, this important outreach program is now a regular feature of our ongoing research agenda.

Founded in 1985, AERA is a 501(c) (3) tax-exempt, non-profit research institution located in Boston and Giza, fully registered in Egypt as a foreign NGO. AERA-Egypt owns and maintains the AERA-Egypt Center in Giza—a year-round center for our team, with library and meeting facilities. Our scientific and educational missions are supported by philanthropic individuals, foundations, and USAID government funding, as well as USAID in collaboration with the American Research Center in Egypt (ARCE). See back page for contact information.

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Photos in our annual report were taken by Mark Lehner, Freya Sadarangani, Dan Jones, Sayed Salah Abd el-Hakim, Claire Malleson, and Amel Ewieda. **On our cover:** Our successful endings and exciting beginnings are represented here by the Memphis sphinx (left) superimposed over a photo of the Great Sphinx at Giza. The former personifies the completion of our Memphis Site and Community Development Project (see page 6). The Great Sphinx literally stands for the completion of the Sphinx Archive Project (see page 4) and also represents our new beginnings with the 2018 field season (see page 5), which will include survey work at the base of this grand sculpture.

# PRESIDENT'S MESSAGE

As 2017 draws to a close, we look back to this year's accomplishments and are happy to see a solid foundation for the future. In ancient Egypt, a pharaoh who found themselves still in power as they approached the 30<sup>th</sup> year of their reign planned for their jubilee, or *heb sed*, celebrating their success and stamina. We are pleased to be doing the same, as 2018 marks AERA's 30<sup>th</sup> year of exploration and excavation at the Giza Plateau.

In March we began an exciting research agenda at the Heit el-Ghurab site, focused on determining the nature of the remains under the Khafre- and Menkaure-era footprint we know so well. We have dipped into this older level in the past without ever having systematically studied its material culture and architecture. Our 2017 lab season, led by Claire Malleon, AERA Archaeological Science Director, included a full accounting of our material culture backlog from these earlier levels and an assessment of what we need to finish this work. We hope to clear this backlog while excavating new areas that target the early phase—a phase that may date to the time of Khufu, builder of the Great Pyramid.

With this new direction, we follow with great interest the discoveries of Pierre Tallet at Khufu's Red Sea port of Wadi el-Jarf. Here he uncovered a 4<sup>th</sup> Dynasty cache of administrative papyri, including the logbook of Merer, the overseer of a team traveling round-trip to Giza by boat to deliver limestone for Khufu's pyramid. Merer notes staying at Giza and mentions passing by a place called *Ankh Khufu*, which very well could be the lower level of Heit el-Ghurab. Merer and his team certainly navigated the waterways we have reconstructed, and may have stayed in the buildings of this earlier level.

In September, we finished two years of work on the Memphis Site and Community Development (MSCD) Project. I thank Freya Sadarangani and Mohsen Kamel in particular for their dedication to this unique project. The Memphis Walking Circuit—with bilingual signage, brochures, and guidebooks—is complete and ready for the public. We hope this investment in



the cultural heritage of Egypt will be a success for years to come.

Thanks to our financial team of Safinaz Ouri and Megan Flowers, the past fiscal year saw us receive three unqualified financial audits—one each for the AERA-Egypt Center and the MSCD Project, and one for all operations combined. These audits, and our ability to successfully complete the \$1 million+ MSCD grant indicate AERA's great strides towards financial maturation. In addition, we obtained two further grants for the coming year, one to conserve AERA's corpus of archaeobotanical records in a database and make them freely available online, and a grant for fieldwork in Khentkawes Town.

Lastly, the final days of 2017 see us coming full circle, finishing the online publication of the 1979–1983 Sphinx Project. This was our earliest work on the plateau and takes us back to the wellspring of everything that AERA has become. I thank Megan Flowers, Rebekah Miracle, and Stephen Dilks for preparing the 8,000+ documents of the Sphinx archive for their online debut.

As we begin our jubilee year we look forward to 2018 with great anticipation about AERA's future. We are energized by the Wadi el-Jarf papyri and eager to look for connections to Merer at Giza. It is a rare thing in archaeology to find the individual in ancient history.

Thank you for continuing with us on our journey of archaeological discovery at the Giza Plateau.

  
Mark Lehner

# Sphinx Archive Grant Update

In May 2016, AERA received an Antiquities Endowment Fund grant from the American Research Center in Egypt (ARCE) for the conservation and online publication of the archive of the 1979–1983 ARCE Sphinx Project. Led by James Allen and Mark Lehner, the project formed the basis of Mark's 1991 PhD dissertation, "The Archaeology of an Image: the Great Sphinx of Giza." The Antiquities Endowment Fund provides one-year grants for projects that support preservation, conservation, and documentation of Egyptian antiquities more than 100 years old.

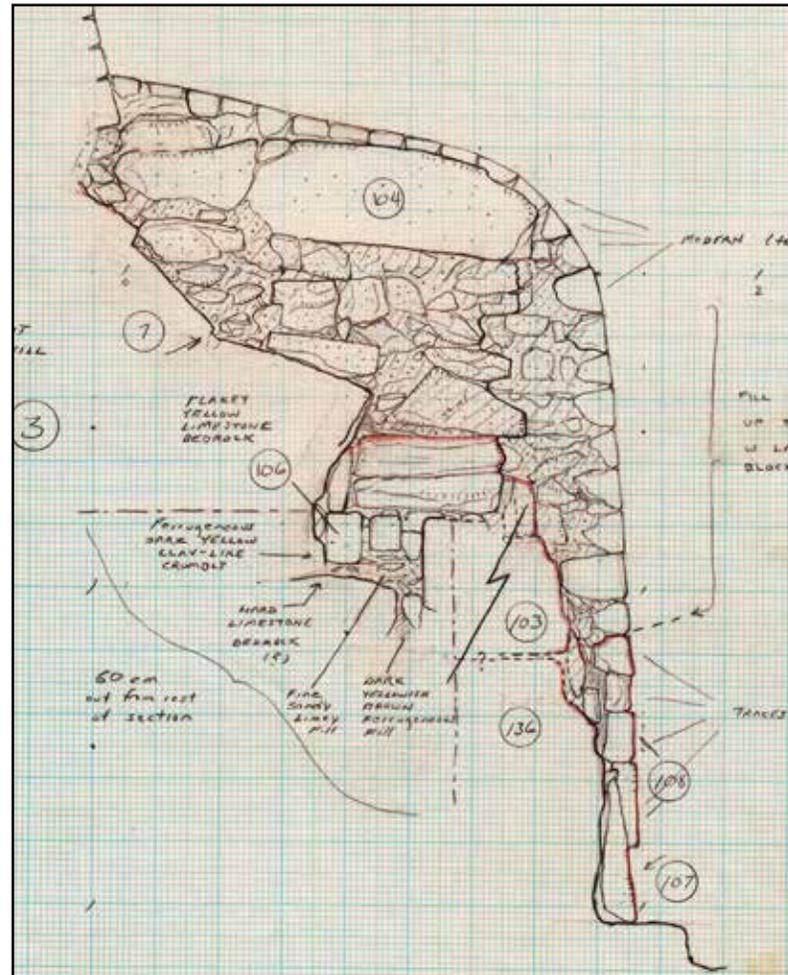
Over the last year, Mark and AERA team members Megan Flowers, Rebekah Miracle, and Stephen Dilks have worked to survey, organize, scan, contextualize, describe, and preserve some 364 maps and drawings, 3,857 35-mm slides, 1,740 black and white photographs, and reams of reports, journals, and survey data.

Partnering with Open Context,\* we have created a dynamic permanent online home for the ARCE Sphinx Project archive. GIS files created by AERA GIS Director Rebekah Miracle provide a location and spatial context for the project's data, enabling an enhanced level of interactive analysis and presentation for colleagues and the public.

For more than 35 years, these records have remained largely unpublished and otherwise inaccessible to the public. Restoration work during the 1980s–1990s, and subsequent efforts at consolidation, have hidden much of the historical record of the Sphinx. The ARCE Sphinx Project 1979–1983 Archive will remain the only fully documented history of masonry work on the Sphinx.

We are thrilled that Egyptologists, archaeologists, historians, scholars of art history, educators, and even the interested public will now be able to access, interact with, and use our rich dataset in a myriad of ways for their own research and teaching.

**Beginning January 15, 2018, access the Sphinx Archive Project page at <https://opencontext.org/projects/141e814a-ba2d-4560-879f-80f1afb019e9>.**



Detail of one of the 364 drawings and maps in the Sphinx Project Archive. Drawing caption: "Sphinx Area A Section to bedrock core, N forepaw, inner side."

## \* About Open Context

A web-based, open access publishing service, Open context archives archaeological research data for public access and long-term preservation. It is not a preservation repository, but stores content with the preservation and archiving services of other institutions (mainly the California Digital Library repository). In addition, Open Context now deposits image files in the Internet Archive (<https://archive.org>), which provides a standardized method of describing and delivering images over the web, one that enables dynamic zooming into the large image files of the ARCE Sphinx Project 1979–1983 Archive.

# RESEARCH: Study Season 2017

## Launching the Search for Khufu, in the Lab

Finally, a study season! For the first time in five years, the lab team took a break from processing the daily influx of finds recovered during our annual excavations. With this pause, the team was able to work on the lab backlog and prepare for new research in 2018: the search for Khufu, builder of the Great Pyramid.

We believe that the early level of the Heit el-Ghurab site (HeG) likely dates from Khufu's reign, but we have not yet systematically studied it. Over our years here, we have worked horizontally to capture the footprint of the site, excavating upper levels that we date to the time of Menkaure and Khafre. But below, we have glimpsed older layers from both our own excavations and in traces left by illegal backhoe operators prior to our work. Material from these areas now sits in our lab waiting for attention. Our lab season, led by Dr. Claire Malleson, included a full accounting of our material culture backlog from these early areas and an assessment of what specialists we need to finish this work.

The goal of this ongoing work is to have a complete database of all materials, both those studied in the past and those awaiting study. It is important that we finish the analysis of this material not just for completion's sake, but also because a full understanding of all current HeG material will be crucial for this upcoming work. If, as we suspect, the new work provides us with a "time capsule" of material dated to Khufu, it is likely that such a razor-thin chronological distinction will test our specialists' mettle. In order to be able to spot any chronological differences and developments, we must be prepared.

In order to do this, inventory work which was begun in 2013 required a further step to be taken. In 2013 we listed and counted all cartons and bags from the different areas and seasons of AERA's excavations. This season we began listing the contents of each box, feature by feature, bag by bag. This will facilitate the work of incoming specialists who wish to study specific material or individual artifacts.

This season AERA archivist and archaeologist Manami Yahata continued her study of roofing material from the HeG site, most importantly from House Unit 1, an elite scribal house in the Western Town that she helped excavate in 2004–2005.

Lastly, we welcomed two new specialists in our lab, Samar Mahmoud and Sarah Hitchens. Samar specializes in lithics and stone tools, and she took on an initial analysis of our material from HeG areas Main Street East and The Chute—areas that have interesting and large corpora to study. Sarah began work on our small collection of spinning and weaving tools, which had been registered but little studied. We look forward to hearing more from them on their findings.

Aisha Mohamed Montaser Ahmed, Ceramicist, works on the backlog of pot sherds in the Giza Field Lab.



# Memphis Site and Community Development

Twenty-seventeen saw the completion of AERA's work on the Memphis Site and Community Development project (MSCD) at the ancient capital city of Memphis (modern Mit Rahina). In concert with Dr. Sara Perry and her team from University of York, AERA staff members Freya Sadarangani and Dr. Mohsen Kamel oversaw the MSCD Project, which largely consisted of two separate avenues of work: 1) the design and implementation of a new visitor experience at Memphis, and 2) the training of young Egyptian Inspectors in the Ministry of Antiquities (MoA) in the basics of cultural heritage planning, site management, and outreach.

Over a two-year period, the MSCD Project cleared eight archaeological sites of vegetation and modern rubbish and linked them via 1,400 meters of pathways to develop a new Walking Circuit highlighting just a small selection of what the vast city of ancient Memphis has to offer. The sites chosen include the West Gate of the Great Ptah Temple, the Apis House, the Tombs of the High Priests, a temple and chapel of Ramesses II, a temple dedicated to the goddess Hathor, a chapel of Seti I, and the Open-Air Museum of Memphis. The museum was already open to visitors, but needed maintenance and new signage.

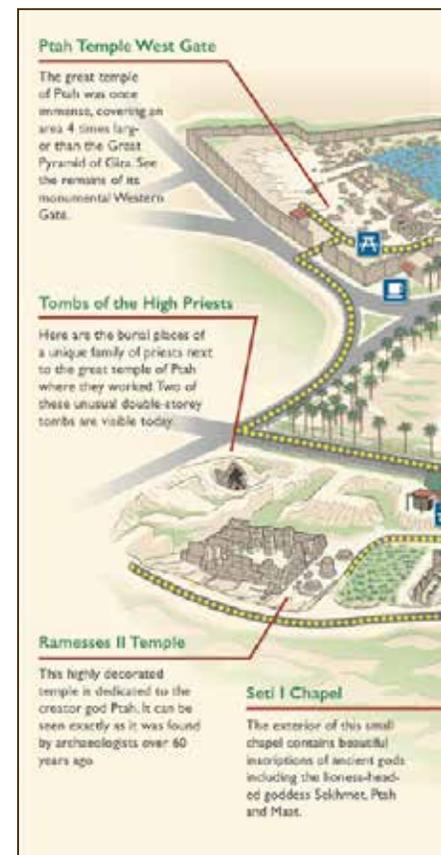
The work of designing and implementing the Walking Circuit was done in part by 77 MoA Inspectors from across Egypt—students trained over four six-week field school sessions run by AERA and York staff in a robust curriculum of on-site recording, conservation assessment, and community outreach. Working with a graphics team, the students helped design over 70 new information panels installed throughout the Circuit to engage visitors. Further, they aided in the creation of a suite of media tools

Interior image of the visitor brochure prepared by field school students and graphic designer Ian Kirkpatrick. This plan shows the layout of the Walking Circuit and gives the locations and a brief introduction to the eight sites chosen for inclusion, as well as other general visitor information.

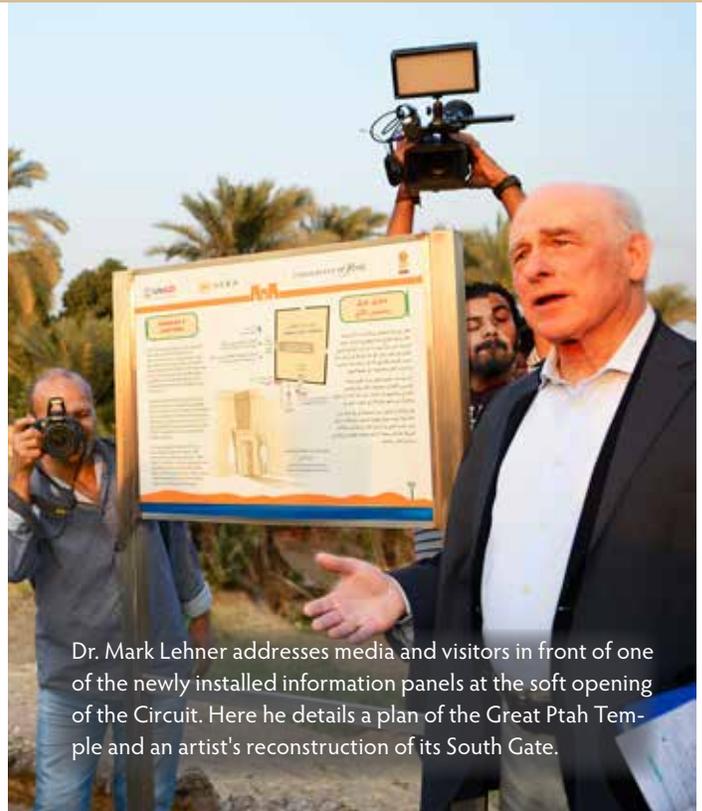
to promote the Circuit and enhance its accessibility, including a website, brochures and guidebooks, children's worksheets, videos, social media posts, and information packets for tour guides. Additional infrastructure provided by the project included benches and rubbish bins, and the creation of a children's play area.

In addition to training Egyptian students, the MSCD Project employed a site workforce to clean, help record, and install physical elements of the new Circuit, drawn from individuals living in the local Mit Rahina community. This included over 130 local workmen and 46 skilled craftsmen (such as carpenters and blacksmiths) and local businesses.

Another important component of the project was our creation of various sustainable management plans related to the long-term upkeep of and engagement with the Circuit, as well as a conservation assessment of the eight sites.



A screenshot from the new Memphis website, designed and planned with student help and launched this past fall. Visit it at <http://memphisegypt.org>.

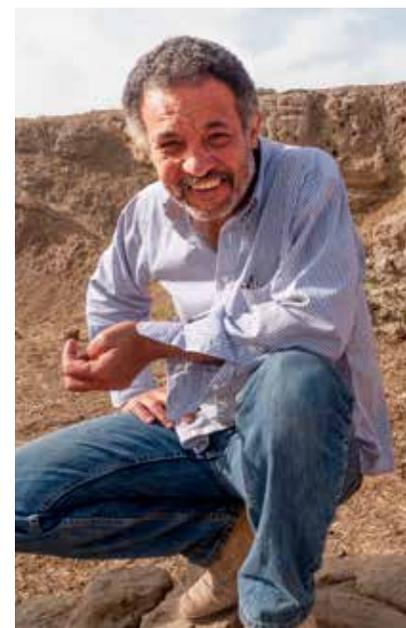


Dr. Mark Lehner addresses media and visitors in front of one of the newly installed information panels at the soft opening of the Circuit. Here he details a plan of the Great Ptah Temple and an artist's reconstruction of its South Gate.

In September, AERA and Dr. Khaled el-Anani, Minister of Antiquities, hosted a celebration of the completion of the Circuit for dignitaries, including us Chargé d'Affaires Thomas Goldberger, Governor of Giza General Kamal al-Daly, Minister of Investment and Social Solidarity Dr. Sahar Nasr, and heads of foreign archaeological and cultural missions. We eagerly await word of the official opening of the Circuit to the general public.

Although the MSCD project was outside our usual wheelhouse of Old Kingdom fieldwork, we are grateful for the learning experience provided by the past two years, and eager to build on it in the future.

The MSCD Project was funded by a generous grant from the United States Agency for International Development (USAID).



AERA staff members Freya Sadarangani and Mohsen Kamel steadfastly led our team through the successful conclusion of the two-year MSCD Project. We thank them for their hard work!

# SHARING OUR WORK

## Publications

GLEN DASH

“Occam’s Egyptian Razor: The Equinox and the Alignment of the Pyramids,” *Journal of Ancient Egyptian Architecture*, Vol. 2, 2017, pages 1-8.

GLEN DASH and JOEL PAULSON

“The 2015 Survey of the Base of the Great Pyramid,” *Journal of Egyptian Archaeology*, Vol. 102, No. 1, 2016, pages 186-196.

MARK LEHNER

“The Giza Plateau Mapping Project,” In *The Oriental Institute 2015–2016 Annual Report*, ed. by Gil J. Stein, Chicago: University of Chicago, 2016, pages 82–99.

CLAIRE MALLESON

“The Logistics of Bread Production in Old Kingdom Egypt: A Nutritional Perspective,” In *Exploring the Materiality of Food ‘Stuff’: Transformations, Symbolic Consumption and Embodiments*, ed. by Louise Steel and Katharina Zinn, Routledge: Oxon and New York, 2017, pages 131–151.

RICHARD REDDING

“The Vertebrate Fauna from the Excavations at Kom el-Hisn, Giza, and Other Sites,” In *Kom el-Hisn (Ca. 2500–1900 BC), An Ancient Settlement in the Nile Delta*

*of Egypt*, edited by Robert J. Wenke, Richard W. Redding, and Anthony J. Cagle, Atlanta: Lockwood Press, 2016, pages 139–203.

## Lectures & Conference Presentations

FREYA SADARANGANI, MOHSEN KAMEL, RICHARD REDDING, DAN JONES, AND MARK LEHNER

“Memphis, Egypt’s Ancient Capital: A Plan for Site & Community Development,” Ministry of Antiquities, Zamalek, Cairo, May 22, 2017.

RICHARD REDDING

“Introduction to the Analysis of Faunal Remains from Archaeological Sites,” Kelsey Museum, University of Michigan. September 14, 2016.

“On the Cutting Edge: How Hypotheses Help Teach Field Schools at the Pyramid Builders’ City,” American Schools of Oriental Research Annual Meeting, San Antonio, November 17, 2016.

“Staffing an Archaeological Project as an Exercise in Human Capital Management,” Ross School of Business, University of Michigan, February 2, 2017.

“Assessing Differential Fragmentation of Mammal Bone: A New Proxy,” Society for American Archaeology annual meeting, Vancouver, Canada, March 30, 2017.

For the Windfall Films documentary “Egypt’s Great Pyramid: The New Evidence,” a team of local Egyptians demonstrated how 4<sup>th</sup> Dynasty Egyptians dragged limestone blocks on a sledge up to the pyramid building site.



## Documentaries

This past spring AERA team members worked with Windfall Films, an award-winning British documentary filmmaker, to produce two programs for television and share our research with a vast audience.

“Unearthed: Secret History of the Sphinx” answers—with stunning digital graphics and film footage—the question Who built the Sphinx? based on the work of Mark Lehner and University of Tübingen geologist Dr. Thomas Aigner that demonstrated Khafre, builder of the second pyramid, created the Sphinx and the adjacent Sphinx and Khafre Valley Temples as part of the same quarry-construction sequence. The film digitally deconstructs and then reassembles the Sphinx and the temples to visually demonstrate this process. The documentary aired in the U.S. on the Science Channel on June 13, 2017.

Windfall’s second documentary, “Egypt’s Great Pyramid: The New Evidence,” presents recent research that sheds light on how 4<sup>th</sup> Dynasty Egyptians built this enormous structure, with special attention to the infrastructure that made it possible. To show how the Egyptians delivered massive limestone blocks for the pyramid the film draws on Mark Lehner’s reconstruction of waterways at Giza, which revealed that canals and a harbor allowed ships to deliver their cargo to the very edge of the Giza Plateau. From here the stones could then be dragged to the construction site, as demonstrated in the film (photo on facing page). Confirmation of the waterways comes from the *Journal of Merer*, discovered at Wadi el-Jarf, one of Khufu’s harbor on the Red Sea. Recently published by Pierre Tallet, this papyrus document fragment is the overseer Merer’s log of the round trips that he and his crew made hauling stone from the Tura quarries to the Great Pyramid, with his notes on their journeys and



Richard Redding (far left) and Mark Lehner (far right) show the film crew a plan view of the Sphinx for the documentary “Unearthed: Secret History of the Sphinx.”



The Windfall Films crew film Claire Malleson explaining how workers at the Heit el-Ghurab settlement were supplied with ample bread rations, made in bell-shaped pots (like the one on the table).

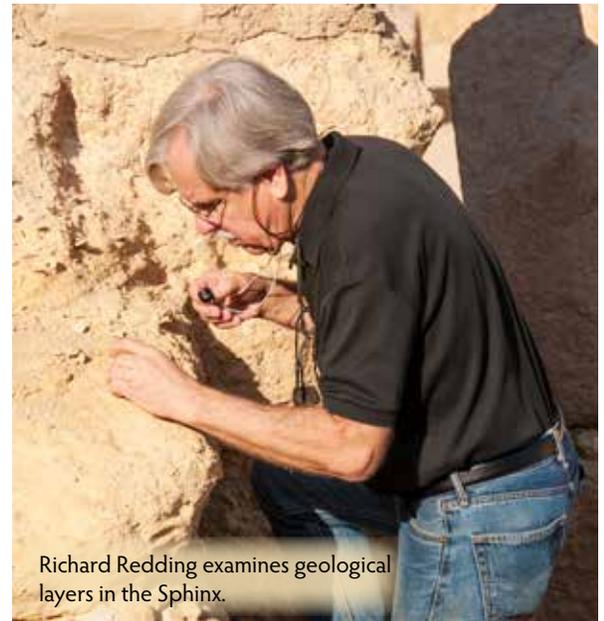
their passing by Giza at *Ankh Khufu*, most likely the Heit el-Ghurab settlement’s early level.

The film includes a tour of the Heit el-Ghurab site and a visit to our Giza Field Lab, where Dr. Claire Malleson, Lab Manager and Director of Archaeological Science, explains how the town functioned. The documentary has aired in Europe and will be shown in the U.S. in 2018.

# Scenes from 2016-2017



The AERA-Egypt Center in Giza



Richard Redding examines geological layers in the Sphinx.



Manami Yahata retrieves boxes of mud roofing fragments for analysis during the AERA 2017 Study Season.



Rolls of drawings scanned for the Sphinx Archive Project.



Ian Kirkpatrick, graphic designer, helps an MSCD student create signage for the Memphis Waking Circuit.



Sarah Hitchins holds up spindle whorls she is documenting in the AERA Giza Field Lab.



One of the new signs that MSCD students and staff prepared for the Memphis Waking Circuit.

# 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.

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

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Sarah Hitchens, *Weaving Tool Specialist, Lab Support Staff Member*

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†Inspector with the MSA Scientific Office/NMEC Archaeobotanical Unit

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