The AERA excavation team works in the depths of the Menkaure Valley Temple during Field Season 2019. Clockwise from left: Martina Bardonova, Dan Jones, Vicky Almansa-Villatoro, Greg Viesman, and an excavation workman.
AERA: WHO WE ARE

For 30 years Ancient Egypt Research Associates (AERA) has brought together archaeologists and specialists from around the world to address questions regarding the origin, nature, and development of the Egyptian state—one of the earliest states of the ancient world.

We seek answers on the Giza Plateau, at our flagship site, “Lost City of the Pyramids” (also called Heit el-Ghurab, HeG) and the Kromer Dump site, where debris from HeG was deposited, as well as the Great Pyramid, Sphinx, and communities associated with the tombs of Pharaoh Menkaure and Queen Khentkawes. After three decades of field and laboratory work, we have constructed a nuanced interpretation of how the Egyptians supplied and transported raw goods and materials to build the pyramids and maintain the HeG settlement, a large urban center dating to the reigns of Menkaure, Khafre, and probably Khufu, builders of the third, second and first Giza pyramids, respectively.

Excavation, analysis, publication, and educational outreach stand as pillars of our mission in Egypt. Through multi-disciplinary analysis, rigorous archaeological fieldwork, and laboratory science we open windows on the everyday lives of Egyptians who built and administered the Giza Pyramids and Sphinx during the 4th and 5th Dynasties (c. 2543–2306 BC) of the Old Kingdom. In 2005, with the sponsorship of the American Research Center in Egypt (ARCE), we began an archaeological training program for Inspectors in Egypt’s Ministry of Antiquities. After completing 17 field schools and graduating more than 300 inspectors, AERA continues to embed this important outreach program within our core research.
PRESIDENT’S MESSAGE

After a very successful prior year, AERA ended our fiscal year July 2018–June 2019 with answers and new questions. We returned to the Menkaure Valley Temple (MVT), a site George Reisner excavated in 1908 and 1910. In past seasons we worked in the eastern end; this year we focused on the southwestern quadrant. Here Reisner found the famous dyad of Menkaure and a queen (possibly the queen mother), “thrown,” he believed, by “Arab treasure-hunters” in a deep pit he called “Thieves’ Hole.” This explanation seemed dubious. (How could such a heavy statue be “thrown,” and why set it aside for later?). This account became increasingly suspect as we probed the MVT. After excavating the hole we found evidence to suggest that in ancient times someone had very purposefully placed the dyad in a deeper, older hole dug into the temple foundations. This important discovery answered questions about where and when the dyad was buried. But now new questions remain to be answered in Season 2020, such as why it was placed in the foundation and by whom.

Dr. Florence Friedman, who has written more than anyone else on the Menkaure statuary, joined us in the field and offered valuable insights as we pondered the dyad mysteries. Dr. Walter Gilbert, Nobel laureate and active member of the Boston Museum of Fine Arts Board of Advisors and Visiting Committee for Art of the Ancient World, funded the MVT operation and also joined us as we dug deep down into the temple.

Before reaching the depths of the MVT, we spent weeks removing Reisner’s spoil layers that he had dumped in the southwest quadrant of the temple. These layers of occupational debris came from Reisner’s excavations in the MVT central court, where a village of small mudbrick houses had once flourished. By sieving these deposits, rich in material culture, we recovered some of our most important finds of the season. They reflect a vibrant, living community. The predominant remains—flint knives, flint fragments, and cattle forelimb knuckle bones—are the physical remains of offerings once presented to the deceased Menkaure and subsequently butchered in the court. They shed light on the royal decrees that endowed the temple.

We decided to work in the west end of the MVT partly because we thought it would yield little material culture, allowing the lab team to catch up on the backlog from our 2018 excavation in the Kromer Dump (KRO), a massive, ancient trash mound west of our flagship Heit el-Ghurab (HeG) site. But the deluge of material from the MVT co-opted some of the specialists, who shed light on life in the courtyard village. Other specialists continued their focus on the KRO material, some of which we believe came originally from the oldest phase of HeG, perhaps Khufu’s palace and base for his pyramid-builders.

We resumed the Return to the Sphinx Viewing Project to document information stemming from work carried on here over the last 30 years. At the Sphinx Temple, our surveyors recorded features previously not documented, and the Glen Dash Foundation Survey team conducted a ground penetrating radar survey. A Japanese team directed by Dr. Yukinori Kawae carried out a 3D survey of the Sphinx and Khafre Temples.

Season 2020 promises to be very busy. We will be excavating an area where we hope to uncover the oldest phase of HeG and possibly part of a palace of Khufu. With Dr. Walter Gilbert’s support we will return to the Menkaure Valley Temple. Please stay with us on this adventure of discovery.

Mark Lehner
FIELD SEASON 2019: Return to MVT

This season we returned to the Menkaure Valley Temple (MVT), where in 2009, 2011, and 2012 we worked in the eastern end. In 2019 we focused on the southwestern quarter, which includes the magazines for the king’s statues. We follow in the footsteps of George Reisner, a pioneer of scientific archaeology. He excavated the valley temple in 1908 and 1910 and published it in 1931. Our goal was to build upon his work and learn more about the temple by examining the structure through a modern archaeological lens.

Using our 21st-century methods and resources, we recovered information that Reisner missed, while also resolving some of the mysteries surrounding the world-famous dyad of Menkaure and his queen (or queen mother) that Reisner discovered in 1910.

We began just west of the MVT by following the causeway corridor, which once ran straight from the upper pyramid temple, to where it meets the back of the valley temple, then turns and runs south along the back western wall. Here, we exposed the western walls of the temple’s two phases, which Reisner had identified. The walls of the later phase were built during the 6th Dynasty on top of the truncated walls of the First Temple. Reisner believed that people abandoned the First Temple after a flash flood destroyed much of the mudbrick architecture. The temple was to have been made of stone, but Menkaure died after having completed only a course or two of the massive limestone blocks intended to form the core. His successor, Shepseskaf, completed the temple in mudbrick.

A Busy Court Village
Next, we began removing dirt inside the southwestern corner. We dug for weeks before finally encountering First Temple walls. But the time was not wasted. The fill we excavated was Reisner’s spoil layers that he had removed from the central court, where he found apartments, bins, and granaries of a temple village. We sent many basket loads of these spoil sediments for dry sieving, and caught a rich trove of material culture from the everyday lives of those who occupied the temple. We picked out larger items, and sent the rest for water sieving.

In Reisner’s day, archaeologists did not sieve so intensively, and so they missed much information conveyed by material like the cattle bone, flint tools and flakes, pot sherds, small bits of metal, and charcoal we recovered. We even found statue fragments and clay sealings.

This settlement waste contains the material culture correlates of offerings awarded to temple staff by royal decrees issued by pharaohs Shepseskaf, Merenre, and finally Pepi II during the temple’s lifetime. These documents, carved on stelae that Reisner recovered as fragments in Menkaure’s upper temple and valley temple, declared that reigning kings must provision the temple with offerings to sustain the deceased king and that these goods would in turn be passed on to the staff that maintained the temple. The trash from the court spoils confirms that people did in fact live in the village.

Quantities of bone fragments and bits of flint knives that we recovered indicate that people did a lot of butchering. But not of whole animals. The fragments were mostly the ends of long bones from limbs, nearly all of which were forelimbs, the element most often shown in offerings for royalty. After presenting the forelimbs to the deceased Menkaure, temple residents butchered them in the court, and sent the long bone meat to their superiors—high officials—while keeping the knuckle bones for themselves, which they consumed in their temple apartments.

The Dyad Hole
In 1910 Reisner found the famous dyad—now on display in the Museum of Fine Arts, Boston—buried in a hole at the back of the temple. In his 1931 publication, he reported that it was thrown in what he called “Thieves’ Hole” by “Muslim treasure-hunters,” apparently intending to return for it later. This did not make sense to us. Reisner’s photo taken right after the dyad was exposed shows a statue standing upright in front of a limestone core block, facing east—carefully and precisely placed—not thrown in a hole. After we cleared out the very deep hole where Reisner found the statue, we were able to pinpoint where it stood.
Reisner’s photo showed features of the core block, including what we called the “tethering hole,” that were still visible, and these served as landmarks for locating the dyad findspot.

It also seemed very odd that Reisner failed to discover the dyad in 1908 when he excavated Thieves’ Hole. How did he miss the dyad? We found the answer in Reisner’s records, which we poured over every day after we returned from the field—diary, field notes, register, and especially photos. Reisner did not discover the dyad in Thieves’ Hole, but in an older, deeper pit just to the east. Reisner only came upon it in 1910 after he removed a rubble retaining wall that the “treasure-hunters” had constructed around their hole. As Reisner’s men dug down deeper and to the east, they exposed the dyad standing in front of a core block. By the time Reisner published the MVT in 1931, he had conflated the two pits.

Someone must have buried the dyad much earlier than the Islamic era. They dug the hole into the ruins of the First Temple, perhaps for safe keeping after a flash flood forced people to abandon the temple. If so, who buried it and why? These are some of the questions that we aim to answer during our 2020 field season.
In AERA’s field laboratory at Giza, the AERA team focused on completing the material we excavated in 2018 at the Kromer (KRO) dump site* and examining and registering new material from the 2019 excavations in the Menkaure Valley Temple (MVT).

Mahmoud el-Shafey and Aisha Montaser finished processing the huge pile of KRO ceramic material and found a slightly greater diversity in some of the less-common types than we usually see, as well as a lot of incised and painted marks on the pots.

Emmy Malek, head of our objects team, had her hands full with large gunny sacks full of small fragments of Egyptian travertine (alabaster) statues from MVT— toes, a beard fragment, and elbow or shoulder fragments. Other fragments were inscribed/incised, or painted, or bore curved or flat surfaces. An additional 90+ kilograms of travertine stones showed no traces of having been worked.

Manami Yahata, AERA archivist and resident roofing expert, continued her study of the roofing and plaster fragments from KRO and started work on the MVT examples. The KRO sample of 93 painted plaster pieces, multi-colored and well-preserved, are consistent with a royal or high-status source for the material discarded in the KRO dump.

Philip C. La Porta returned to resume his study of stone tools from HeG, including querns, whetstones, abraders, and grinders. Much of his work involved measuring, photographing, and describing these objects. He noted the purposeful fracturing of tools at the end of their use life in order to recycle them into smaller objects, such as spindle whorls, drill bits, and jar stoppers. Philip also worked with Manami on an alternative function for the abraders. They found that the angles and curves of the abraders correlated with the outlines of mortar, plaster wall, and ceiling fragments, which may suggest that abraders were used as fine sanding tools for finishing painted plaster walls.

Samar Mahmoud continued documenting the KRO lithic material. The main tool types were knives and sickle blades, as well as cores, flakes, and chipping waste. The MVT tools included handled knives, sickle blades, and end scrapers, as well as blades, flakes, and chipping waste. Most of the sickle blades had visible sickle gloss or sheen, indicating they had been used for cutting grasses and plants rich in silica, most likely cereal stems.

* This 4th Dynasty mound west of the Heit el-Ghurab (HeG) settlement up on the Giza Plateau is filled with trash from a site to the east, probably HeG, and a site to the northwest probably located where the Menkaure Valley Temple was later built.

David Jeřábek and Ali Witsell, the AERA sealings team, continued analyzing the KRO sealings, stoppers, and clay globs, while completing an initial pass through the MVT material. As with the MVT sealings from previous seasons, they found more impressions made with stamp seals than with cylinder seals. This is not surprising given the increasing use of stamps near the beginning of the 6th Dynasty, when they became the standard. However, the motifs show continuity from the 4th through the 5th–6th Dynasties.

Richard Redding and Mohammed Hussein, faunal analysts, completed their study of all the KRO animal bone and some backlog from HeG. They also began analyzing the new material from MVT. They found large numbers of limb bone shafts in the KRO material, as they did last year. Among the MVT remains an overwhelming majority (99%) was cattle, mostly fragments of limb bone ends and small fragments of shafts, with the ratio of forelimbs to hind limbs almost 3:1. This ratio is consistent with the fact that the front limb was the beef offering most often depicted in temples.

Claire Malleson, archaeobotanist and lab director, analyzed flotation and dry-sieve samples from KRO, and began a study of the plant remains in mud-bricks. Her initial impression was that the KRO dump materials came from a settlement that was not “provisioned” as HeG was, but was more self-sufficient.

New Team Members, New Projects. Visiting specialists joined us in 2019 to undertake new projects. Luther Sousa examined cut-marks on animal bones from KRO, looking for evidence of butchering with copper knives—he found very little. Elizabeth Hart studied all the flint sickle blades from our excavations at HeG as part of her ongoing study of technological change in the form and shape of sickles over time during the Old Kingdom. She noted that a small number of the sickles showed gloss, indicating that some residents of HeG had been cutting cereals, and were possibly farmers on the side. Martin Odler and his team from Charles University, Prague, examined industrial materials from HeG, including metal objects and archaeometallurgical remains, such as slag. They primarily focused on Area D17x, where we found evidence of a copper workshop in 1998—one of the few known from the Old Kingdom. The team prepared 23 samples to send to the Institut français d’archéologie orientale (Ifao) laboratory in Cairo, where the elemental composition of the material will be determined. Dr. Odler’s team will be able to compare the HeG material with samples he previously studied from Karl Kromer’s 1970s excavations in the KRO Dump, currently stored in Vienna.
Over the last 30 years much work has been carried out at the Sphinx, but plenty of it has not been recorded or published. The goal of the Return to the Sphinx Viewing Project (RSVP) was to collect and document all the information stemming from this work. This includes geophysical surveys of the Sphinx that have not been published; drill holes to test for the quality of the bedrock and for ground water; modern channels cut for the Sound and Light show or electrical cables; and ancient features documented during restoration work in 1980s and 1990s.

The RSVP is directed by Zahi Hawass and Mark Lehner under the concession held by Dr. Hawass. This season we continued work begun in 2018, which focused on the Sphinx enclosure. During 2018 Amr Zakaria, surveyor, and Ashraf Abd el-Aziz, photographer and archaeologist, mapped the features in the floor around the Sphinx and carried out a topographic survey of the Sphinx base and its enclosure. A team from the Glen Dash Foundation for Archaeological Research (GDFAR) conducted a ground penetrating radar (GPR) survey around the base of the Sphinx.

During 2019 the RSVP shifted focus to the Sphinx Amphitheater, specifically the Sphinx Temple and the area immediately east of the temple. The GDFAR team of Glen Dash, Rebecca and Eric Sperber, and Sara Ahmed, from the office of Dr. Zahi Hawass, surveyed at the Sphinx Temple, beginning with the terrace in front of the southeast corner. The terrace was of interest because streams of water during heavy rains disappear down between the large laid-in limestone blocks. Glen was not impressed with the data they collected here, but it is clear that the seams between the blocks open up and extend deep down.

When the GPR survey team moved into the temple court, they picked up an anomaly that did impress Glen. As of his untimely passing in September 2019, he had been working on processing this data. We will work with his daughter, Rebecca Sperber, now head of the GDFAR, to have the data processed and interpreted.

As part of the RSVP, a Japanese team, directed by AERA team member Yukinori Kawae, carried out 3D recording by drone, photogrammetry, and laser scanning. Their state of the art data capture of the Sphinx produced amazing results, as seen in the image on the facing page.
Mark Lehner mapped the features cut into the front of the Sphinx Temple between 1980 and 1983, making it unnecessary to map them again this season. However, the survey team of Amr Zakaria, Ashraf Abd el-Aziz, and Marwa Mohamed, of the MoA Giza Inspectorate, did map small holes cut into the floor of Terrace I east of the temple, some of the main lines of the Sphinx Temple eastern and northern walls, the edge of the terrace in front of the Khafre Valley Temple, and the sides of the two approach ramps leading to the valley temple. One of the most interesting incidental finds was a limestone piece shaped like an anchor. Comparable to anchors found at pharaonic port sites on the Red Sea coast, not least, the port of Khufu at Wadi el-Jarf, it offered support for the hypothesis that the terrace ended on the east at a quay and harbor basin. The anchor, if such it is, broken in two pieces, was in a rectangular pit cut into the bedrock in front of an unfinished tomb cut into the face of the north ledge.
Publications

MARK LEHNER

Lectures & Conference Presentations

YUKINORI KAWAE
“Pyramid Quest II.” TEDxSaikai, Nagasaki, Japan. July 8, 2018.

YUKINORI KAWAE and MANAMI YAHATA

MARK LEHNER

“From the Prairie to the Pyramids.” Minot High School, Minot, North Dakota. May 1–2, 2019.
“The Cattle and the Wheat, the Folks that Can’t Be Beat, and the Pyramids.” Minot State University, Minot, North Dakota. May 2, 2019.

MARK LEHNER and RICHARD REDDING

CLAIRE MALLESON
“Thirty Years of Archaeobotany at the Pyramids (Giza, Egypt).” Agriculture and the Economy of Supplying the State. The International Workgroup for Palaeoethnobotany, Lecce, Italy. June 3–8, 2019.

RICHARD REDDING
“Egypt, the Gift of the Nile.” University of Michigan, Alumni Association Tour of Egypt. February 25, 2019.

MANAMI YAHATA
In November 2018 a crew worked with AERA team members on a WGBH NOVA film, “Decoding the Great Pyramid,” which features the work of Mark Lehner and Zahi Hawass. The program aired on PBS in February 2019.

In March a CNN film crew joined us to document AERA’s 2019 excavation in the Menkaure Valley Temple for CNN’s Inside Africa as part of a program on Egyptian archaeology that also features recent finds at Saqqara and ARCE’s field school program. The film, produced by Tom Bouchier Hayes, shows our team working in the Menkaure Valley Temple. This is the first video footage of the western part of the temple. The CNN film details our approach to archaeological science, and interviews some incredible people working with us from Egypt and around the world. We were delighted to share this work with a large audience. Inside Africa can be seen at https://vimeo.com/338245576.

Mark Lehner points out lever sockets on limestone blocks in the Menkaure Pyramid Temple while Label News camera records.

Documentaries

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In the Popular Press

The AERA-ARCE Field School was featured in the cover story, “Schools of the Trade,” in the Fall 2018 issue of Scribe, the Magazine of the American Research Center in Egypt (ARCE). The article covers the history of the ARCE Field School program for inspectors in the Ministry of Antiquities and its significant impacts on Egyptian archaeology and on the graduates. ARCE began the program 20 years ago. Five years later AERA started offering a field school in conjunction with ARCE and went on to play a major role in developing the program and pushing it to a new level with a full compliment of advanced courses. A number of grads of the AERA-ARCE Advanced Field Schools are featured in the article.

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The Giza Field Lab. Khufu Pyramid in the background.

The GDFAR (Glen Dash Foundation for Archaeological Research) team surveying in the court of the Sphinx Temple.

Mohamed Helmi and a worker set up the Total Station on a core block of the MVT.

Menkaure Valley Temple excavations. Workers carry away baskets of fill to be sieved.

Southwestern corner of Menkaure Valley Temple, showing Corridor C and the pit where the famous dyad of Menkaure and a queen (or queen mother) was buried. View to the north.

Corridor C

Dyad pit

Menkaure Valley Temple
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The generous contributions of our benefactors and members have made our work possible. Every tax-deductible donation supports AERA’s archaeological excavations, publication of our findings, and educational programs aimed at advancing knowledge about our common human heritage. We are extremely grateful to the following foundations, businesses, and individuals who support our work. Donations through December 2019 are included.

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