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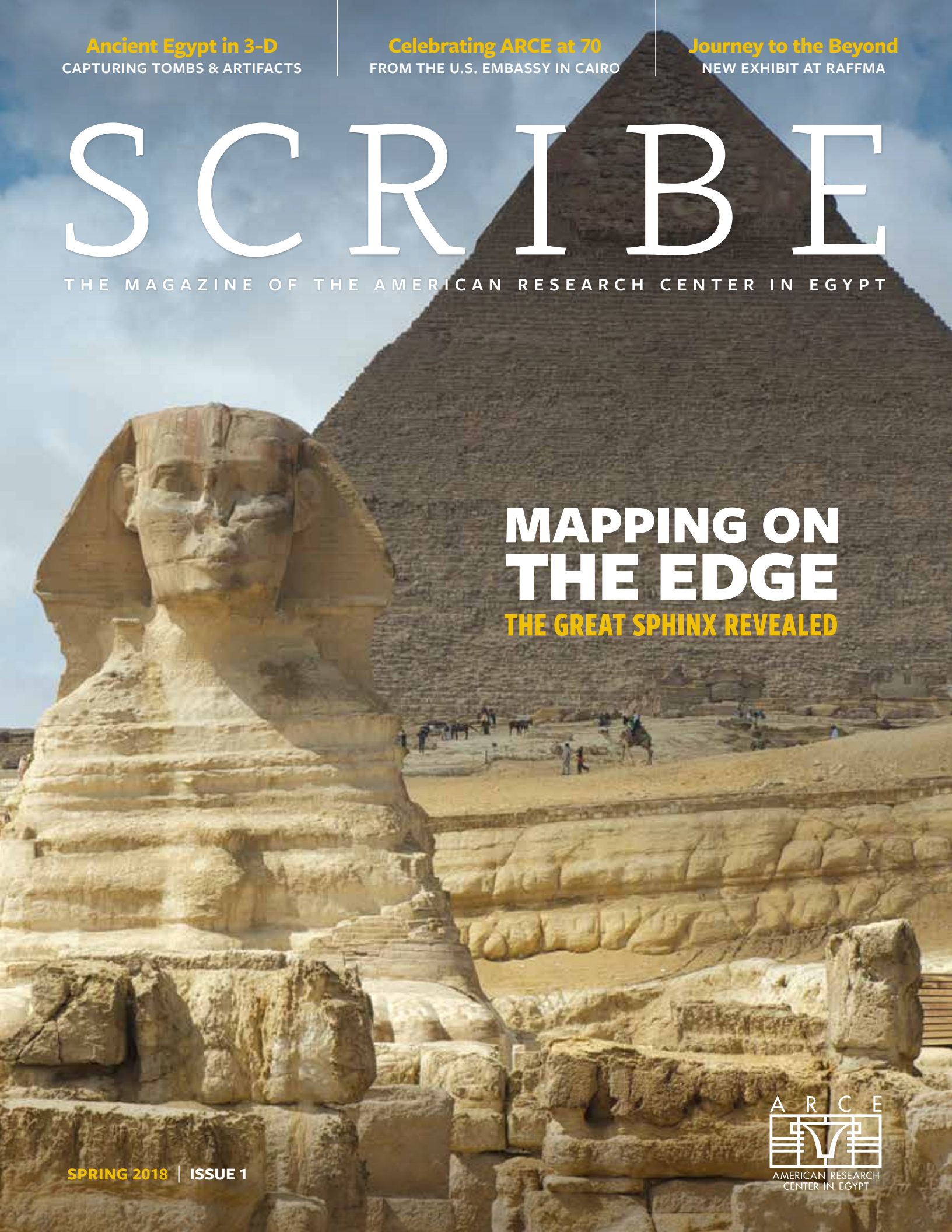

MAPPING ON THE EDGE

THE GREAT SPHINX REVEALED

SPRING 2018 | ISSUE 1

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The ARCE Sphinx Mapping Project records the Sphinx as it stands today and reveals the traces of its excavation in 1925

PHOTO: MARK LEHNER, ANCIENT EGYPT RESEARCH ASSOCIATES

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Scribe is published by the American Research Center in Egypt

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Jane B Zimmerman

Jane Zimmerman
Executive Director

Then & Now

70 Years of the American Research Center in Egypt

"When any new organization is founded, whether it is a new archaeological school or any other new organization, different people see in it different possibilities, and support may come to the new venture from a variety of sources and for a variety of reasons. If the reasons are real and the supporters numerous, and if they all unite, then success is likely and is deserved." **— STERLING DOW,** "The Founding of an American Research Center in Egypt," *Archaeology* magazine, Vol. 1, No. 3, September 1948

So begins the account of Sterling Dow, then-president of the Archaeological Institute of America, documenting the establishment of the American Research Center in Egypt. The full article (published on page 10) was uncovered by our Chicago Chapter President Dennis O'Connor in the ARCE archives. It is a short and delightful read that I hope you enjoy as we reflect on 70 years of ARCE history and look to ARCE's future.

ARCE has evolved appreciably in the last seven decades, and more is promised. Our 2017-20 strategic plan places greater emphasis on communication and sharing the story of ARCE, its members and supporters and their contributions to researching and preserving Egypt's extraordinary cultural heritage. The many updates to our membership magazine offer a foundational example. This first issue of *Scribe* debuts a new design and editorial voice to make the important work of ARCE and its partners accessible to a wider audience interested in Egypt's history and important places, while maintaining the scholarly rigor longtime ARCE supporters have grown to expect from our publications.

As we consider how ARCE can generate more awareness for its mission, I am energized by how science and technology are revolutionizing the humanities. ARCE's archives are being digitized with plans to make many projects, photos and reports available and engaging to the public. The sixth-century Red Monastery in Sohag – an ARCE research and conservation project for the last 15 years – has been preserved *in situ* and documented not only in print, but digitally through 3-D modeling and photography. And ARCE board member Dr. David A. Anderson is using 3-D scanning to create interactive, visually stunning models of tombs, temples and other sites in Egypt. (Read about Dave's recent work on three tombs in Luxor on page 6.) In another example of technological advances, the Sphinx Mapping Project led by Drs. Mark Lehner and James Allen nearly four decades ago, is finding a new worldwide audience (Cover feature, page 14).

These innovations are just some that ARCE has experienced since a group of 30 men gathered at the Club of Odd Volumes in Boston on May 14, 1948. Yet aspects of ARCE remain as permanent and timeless as Egypt itself. ARCE is first and foremost an American academic institution, committed to the highest standards of research and scholarship. Its academic members, affiliate institutions, facilities in Egypt and 13 chapters in the United States continue to educate and inspire experts and neophytes alike. At the heart of ARCE's mission and purpose, always, is partnership with Egypt. In fact, Abd Essalam M. Hussein, who represented the Service of Antiquities, was a key partner in establishing ARCE with Sterling Dow in that meeting on a cold and wet New England day 70 years ago.

We have much to celebrate this year and even more to anticipate and achieve for the years ahead. For my part, I am excited to welcome Dr. Louise Bertini as ARCE's new director for Egypt. She embodies ARCE's longstanding values of exceptional scholarship, leadership and partnership with Egypt. Learn more from Louise about our active excavation projects in Egypt on page 4.

I look forward to seeing many of you at ARCE's Annual Meeting in Tucson. We received more presentation submissions this year than for any meeting in recent memory, and the final schedule is a standout lineup of the latest findings in ancient Egypt, Nubia, conservation and more.

My deepest thanks to all of you – members, partners, supporters – who have given so much to serve ARCE and to ensure it will continue for another 70 years and beyond!

Updates on excavation, conservation and research projects developing across Egypt

Dr. Louise Bertini
Director for Egypt

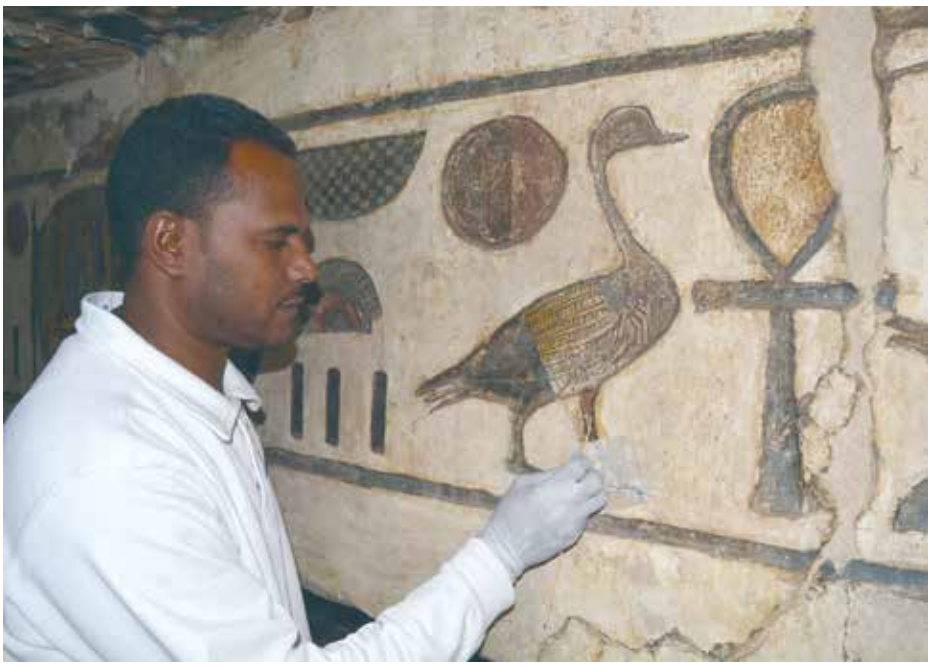
Greetings from the Director for Egypt

As a longtime member, (though not nearly as long as many of you), I am delighted to join ARCE as the new director for Egypt. This is a busy and exciting time for missions in the country. In just one example, previously undiscovered tombs may soon be revealed in Luxor's Valley of the Monkeys in a project launched by former Egyptian Minister of Antiquities Dr. Zahi Hawass.

I have worked in Egypt as an archaeologist and zooarchaeologist for nearly 15 years and participated in more than 20 archaeological missions at sites including Naukratis, Merimde Beni-Salame, Mendes, Giza, Amarna, Saïs, Saqqara, Abydos and Elephantine. I've also worked in Jordan since 2004 as the zooarchaeologist and field supervisor at Khirbat Iskander. Prior to joining ARCE, I taught Egyptology at the American University in Cairo for nearly 10 years. I studied at Binghamton University (SUNY) and continued with an M.A. from the University of Liverpool and Ph.D. from Durham University.

My personal research interest is in the ancient Egyptian paleo-economy, including the introduction of domestic animals and their role in state-society relations. Recent work has brought me to sites spanning the Neolithic period through the 12th century, which has led to a new interest in the role of animals in the changing economy over time, especially in the Ptolemaic and early Roman periods.

As I transition into this new role, I have the pleasure of visiting ARCE's conservation and excavation projects throughout the country, as well as those of our research supporting members – institutions that partner with ARCE to facilitate missions in Egypt. I'll share a brief walkabout of the latest project highlights here, many of which are made possible with funding from the United States Agency for International Development.



An ARCE conservation field school trainee works in Chapel 2 at Khonsu Temple in Luxor

GIZA

At the Giza pyramid complex, Dr. Mark Lehner and a team including field school trainees from the Egyptian Ministry of Antiquities resumed excavation at the village site of Heit el-Ghurab, where the workers who built the pyramids lived during construction.

SOHAG

Work at the sixth-century Red Monastery church – where ARCE has been involved with projects for nearly 15 years – continues in 2018 with a focus on conservation of the medieval wall paintings in the nave. The team will engage with tour guides and local community members to raise awareness and encourage visitation to the church.

LUXOR

At the Temple of Khonsu, conservation field school trainees under the ARCE directorship of John Shearman are cleaning the walls in several chapels and replacing old

Chicago House team members Saoud, Sayid, Mohamed, Jay Heidel and Hiroko Kariya prepare blocks for documentation at Luxor Temple

PHOTO: RAYMOND JOHNSON

cement with lime mortar on the temple walls to ensure stabilization. At the necropolis of Dra Abu el Naga, ARCE conservators, craftsmen and workers continue preparations to open the site to the public. The team is adding stairways and ramps to Theban Tombs 159 and 286 using only recycled scrap limestone as material. Signage and a shaded mastaba will soon be installed.

The TT110 Epigraphy, Drawing and Research Field School under the direction of Dr. JJ Shirley is back in Luxor for a third season with 10 Ministry of Antiquities officials from Upper Egypt. Trainees will learn documentation, archaeological illustration and epigraphic recording techniques. The students also attend a series of lectures on the history of epigraphy, the development of the Theban Necropolis during the New Kingdom and the archaeological and socio-cultural history of Theban Tomb 110. Its owner, Djehuty, was a nobleman who served as the royal cupbearer to both Queen Hatshepsut and King Thutmose III during their respective reigns.

At Malqata, the site of a palace complex built by Amenhotep III in the 18th dynasty, Drs. Diana Craig Patch, Janice Kamrin and Catherine Roehrig are leading an expedition sponsored by the Metropolitan Museum of Art. The team is focused on preservation of the bedroom and surrounding area of the king's palace.

Under the direction of Dr. Raymond Johnson, Chicago House – the Egypt headquarters for the Oriental Institute of the University of Chicago – is active at several sites in Luxor. At the Luxor Temple, a team is creating a database to document blocks and fragments in the blockyard from the time of Ptolemy I. And in a new program designed to provide a comprehensive digital record of all 50,000 inscribed blocks, fragments and architectural elements in the blockyard, photographers are recording entire rows of blocks dating to the reigns of Amenhotep III and Amenhotep IV.

Elsewhere in Luxor, Chicago House is cleaning the inscribed portico of the tomb of Nefersekheru, a steward to Amenhotep III at Malqata. And at the Medinet Habu site, documentation and cataloging is ongoing of the small Amun Temple of Hatshepsut and Thutmosis III, Coptic graffiti in the northern Ptolemaic annex and fragments of the destroyed western gate. Conservators, masons and trainees are outfitting Ramses III's mortuary temple at Medinet Habu with period-paved walkways to facilitate public access to the western precinct, the House of Butehamun and an open-air museum.

Work continues by Dr. Donald Ryan of Pacific Lutheran University in the Valley of the Kings, where his team is clearing, and excavating the 18th dynasty tomb KV49, with plans to document objects in several more tombs throughout the valley.

Several missions are ongoing at the temple of the goddess Mut. Under the direction of Richard Fazzini and Mary McKercher, the Brooklyn Museum's expedition conducted a study season to document and repair the site's Sekhmet statues. It also built retaining walls and stairways around the Thutmoside Gateway – one of the earliest standing structures in the temple – to make the area accessible to visitors for the first time. Dr. Betsy Bryan of Johns Hopkins University and Dr. Violaine Chauvet of the University of Liverpool continued excavation in the area behind the Sacred Lake of the Mut Temple complex. This season's work focused on excavation of New Kingdom houses and photography of temple architecture and stone blocks, as well as studies of pottery and animal remains.

HIERAKONPOLIS/EL-KAB

Dr. Renée Friedman of the University of Oxford has recently resumed work at Hierakonpolis – an important center of early political development in Upper Egypt – with excavations in Wadi Abu Suffian (at HK6 and HK11) and in Pan Grave Cemeteries (HK21A and HK47). Dr. Vivian Davies, also of the University of Oxford, is at the nearby site of El-Kab, where he is surveying and mapping, documenting tombs and assessing both tombs and temples.

I feel privileged to serve as the new director for Egypt and I look forward to engaging with all members – institutions and individuals alike – and continuing to share the critical work going on in Egypt!

Updates on excavation, conservation and research projects developing across Egypt

Capturing Ancient Egypt in Three Dimensions

BY DAVID A. ANDERSON
DEPARTMENT OF ARCHAEOLOGY AND ANTHROPOLOGY,
UNIVERSITY OF WISCONSIN – LA CROSSE
BOARD MEMBER, AMERICAN RESEARCH CENTER IN EGYPT

ABOVE: David Anderson demonstrates techniques in photogrammetry in a training with photographer Ayman Damarany, conservator Khadija Adam and Amin El Kahky, Mohamed Youssef and Alaa Thabet, trainees from the Egyptian Ministry of Antiquities

Not every scholar and enthusiast of Egyptian history and culture will get the chance to crouch through an ancient tomb or peer into hallowed temple halls. But new technology to photograph and digitally document these unique sites in three dimensions is giving people across the world a novel way to interact with Egyptian artifacts and monuments. The technique, known as 3-D photogrammetry, can transform a series of still photographs into an immersive experience for engaging with objects, rooms and other spaces. (See page 8.)

To demonstrate the features of three-dimensional scanning, and especially the potential to share ARCE projects on this new platform, I held a weeklong workshop in Luxor for several ARCE staff members and trainees from the Egyptian Ministry of Antiquities. The goal of this initial program was to walk the trainees through the steps of 3-D photogrammetric scanning:

photographing the object or structure, processing the images using specialized software to capture the three-dimensional structure, cleaning the scan and finally producing a 3-D model suitable for publication or use in further analysis.

The steps may sound challenging, but one of the most valuable benefits of 3-D photogrammetry is flexibility that doesn't sacrifice quality. On the first day of my trip, ARCE Associate Director for Luxor John Shearman and Khadiga Adam, a conservator, took me on a tour of much of ARCE's active work on the West Bank. While visiting the tomb of Raya and his wife Mutemwia at the necropolis of Dra Abu el Naga, I demonstrated 3-D photogrammetry by scanning two carved, seated statues with a DSLR camera. I completed the same steps on a painted decoration in the tomb using my smartphone. These examples show that, in low lighting with less than 20 minutes, existing tomb conditions can be cataloged, and it doesn't require an expensive camera to do it. Documentation processes can improve dramatically by learning to record with readily available photographic equipment and other accessible tools the trainees are likely to encounter when working on archaeological excavations, conservation and heritage preservation projects.

At another day of training, I met the ARCE Luxor Egyptian trainees in the blockyard adjacent to Khonsu Temple within the Karnak Temple complex. The students' first hands-on photogrammetry experience was literal: scanning a large hand from a colossal statue of Amenhotep III. Each trainee took a complete set of photos to produce an individual 3-D model using a variety of cameras. While the students worked on their own scans, I created a low-resolution model in the field to show the trainees the end product, as well as discuss any missing data for which additional photographs would be needed to complete the scan. A series of scales was placed around the hand before taking pictures in order to measure known distances and note any special binary markers at a set distance apart, which the photogrammetry software can recognize in the photos. During the data processing stage, these markers and known distances may be used to assign real world dimensions to the final model. This makes it possible to take measurements of the object from inside the digital model, produce

Students began their training at Khonsu Temple with a large hand from a colossal statue of Amenhotep III PHOTO: DAVID A. ANDERSON

Digital 3-D model of the tomb of Raya and his wife Mutemwia at the necropolis of Dra Abu el Naga PHOTO: DAVID A. ANDERSON

scaled drawings of the object or even create a scaled replica of the object using 3-D printing technology.

Photogrammetric scanning is similarly adept at recording changing conditions in larger spaces such as temple chapels. Conserved by ARCE in the last several years, Chapel 6 at Khonsu Temple is a sizable room covered with inscriptions and reliefs. With a scaled 3-D model of the temple chapel produced from 136 carefully selected photos, high-resolution orthorectified images of each wall could be used to document existing and changing conditions of the chapel over time. 3-D photogrammetry can help create detailed, accurate orthophotos in a fraction of the time needed using the traditional process.

Having mastered large-object scans, the trainees were ready to work on smaller objects. We built a makeshift field photography studio on the rooftop terrace of the ARCE Luxor building using a setup more familiar to archaeologists and conservators. With the green farm fields and palm trees in front of the Colossi of

David Anderson circles a statue of the head of Ramses II, camera raised to capture a series of photos that will become the foundation of a 3-D model
PHOTO: AYMAN DAMARANY

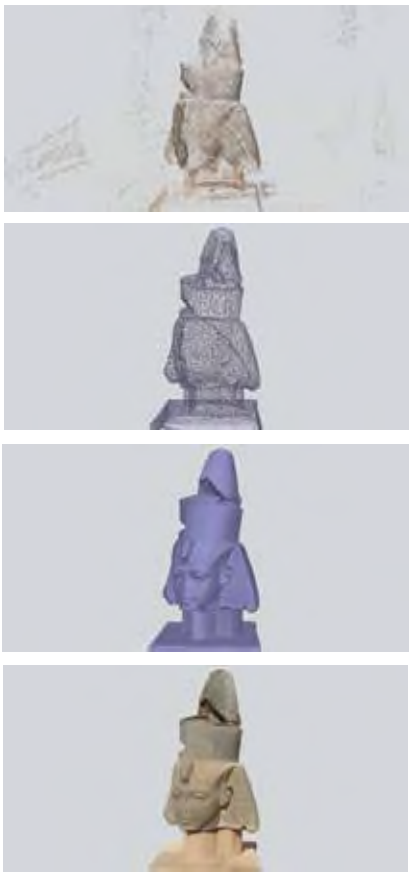
WHAT IS 3-D PHOTOGRAMMETRY?

Scanning the Head of Ancient Egypt's Greatest Builder, Ramses II

Three-dimensional photogrammetry is the process of capturing and reconstructing the three-dimensional structure or space of objects, rooms or locations using digital photographs and specialized software. Photos can be taken using high-end, high megapixel cameras or common cell phone cameras.

To reconstruct an object such as the head of Ramses II found at his mortuary temple in Luxor, documenters walk around the statue taking overlapping photos from various viewpoints and angles.

Software – Agisoft PhotoScan in this case – analyzes the photographs and looks for the same point on the statue in multiple pictures (for example, the right corner of the right eye). Once a feature is identified in different photos, the software looks to see how the location of the feature has changed from photograph to photograph.



With this data, the software can reconstruct where photographs are taken in three-dimensional space in relation to the statue, and align the photos both to each other and to the statue itself.

The aligned photos allow the software to reconstruct the locations of millions of individual points in three-dimensional space along the surface of the Ramesseum Head, from which it is possible to reconstruct the surface geometry of the object as a series of interconnected, adjacent triangular faces that represent the contours of the surface. These faces can be shaded to produce a smooth, three-dimensional appearance.

In the last step, the software selects the best portions of each individual photograph to generate a texture that is wrapped over the underlying geometry of the statue rendering to produce a final, lifelike model.

See the finished model of the head of Ramses II from the Ramesseum Temple Complex at arce.org/egypt-three-dimensions

"[The process] resulted in 100-200 photographs per object, **but the completed models were incredibly detailed, concise and dimensionally accurate."**

Memnon as a backdrop, the trainees used a turntable purchased at a kitchen supply shop, some black cloth and the sun to facilitate scanning. They practiced with tourist replicas purchased in the local suq to mimic real small finds from excavations they might be called upon to capture in three dimensions. The turntable was outfitted with a sheet printed with small targets, scales and colored patterns to assist the software in aligning the photographs taken of each object and scaling the resulting model to real world dimensions. Rather than walking around the object like we did with the colossal hand, the object was rotated on the turntable approximately 20 degrees for each picture. After taking photographs from one vertical position all the way around, the camera was raised to shoot a second and then third level series of photos. This resulted in 100-200 photographs per object, but the completed models were incredibly detailed, concise and dimensionally accurate. Following the same training methods, each trainee photographed a replica, processed the photographs and produced a final high-quality 3-D model suitable for publication.

At the end of the week, all the trainees had caught the 3-D bug and were scanning coffee mugs in the office. While 3-D photogrammetry is considered high-tech, students learned that the technology, procedure and equipment are scalable and can be implemented in a sustainable way. With a little more practice, the trainees will be able to teach a new group of colleagues this valuable technique for preserving our past into our future and create new opportunities to share Egypt's cultural heritage around the world.

AMONG AN IMPRESSIVE PANTHEON OF ARCE'S FOUNDERS AND EARLY INFLUENCERS, STERLING DOW IS DISTINCTIVE. Although Dow is primarily known in the academic world for his innovation in the field of Greek epigraphy, his varied endeavors intersected more broadly in the field of archaeology. Dow was a faculty member in the classics and history departments at Harvard University for more than three decades. During World War II, Dow traveled to Egypt as part of his military service on leave from his position at Harvard. His inspiration took root in the years after the war, generating several new projects and initiatives. Two of Dow's creations—the American Research Center in Egypt and *Archaeology* magazine –celebrate a 70th anniversary this year.

Sterling Dow presents compelling arguments for supporting ARCE then and now. His enthusiasm and energy are evident in the following account of the establishment of ARCE, published in the Autumn 1948 issue of *Archaeology* magazine. The legacy of Dow's influence remains as vital to ARCE's work today as it was in 1948.

The Founding of an American Research Center in Egypt

BY STERLING DOW, ARCHAEOLOGICAL INSTITUTE OF AMERICA

This piece originally appeared in the Autumn 1948 issue of Archaeology magazine during its first year of publication. This excerpt is published exactly as it appeared. To read the full article, visit arce.org/sterling-dow.

When any new organization is founded, whether it is a new archaeological school or any other new organization, different people see in it different possibilities, and support may come to the new venture from a variety of sources and for a variety of reasons. If the reasons are real and the supporters numerous, and if they all unite, then success is likely and is deserved.

Reasons

The reasons for founding an Egyptian School are various, and they are strong.

In the background there is one big general reason. It is that in times of great prosperity, organizations, like people, can often afford to act independently of each other. In times of stress, there is a tendency to pool resources and to act together. Something of this sort has happened in Egyptian Archaeology.

Before the war our country sent to Egypt archaeological expeditions which, taken together, were more elaborate in their equipment, more ambitious in their objectives, and more generously financed, than any archaeological expeditions sent by any country to any area. Now all the big expeditions have ended. This past year there has been no American excavation at all in Egypt; a few American Egyptologists visited the country for reconnaissance. In fact the only non-Egyptians excavating in Egypt were two Frenchmen. The two great American leaders, JAMES HENRY BREASTED and GEORGE ANDREW REISNER, died some years ago, and their influence in favor of sound methods, although it did not die with them, has not been renewed. No excavation and no institution exists in which young Americans can be trained in Egyptology.

For the sake of our standing in Egyptian archaeology, and for the future of the subject in America, and in Egypt, and elsewhere, all American Egyptologists have felt an impulse to act together.

Some sort of School in Egypt, like those which the Institute founded long since in Athens, Rome, Jerusalem, Baghdad, and Santa Fe, and like the American School of Prehistoric Research, would go far to do what the Metropolitan Museum, the

Oriental Institute, the Museum of Fine Arts, and other organizations, can no longer do separately. In fact America never did have a permanent American archaeological base in Cairo, although the French and British have such establishments and the Germans used to.

Egyptologists are not the only persons, however, who have felt that there was a need to be met. Another quite different aspect of Egyptian interests has also played a part in the numerous conferences which have been held in the American Embassy in Cairo, in the Visiting Committee here at Harvard, in the Executive Committee of the Institute, and on various occasions in other places. This aspect is the lack of Americans who have any real knowledge and understanding of Egypt and the Near East in general as they are today. Many Americans have come to realize that the vast Muslim world of 200,000,000 people is unknown in America to all but a few specialists. It took a global war to prove to us that good neighborliness is not an ideal limited to the area of the old Monroe Doctrine, and also to prove that good intentions alone do not by themselves create good neighborliness. There must be a national effort toward sympathetic understanding, which means not merely book-knowledge, but actual experience under favorable conditions. Arm-chair neighbors, like arm-chair generals, are not effective.

Arabic, particularly the classical Arabic of the Koran, is not an easy language for most Americans. Classical Arabic is not easy, in fact, for many modern Arabs, who laughingly say that the angels in their heaven speak classical Arabic—adding that only an angel could do it. Be this as it may, classical and/or modern Arabic are taught (or until recently were taught) in less than a half-dozen universities. One, Princeton, is attempting an "area program."

Accordingly many Americans who had been in the Near East and knew our shortcomings felt an impulse to establish a disinterested, non-governmental institution where Americans could learn the language, customs, and culture of our Arab neighbors at first hand. That understanding would include something of the whole Muslim past, and above all would be concerned with the living Muslim present.

Between the Arab period in the Near East and the more remote culture of ancient Egypt, other famous periods intervened: the Hellenistic Greek and Roman eras, and the Byzantine-Coptic. These periods have been much studied in the last half century, but they need more study, and interest is active in them today. Non-specialists, and perhaps even some classical teachers, may be surprised to learn that no part of the whole Greco-Roman world is known to us in such detail as Egypt from ca. 300 B.C. to ca. 300 A.D. A center in Cairo could assist vitally in the study of the thousand years between the Greek and Arab conquests.

Bernard V. Bothmer, a founding member of ARCE, catalogs late period block statues in the collections of the Egyptian Museum, Cairo

It might be urged, and I think with some justice, that all the reasons thus far given apply more to persons who are in some sense specialists than they do to the average American "in the street." Has a Near Eastern Center any meaning for people who do not study hieroglyphs, temples, or Arabic?

Obviously this is part of a much larger question, the question namely to what extent these great cultures, centered wholly or partly in Egypt, ought to enter into

American education. That is a good question to ask, but it is too large to be answered here. Of all the values involved, one may be selected for mention. It is the one which JOSEPH LINDON SMITH, by his life work, and EDWARD WALDO FORBES, in all our discussions, have kept constantly before us. In fact, if it had not been for Mr. FORBES and his interest in this one central value, the new Center might never have been founded.

Both integral to the early days of ARCE, Corinna Smith and her husband, artist Joseph Lindon Smith, devoted a lifetime to Egypt and its cultural heritage

The art of ancient Egypt is one of the great arts of the world. Americans came to know it superficially in the 1920's, when the discovery of the tomb of King Tut—in many ways the most sensational archaeological discovery ever made—occasioned a furore for Egyptian motifs, though not much real understanding of Egyptian art. Now, thanks to a more widespread appreciation of Archaic Greek sculpture, which derived in part from Egyptian, and due in part to the presence of many classical archaeologists in Egypt during the war, Egyptian art is beginning to be looked at, understood, and admired as a supreme achievement. Its riches can be fully appreciated, perhaps, only in Cairo, at Sakkarah, at Luxor, and at other Egyptian sites; but America is fortunate in having several grand collections and many lesser ones. It is notable that next fall two American universities will add Egyptian art to their curricula, one of them in conjunction with a newly-founded Egyptian Department.

Part of the goodness of all art and of all scholarship is that they belong in some sense not to one country or to a few countries but to mankind. From the beginning of the discussions, and without a dissenting voice ever being raised, there has been agreement that any new American school in Egypt should open its doors at all times to qualified students of every country—above all to Egyptians. The support and the administration must be mainly American. The benefits are to be available to all who show the ability and the desire to learn and to understand and to appreciate. Egypt is the land of the most venerable civilization of earth, out-dating China, far out-dating anything comparable to America, older than any civilization anywhere except perhaps in Mesopotamia, which may be as old but cannot be much older. In Egypt America would long since have had a permanent cultural center but for the very size and independence of American expeditions.

The First Meeting

On May 14, 1948, a group of thirty persons assembled to discuss the founding of an Egyptian school. The meeting was held at the Club of Odd Volumes in Boston, after a luncheon at which the hosts were Mr. EDWARD W. FORBES, Mr. FREDERICK FOSTER, Mr. EDWARD J. HOLMES, Mr. CARL T. KELLER, and the Archaeological Institute. Mr. JOSEPH LINDON SMITH, not yet returned from Egypt, was associated with them as an honorary host. Mr. FORBES presided over the meeting. Mr. CHARLES R. D. MILLER, Secretary of the Mediaeval Academy, and Secretary of the American Council of Learned Societies' Secretaries, served as Secretary; his notes form the basis for the present account. A list which includes the names of those who attended is given at the end of the present account.

In his opening remarks as Chairman, Mr. FORBES outlined briefly the efforts made during the past two years to provide a future for the study of the great art and venerable civilization of Egypt. Although, he said, these efforts have met with some success locally in America, there is need for continuing work in Egypt itself, now largely suspended; not necessarily a need for costly expeditions, but for first-hand study of what has been found, and for the training of young scholars of every nationality.

Mr. FORBES then asked Mr. DOW to continue with the business of the meeting, which consisted first of discussion of the project as a whole, second of the constitution, and third of the election of officers.

"Any new American school in Egypt should open its doors at all times **to qualified students of every country—above all to Egyptians."**

The first speaker to be introduced was a guest of honor at the luncheon, Mr. ABD ESSALAM M. HUSSEIN, architect at Sakkara and himself a distinguished archaeologist and excavator, sent to represent the Egyptian Embassy in Washington. Mr. ABD ESSALAM spoke of his first meeting and subsequent association with JOSEPH LINDON SMITH, of the situation in Egypt today, and of the welcome opportunities for American cooperation with Egyptians in Egyptian archaeology.

Our national needs in the Near East, and the place of cultural relations in promoting friendliness between countries, were stressed by the Honorable WILLIAM PHILLIPS, the former Ambassador. Mr. PHILLIPS said that he considered an undertaking such as the proposed school to be of particular importance and worthiness.

Mr. MORTIMER GRAVES of the American Council of Learned Societies next presented several specific aspects of the project, calling attention to the need for a wide range of Near Eastern Studies, both ancient and modern. He expressed a hope that the new Center might not become a "Little America" isolated in the midst of "foreigners," but rather a focus of real friendships and of understanding. Mr. GRAVES also drew upon his first-hand knowledge of the Fulbright Act and its proposed administration to give an encouraging view of the opportunities for the support of individual scholars under the auspices of the proposed Center.

A motion was then made by Mr. C. BRADFORD WELLES of Yale University, seconded by Mr. CARL T. KELLER of the Harvard Visiting Committee, and unanimously VOTED, "that the meeting proceed to the foundation of a Center of Near Eastern studies."

New Light ON AN Old Archive

THE LONG-HIDDEN ARCE SPHINX MAPPING PROJECT IS UNVEILED

COMPILED AND EDITED BY DAVID EVERETT

FROM REPORTS BY MEGAN LALLIER FLOWERS, ERIC KANSA, MARK LEHNER AND REBEKAH MIRACLE

PHOTOS: MARK LEHNER, ANCIENT EGYPT RESEARCH ASSOCIATES

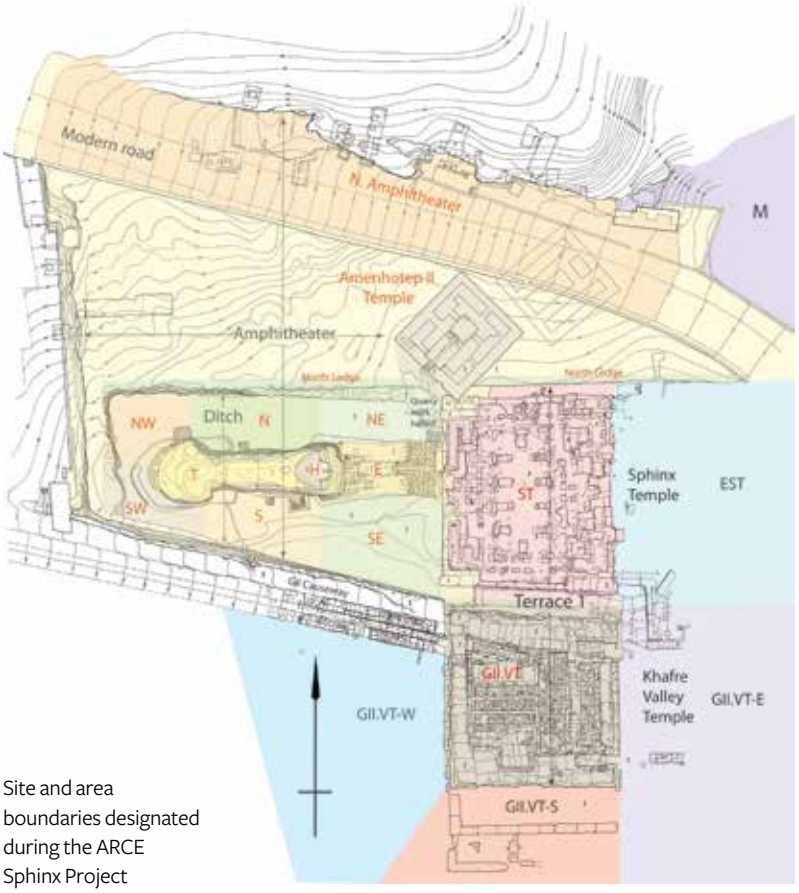
Ulrich Kapp surveys the Sphinx from the top of the right forepaw, September 1979

ON THE GIZA PLATEAU–

IF MARK LEHNER NEEDED CONVINCING that Egyptology could be dangerous, perhaps the realization arrived after he again scaled a rickety ladder, tiptoed along the ledge not even a foot wide, and, pencil in mouth, hands full of surveying tools, looked straight down from the side of the most famous statue on Earth. There, three stories below, on the best days, he would spot his trusted assistant, pacing and praying that Lehner would not fall.

Maybe Lehner was braver then, so many years ago. He certainly was smart enough to comprehend that history was being unlocked by those precarious ladder climbs, by the stone-clinging dance along that narrow ledge. He and his team were mapping this iconic statue in a way never done before or since.

Today, nearly four decades later, you might not begrudge Lehner time to think back to that perilous path, to those exciting years he devoted to circling, climbing and sizing up Horemakhet, The Guardian, The Terrifying One, Father of Dread. Because today is when all of those toils, to take the measure of The Great Sphinx of Giza, are being unveiled to the world. Finally, once and for all.



Site and area boundaries designated during the ARCE Sphinx Project

On January, 15 2018, an expanding digital version of the 1979-83 ARCE Sphinx Project was released, sharing for the first time the intricate maps, rough notes, precise measures and resulting revelations from Lehner and the rest of the ARCE team. The online release came 35 years after the end of the ARCE project and 4,500 years or so since the Great Sphinx was carved from the same bedrock used for the Giza pyramids.

The goal of the mapping was to understand the origin of the Sphinx from careful, recorded observations of its structure and geology. The idea was to read history from the condition of the man-lion's core and its earliest masonry skins, from a 1:50 scale survey of this stratified narrative, and even from tool marks and mortar. If Lehner could learn what held the statue together and how it had been maintained over millennia, maybe we might understand more about how it was built, and by whom.

The 1979-83 project succeeded in hoped-for revelation and unexpected inspiration. The team certainly measured and recorded every historic layer and wrinkle of the icon. By mapping two nearby temples, the ARCE team exposed how builders likely made the Sphinx and the temples from a massive, quarry-construction landscape project. Yet Lehner and the 70 workers and experts he helped lead also would lay the groundwork for other repairs of the always deteriorating monument. And while Lehner would not know it at that moment, his work of so many years ago now offers a snapshot of archaeological and surveying methods of the time, when the meticulous synergy of human hands on ancient stone spawned their own unique emotions and mysteries.

But few learned of these accomplishments, then or later. For more than 35 years, the wonders and wondering of the work by Lehner and others have remained largely inaccessible to the public. For various reasons, Lehner's 1991 Ph.D. dissertation at Yale – the documentary interpretation of what was found in 1979-83 – lay unpublished and available only in a substandard paper copy. And the maps, drawings, photos, notes and records behind that dissertation went the way of much of any history – into storage. In fact, the restorations and preservation of the Sphinx itself since Lehner's journey up that ladder have now hidden much of what the ARCE Sphinx Project disclosed.

But no longer. A brand new American Research Center in Egypt Sphinx Project 1979-83 Archive, in searchable form, is now available. It is the world's only online dataset to document the history of masonry work on the Sphinx prior to the contemporary efforts to save it for generations to come. The archive also offers yet another chapter in the storied narrative of a

monumental lion with a human head, once buried, now unhidden and facing proudly east toward the eternal waters of the Nile.

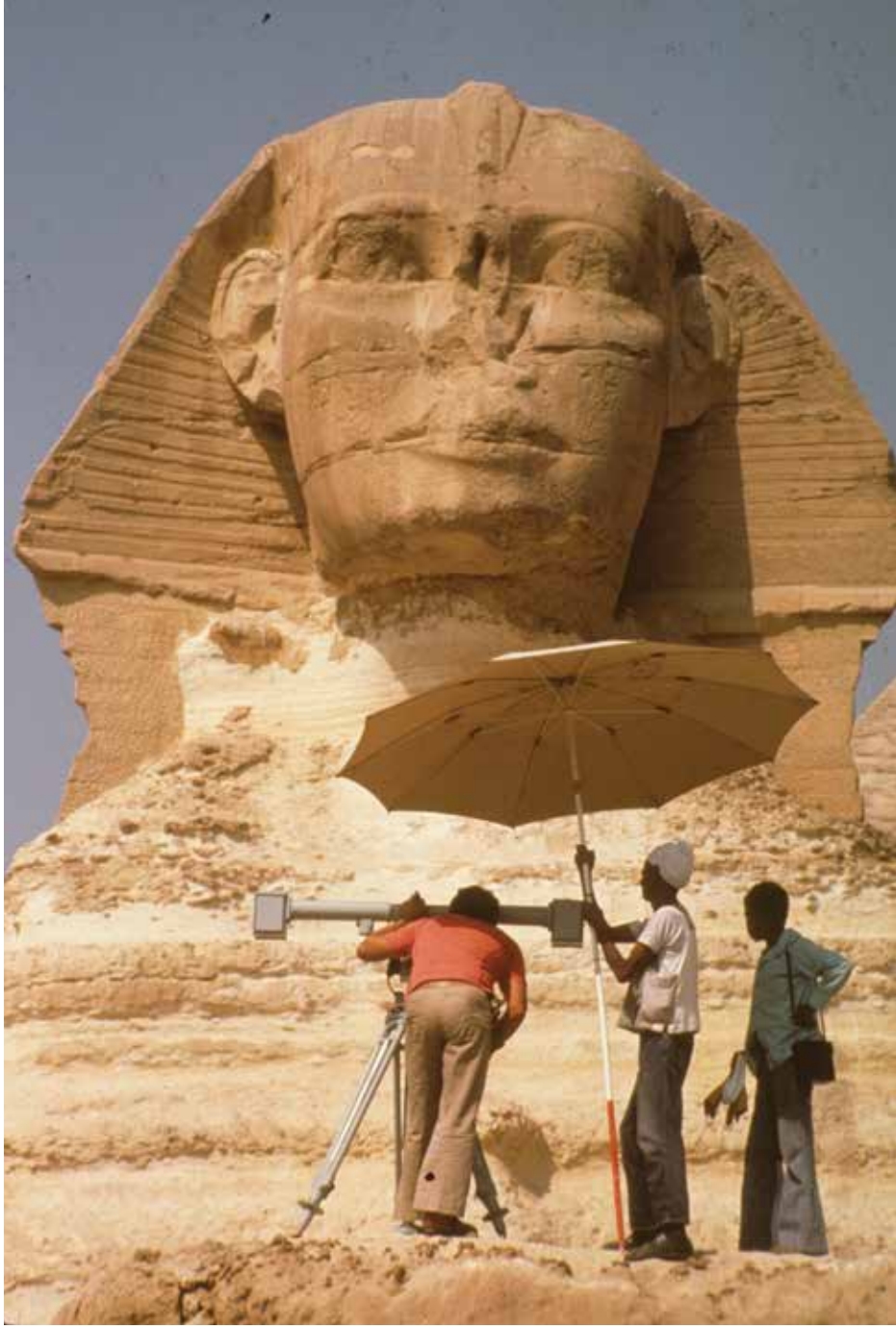
The Layers of Egyptology

The story of the mapping of the Sphinx and the release of those records after so many years is interlocked with the stratigraphy of Egyptology itself. Layers of exploration evolve over scores of generations, from pharaohs and peasants to professors and students, from restorers and measurers to photographers and digitizers. For this chapter, the layer belongs largely to Mark Lehner, the ledge crawler with the pencil in his mouth. Lehner is now the energetic, well-known president of the Ancient Egypt Research Associates (AERA), a multidisciplinary organization that focuses on the Giza plateau.

In 1978, before he became one of the world's most recognizable Egyptologists, Lehner had just helped excavate the northeastern corner of the Sphinx sanctuary under the direction of Zahi Hawass, then chief inspector of the Giza Pyramids. Hawass and Lehner uncovered trenches in a mound of ancient deposits that explorer Selim Hassan had left when he excavated in 1937 and discovered a mudbrick temple of the 18th-dynasty King Amenhotep II on the ledge above the Sphinx floor. The deposits connected this New Kingdom temple, the northwest corner of the Old Kingdom Sphinx Temple and a small limestone stairway of the Roman period.

The lowest layers of the mound contained Sphinx builders' pottery, flints and even faience beads, embedded in the debris of construction. Hawass and Lehner also found sockets cut into the bedrock floor to anchor thick wooden beams the size of railroad ties. These levers slid under multi-ton core blocks to maneuver them to the Sphinx Temple wall. As the two explorers cleaned the Sphinx floor with scrub brushes, they also discovered smaller round holes in the bedrock, many still filled with ancient deposits. And those holes were not just in the northeast corner, but here and there, and maybe everywhere, around the Sphinx.

The holes begat questions: Do they form patterns that would belie their purpose, such as supports for scaffolding so sculptors could shape the colossus? What would a map of them show? Indeed, Lehner knew the Sphinx itself had never been properly mapped the way archaeologists would today for any ancient feature. And wouldn't a proper map of the shape, condition and stratigraphy of masonry skins added over millennia to the lion body tell as many stories as any papyrus text?



Ulrich Kapp and assistants M. Abd el-Gadar and Salah Nasar take stereo pair photographs of the Sphinx front with the photogrammetric camera

By 1979, Lehner had approached Paul Walker and James Allen, then the two leaders of ARCE, about his ideas. Together, they conceived the Sphinx Project. The goals: to produce the first-ever scale plans and elevations of the Sphinx itself and to map the greater Sphinx site, including three nearby temples and the larger quarry forming the greater Sphinx "amphitheater."

With funding from The Edgar Cayce Foundation and with Allen (now the Wilbour Professor of Egyptology at Brown University) as principal investigator, the Egyptian government gave its permission. Lehner became field director, with he and Allen enlisting surveyors, archaeologists, geologists and other Egyptologists, not to mention staff, workers and others. Between 1979 and 1983,

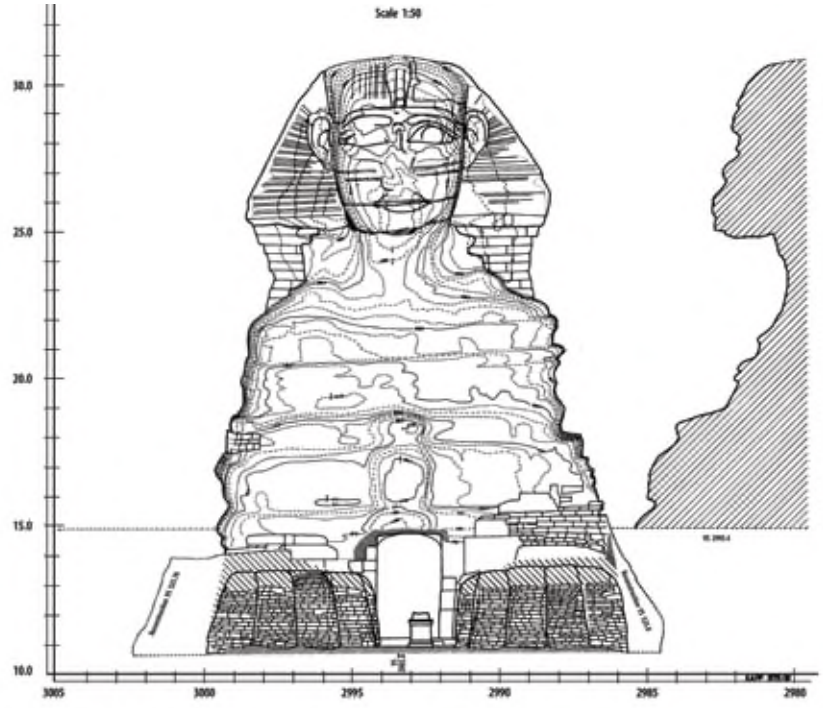
December 24, 1925, Excavation of the Sphinx under the direction of Emile Baraize, captured in one of 226 photographs in the Archive Lacau at the Centre Wladimir Golenischeff, École Practique des Hautes Études

the team included: Ulrich Kapp, a photogrammetric surveyor from the German Archaeological Institute in Cairo; Egyptologist Christiane Zivie-Coche, then director of the Centre Wladimir Golenischeff, École Pratique des Hautes Études; surveyor Attila Vas; surveyor Susan Allen (now with the Museum of Fine Arts, Boston), archaeologist Peter Lacovara (then Museum of Fine Arts, Boston, now The Ancient Egyptian Heritage and Archaeology Fund); archaeologist and surveyor Cynthia Schartzer; geologist K. Lal Gauri of the University of Louisville and geologist Thomas Aigner, University of Tübingen.

But first, more layers: The École Pratique des Hautes Études in Paris furnished the ARCE project with field notes, plans and 226 photographs compiled by Pierre Lacau from the excavations of the Sphinx directed by Emile Baraize between 1925 and 1936. When those historic documents were received in 1980, Lehner wrote: "The information they preserve will, we hope, make it possible for us eventually to produce, in effect, the archaeological report of the 1925-36 clearance fifty years after the fact." (This is not to mention that many of the same Lacau and Baraize photos and records would join the online ARCE Sphinx Project Archive nearly 90 years "after the fact.")

Like a Lilliputian on Gulliver: From Paw to Bull's Eye

If you were to map an icon, where else would you begin than 3.64 meters (11.9 feet) in front of the right front toe of the right paw? That's where Lehner and Matthew McCauley (now AERA board member) decided to anchor the grid for the ARCE Sphinx Project. Using an old transit with a built-in surveyor's compass and brass Vernier scale, they oriented the grid to magnetic north on February 20, 1978. After selecting a cement marker 210 meters (689 feet) to the east of the Sphinx as an arbitrary datum for elevations, they transferred this vertical control to grid points marked in the floor around the Sphinx.



Front elevation of the Sphinx, plotted with photogrammetry by Ulrich Kapp

The team then used these coordinate values and elevations in all the ARCE Sphinx Project records. After Lehner and surveyor Ulrich Kapp checked the grid with several theodolites (surveying instruments), the mapping could officially commence.

First, Kapp used a barbell-shaped, dual Jena-Optic stereo-metric camera to take photographs in stereo pairs. The camera was aimed toward carefully placed targets on the Sphinx – paper bull's eyes stuck to the chest and sides or metered ranging rods set along the lion's back. Toiling later in the basement of the German Institute in Cairo, Kapp was able to create front, north and south elevations of the Sphinx. They show the contours of the exposed parent-rock of the statue, plus the stonework attached to the core. At 1:50 scale, Kapp also produced master profiles through the statue every 5 meters (16.5 feet).

Lehner turned his attention to the corner where the mudbrick Amenhotep II Temple overlaps the Sphinx Temple – where he and Hawass had excavated the trenches and wondered about the holes that contained undisturbed ancient fill left behind from previous excavations. Lehner quartered the fill of each hole and excavated opposite quarters. These miniature excavations yielded artifacts such as flint flakes, chunks of chert and one quartzite hammer stone with copper flecks where a worker must have used it to strike a copper chisel. In one case the sherds joined to produce the wall of a vessel with a diameter and profile that matched that of the hole. The hole seems to have served as a socket for a crude red ware jar, which was later sheared off at the rim of the hole.

To complement Kapp's photogrammetric elevations, the next job was the actual 1:50 master plan of the whole Sphinx. Without the benefit of today's technologies and drones, Kapp could not get his large camera above the Sphinx for aerial views. So, Lehner and his team prepared for the arduous task of recording, in scale, the details of a statue three quarters of a football field long and more than 20 meters (66 feet) tall – a monument that had undergone a complex history of masonry additions.

The technique to be used was offset planning, also known as baseline offset survey, a common technique for scale line drawings of ancient surfaces. The process starts when an archaeologist stretches a metric measuring tape between two fixed points. With a drawing board in one hand and a folding rule or tape in another, the surveyor bends to grab an "offset" measurement from the stretched line to any point on a feature, say, the corner of a stone. In effect, mapping (or "planning," as archaeologists say) by offset is taking the coordinate of any point, so the offset must be close to perpendicular and the measurement must be level. If the tape measure is stretched on the ground, at the same level as the features being mapped, archaeologists can take the offset directly. If the feature to be mapped lies in a lower plane, they must use a plumb bob and hold its point steady with a string. They then mark the point, to scale, on a drawing. To map complex, detailed surfaces, especially irregular surfaces – such as an ancient stone statue comprised of irregular pieces of various sizes – an archaeologist might take hundreds or thousands of measurements. With two people, one can measure while the other holds the plumb bob, or one can measure and the other marks the points. Instead, as Lehner remembers, most offset mapping of the Sphinx was solitary.

The work was a combination of exciting revelation and mundane drudgery. Lehner located the end points of his datum lines by triangulation from the grid points on the Sphinx floor. He sighted each point through a telescope on a theodolite and

"Experienced offset mappers develop a rhythm, **throwing their handheld tape or folding rule like fly-casting a fishing line."**

Mark Lehner and M. Abd el-Gadar do baseline offset mapping on the southern wall of the Sphinx Temple in 1981

recorded the angle measurement from a grid line chosen as "zero." (Later in the project, when team members obtained an electronic distance measurer they could locate points with one angle and a distance measurement.) The next step came when Lehner took a large sheet of clear mylar and used a protractor to draw the angles to each planning point from three or more grid points. The intersection of the angle lines located the planning point on the drawing, at 1:50. To match Kapp's contouring of the bedrock core body in the front and side elevations of the Sphinx, Lehner produced a separate map of the contours on top of the back using a surveyor's level.

Experienced offset mappers develop a rhythm, throwing their handheld tape or folding rule like fly-casting a fishing line, directly to a point at a good 90 degrees (best not more than a meter or two) from the datum tape. In this way, in a white hat to shade the Giza sun, Lehner and his team mapped, stone by stone, the broadest and near-level surfaces of the Sphinx: the top of the outstretched, masonry-covered forepaws and the top of the Sphinx's back.

Lehner remembers the tedious process as meditative, involving both sides of the brain. The left brain's realm of logic and language held the coordinate values – say 2.62 meters (8.6 feet) along the datum tape, .87 meters (2.85 feet) out on the offset. Meanwhile, the right brain's realm of imagery held a feature's shape – perhaps a trapezoidal stone. Left brain releases the coordinate values as they are marked on the scale drawing; right brain releases the image as the mapper connects the dots in the drawing, the outline of the trapezoidal stone complete.

Today, it's all electronic and digital. Theodolites have electronic distance measurers, and surfaces can be scanned by laser. Photogrammetry has evolved into digital video or photographs, without the tedious task of hand-mapping by offset. These contemporary technologies are wondrous for urgency and efficiency. To Lehner, they also might represent how an archaeologist

sacrifices an aesthetic rapport with data born from constant interaction between mind and hand, mortar and rock, sun and history.

Mapping on the Edge

When Emile Baraize excavated the Sphinx between 1925 and 1936, he found masonry skins of three ancient periods adhering to the bedrock lion. Baraize then added his own repair and masonry veneer, with more patchwork added in following years. Forty-three years later, Lehner started his mapping by identifying the ancient veneers as Phase I: New Kingdom, Phase II: likely Saite, Phase III: Greco-Roman. He also found that masonry covered the bedrock Sphinx "core body" to a little more than half the height on the south and about a third the height on the north. The entire bedrock front was exposed.

For Lehner, the masonry skins formed a convenient ledge of varying widths around the Sphinx core body. He and other team members could get close to the bedrock surface on the Sphinx's northern flank by climbing onto the ledge from one of four mysterious boxes attached to the Sphinx. On the north flank, the casing stepped up and around the curve of the north haunch. From there, the skins angled down to a broader ledge at the lion's rump and then up again around the southern rear haunch. Along the southern flank, the ledge was much higher than on the north and it thinned to 30 centimeters (11.8 inches) or less. There, three stories up, mapping still needed to be done.

Imagine the steps: To get up there, you set the rickety, old ladder upon the southern masonry box. Clambering up with your gear and perhaps your fear, you carefully navigate the narrow ledge, drawing board in one hand, hand-tape or folding rule in the other, the mechanical pencil (with a .3 mm lead for finest detail, of course) protruding from your mouth. In installments, you cast your rod along the ledge, regardless of its narrowing width. More often than not, you bend to take the offset measurement with a plumb bob, which meant leaning the drawing board against the body of the Sphinx. And if you were Lehner and you were up there on that ledge, you most definitely could peer down to assistant Abd el-Gadar, nervously striding back and forth, praying.

After this challenging process, Lehner and team moved to the rest of the giant beast. Peter Lacovara mapped the wider and lower masonry ledge along the north flank. Cynthia Schartzer mapped the base outline of the statue. For the head, Lehner triangulated 63 points on the face and headdress from grid points on the floor. He wanted to know every contour, every blemish, every mark of time and history. The resulting plot was checked against "cuts" through the head and face from Kapp's contoured photogrammetric elevations. Lehner used a similar procedure to plot over-hanging bedrock ledges down the sides of the Sphinx body.

The Stratigraphy of a Statue

Lehner distinguished the three ancient phases of the Sphinx veneers by the sizes of the slabs, mortar and tool marks. In some places he could separate the phases by patchwork, like a stonework quilt. In other places the layers overlapped. He could especially study this overlap along the masonry ledge where the "skin" had fallen away, leaving a cross-section through the history of Sphinx repair. To some extent, the monument's deterioration became an opportunity to expose secrets buried by time. This was never as clear as in October 1981, when a patch of veneer from Phase III and the 1926 repairs collapsed from the north hind paw and spawned a six-year effort at repair and restoration. Lehner was able to map and photograph the exposed insides of the lion during those repairs. Later, after a chunk of Sphinx shoulder fell in February 1988, a new series of repairs was performed that were guided, in part, by the ARCE mapping.

Lehner was thus able to draw a series of detailed profiles and elevations at scale 1:20 to show that the bedrock core of the Sphinx had severely and differentially eroded. He found deep recesses along softer bedrock layers and rounded protrusions along the harder layers. Importantly, he determined that this deterioration seemed to have occurred before restorers added the most ancient and most extensive casing on the Sphinx with the largest stones, which Lehner designated Phase I. Lehner's drawings capture places where boulder-sized chunks of the Sphinx were about to separate along thin, natural fissures before the Phase I casing fixed them in place.

Evidence suggests that Phase II, of smaller slabs that overlap and patch Phase I, may date to the 26th dynasty, and that Phase III, of smaller slabs nearly the size of bricks, is probably of the Roman period. Even then, a mere thousand or more years ago, this

"Crews of young men who moved these mighty stones **did not have much chance of mixing them up from quarry to temple wall."**

iconic statue still was of value and mystery to both royals and rabble. And worth saving.

But when was the Great Sphinx first rescued – when was Phase I? To help answer that question, Lehner focused on the masonry in what remained of a small chapel royal tucked between the forepaws. He knew this precious spot contained a time marker unlike any of the rest of the statue: The 3.5-meter (11.48 feet) tall, red granite "Dream Stela" of Thutmose IV has been precisely dated to Year One, Month Three of Inundation, Day Nineteen of his reign in the New Kingdom, 18th dynasty (1401 BCE).

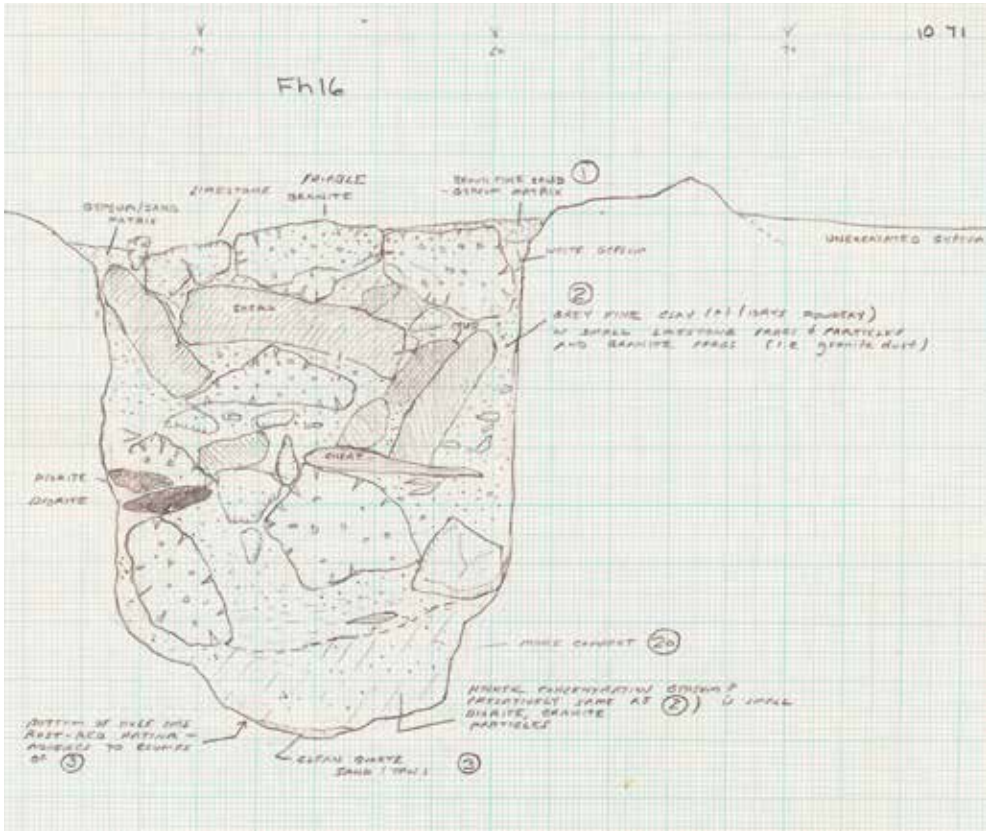
With this knowledge, Lehner gave each structural element in the chapel a feature number and drew profiles to capture the structural relations between major parts. In one of many revelations from the ARCE project, he then proposed that workers for Thutmose IV must have dragged one of the granite lintels from Khafre's nearby pyramid temple down to the Sphinx, set it up in the chapel and inscribed a royal narrative. The slab's backside still shows the pivot sockets of a wooden door. From these clues and the stratified masonry, Lehner concluded that after workers delivered the Sphinx from the sand, birthing it (probably for the first time) as the god of an active cult under the name, Horemakhet ("Horus in the Horizon"), they erected Thutmose IV's stela and added the chapel. Lehner even found material remains of the 18th dynasty chapel builders when he excavated blue pigment and pottery. The supposition was that this treasured debris included remnants of paint pots, quartzite tools and granite chips from etching the Thutmose IV stela with hieroglyphic text. That text is the story of how the Sphinx appeared as sun god to Prince Thutmose in a dream, asked for help and in effect ordained him as king.

But possible answers only lead to more questions. To what extent did the fourth-dynasty Egyptians complete the original sculpture in the natural limestone bedrock? Certainly, they of the fourth dynasty left the Sphinx Temple and the cutting of the Sphinx ditch incomplete. Indeed, Lehner and others cite available evidence to suggest the "ignition switch" for the Sphinx and its temple was never fully engaged in the Old Kingdom. Instead, the Sphinx itself was only "turned on" as a royal cult theme park more than a millennium later, during the New Kingdom, 18th dynasty.

Big Temples, Giant Blocks, Huge Maps

After he finished mapping the Sphinx at 1:50, Lehner went stone by stone to map at 1:100 the Sphinx Temple, directly in front of the lion's outstretched paws, and the adjacent Khafre Valley Temple. Old Kingdom builders formed the walls of both temples on Terrace I, 2.5 meters (8.2 feet) lower than the floor around the Sphinx (Terrace II). The walls had been laid out with gigantic blocks of limestone, weighing up to 100 tons and quarried nearby. They were called "core blocks" because they formed the massive cores of the temple walls. Builders had intended to encase the walls in red granite, though they finished only the interior of the Sphinx Temple.

Amid these blocks, Lehner worked with geologists K. Lal Gauri and Thomas Aigner to identify the geological strata comprising the Sphinx. In the Sphinx Temple, they found that the geological layers often run continuously from one giant core block to another, just as the layers must have run in the bedrock. The conclusion: Crews of young men who moved these mighty stones did not have much chance of mixing them up from quarry to temple wall. Perhaps this meant the Sphinx and its temple had been part of the same

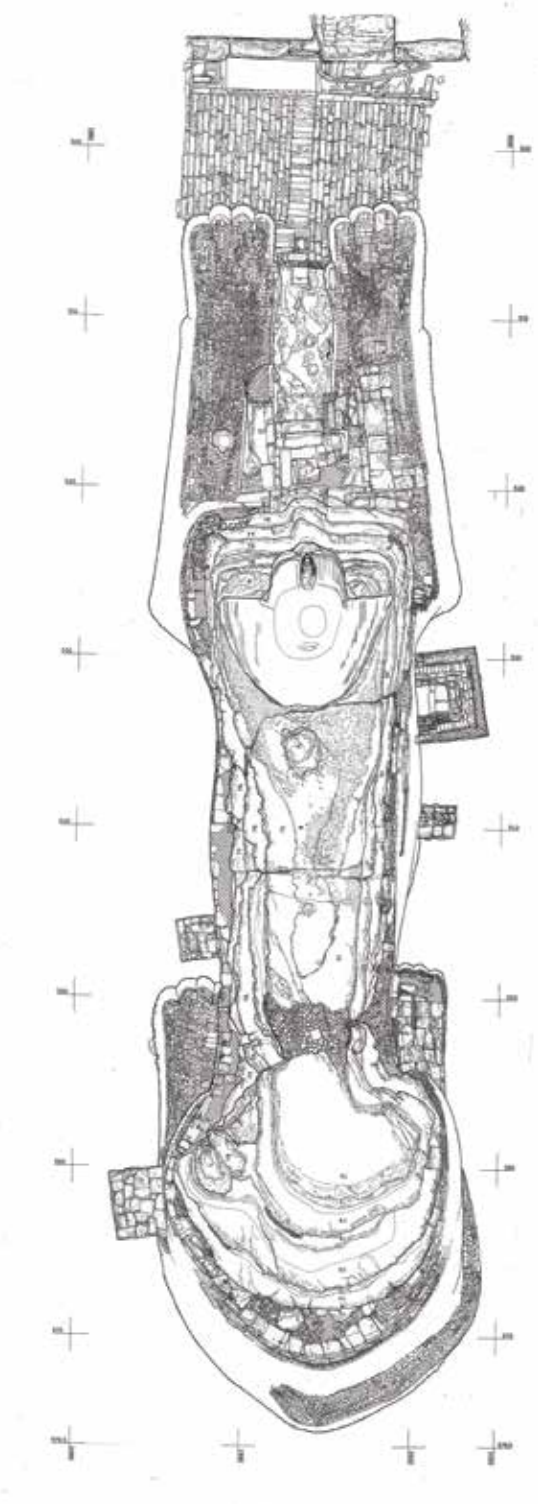


Stratigraphic section of the ancient fill in hole Fh16

quarry-construction sequence. To test this hypothesis, Aigner and Lehner logged each bedrock layer in the Sphinx core body and quarry. Aigner recorded the lithic qualities and fossil content and assigned each a number. He did the same for each block in the Sphinx Temple, and Lehner gave each block a number and assigned each to one of seven types, A through G, based on the quality of the stone and the kinds of embedded fossils.

The core block study prompted Lehner to re-map the temples in detail. He color coded the core blocks of the Sphinx Temple and Khafre Valley Temple and the bedrock strata of the Sphinx to identify the source layers for the building blocks. This remapping showed where the quarrymen were working at a given stage of building the temples. Together, the geology and temple mapping ultimately revealed a picture of how builders and quarrymen made the Sphinx and the two temples as part of a massive quarry-construction landscape project.

As if to match the colossal scale of the Sphinx itself, Lehner's mapping was grand, too: Even at 1:100, half the scale of the master drawing of the Sphinx statue, the combined map of the Sphinx (front), Sphinx Temple, Khafre Valley Temple, plus a schematic plan of the Amenhotep II Temple, measures 1.23 by 1.83 meters (4 by 6 feet). These maps and plans added impressively to Lehner's dissertation and to the many documents, notes, measurements and photos that supported it. With 67 plates, most of them Archive Lacau photographs, Lehner reconstructed in his Chapter 2 the massive, multi-year excavations through deposits and structures laid down around the Sphinx over three thousand years – making it a virtual archaeological tell. With 91 plates, Chapter 5 describes the bedrock statue, augmented in Chapter 6, with 40 plates, by a description of the masonry veneer. No wonder this massive document, with its trove of accompanying maps, plans and photos, would be hidden. Where could it all fit?



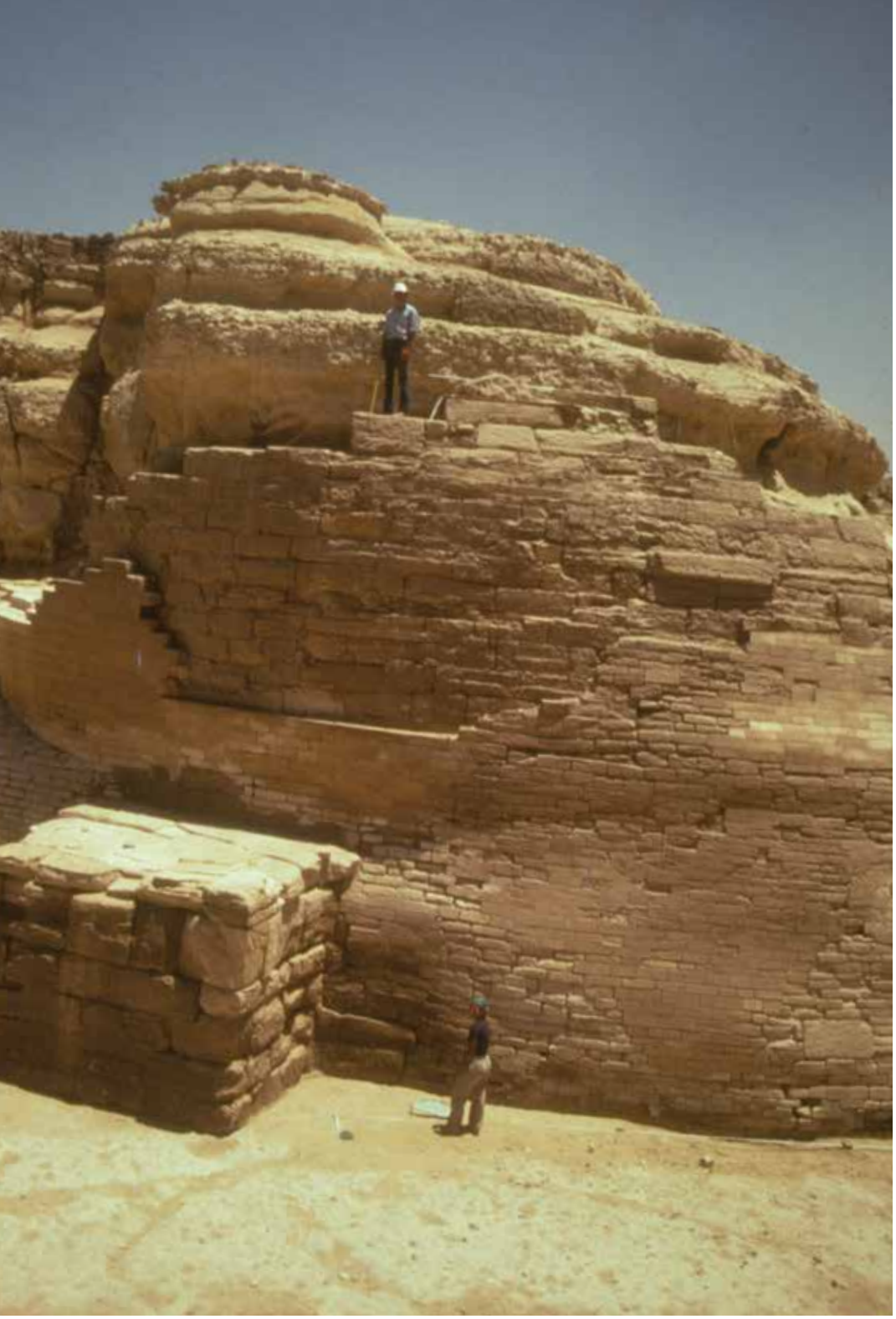
Form-line map of the east-facing Sphinx, plotted at 1:50; surrounding grid points (crosses) are spaced every 10 meters (32.8 feet)

From Blue Binders to Bytes

The answer was to come many years later, in May 2016. That's when Lehner's AERA received an Antiquities Endowment Fund grant from ARCE. The goal, finally, was the conservation and online publication of the archive of the 1979-83 ARCE Sphinx Project, led by Allen and Lehner.

Over the last year and a half, Lehner and AERA team members have surveyed, organized, scanned, contextualized, described and preserved 364 maps and drawings; 3,857 slides; 1,740 black and white photographs and reports, journals and survey data, all compiled during the ARCE project. Partnering with Eric Kansa and Open Context—a web-based publishing service that archives archaeological research data for preservation and public access—the team created a dynamic, permanent online home for the Sphinx Project Archive.

Open Context would prove more ideal than paper copy for Lehner's extra-large maps, as well as the master plans and elevations of the Sphinx. By way of the internet archive, the huge files of drawings and plans from the ARCE archive were loaded into the International Image Interoperability Framework server, which allows images to be sent to users' browsers in manageable, smaller parts. In this way, viewers can browse the Sphinx and temple maps close up, homing in on details in large-scale drawings.



Mark Lehner maps the masonry ledge, while Cynthia Scharzter plots the base outline at the northwestern rear haunch of the Sphinx in 1980

PHOTO: SALAH NASAR

To reach that point, the digital archivists first had to translate the nomenclatures of Lehner's fine-point pencils in 1980 to the digital bytes of 2018. During fieldwork, Lehner had designated broad areas such as Sphinx Temple, east of Sphinx Temple and Khafre Valley Temple. But he did not define formal boundaries, and his areas sometimes overlapped or subsumed smaller areas. For example, Lehner divided the Sphinx "Ditch" into various quadrants which were used to locate features, photos and drawings of the floor and statue. He also treated certain large structures as something between an area and a feature: the North Ledge, the Chapel, Rump Ledge, Rump Passage and the North Cliff. And Lehner designated the trenches excavated under Zahi Hawass in 1978 as "removals" (R1, R2, etc.), a term used for more excavations as part of the ARCE Sphinx Project. Finally, he designated particular configurations of masonry and deposits as "features," with different types in mind. That meant, in Lehner's language of discovery, Fa3 became "Feature, architecture, number 3."

For the online archive, not only did Lehner and the rest of the AERA team need to translate terminology and define more precise boundaries, but they also had to transform the physical form of past research. In the 1980s, for example, Lehner kept all paper documents and drawings of a size A4 or smaller in blue binders, one for each area of the Sphinx Sanctuary (NE, SE, etc.) and one for "General." He also organized black and white and color photos according to the areas within the Sphinx ditch and broader areas, while contending with the larger drawings on mylar, cut to various sizes. And, of course, Lehner kept field notebooks, diaries and a small notebook for survey data. Finally, he filled out forms for most black and white and color (slide) photographs, and for objects, samples and features.

Lehner's system, while functional during and after the ARCE fieldwork, needed to be freed of its inherent overlaps and ambiguities. With context as a goal, archivist Megan Flowers, GIS Director Rebekah Miracle and Lehner created a spatial hierarchy; in other words, they translated blue binders into bytes. The archive team defined the limits of 89 contexts, sites, areas, sub-areas, removals and features, also calculating how these spatial entities nested within each other – a critical feature for the Open Context website.

While Miracle navigated the GIS realm of the data, Flowers and Lehner assembled the actual Sphinx-related materials. Unlike the never-moving

mysteries of the Sphinx itself, the 1979-83 materials had endured several journeys in the nearly four decades since the mapping project. The archive had moved from Cairo to New York, Connecticut and Chicago until coming to rest in the AERA Boston office for the last 11 years. From there, the archive team sorted the hard copies so that technical assistant Stephen Dilks could scan smaller photos and field drawings, sort physical items by newly assigned file names and place it all in archival envelopes, folders and boxes. Meanwhile, the largest maps and drawings were sent for outside scanning, and Flowers assembled all high-resolution digital files for uploading to Open Context.

Much of the work was necessary drudge, namely filling out Excel spreadsheets with many thousands of cells. With Lehner's input, the AERA team used the forms and notes from 1979-83 to fill in as many fields as possible. They then worked with Eric Kansa to transfer this data and metadata to the Open Context ARCE Sphinx Project 1979-83 website, with its own banner and home page. Today, the ARCE Sphinx Project Archive is available at arce.org/sphinx-project-archive. Mundane and necessary, painstaking and precise, this 21st-century labor became a monument to the numerical: The website shares a decades-old mapping of a millennia-ancient statue that has captivated immeasurable numbers of us over innumerable time. Egyptologists, archaeologists, historians, art scholars, educators and anyone can now view, use and interact with this dataset, whether the goal is to research or teach or whether the subject is archaeology and archaeological methods, the Sphinx itself and its surrounding temples, ancient building methods, the history of the excavation of the site or even the history of its restoration.

By digitizing and publishing these records of the Great Sphinx of Giza, ARCE aims to add to our knowledge of a salient marker of Egypt's cultural heritage and its contribution to world art, even to humanity. The Sphinx Archive will continue to be fed and trained, to evolve as a unique context in archaeology and another reflection of our fascination with a collective past.

All footnotes, attributions and other necessary scholarly references are provided in the full, original texts of the reports on which these articles are based.
▸ arce.org/sphinx-map

THE LOST

REWRITING THE NARRATIVE OF EARLY EGYPTOLOGY WITH THE ABYDOS TEMPLE PAPER ARCHIVE

The archive upon discovery in the slaughterhouse area of the Grand Temple of Seti I at Abydos

T PAPERS

WRITTEN BY NORA SHALABY, HANY ABU EL-AZM, AYMAN DAMARANY, JESSICA KAISER, HAZEM SALAH ABDALLAH, MOHAMED ABU EL-YAZID, YASSER ABD EL-RAZIQ, FIONA BAKER, ZEINAB HASHESH, WAEL IBRAHIM, ELIZABETH MINOR, RACHEL REGELEIN & AHMED TAREK

PHOTOS: AYMAN DAMARANY

ABYDOS, SOHAG GOVERNATE–

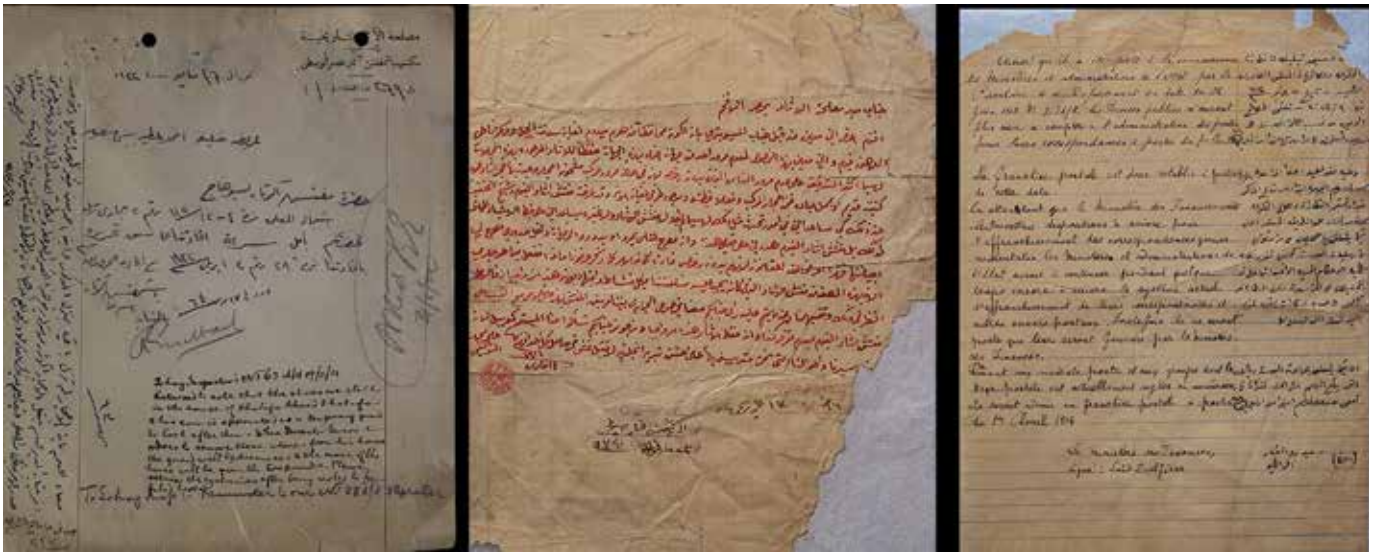
IN 2013, WHEN INSPECTOR AYMAN Damarany reopened a long-sealed chamber in the slaughterhouse area of the Grand Temple of Seti I, he expected to fulfill his assignment to record the decorations on the walls. But he was instead surprised to find the room filled with thousands of documents, many tied up in bundles along the walls and others strewn across the floor.

When he took a closer look, he realized that what he had found was a depository belonging to the Sohag Inspectorate and the broader Egyptian Antiquities Service, with documents – mostly in Arabic – written by employees of the Antiquities Authority from as early as the 1820s. The reams of records included correspondence, excavation reports and survey maps made long before the landscape around the Abydos site took its current form. To organize and preserve the archive, Ayman put together an Egyptian-led international team with members from the Ministry of State for Antiquities, the United States and Europe.

The significance of this trove was quickly recognized for its potential to enhance not only the modern history of one of ancient Egypt's most revered sites, but also the explorations of locations further afield. More importantly, and for the first time, the early history of Egyptology could be examined from the viewpoint of Egyptians rather than the lens of foreign missions. This archive comprises a unique collection related to the early history of Egyptology, and is currently the only known one of its kind. Before being deposited in the slaughterhouse, these papers, maps and other documents had passed through the hands of the local workers and officials responsible for the management of Abydos and other sites in its vicinity over the recent past. Now, by preserving this precious archive – and eventually making it available to the public – the Abydos Temple Paper Archive aims to provide a more inclusive account of the development of early Egyptology. The project restores the voices of many Egyptian employees of the Antiquities Service who were critical players in bringing to light the history and heritage of ancient Egypt and who are, until now, a long-neglected part of Egypt's cultural heritage.

The archive project is an Egyptian-American mission under the auspices of the Ministry of State for Antiquities and the University of California, Berkeley, with support from the Antiquities Endowment Fund administered through ARCE and with the permission of the Permanent Committee of Egyptian Antiquities. Our work, over three months in 2017, showed the Abydos archive to be a window into the untold stories of hundreds of Egyptian inspectors, excavators, bureaucrats and guards working for or connected to the Antiquities Service during the formative years of Egyptology.

The range of documents at our disposal, originally prepared or administered by the Egyptian Antiquities Service, are both diverse and distinct: official correspondence between inspectorates, administrations or ministries; unofficial notices or even complaints from ghofora (guards) or employees of the Ministry of Antiquities; and memos with new or updated instructions, especially during times of unrest, hardship or



Various early 20th-century documents from the archive in Arabic and English

An example of a squeeze found in the archive

political change. For example, early office ledgers of the inspectorates disclose how Egyptians managed, documented, researched and protected the sites. Some entries record the confiscation of stolen artifacts, trespassing on antiquities land and arguments between ghofora and omda (leader) of a village. The archive also includes diaries of Egyptian inspectors who were excavating or monitoring archaeological sites and official permits to remove sebakh (nutrient-rich soil) from archaeological sites or to sell antiquities (a practice that was legal at the time), as well as records on several of the Egyptian scholars who contributed to the advancement of Egyptology. Taken together, we believed these and other documents in the archive would shed light on the social history of such actors and reveal how individual Egyptian scholars and heritage workers participated in and shaped the early history of Egyptology, illuminating what roles they played and how these roles changed over time with shifts in politics, ideologies and nationalist identities. But first we had to sort through the papers.

The Great Sorting

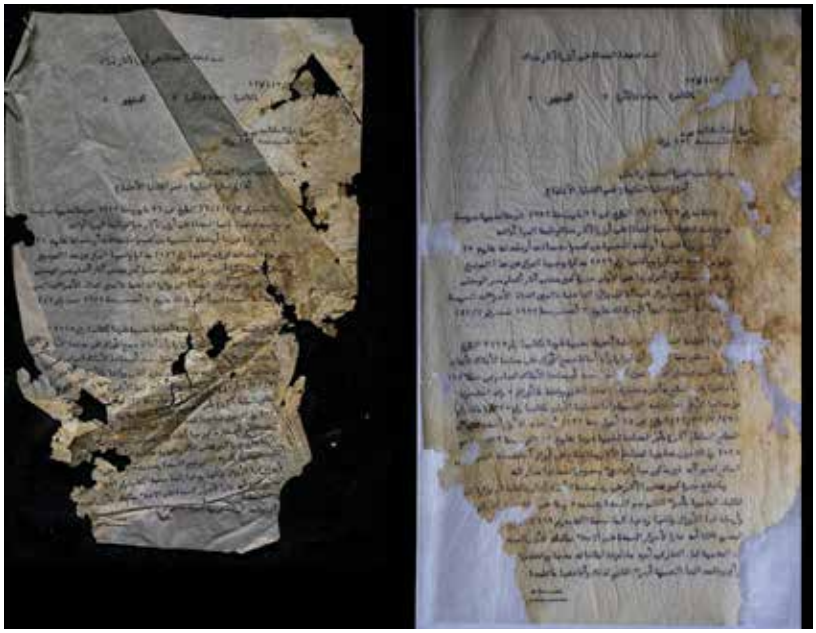
The inaugural season of work, from April through June 2017, had a daunting goal – to rescue and assess the most precious of the documents, especially those strewn on the floor, and to begin the painstaking labors of sorting and conservation. Those tasks would soon be followed by the mundane but critical chores of copying, digitizing, transcribing and translating. We also needed to build an online database as well as a safe storage area where the documents would be protected from both pests and the elements.

The slaughterhouse itself provided our working space, so we furnished one of the more protected rooms with two photography stations, a conservation workspace, numerous shelves for sorting and storage and several desks and chairs. The archive itself, deposited in boxes and sacks that were overflowing with jumbled and tattered papers, was moved from the adjacent open-air chamber into the relative safety of our workspace. Only a small number of documents were damaged beyond repair, so we were able to salvage the vast majority of records. With an exact count still to come, we nevertheless determined the documents to number in the tens of thousands.

Some of the documents had been bundled with string to contain individual papers, files and ledgers. We did not have time to open every bundle, but it appeared they were grouped for a reason. For example, a bundle might contain the records of a specific antiquities inspector during his or her career. Similarly, files inside

Crumpled paper in need of conservation

the bundles also contained related documents. One example is a file comprising the monthly inspection reports for 1968-69 by Dorothy Eady, the famous Abydos gadfly-expert better known as "Omm Seti." Another file contained the collected records of famed Egyptian scholar Labib Habachi, one of the first Egyptology graduates from Cairo University (1928), who worked for the Antiquities Department for over 30 years. Many of the documents highlight the extent of the influence Egyptian heritage workers had in the antiquities' service, even at a time when the institution was still led by the French and dominated by the British. A 1916 letter written by the famous foreman Ali Mohamed Suefi, also known as "Petrie's best lad," to Pierre Lacau, shows that Suefi was influential enough to correspond directly, and not through an intermediary, with the then-general director of antiquities. A 1922 official missive from the Egyptian director of Middle Egypt instructs Reginald Engelbach, the British then-chief inspector of Upper Egypt, to cover for his countryman Gerald Wainwright, who held the same position for Middle Egypt. These documents show that Egyptian scholars and excavators, contrary to the prevailing narrative, not only actively engaged with their heritage, but also wielded influence over foreign scholars to a greater extent than previously thought. Additional documents, such as the index file with case numbers assigned to different topics in the archives, shed light on the way the overall work of the inspectorate was organized. This critical file allowed us to connect documents even when their relationship was not obvious. Finally, the ledgers – which could be part of a bundle with other documents or tied up as several ledgers together – recorded every document, request or letter coming to or from a specific inspectorate. These ledgers offered a fascinating overview of the day-to-day bureaucracy of the inspectorate.



A paper document before and after conservation

The focus of our first season was not the bundles, however, but the loose papers that over time had become dislodged from their bundles and ended up strewn across the floor. This was the part of the archive most in need of conservation. In contrast to the bundled files and papers, these documents were jumbled into a chaos unconnected by topic or date. The entire team joined in this preliminary sorting, organizing the loose paper as best as possible by subject matter. The procedure was basic – piles and stacks on floor and shelves. After two weeks of this sorting, the broad topics and types of documents were revealed enough to design a more systematic process that would guide our work for the next two and a half months.

Old Paper, New Process

With the adjacent chamber emptied and a rough categorization in place, most of the documents in the archive could be shelved in individual piles in our workspace. Next, priority documents from different batches were retrieved from the piles and taken through the processing system. These documents received special attention because they were the oldest, mentioned a person of significance, and/or referred to an important historical event. These and other papers were to once more face a bureaucratic process, this time a multi-step system for which the ultimate goal is to share the archive with the world.

The first step was to assign a number to every document to enable searching by topic, persons, place, date or other details. We also recorded the physical and thematic context in which the documents were found. This necessitated a hierarchy of numbers, because documents found together in a file could have been written on different dates and mention different sites even though they were related to the same topic.

"These and other papers were to once more face a bureaucratic process, this time **a multi-step system for which the ultimate goal is to share the archive with the world."**

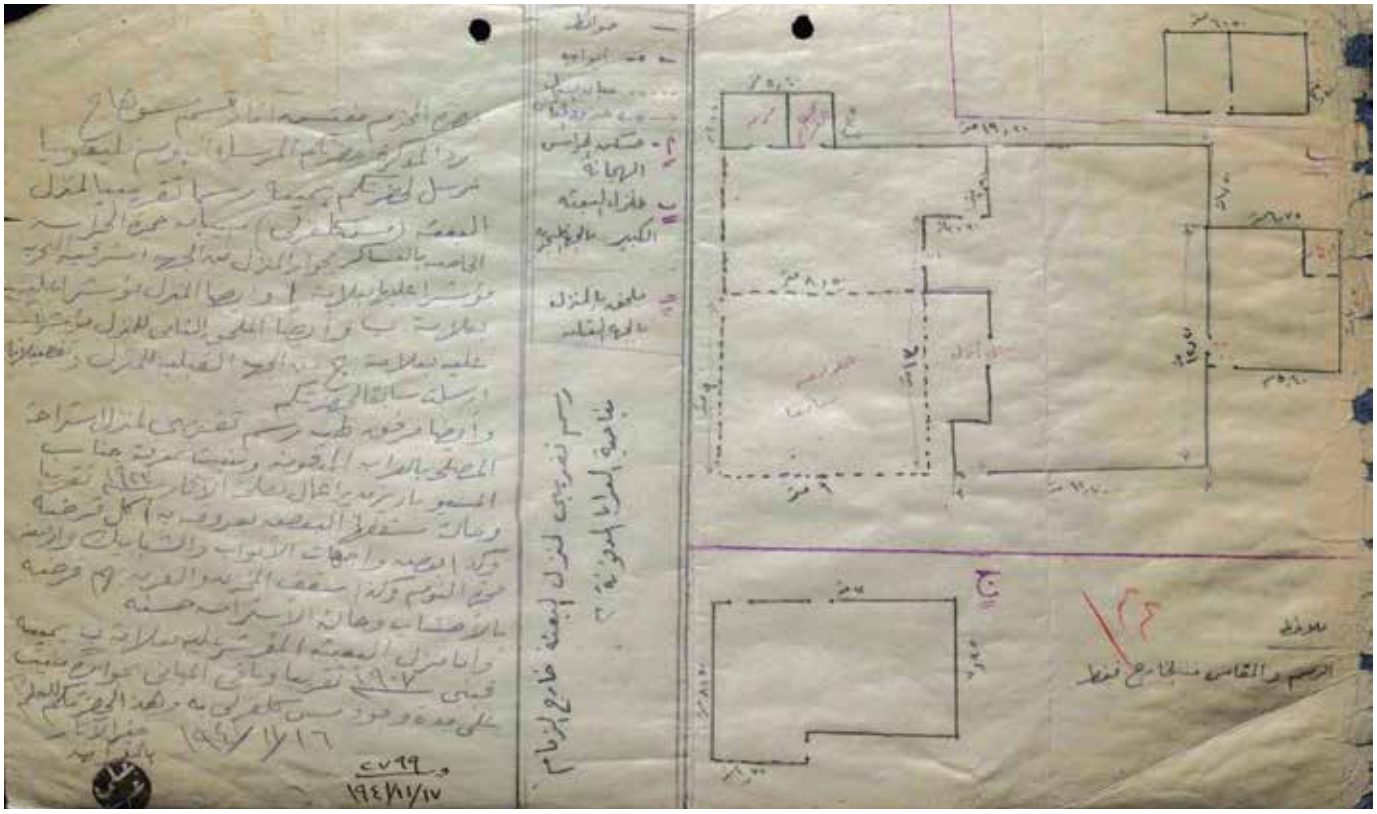
The opening layout of the Abydos Temple Paper Archive database

As any researcher recognizes, this meticulous work is important. Our system relied on obvious tags: C for catalogue numbers, L for ledgers and D for drawings, illustrations, maps and squeezes. Files (F) and bundles (B) also featured unique catalog numbers for individual documents. The loose documents and files from the floor of the storage chamber were assigned to Bundle 0. At the end of the season, over 6,000 catalog numbers had been assigned, in addition to 10 ledger numbers and 26 drawing or map numbers.

After numbering, each document was photographed. Because many were fragile, this initial stage of documentation was carried out without any attempt to unfold a crumpled document. Meanwhile, our two experienced paper conservators had plenty to do. After the initial photography, the conservators assessed each document, tested its ink and cleaned it mechanically and chemically. The ink was then fixed, and any paper was unfolded or flattened to be mounted and stored acid-free. By season's end, 443 documents had been conserved, including squeezes, (mirrored copies of the inscriptions) maps, loose papers and ledgers.

In the next step, conserved documents were photographed a second time to record the new state of the document and any new information revealed by restoration. After that came translation, which started with transcribing handwritten documents. Not surprisingly, most documents were in Arabic, and thus translated to English. Documents written in English were instead translated to Arabic, and French and German records were translated to both English and Arabic, to enable researchers to search the database in both languages.

An archive's safe home is one of its most important features. To protect project documents and preserve them for future generations, conserved documents were placed in acid-free boxes on custom aluminum shelves in our workspace. Documents awaiting conservation were temporarily shelved and covered with protective plastic to prevent con-



A sketch of A. Calverley's dig house along with a description in Arabic

tamination by vermin. These documents were also sprayed against silverfish infestation and will be inspected at least monthly until our next season's work later this year.

An Archive in the World

Another important step, of course, is the one that eventually will allow researchers not only in Egypt, but worldwide, to view, study and use the Abydos archive. We designed a custom database for easy searches by topics, themes, areas and/or people mentioned in the documents.

Our layout recorded dates, areas/regions, names, titles and institutes in addition to a general description. For the Abydos archive project, we also captured attributes of the document itself – type, color and number of handwriting(s), the paper used, stamp impressions, even whether the document had been reused. Additional database layouts were created for translations, transcriptions and photos, as well as details of the conservation process. Buttons on each layout allow for easy navigation.

This attention to detail took hours of work. To speed data entry, the project computer was set up as a server so we could connect up to five personal computers and iPads at the same time. The result, by the end of our season, was that 541 catalog records, 20 drawing records, six map records, 10 files and two bundle entries had joined the database.

In future seasons, we intend to enhance our system of recording and cataloging, enter thousands more records into the database and create a more suitable and sustainable storage system for this trove of rare documents. Additionally, we are taking steps to collaborate with other archival projects related to the early years of Egyptology and plan for a possible workshop on that topic soon. Amid this work and plans, we continue to reflect on the unique perspective of the Abydos archive to highlight the contributions of indigenous archaeologists in the evolving narrative of Egyptology. It all began with a floor full of scattered paper.

For more information: https://abydosarchive.org

All footnotes, attributions and other necessary scholarly references are provided in the full, original texts of the reports on which these articles are based. ▸ arce.org/abydos-paper-archive

REUNIONS IN THE Afterlife

JOURNEY TO THE BEYOND: ANCIENT EGYPTIANS IN THE PURSUIT OF ETERNITY

THE ROBERT AND FRANCES FULLERTON MUSEUM OF ART
CALIFORNIA STATE UNIVERSITY, SAN BERNARDINO

BY EVA KIRSCH AND BRYAN KRAEMER

Statue of Hetepheres, tomb of Rawer in Giza

PHOTO: SEAN BLACK

SAN BERNARDINO, CALIFORNIA –

THERE, IN THE BRIGHT LIGHT of a museum case near a mysterious coffin lid and a haunted Roman mask, a few paces from the figure of a little girl who lost her family, proudly stands a colorful wooden statue once owned by Djedher, son of Psamtik, born of Asetweret. The statue's black eyes seem caught in a search for something beyond our own gaze, toward the regenerative powers of billowing grain, revered mummies and the renewing floods of the Nile – perhaps beyond our own fascination with the ancient Egyptian journey into the afterlife. In fact, the painted image came by way of its own journey across desert sand and an ocean unknown to its maker, into the heart of a new display at the Robert and Frances Fullerton Museum of Art in California. Perhaps 2,300 years past its creation, the statue is poised for us to contemplate along with other treasures in an enriching, elegant exhibit.

This statue of the composite deity "Ptah-Sokar-Osiris" is one of several keystones of "Journey to the Beyond: Ancient Egyptians in the Pursuit of Eternity" at the Robert and Frances Fullerton Museum of Art (RAFFMA) at California State University, San Bernardino. The statue presents its own mysteries to entice our wonder, not the least of which is the varied paths of its owner Djedher himself. The colorful wooden image is of a type that dates to the Nectanebid or Ptolemaic period, with an inscription indicating origins in the town of Akhmim in Upper Egypt. A Ptolemaic male mummy from Akhmim with the very same name as this statue's owner is on display in the British Museum in

Papyrus-sheath statue of Osiris-Khentiamentiu

PHOTO: SEAN BLACK

Ptah-Sokar-Osiris statue of Djedher

PHOTO: SEAN BLACK

a beautifully decorated, gilt-faced anthropoid coffin. Most likely he is the same Djedher, the resting place of his body far removed from its original home and also from his colorful statue. Yet as with Ptah-Sokar-Osiris, the figure renews our interest in earth, flood, crop and the afterlife.

Set against a backdrop of the San Bernardino Mountains, RAFFMA features one of the largest displays of ancient Egyptian artifacts on the West Coast. After a two-year renovation, sponsored in part by CSUSB's College of Arts and Letters, RAFFMA has unveiled a new display of its diverse collection. Organized on a theme of the journey into the afterlife, the display explores beliefs of death and the life after it with artifacts from the Predynastic to Roman periods (c. 5000 BCE to 500 CE).

The collection was formed over the last 30 years, mostly through donations and transfers from other museums in Southern California. The heart of the exhibit consists of objects donated and loaned by Dr. W. Benson Harer, with some funerary statues, burial goods, stelae, jewelry and other objects displayed to the public for the first time.

Among the artifacts of special historical or artistic note is the statue of a family-less little girl. The collection opens with this intriguing figure, named Hetepheres. In 1936, John Cooney determined the girl was originally part of a single statue of five figures representing her family. Cooney even connected the girl's statue to its original base, her family's feet still intact and inscribed with their names. The base was found in 1930 by Selim Hassan in the tomb of Rawer at Giza (G8988). Hetepheres' other family members reside in statue form in museums in Worcester, Massachusetts; Brooklyn, New York; New York City,

"This serpentine ushabti from the king's tomb would have served **as a stand-in for any work he might be called to perform in the afterlife."**

Wooden anthropoid coffin of Padiuser

PHOTO: SEAN BLACK

New York and Kansas City, Kansas. Someone probably discovered the entire statue in the 19th century but broke it apart to sell for more money as separate pieces. Each piece coincidentally made its way into separate American collections in a modern immigration story that belies current political debates.

In RAFFMA's permanent exhibit, Hetepheres illustrates how statues of the deceased focused on the cult of provisioning their kas for the afterlife. Yet our little girl represents more because of where her family's statue originally rested. Rawer is well known to Egyptologists as an important fifth-dynasty official famous for a unique biographical text discovered in his large tomb. The text describes how King Neferirkare

Ushabti of Senkamenisken, Nuri, Pyramid 3

PHOTO: SEAN BLACK

accidentally struck Rawer with his scepter during a festival procession. Because of the king's ritual power in that instant, the accident apparently endangered Rawer so much that the king then had to cure Rawer magically against any harm that might have resulted. The king ordered a permanent record of the incident, a copy of which Rawer included in his tomb.

Near the little girl, a gessoed and painted wooden statue of Osiris-Khentiamentiu in the exhibit symbolizes the mythological background for Egyptian ideas of the afterlife. The statue represents the god who overcame death, standing upright and revived by the "glorification rituals" (sakhu). Wooden statues of Osiris like this one of the "black-varnish" type have been found in 21st dynasty elite burials, such as those in the royal mummy cache and second priestly cache at Deir el-Bahari. Remarkably, these objects served as secret containers for scrolls of the Book of the Dead. The RAFFMA example is one of the largest ever found. Yet whatever scroll may have been stored there is now lost.

Visually one of the most prominent artifacts in the RAFFMA exhibit is the oddity-laced lid of a painted

RAFFMA docent Grace Baldwin leads a tour from Walter Zimmerman Elementary School through the exhibit

wooden anthropoid coffin. Once owned by Lowell Thomas (whose films made Lawrence of Arabia famous), the coffin lid passed to RAFFMA from the collection of Charles Sitwell and other collectors in Southern California. The first intriguing feature is that the deceased's name is spelled with the female version Tadiuser instead of Padiuser, despite the fact that he is acknowledged to be the son of Djedher and Taamun. Also unusual, Padiuser's wife is represented on his coffin as a little figure on the upper right side below the floral collar. She receives only a single offering formula nestled among the others for her husband. Fortunately, the text reveals her name: Isis-Hesat. Elements of the coffin's decoration are similar to examples excavated in Middle Egypt from the 25th or 26th dynasties. We therefore can believe the statue came from the same region because the wife's rare name honors the cow-goddess Hesat, worshipped as a form of the goddesses Hathor and Isis in the town of Aphroditopolis (Atfih) in Middle Egypt. The coffin lid illustrates how the deceased becomes a divine form from embalming, mummification and funerary rituals.

The RAFFMA exhibit is fortunate to include one statue from a royal burial. Senkamenisken ruled over the powerful Nubian Kingdom of Napata (c. 640-620 BCE) at a time when the Saite dynasty ruled

Statue of Imhotep

PHOTO: SEAN BLACK

Egypt. In 1916-18, George Andrew Reisner excavated the king's pyramid among the other Napatan royal tombs in Nuri. This serpentine ushabti (funerary figurine) from the king's tomb would have served as a stand-in for any work he might be called to perform in the afterlife. These assignments were apparently of great concern to Senkamenisken, whose tomb contained the highest number of ushabtis among all of those at Nuri – 1,277, of which 410 were made of serpentine and 867 of faience (glazed pottery). This and the other ushabtis at RAFFMA illustrate the ancient Egyptians' belief that magical spells and objects could bring a more comfortable existence in the afterlife.

The RAFFMA exhibit also houses a unique statue of a Ptolemaic priest named Imhotep, son of Horus and Asetweret, grandson of Pasenese. The inscription indicates that he was a prophet of the god Thoth who worked as an "hour priest" of the god Amun, probably at Karnak. In this role, he kept time for night rituals performed in the temple. Imhotep also held the title "one able to enter the House of Gold to create the divine images," which indicates he made statues of the gods in the temple workshop. He is also lauded as "one who fashions shrines of the (divine) boat," referring to his working with metals to make divine processional equipment. In fact, Imhotep's cloak is a type worn by priests when they escorted the gods' statues and processional equipment during festivals. A busy man, Imhotep most certainly was a vital, trusted priest of the Temple of Amun.

One of the latest objects in the RAFFMA exhibit is also one of the most restless. This fragment of a plaster mask is typical of Roman burial in Middle Egypt in the first three centuries CE. These masks represent the deceased as if he or she were rising from bed, dressed in formal garments of a Roman style. With tightly defined strands of hair, this mask's coiffure forms into a crest along the forehead. The hairnet on top is distinctive of female portraiture of the late second to fourth centuries. Because the faces on funerary masks were made in molds, it is possible to find this mask's "sisters" in museums around the world. Unlike the other objects at RAFFMA, however, this mask has a reputation of being haunted. Security cameras supposedly have caught the mask moving within the gallery on her own. Perhaps more literally, the mask and other objects from the Roman period illustrate

Roman plaster funerary mask

how Egyptian funerary culture changed to include mortuary styles elsewhere in the Roman Empire.

The RAFFMA space dedicated to this and other displays will soon be expanded and enhanced by special spaces dedicated to studying the collection. The exhibition compliments initiatives to teach Egyptology at CSUSB with the new Benson and Pamela Harer Fellowship in Egyptology and Egyptology Scholars in Residence Program in the history department, recently endowed by Dr. Harer. RAFFMA's staff and volunteers also intend to explore technological innovation, leading to yet another journey into the afterlife for one of the exhibit's dearest artifacts. That is, the museum may engineer a reunion of sorts for our little girl, Hetepheres. One idea certain to engage the ancient Egyptian beliefs of life after death is to reconstruct the family statue, after so many centuries, using virtual reality technologies.

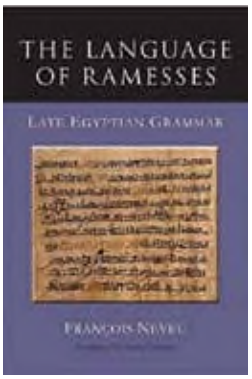
For more information: raffma.csusb.edu

All footnotes, attributions and other necessary scholarly references are provided in the full, original texts of the reports on which these articles are based. ▸ arce.org/fullerton-exhibition

REVIEWED BY JOSHUA A. ROBERSON, UNIVERSITY OF MEMPHIS

The Language of Ramesses: Late Egyptian Grammar

By François Neveu



The Language of Ramesses is the first English language edition of François Neveu's grammar of Late Egyptian published in 1996, *La langue des Ramsès*. The author assumes a working familiarity with the Egyptological conventions of transliteration, grammatical terminology and reading knowledge of the hieroglyphic script. The volume is organized and presented as a reference grammar, with a detailed system of numbered sections and sub-sections, suitable for quick citation. Neveu presents the material in three broad sections: morphology, syntax and two appendices, one dealing with interrogative constructions and the other, syllabic writing. The book includes an index of grammatical terms in English, an index of Late Egyptian words and constructions in transliteration, a brief index of Coptic words, an index of texts cited and a list of figures.

As Neveu notes, a comprehensive grammar of Late Egyptian has yet to be written, and *The Language of Ramesses* aims only to be a pedagogical tool. Numerous scholars have published specialized monographs on specific features of Late Egyptian; however, few general references in English have appeared thus far. The volume's greatest strength lies in its inclusion of both non-literary and literary constructions and examples and constitutes a welcome addition to this small group.

The Language of Ramesses mostly employs terminology established as standard by existing references for Egyptian. Issues of grammatical theory do not constitute a significant focus of the text, which is almost purely descriptive. In some cases, the citations appear rather too sparing to do justice to a thorny theoretical issue. However, this is beyond the stated aims of the volume as a pedagogical tool aimed at acquiring practical reading knowledge.

With regard to the English translation itself, translator Maria Cannata has done an admirable job of navigating the fine line between the spirit and letter of Neveu's original French. The English adheres closely to the economy of words in the original text, which results in a concise and understandable English prose. However, as the translator notes, in some cases, a preference for more literal rendering of the French has come at the expense of "good English style." Such peculiarities are infrequent and do not materially affect the understanding of the text; genuine errors in the translation are uncommon. Readers familiar already with the French edition of Neveu's work should know that the new English translation follows the organization and content of the original volume closely, save the inclusion of one entirely new section added to the grammar itself. Other purely cosmetic, but welcome, alterations include the new volume's more compact size and the switch to a darker—and therefore much more legible— hieroglyphic font.

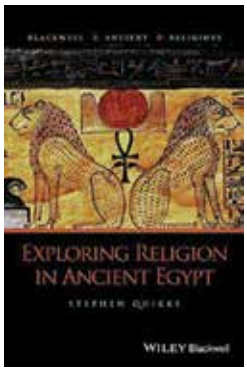
Within the traditional setting of the graduate-level seminar—where most students are likely to begin serious engagement with Late Egyptian—Neveu's grammar will surely take its place as one of the standard English-language resources for teaching and reference. As such, *The Language of Ramesses* belongs on the bookshelf of anyone offering instruction in or learning Late Egyptian.

"Within the traditional setting of the graduate-level seminar, **Neveu's grammar will surely take its place as one of the standard English-language resources for teaching and reference."**

REVIEWED BY JOSHUA A. ROBERSON, UNIVERSITY OF MEMPHIS

Exploring Religion in Ancient Egypt

By Stephen Quirke



Exploring Religion in Ancient Egypt represents Stephen Quirke's third introductory survey of Egyptian religion, following *The Cult of Ra* and *Ancient Egyptian Religion*. The present volume aligns closely with its predecessors through its careful delineation of modern preconceptions from ancient evidence. *Exploring Religion in Ancient Egypt* attempts to break new ground through the application of non-Egyptological methodologies and theoretical frameworks, primacy given to evidence from non-royal and non-elite spheres, occasional ethnographic parallels and a de-emphasis on traditional introductory topics. As a result, *Exploring Religion in Ancient Egypt* is rather less "introductory" than its predecessors.

Exploring Religion in Ancient Egypt functions primarily as a vehicle for its author's interpretations of primary and, in some cases, secondary literature. As such, the critical reader may agree with some of Quirke's views and disagree with others. In fact, it is precisely the challenges offered to traditional interpretations and theoretical frameworks that constitute one of the volume's great strengths. However, there are other issues that seem to muddy the waters that the author seeks ostensibly to clear.

The reader confronts numerous dismissals and omissions of both individual scholars and broad swaths of scholarship, beginning with essentially all current university training in Egyptology, with the statement that "in university departments, Egyptologists generally train to read Egyptian writing, not to undertake archaeological fieldwork or study the visual arts, or even comparative or historical linguistics." This bold indictment shows either a lack of awareness or interest in the breadth and variety of modern Egyptological programs. Other curious dismissals may be cited. For instance, when discussing 525 BCE as the upper chronological limit of his study, Quirke concludes that "as a unitary and integral social field, ancient

"It is precisely the challenges offered to traditional interpretations and **theoretical frameworks that constitute one of the volume's great strengths.**"

Egyptian religion ends" with the Persian conquest and the introduction of a new administrative language. The implication that late Pharaonic religion was somehow un-Egyptian appears profoundly outdated in an otherwise "progressive" treatment of the subject. While it is perfectly reasonable to establish limits to a popular study for reasons of space, Quirke does a disservice to the beliefs of the ancient people with his suggestions that 525 BCE represents the end of ancient Egyptian religion, "unitary and integral" or otherwise. With regard to the core subjects and time periods treated in the text, other elements also appear conspicuously abbreviated and/or outdated.

The criticisms offered here underscore the importance of a cautious approach to this or any work concerned primarily with issues of theory and interpretation. However, such criticisms do not negate the book's real value as a fresh, even confrontational, presentation of the complexities of ancient Egyptian religion. Scholars working in the field of Egyptian religion will benefit from consideration of the challenges that Quirke poses throughout the volume and the new questions that might arise in their own work, as a result. Likewise, lay readers will certainly find a great deal of fascinating material within the pages of *Exploring Religion in Ancient Egypt* that has rarely, if ever, been featured in popular treatments of the subject.

These reviews were edited for space. The complete reviews are published in Volume 53 of the *Journal of the American Research Center in Egypt*, available at lockwoodonlinejournals.com.

The latest from ARCE's offices and chapters in the U.S. and Egypt

Hidden Treasures: An Evening Exploring the Egyptian Collection

Phoebe A. Hearst Museum of Anthropology, Berkeley, California

BY JANE ZIMMERMAN, EXECUTIVE DIRECTOR, ARCE

The streets of Berkeley, California were full of revelers and partygoers the Saturday evening before Halloween, but I had the best invitation of them all. Vicky Jensen, the president of ARCE's Northern California Chapter, had asked me to join her and our members in the Bay Area that evening at the Phoebe A. Hearst Museum of Anthropology. We were to explore and enjoy a behind-the-scenes tour of its extraordinary ancient Egyptian collection—the largest west of the Mississippi.

Vicky and the chapter collaborated with the museum and its director, Dr. Benjamin W. Porter, to host this joint fundraiser in October. Guests had the opportunity to see rarely exhibited Egyptian objects up close and personal, with special tours offered to see masterpieces in the basement's storage areas. Together, ARCE Northern California and the Hearst Museum raised over $8,000.

The chapter's board of directors includes Barbara Wilcox, Glenn Meyer, Gabrielle Essner, Ryan Helton, Helen Pearlstein, Al Berens, Joan Knudsen and Nancy Corbin. The members of the board contributed to the evening's success by publicizing the event, sponsoring complimentary tickets for students and teachers, donating wine and soft drinks and soliciting outside sponsorships. The chapter volunteers and museum staff spent many hours planning the event, preparing the spaces, and bringing out almost 100 objects to the museum's Learning Center. Dr. Rita Lucarelli, Dr. Barbara Richter, Brooke Norton, David Wheeler, Dr. Deanna Kiser-Go, Erin Lawrence, Jessica Kaiser, Dr. Lissette Jimenez and Gabriela DiBattista shared their knowledge with more than 80 patrons. Brooke also created a slideshow of George Reisner's excavation photographs and, together with Vicky, wrote the object descriptions, while Kea Johnston researched all the coffins. Rita—the faculty curator of the collection—Barbara, and Vicky led tours to the museum's basement. That was where I encountered my first mummified cobra!

The museum itself is steeped in history. Phoebe Hearst was a major benefactor of the University of California, Berkeley, and became its first female regent in 1897. Four years later, she founded the museum. Over her lifetime, she provided more than 60,000 objects in the collection which now has over 3.8 million. The objects in the ancient Egyptian collection largely came from George Reisner's expeditions funded by Mrs. Hearst to Coptos, Deir el-Ballas, Ballas, El-Ahaiwah, Naga ed-Der and Giza.

ARCE's chapters offer phenomenal opportunities for outreach, education and the professional development of scholars who will be tomorrow's leaders in the humanities and study of Egypt. Like Northern California, many of them partner with museums, universities and organizations such as local chapters of the Archaeological Institute of America. This all-volunteer network of our members embodies the vision of ARCE's founders for strengthening American and Egyptian ties through supporting researchers and scholars and encouraging others to share their passion for Egypt's history and culture.

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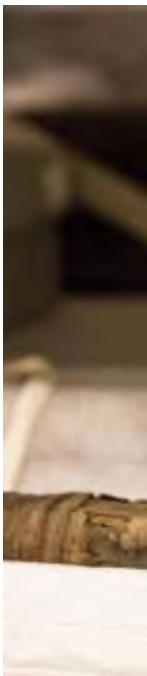

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1 Visitors getting an up-close look at early 18th-dynasty objects from Deir el-Ballas

2 Dr. Rita Lucarelli, faculty curator of the Egyptian collection at the Hearst Museum, takes a photo of a painted anthropoid coffin

3 Patrons, including ARCE Executive Director Jane Zimmerman, enjoying the basement tour

4 Mummified cobra stored at the Hearst Museum

5 Two coffins of the First Intermediate Period from Naga ed-Der

6 Local and imported pottery from the cemeteries at Deir el-Ballas

PHOTOS: SUSZI LURIE MCFADDEN

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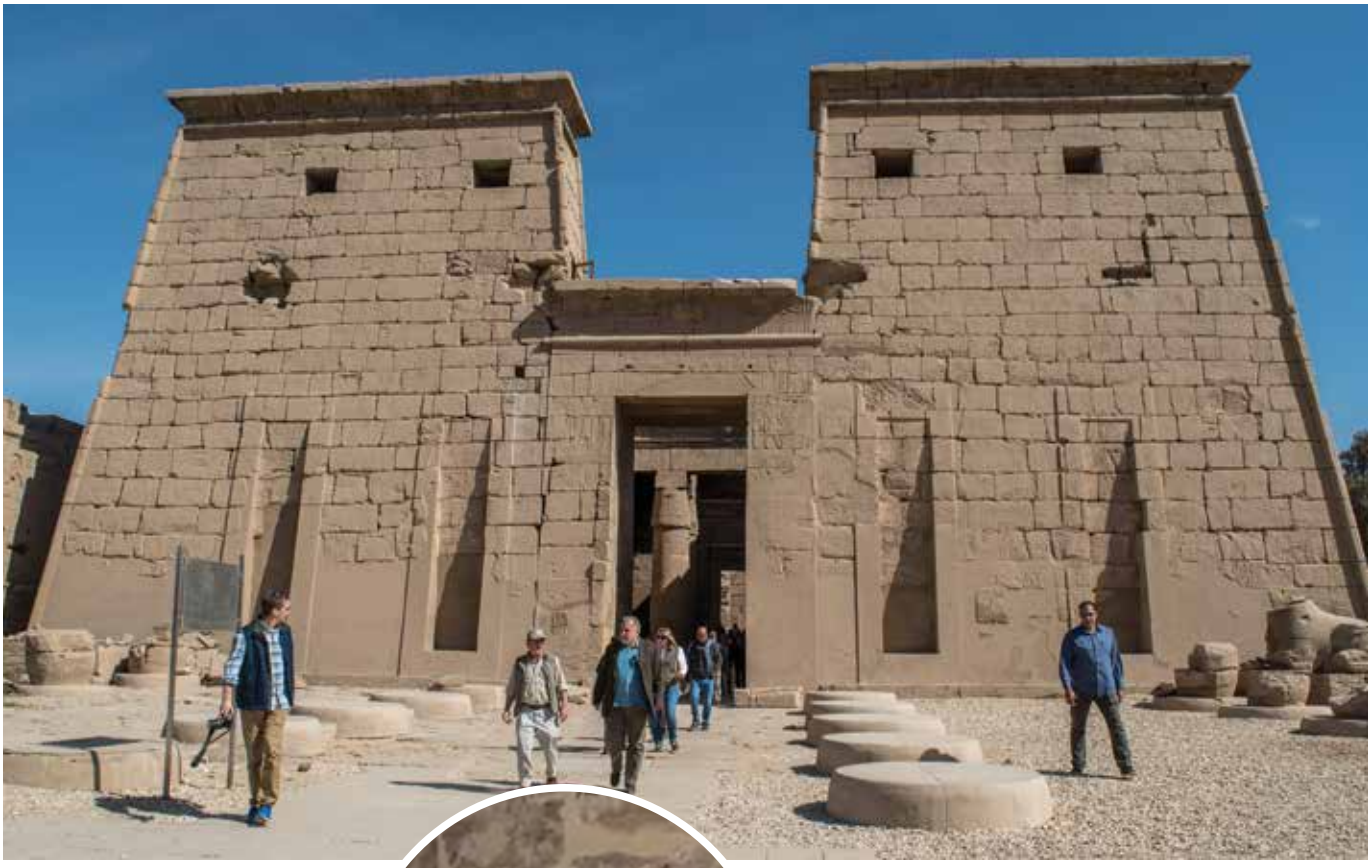

U.S. Congressional Delegation Visits Luxor

On February 18, Reps. Ed Royce and Paul Cook of California, chair and member of the House Committee on Foreign Affairs respectively, experienced firsthand the wonder of Egypt's cultural heritage sites in Luxor. Led by ARCE's Director for Egypt Louise Bertini and Associate Director for Luxor John Shearman, as well as embassy representatives, the congressmen were guided through temples and tombs where ARCE and its research supporting members have completed projects. The delegates visited Karnak Temple, Medinat Habu, Luxor Temple and the Valley of the Kings, shining examples of the power of partnership to protect these irreplaceable sites.

Dr. Mohamed Ismail, director of the permanent committee and foreign missions affairs at the Ministry of Antiquities presenting at the consulate gathering

ARCE Celebrates 70 Years with U.S. Consulate in Cairo

On February 19, H.E. Thomas Goldberger, Chargé d'Affaires at the U.S. Embassy in Cairo, hosted distinguished members of the Egyptian Ministry of Antiquities and the Egyptian cultural heritage community to honor ARCE's 70th year and the appointment of ARCE Director for Egypt Dr. Louise Bertini.

At the event, ARCE President Dr. Melinda Hartwig outlined ARCE's mission to encourage research of Egypt's unique heritage. Dr. Jere L. Bacharach, professor emeritus at the University of Washington, made a captivating presentation on ARCE's history that included rare photographs of past directors, fellows and projects. Dr. Mohamed Ismail, director of the permanent committee and foreign missions affairs at the Ministry of Antiquities, highlighted the long-established collaboration between the ministry and ARCE.

In closing remarks, Dr. Bertini elaborated on the vision for ARCE's future, including digitization and public access to archival materials and records. She underscored a new era for ARCE's leaders, who are all women for the first time in the organization's history. The evening concluded with a warm reception among colleagues and friends.

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Osama Abdel Fatah Mohamed, Supervising Librarian

Amira Gamal, Cataloguing Librarian

Soliman Abdallah, Library Clerk

Reda Anwar, Administrative Assistant to Office Manager

Salah Rawash, Greeter/Guard

Abdrabou Ali Hassan, Assistant to the Office Manager for Maintenance Affairs and Director's Driver

Ahmed Hassan, Senior Traffic Department Officer and Driver

Ramadan Khalil Abdou, ARCE Representative

Mohamed Hassan Mohamed, Transportation Assistant and Messenger

Eid Fawzy, Technical Clerk and Messenger

Nour Ibrahim, Messenger

LUXOR, EGYPT

John Shearman, Associate Director for Luxor

Shaaban Mohamed, Office Manager

Khadiga Adam Toh Mo'allem, Conservation Manager

Ahmed Yehya El Nouby, Accountant

Ahmed Badry Abdallah Ahmed, Messenger

Mohamed Saleh Hemed Saleh, Driver

Research Supporting Members

ARCE facilitates and provides support for the archaeological and conservation projects that its member museums, universities and institutions undertake in Egypt.

American University in Cairo
Ancient Egypt Research Associates, Inc.
The Ancient Egyptian Heritage and Archaeology Fund
Ashmolean Museum of Art and Archaeology, Oxford University
Brigham Young University
The British Museum
Brooklyn Museum
Brown University
Council of American Overseas Research Centers
Cultural Association for the Study of Egypt and Sudan
DePaul University
The Getty Conservation Institute
Harvard University
The Institute of Fine Arts, New York University
Johns Hopkins University
Los Angeles County Museum of Art
The Metropolitan Museum of Art
Michael C. Carlos Museum, Emory University
Oriental Institute of the University of Chicago
Pacific Lutheran University
Princeton University
Roanoke College
University of Arizona
University of Arkansas
University of California, Los Angeles
University of California, Santa Cruz
University of Memphis
University of Michigan
University of Notre Dame
University of Pennsylvania Museum of Archaeology and Anthropology
University of Toronto
York University, Faculty of Arts

RSM Expeditions

ABYDOS

South Abydos: Senworset III Mortuary Complex
University of Pennsylvania
Director: Josef Wegner

Abydos North Cemetery Project
Institute of Fine Arts, NYU
Director: Matthew D. Adams

The Temple of Ramses II at Abydos
Institute for the Study of the Ancient World, NYU
Directors: Sameh Iskander, Ogden Goelet

The Abydos Middle Cemetery Project
Kelsey Museum of Archaeology, University of Michigan
Director: Janet Richards

DAKHLA & KHARGA OASIS

Amheida
Institute for the Study of the Ancient World, NYU
Director: Roger Bagnall

North Kharga Oasis Survey
American University in Cairo/Politecnico de Milano
Directors: Salima Ikram, Corrina Rossi

North Kharga Darb Ain Amur Survey
American University in Cairo
Director: Salima Ikram

DEIR EL BALLAS

Palace of Sekhenenre & Ahmose
The Ancient Egypt Heritage and Archaeology Trust
Director: Peter Lacovara

EGYPTIAN MUSEUM

21st-Dynasty Royal Cache
University of California, Los Angeles
Director: Kara Cooney

ESNA & EDFU

Tell Edfu in Upper Egypt
Oriental Institute of the University of Chicago
Director: Nadine Moeller

Hierakonpolis
Ashmolean Museum of Art and Archaeology, University of Oxford
Director: Renée Friedman

El Kab & Hagr Edfu
Ashmolean Museum of Art and Archaeology, University of Oxford
Director: Vivian Davies

FAYUM

Fayum Project
University of California, Los Angeles
Director: Willeke Wendrich

Fag el Gamous
Brigham Young University
Director: Kerry Muhlestein

GIZA

Giza Mapping Project
Ancient Egypt Research Associates/ Oriental Institute of the University of Chicago
Director: Mark Lehner

LUXOR, EAST & WEST BANK

ARCE Projects in Luxor- Khonsu Temple, Dra Abu Naga
American Research Center in Egypt
Director: John Shearman

Epigraphic Survey at Medinet Habu, Luxor Temple, Khonsu Temple and TT107
Oriental Institute of the University of Chicago
Director: William Raymond Johnson

LUXOR, EAST BANK

Mut Temple
Johns Hopkins University
Director: Betsy Bryan

Mut Temple
Brooklyn Museum
Director: Richard Fazzini

Karnak Hypostyle Hall Project
University of Memphis
Director: Peter Brand

LUXOR, WEST BANK

Malqata
The Metropolitan Museum of Art
Director: Diana Craig Patch

Valley of the Kings
Pacific Lutheran University
Director: Donald Ryan

Tomb of Merneptah, Valley of the Kings
Royal Ontario Museum
Director: Lyla Brock

Tausert Temple
University of Arizona
Director: Pearce Paul Creasman

MIDDLE EGYPT & SOHAG

Red Monastery Project
American Research Center in Egypt
Director: Michael Jones

White Monastery Project
Yale University/American Research Center in Egypt
Director: Stephen Davis

Beni Hassan- Late Antiquity Project
DePaul University
Director: Scott Bucking

El Minia Tombs of Khunes & Kheteti
York University, Toronto
Director: Robyn Gillam

El-Hibeh
University of California, Berkeley
Director: Carol Redmount

NILE DELTA

Kom el-Hisn
Roanoke College
Director: Leslie Warden

SAQQARA

Saqqara- Tomb of Psametichus
Northern Arizona University
Director: Eugene Cruz-Uribe

3-D Saqqara Survey Project
University of California, Santa Cruz
Director: Elaine Sullivan

Fellowships

In ARCE's 70-year history, the fellowship program has benefited over 700 scholars, who have produced an influential and substantial portion of all American scholarly output on Egypt since 1957.

U.S. DEPARTMENT OF STATE EDUCATIONAL AND CULTURAL AFFAIRS FUNDED FELLOWS

Jennifer Thum
Turning the Landscape into a Stela: The Mechanics of Egyptian Royal Rock Inscriptions
Brown University; Romanoff Prize recipient

Ibrahim Mansour
An Intellectual History of the Early Shadhili Order
University of California, Santa Barbara

Gregory Williams
Another View from the Edge: The Frontier of Aswan in the Early Islamic World
University of Bonn

NATIONAL ENDOWMENT FOR THE HUMANITIES FUNDED FELLOWS

Aleksandra Hallman
Iconography of God's Wives: The Association between Image and Idea
Polish Academy of Sciences

Statement of Financial Position

AT JUNE 30, 2017 AND JUNE 30, 2016

All amounts in U.S. Dollars	2017	2016
ASSETS		
Cash and cash equivalents	3,222,050	3,594,359
Short-Term Investment	3,608,005	3,523,450
Other receivables and prepaid expenses	94,493	360,748
Pledge receivable	103,023	122,518
Grants receivable	257,316	258,777
Deferred sub-grants - AEF	1,028,479	814,756
Investments at quoted fair value	73,738,199	66,679,262
Property and equipment, net	42,306	54,413
Library collection	835,440	835,440
Deferred rent	60,750	72,900
Total Assets	**82,990,061**	**76,316,623**
LIABILITIES AND NET ASSETS		
Accounts payable and accrued expenses	567,167	729,774
Grants payable - AEF	419,232	331,782
Refundable advances and custodial funds	30,670	10,563
Deferred revenue	60,170	50,681
Assets held in trust for others	13,059,963	11,864,277
Total Liabilities	**14,137,202**	**12,987,077**
NET ASSETS		
Unrestricted	3,924,501	4,390,841
Temporarily restricted	33,870,075	27,899,309
Permanently restricted	31,058,283	31,039,396
Total Net Assets	**68,852,859**	**63,329,546**
TOTAL LIABILITIES AND NET ASSETS	**82,990,061**	**76,316,623**

Statement of Activities

FOR THE YEAR ENDED JUNE 30, 2017

All amounts in U.S Dollars	UNRESTRICTED	TEMPORARILY RESTRICTED	PERMANENTLY RESTRICTED	TOTAL
REVENUES AND SUPPORTS				
Grants	2,335,296	-	-	2,335,296
Membership dues	108,142	-	-	108,142
Contributions	45,236	1,050	18,887	65,173
Meetings, lectures and publications	130,475	-	-	130,475
Investment income	116,105	1,179,250	-	1,295,355
Net unrealized and realized gain / (loss) on investments	189,364	6,568,438	-	6,757,802
Other	555	-	-	555
Total Revenues and Supports	**2,925,173**	**7,748,738**	**18,887**	**10,692,798**
NET ASSETS RELEASED FROM RESTRICTIONS				
Satisfactions of grants released from restrictions	-	-	-	-
Satisfactions of investment income released from restrictions	1,777,972	(1,777,972)	-	-
Total Revenues and Other Support	**4,703,145**	**5,970,766**	**18,887**	**10,692,798**
EXPENSES				
Program services:				
Conferences/seminars	(151,631)	-	-	(151,631)
Fellowships	(224,186)	-	-	(224,186)
Library	(126,730)	-	-	(126,730)
Public education	(58,613)	-	-	(58,613)
Publications	(140,128)	-	-	(140,128)
Restoration and conservation	(2,413,994)	-	-	(2,413,994)
Total program services	**(3,115,282)**	-	-	**(3,115,282)**
Supporting services:				
Management and general	(1,401,850)	-	-	(1,401,850)
Membership development	(67,777)	-	-	(67,777)
Fundraising	(118,236)	-	-	(118,236)
Total supporting services	**(1,587,863)**	-	-	**(1,587,863)**
Total Expenses	**(4,703,145)**	**-**	**-**	**(4,703,145)**
CHANGE IN NET ASSETS BEFORE FOREIGN EXCHANGE	**-**	**5,970,766**	**18,887**	**5,989,653**
Foreign exchange (Loss) & gain	(354,565)	-	-	(354,565)
CHANGE IN NET ASSETS	**(354,565)**	**5,970,766**	**18,887**	**5,635,088**
Net assets at beginning of year	4,390,841	27,899,309	31,039,396	63,329,546
Presentation Foreign exchange Gain (loss)	(111,775)	-	-	(111,775)
NET ASSETS AT END OF YEAR	**3,924,501**	**33,870,075**	**31,058,283**	**68,852,859**

Recalling Moments Captured over the Decades

The ARCE Houseboat *Fostat*

BY SUSAN J. ALLEN, MUSEUM OF FINE ARTS, BOSTON

The *Fostat* houseboat, sold off by ARCE in the 1990s, had a long and varied career. She began as a private charter steamboat in the fleet of Thomas Cook and Sons in the 1920s—the golden age of travel on the Nile. By the end of World War II, however, tourism in Egypt had almost ceased and she and others like her were sold off to private Egyptian buyers. In the 1960s, with the beginning of the UNESCO International Campaign to Save the Monuments of Nubia, she was purchased by the Oriental Institute of the University of Chicago and refitted as a floating dig house with living quarters, workrooms, a darkroom and even a jeep strapped to her foredeck. She remained up river until 1964 and was towed north before the Aswan High Dam closed off the river.

Now deprived of her stern wheel and engines, she served as a floating dig house both in Luxor and in Cairo. In Cairo the late George Scanlon lived aboard while directing the excavation at the Islamic site of Fustat, the original foundation of Cairo. In the 1970s the *Fostat* was taken over as the residence of the ARCE director and moored in Giza near Cairo University and the zoo. Here she continued to serve both as the director's residence and a reception facility for arriving ARCE fellows and archaeologists.

Old wood boats, however, are an expensive luxury and competition for mooring space on the banks of the Nile was stiff. ARCE and the *Fostat* parted ways and she is said to lie in a boatyard somewhere in Luxor waiting to be revived to her former glory.

AMERICAN
RESEARCH
CENTER
IN EGYPT

909 North Washington Street
Suite 320
Alexandria, VA 22314

arce.org

Chicago House epigraphers arrive for another day of documentation at Khonsu Temple in Luxor. This snapshot captures a day in the 1950s on a project that spanned nearly three decades, a collaboration of artists and Egyptologists to render the stories on the temple walls. The trusted team Chevrolet waits, parked in front of the pylon.