

KV 11: Ramesses III
ONGOING CONSERVATION EFFORTS

The White Monastery
DIGITAL PRESERVATION

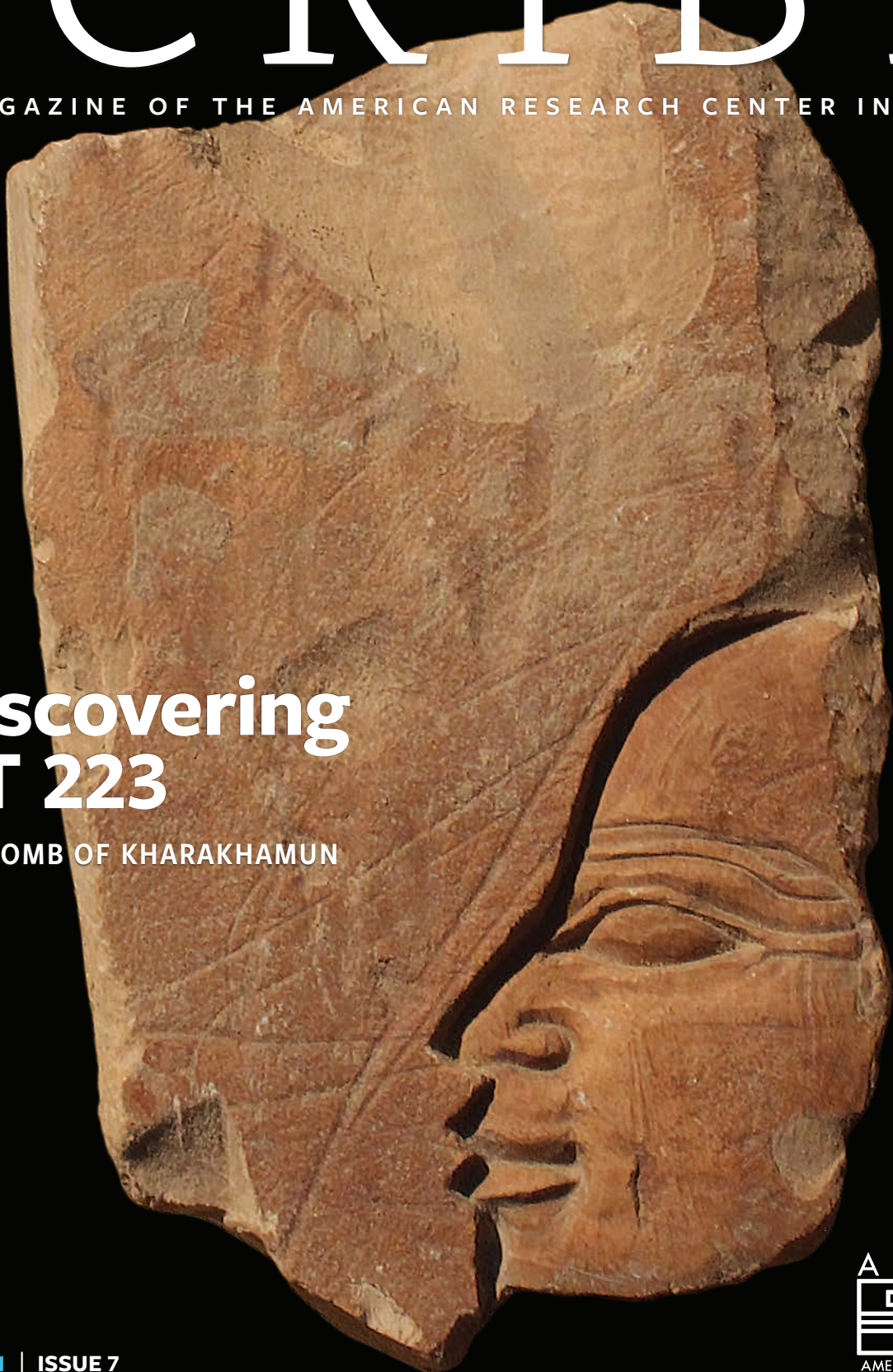
KV 10: Amenmesse
SARCOPHAGUS LID RESTORATION

SCRIBE

THE MAGAZINE OF THE AMERICAN RESEARCH CENTER IN EGYPT

Discovering TT 223

THE TOMB OF KHARAKHAMUN



SPRING 2021 | ISSUE 7



IN THE FOOTSTEPS OF THE HOLY FAMILY

NOVEMBER 5-21, 2021

An adventure curated and led by ARCE. Explore the historic trail of the Holy Family's journey through Egypt.

PHOTO: KENNETH GARRETT

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The Ramesses III Project's head conservator, Karin Schinken, cleaning a relief.

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Provided by the TT 223 project (page 16)

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Made In Design Co.

Scribe is published by the
American Research Center in Egypt

ISSN 2578-8558

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Locate the fieldwork, historic sites, and other key places featured in this issue of Scribe

EGYPT

MEDITERRANEAN SEA

NILE RIVER

RED SEA

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The White Monastery
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LUXOR

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LUXOR

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Updates on excavation, conservation, and research projects developing across Egypt



Dr. Louise Bertini
Executive Director

A Year of Launches

If 2020 taught us anything, it was to adapt with lightning speed! This month marks our second exclusively virtual Annual Meeting and our 72nd overall. With nearly 100 individual scholarly presentations and a riveting keynote by Dr. Ramadan Hussein sponsored by National Geographic, our second virtual Annual Meeting embodies the same spirit of academic exchange and cutting-edge research that our meetings always promise. Though we look forward to gathering again in person, hosting the Annual Meeting online provides access on a global scale. *Scribe* has also gone digital this year for all meeting attendees and participants, while our members can expect to receive their hard copies delivered to their doors as always.

The Return of the TMP Website

The relaunch of the famed Theban Mapping Project (TMP) website was one of our most anticipated and large-scale projects off the field. Reviving the spirit and purpose of the previous website while adapting to today’s competitive and cutting-edge web standards was a challenge, but one we were well equipped to meet thanks to the constant support of Dr. Kent Weeks and the TMP team. You can learn more about the project and its launch this winter on page 47.

Digital Archives

ARCE’s Cairo Archive houses some of the most comprehensive data on restoration, documentation, and training projects that were funded in Egypt by the U.S. Agency for International Development (USAID) since the early 90s. In our mission to promote research and understanding on Egyptian cultural heritage, we sought to make this collection more widely accessible by establishing a website dedicated to hosting the archival materials. Thanks to the support of the National Endowment for the Humanities (NEH), the Department of Education (DOE), and our institutional member, UCLA, we launched the ARCE Conservation Archives online this winter, and will continue to regularly add projects to it over the coming years. Read more about this exciting development on page 46.

ARCE’s Online Exhibits

The partnership that began between ARCE and Google Arts & Culture only a few

years ago has led to one of our most exciting outputs this year: the launch of ARCE’s online exhibit titled ‘Preserving Egypt’s Layered History.’ Composed of beautifully curated galleries, informational videos, and 3D tours of ARCE projects, the ARCE Google Arts & Culture Partner page is as educational as it is entertaining. For more information about this launch and how to access the ARCE Partner page, check page 46.

Back to the Field

At the end of 2020 we wrapped up our latest field project at the historic Jewish Cemetery in Basatin, which was funded through the U.S. Embassy in Cairo via the Ambassador’s Fund for Cultural Preservation. Thanks to a generous donation from the Karaite Jews of America we have begun work on the *Garden of Remembrance*, creating a contemplative space with hard and soft landscaping, and giving life to the stones through new educational plaques. Look out for a feature on this superb project in the coming fall issue of *Scribe*.

This year we’re also expecting to see a slate of new field projects kicked off by ARCE. We’ve got our eyes on Upper Egypt, and I expect to have some very exciting news to share with our membership by the fall.

Philanthropic Support

Our 2020 End of Year Campaign was a great success as we exceeded our goal of \$50,000. I send sincere gratitude to all who participated in making a gift this year in excess of membership dues. Your philanthropic partnership allows ARCE to meet the most pressing needs in the US and Egypt. I am happy to report that this year saw record participation from first-time donors. I am grateful to each of you who have chosen to support ARCE so generously. We rely on your support to help us fulfill our mission.

Another Member Tour!

Last, but certainly not least: bookings for the next installment of ARCE’s Member Tour, which will take place from November 5-21, 2021, are officially open! ‘In the Footsteps of the Holy Family’ will take ARCE Members on a journey across Egypt to visit ancient sites – Pharaonic, Coptic, Jewish, and natural – that tell the story of the Holy Family’s flight through Egypt. For more information on how to reserve your spot, check the inner front cover of this issue. 🦋



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The organization promotes education and training in site management and protection.

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PROJECTS



Deir el-Ballas Excavation

A substantially preserved town and the forward capital of Theban kings during the Hyksos Expulsion

The Oral History Project

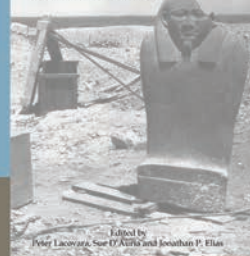
An archive of recorded conversations capturing the thoughts and recollections of American Egyptologists

PUBLICATIONS

promoting archaeological education

George Andrew Reisner
Archaeological Fieldwork in Egypt:

A Method of Historical Research



Newly Published & Now Available
Reisner's Archaeological Fieldwork in Egypt.



Now in Preparation
Valdemar Schmidt
Sarcophagi, Mummy Coffins and Mummy Cases in Ancient Egypt.
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Your Support is Critical

While the Fund has received generous grants from the American Research Center in Egypt and the Shelby White and Leon Levy Program for Archaeological Publications, we rely on individual contributions for many of our projects.

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A Three-Dimensional Survey

Digital Preservation at the White Monastery in Sohag

BY STEPHEN J. DAVIS, PIETRO GASPARRI, GILLIAN PYKE, NICHOLAS WARNER

The fifth-century church of the White Monastery (Dayr Anbā Shinūdah) is one of the oldest surviving Christian monuments in Egypt still in use today. It is a massive limestone structure, measuring 35 x 76 meters in plan with a perimeter wall 13 meters high, in the form of a basilica (now partly ruined) with a triconch sanctuary. The building is remarkable not only for its size, but also for the quality of its carved masonry decoration and the fact that it incorporates many Pharaonic relief blocks within its structure. The Monastery's library, now dispersed, is one of the most important extant sources for the history of early monasticism and is known to scholars worldwide.

The remains of mud- and fired-brick buildings of the ancient monastery can be seen in the excavated areas of the archaeological site that surround the church. These include a tomb and associated chapel decorated with exceptional wall paintings, one of which depicts Shenoute of Atripe (*Anbā Shinūdah*), the charismatic third abbot of the monastery after whom the monastery is named. Major hoards of silver and gold coins dating to the Roman and Byzantine periods found there are now on display in the Luxor Museum and Coptic Museum in Cairo. In contemporary religious use, the annual Saint's Day celebrations at the Monastery attract thousands of devotees, and hundreds of Coptic pilgrims visit on a weekly basis.

The White Monastery was once part of a monastic federation that included, to the north, the Red Monastery and, to the south, a nunnery at the site of Atripe that is better known for its surviving Ptolemaic/Roman temple dedicated to the goddess Repit. All these sites have benefitted, over the years, from funding through the Antiquities Endowment Fund (AEF) for a wide variety of activities ranging from site management planning to conservation interventions at different scales. One activity at the Red Monastery in March 2015 that set the scene for the project presented here was a complete 3D laser scan of the complex by Pietro

Gasparri and his team from CPT Studio in Rome, the first time a major Christian monument in Egypt had been recorded in this way. The results are remarkable for their accuracy and are an important record of the condition of the church in 2015. They furthermore proved their worth with immediate effect in the planning and execution of further conservation work undertaken by ARCE in the church's nave and tower. The scanning also resulted in outputs in a variety of media, including spectacular images that are unachievable through traditional photographic means and a ten-minute video allowing the viewer access to and appreciation of the church that would be impossible through physical visitation alone.

In 2015, at the same time that scanning was in progress at the Red Monastery, a test scan was also performed at the White Monastery church in order to record the condition of its severely deformed north wall. The latter work was sponsored by the Yale Monastic Archaeology Project (YMAP: Stephen J. Davis, Executive Director; Gillian Pyke, Archaeological Director). The management of the test scan was coordinated by Nicholas Warner. Architect Pietro Gasparri, assisted by Giovanni Tamburro, was tasked with the initial gathering of data on site, and these data were subsequently processed by Gasparri in Rome. The excellent results achieved in the space of only four hours on site demonstrated that a complete scan of the church and its archaeological context was an essential prerequisite for any future physical interventions at the White Monastery. In the context of noticeable and rapid deterioration in both the fabric of the church and the archaeological remains, due to natural causes as well as anthropogenic damage, the subsequent award of a grant by the AEF to YMAP in 2018 for 3D scanning work at the monastery was both timely and welcome.

This project was covered in the ARCE Bulletin (BARCE 209: 11-16), the predecessor of *Scribe*.

youtu.be/yX8x4jYzenI





Exterior view of the White Monastery church seen from the southwest with archaeological remains in the foreground

PHOTO: G. PYKE, 2018



AEF-funded fieldwork took place over a period of two weeks in April 2019. The data were collected by Gasparri (on this occasion assisted by Massimo Carderi and Giovanni Tamburro) using a combination of photogrammetry, laser scanning, and geo-referenced topographical survey. These methodologies were chosen to reproduce the morphology of the Monastery to the highest level of detail. The survey integrated outputs from three different devices: a phase-shift laser scanner (Focus 3D S120), a total station (Leica FlexLineTS02 plus), and a high-resolution digital camera (Eos 5D Mark IV Canon). Recording was carried out both at ground level and at height in order to record all surfaces not directly visible from the ground. Six additional scans were also made inside the sanctuary of the church from a five-meter-high scaffolding to survey the upper parts of the building. In order to produce a complete survey of

the exterior, scans were taken from the complex's roof. Additional photography was provided by a remotely controlled camera mounted on a metal pole fixed to a tripod, which facilitated work at a level of 4.5 meters from the ground. This was particularly useful in the documentation of the archaeological area since the use of drone technology was prohibited. The resulting three dimensional model of the church allows any sections, elevations and details to be extracted from it according to need. All the surfaces of the building were scanned to a resolution that allows reproduction of the elevations, sections, and plans at 1:50 scale. As the church contains a very high concentration of Pharaonic spolia as well as important examples of early Christian architectural sculpture, the recording of these features was at a higher resolution, allowing reproduction at 1:10 scale.

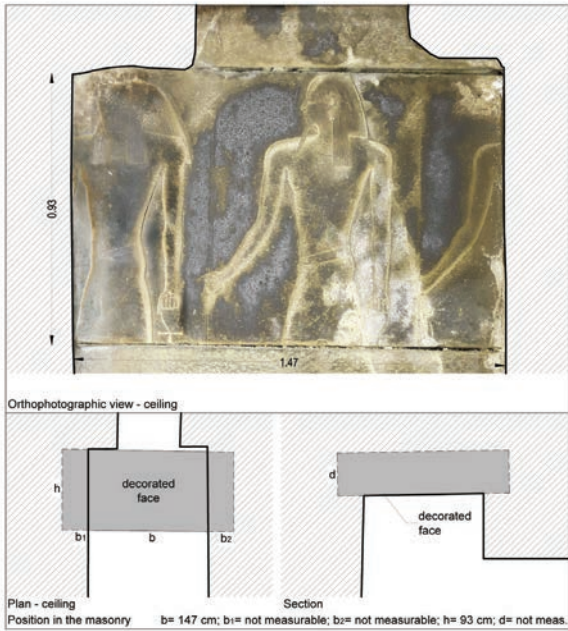
TOP: Interior of the nave as seen from the west

PHOTO: N. WARNER, 2015

OPPOSITE PAGE

BOTTOM: Part of the archaeological area showing remains of the funerary chapel

PHOTO: G. PYKE, 2008



LEFT: Example of a pharaonic block re-used in the structure of the west stair of the church, recorded through photogrammetry and laser scanning as part of a complete survey of all decorated blocks

IMAGE: CPT STUDIO, 2019

RIGHT: Site plan of the White Monastery showing the church and currently exposed areas of the archaeological site

IMAGE: CPT STUDIO, 2019





TOP: Cutaway perspective of the triconch of the church

IMAGE: CPT STUDIO, 2019

BOTTOM: Pietro Gasparri carrying out pole photography in the archaeological area

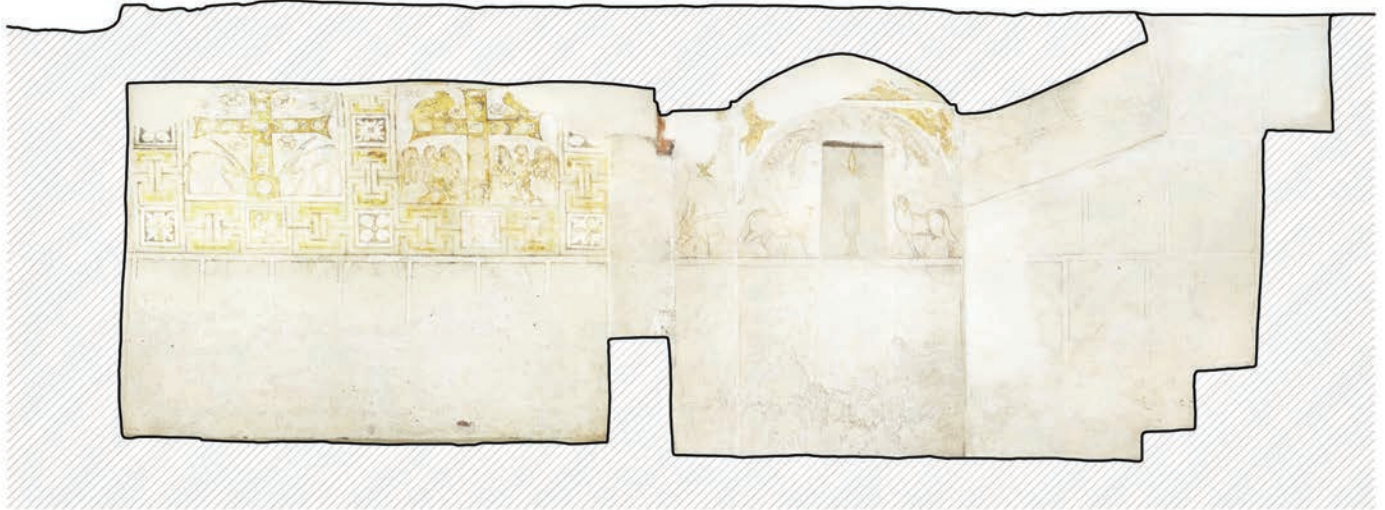
PHOTO: N. WARNER, 2019



The challenges posed by recording the archaeological area around the church were just as significant as those posed by the scale of the church. For a start, high temperatures meant that the scanner, although shaded with a parasol, on occasion reached its upper operating temperature and had to be allowed time off to cool down. The large extent of the remains, covering a combined area of 3.5 hectares, was another consideration and included underground elements such as the painted tomb associated with Shenoute and a twelve-meter-deep well. Prior to scanning, the entire archaeological area had to be cleaned under the supervision of Gillian Pyke, and protective walls that had been constructed around key features were removed. After the conclusion of scanning and photography the protective walls were re-instated and, in some cases, extended. Finally, selected areas were backfilled with clean sand for their future protection.

Once back in Rome, the arduous task of processing the data gathered on site commenced. Pietro Gasparri's team worked for six months creating the 3D model by collating the multiple scans with topographic reference points, stitching together twelve thousand high-resolution images of the church and archaeological area, and color correcting the images where necessary to remove strong contrast caused by bright sunlight. The 3D model is viewable with open-source software such as Gexcel's JRC 3D Reconstructor Viewer.

A particularly important task was to identify, through change detection analysis of scans made in 2015 and 2019, whether there was further movement in the north wall of the church. This massive limestone wall had historically been buttressed by the gallery, roof, and columns of the nave, and afterwards by



East-west section through the tomb of Shinūdah showing painted decoration

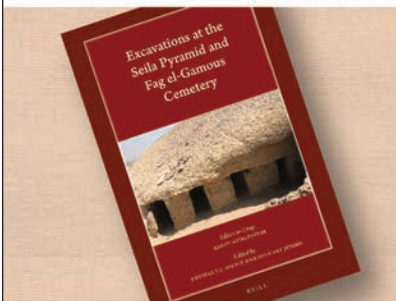
PHOTO: CPT STUDIO, 2019



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PROJECT HIGHLIGHT DIGITAL HERITAGE

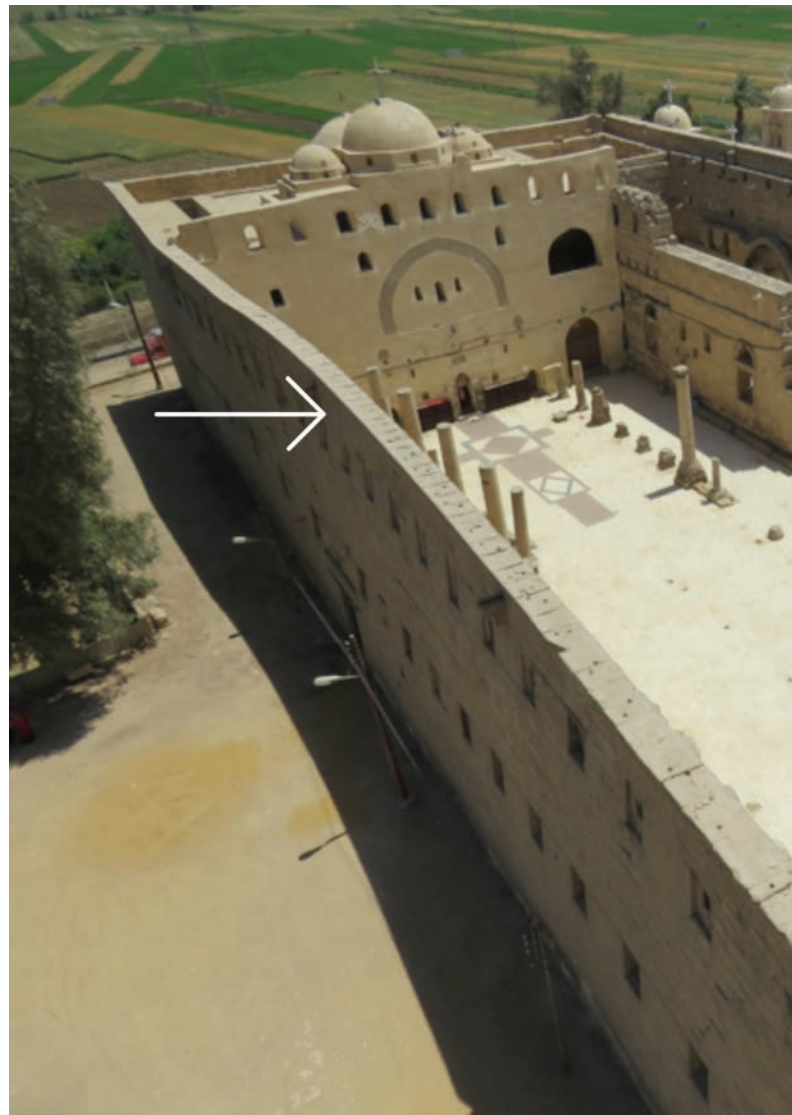
houses constructed in its ruins. Without such support on its inner face, the wall has leaned inwards to the extent that at its center it now inclines 70 cm out of plumb, which is a major structural concern. The scans show that between 2015 and 2019 the wall had moved inwards by a further 3.5cm. Structural analysis is currently ongoing to provide an answer to this conservation problem that avoids the radical solution of dismantling the wall and rebuilding it, which would cause considerable loss of original material from the wall.

The new record of the physical condition of the White Monastery site, created in 2019, updates the previous, unpublished survey of the church carried

out by the Darmstadt Technical University in 1962. It further provides an integrated data set comprising both the church and its surrounding archaeological context. It will offer a visible means of monitoring various structural cracks and deformations in the church that are of great concern to the monks and local personnel of the Ministry of Tourism and Antiquities (MoTA) who are together responsible for its care. The accurate measurements contained in this 3D ‘condition report’ exist as detailed digital renderings in both DWG and orthophotographic formats. These will be the foundation for future physical interventions, as well as for on-the-ground monitoring, and will allow the monks and the MoTA

BOTTOM LEFT: Pietro Gasparri scanning the triconch from scaffolding
PHOTO: N. WARNER, 2019

BOTTOM RIGHT: Deformation of the north wall of the church as seen from above
PHOTO: G. PYKE, 2019



to take some aspects of conservation stewardship into their own hands while continuing to liaise with YMAP to ensure the survival of this precious heritage. The video simulation, three dimensional views, and photo-realistic cross sections of the church and surrounding areas will also serve an important function in making the site better known across online platforms and traditional print media in the future. 🌱

Learn more about the Yale Monastic Archaeology Project: tinyurl.com/Yale-in-Egypt



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THE
TOMB
OF
KARAKHAMUN

CONSERVATION AND
RECONSTRUCTION IN
TT 223

BY DR. ELENA PISCHIKOVA, DIRECTOR,
SOUTH ASASIF CONSERVATION PROJECT

Reconstruction of the doorframe by the conservators Abdelrazk Mohamed Ali, Ali Hassan Ibrahim, Hassan El Dimmerdash, Said Ali Hassan, Mohamed Abu Hakem, Mohamed Hussein Shebib, Taib Said Mohamed, and Mohamed Bedawy

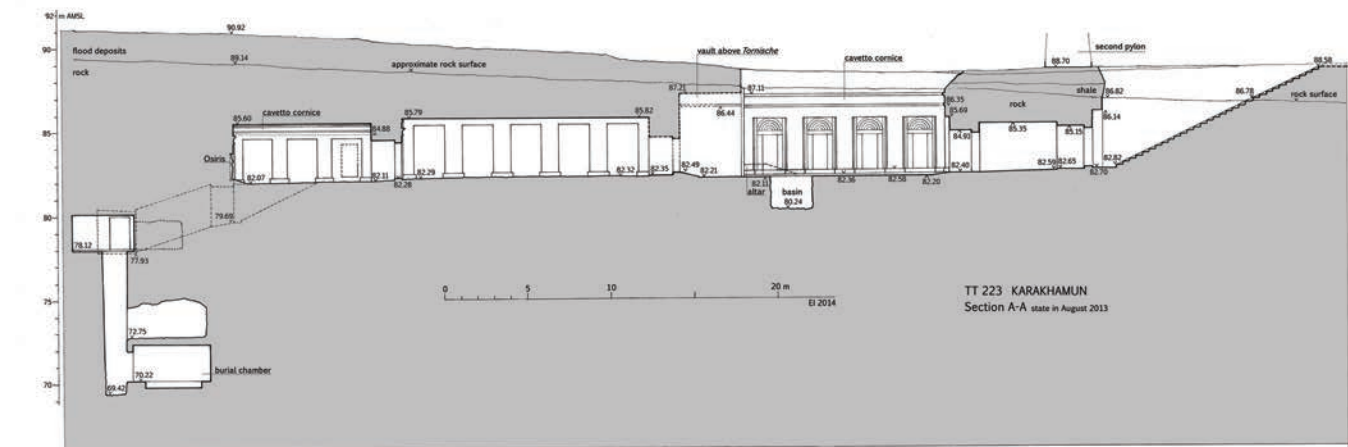
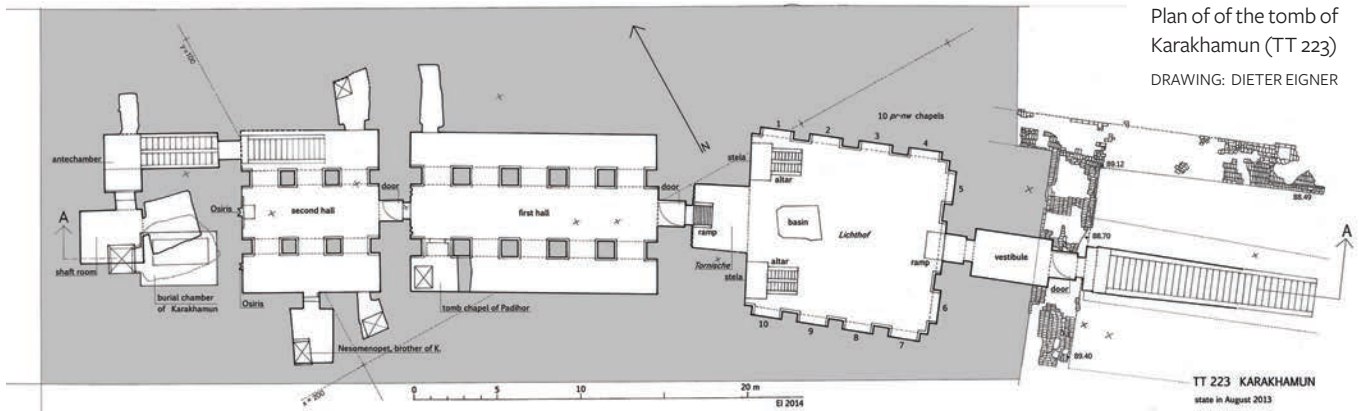
PHOTO: KATHERINE BLAKENEY

The South Asasif Conservation Project is an American-Egyptian mission working under the auspices of the Ministry of Tourism and Antiquities (MoTA) and directed by the author. It was founded in 2006 with the goal of clearing, restoring, and

reconstructing three tombs of the Theban South Asasif necropolis: Karabasken (TT 391), Karakhmun (TT 223), and Irtieru (TT 390). By this time the tombs of the South Asasif necropolis were critically damaged by floods and later occupants and buried under the houses of a modern village. The tomb of Karakhmun collapsed entirely and the tombs of Karabasken and Irtieru were half-buried beneath layers of debris. As several still-visible features appeared severely damaged the tombs were considered irreparably destroyed. Tens of thousands of carved and painted fragments of the original decoration found during the excavation of the tombs made it possible to plan and start executing their reconstruction.

The main objective of the South Asasif Conservation Project is to prioritize the conservation and reconstruction of ancient monuments *in situ* working in close cooperation with the MoTA conservation department in Luxor. One of the main aims of the Project is the complete reconstruction and conservation of the tombs' decoration. Our work was supported by two AEF grants, for the conservation

Procession of offering bearers. Tornische. South Wall (before conservation)
PHOTO: KATHERINE BLAKENEY



of the painted burial chamber and the vestibule of the tomb. The work is executed by members of the Ministry's conservation team.

The fourteen years of the Project have created and cemented an Egyptian and international team coming to work in South Asasif from the USA, UK, Germany, Austria, the Netherlands, Spain, Australia, Canada, and other countries.

History of the Project

During the past thirteen years in the South Asasif the team went through the excavation stage in most areas of the necropolis.

Although the results of the very first season in 2006 already proved that sizable areas of the tomb of Karakhamun still remain intact, it took the South Asasif Conservation Project eleven years to clear all the spaces of the tomb. Excavation of the tomb of Karakhamun was completed in 2016. The uncovered features include the entrance area, vestibule, large open court, two pillared halls with side rooms, a multi-roomed burial compartment with a painted main burial chamber, and remains of the mud brick enclosure wall and pylons of the superstructure.

The tomb of Karakhamun is currently at the conservation stage. It presents the biggest conservation challenge in the necropolis. The ceiling, pillars and large areas of the walls in the pillared halls have collapsed, leaving only outlines or small remains of the architectural features. Despite such severe destruction the amount of decorated fragments found during the tomb's excavation allowed the team to plan its reconstruction from the very first season of work. Close to 20,000 fragments of the limestone relief decoration, 8,000 fragments of the painted ceiling and 6,000 fragments of painted plaster in the burial chamber of Karakhamun were recovered from the debris of the shattered tomb. Based on the found fragments all the architectural features were identified as well as most of the texts and images of the original decoration. Every found fragment went through the process of conservation and consolidation.

The next step taken by the team was the physical reconstruction of the tomb. Recreation and preservation of the monument *in situ* presents every found fragment as part of a scene or text in its original context, in the original space and on its original height. The recreation of a tomb restores the meaning and function of even the smallest fragments, including undecorated ones, by finding their original locations. Matching the shape of broken bedrock *in situ* with the backsides of carved fragments plays an important part in the process of reconstruction in the original



space especially in cases when the remains of carving on a fragment are unclear or damaged. Connecting the broken surfaces of fragments with each other and joining them into larger compositions in sand boxes is sometimes the only way to find context for the fragments where carving is not easily identified.

The main challenge of Karakhamun's reconstruction lies in the task of reconstructing the architecture of a ruined rock-cut tomb. Initially, the underground part of the tomb was carved into the limestone bedrock. The architectural features of the tomb were sculpted in the process of removing excess stone. The space

TOP: Fragment of the doorframe of Karakhamun re-inscribed for Ankhendjehuty

BOTTOM: Offering scene of Karakhamun. North Section. East Wall. First Pillared Hall. (before conservation)

PHOTOS: KATHERINE BLAKENEY

of the tomb grew organically as a negative sculptural body shaped by the stone removed rather than added. All the features were sculpted in the local bedrock. Casing was used only in the *Tornische* area and even there with slabs of local stone.

Recreation of the tomb demanded a change in the method of its construction. A collapsed underground space couldn't be re-carved from east to west and top to bottom, the way it was originally created. It had to be constructed from bottom to top. Every element has to be built out of blocks of new limestone with ancient fragments merged into a new structure. Reliable reference points were determined through joins with the bedrock and between the fragments. The dimensions of the elements are always based on remains of the original features. The main goal of the reconstruction is to provide surfaces for every inscription and scene in their original location by recreating the architectural elements using their original dimensions.

The first restored and reconstructed rooms in the tomb of Karakhamun were the painted burial chamber and vestibule, supported by AEF grants, and the second pillared hall, constructed by the end of the 2016 season. Although the placement of the fragments is still a work in progress, the architectural features of the hall including walls, four pillars, four pilasters, architraves with cavetto cornices, and door frames of three side rooms were fully realized.

Ongoing Project Interventions

Reconstruction and conservation of the offering scenes and architectural features of the entrance area to the subterranean part of the tomb of Karakhamun (*Tornische*) was the next step planned by the Project. It was supported by an AEF grant and accomplished in 2016-2018.

The original decoration in this area was carved for Karakhamun in the 25th Dynasty. It consisted of the offering scene on the south wall of the *Tornische* and

offering inscriptions on the front doorframe carved in raised relief. The thickness of the doorway, back doorframe, adjacent pilasters, and east wall of the First Pillared hall contained offering scenes carved in sunk relief. Later in the 26th Dynasty the inscriptions of the front doorframe were chiseled off and re-carved in sunk relief for Ankhefendjehuty who reused the tomb during the reign of Psamtik II. The original inscriptions are still traceable in some areas. The *Tornische* was traditionally the most lavishly decorated area of Kushite and Saite tombs and considered the main entrance to the tomb. Scenes and inscriptions were usually carved in raised relief with the rest of the tomb decorated in sunk relief. The tomb of Karakhamun presents the earliest fully decorated Kushite *Tornische* and its reconstruction was of the utmost importance. The reconstructed scenes include three large scale offering scenes on the *Tornische* south wall and the east wall of the First pillared hall, two small offering scenes on the front and back lintels of the entrance doorframe, processions of offering bearers on the pilasters, offering texts of the doorframe and BD 43, 44, 51, 117 and 15c on the pilasters and the thickness of the entrance. They were incorporated into the reconstructed architectural features. The quality of carving in this area is the highest in the whole tomb. The procession of male offering bearers carved in delicate low raised relief on the *Tornische* south wall and in shallow sunk relief on the pilasters demonstrates the intricacy of the details and subtle modeling on the human figures and offering animals. The figure of Karakhamun at the offering table on the north part of the east wall is his best preserved and best carved 'portrait' executed in shallow sunk relief with sharp edges and delicate modeling on the face featuring pronounced Kushite features.

The *Tornische* was one of the worst preserved areas in the tomb of Karakhamun. The doorframe and adjacent walls and pilasters collapsed due to

Area of *Tornische* (before reconstruction)

PHOTO: KATHERINE BLAKENEY



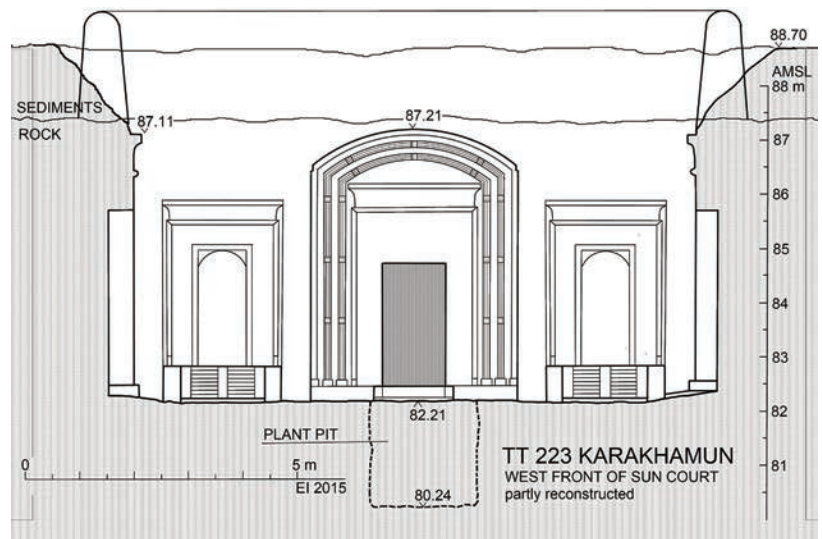
The Team Behind the Scenes

The supervisors of the main areas of work are Marion Brew (excavation), Dieter Eigner (survey, mapping, architecture), Erhart Graefe, Kenneth Griffin (epigraphy), Julia Budka (pottery, temple-tomb studies), Salima Ikram (animal bones), Elena Pischikova (director of the Project, art history), Katherine Blakeney (assistant director of the project, photography, archaeological drawing, art history), Paul Nicholson (faience objects and production), Matthias Müller (Coptic finds), John Billman (registration and study of objects). The 2018 season was supported by the ASA Restoration Project directed by Anthony Browder, Darren McKnight, and South Asasif Trust directed by John Billman. We are very grateful to all the team members of the Project for their dedication and hard work.

numerous floods and later occupation of the tomb. The remains found *in situ* were less than a meter (roughly three feet) high and showed considerable damage left by fire and water. Thousands of fragments of the architectural elements and decoration found in debris demonstrated different kinds of damages as well. In order to reconstruct the offering scenes in the entrance area we had to rebuild the architectural elements they were a part of. Most of the original casing of the south wall of the Tornische has fallen off, exposing the bedrock underneath, except for the bottom of the wall and a small area of carving in the first register. Numerous cracks of different degrees of depth cover the surface of the wall. The deepest go through the bottom part of the wall. The North-East and South-East Pilasters had deep lacunae in the middle and upper part of the pilasters. Their surface was covered in numerous cracks of varying degrees of depth. The bottom parts of the pilasters were stained with soot from burning on the floor. Numerous fragments detached from the

upper areas of the pilasters show soot stains, cracks, and dust on the surface. Large areas of the East Wall lost their original surface, leaving the bedrock with lacunae of varying depths. The bottom of the

Reconstruction of
Tornische
DRAWING: DIETER EIGNER





Winch and pulley in the open court

PHOTO: KATHERINE BLAKENEY

wall showed soot stains. Numerous small areas of original surface showed missing plaster, pigment and numerous cracks. Thousands of detached fragments show cracks, areas of missing plaster and pigment, soot stains, and dust.

The architectural and decorative elements of the Tornische were reconstructed based on the contents of the inscriptions and iconography of the images, traces of original architectural elements and reliefs found *in situ* as well as better preserved parallels. Architectural reconstructions were built out of new limestone blocks that were delivered to the tomb by a winch and pulley installed in the open court. Ancient fragments were incorporated into the new structure.



Conservation Work and Treatment Methods

Preventive conservation

Weakened bedrock in the area of the entrance was supported and consolidated with Epoxy and metal rods.

Re-construction of architectural features

Collapsed architectural features of the entrance area were rebuilt with blocks of new limestone attached to metal rods. The doorframe of the entrance was rebuilt with six vertical metal rods. The lintel was fixed in place with 4 metal rods. The remains of pilasters *in situ* were consolidated with Epoxy injections and lime injections for smaller cracks. Metal rods were inserted into the pilasters. Metal frames were attached to the rods to support new limestone blocks, taking the weight off the ancient structure. New limestone blocks were carved for the pilasters measuring 100 cm by 50 cm. They were reinforced from the back with white cement and stone chips.

Reattaching Fragments to the Walls and Pilasters

Original fragments embedded in the reconstruction



were placed in pockets carved in new limestone. Lime mortar was used to attach ancient fragments to new limestone. Prior to installation small fragments were assembled in larger groups and glued together with Paraloid B44. Larger fragments were connected with Araldite 1306.

Casing the South Wall

The ancient wall was cleaned with brushes. New blocks of limestone 10/15 cm thick were attached to the wall with white cement with sand and water. The size of the blocks is 50 cm x 40 cm.

Mechanical Cleaning

Soft brushes, air pumps, wood sticks with cotton

Dust Removal

Dust was removed from the surface with a soft brush and pure alcohol if necessary.

Chemical cleaning

Weak fragments of decoration with traces of paint were cleaned with alcohol diluted in water and consolidated with a 3% solution of Paraloid in acetone

Soot Removal

Soot, where possible, was removed with a cleaning solution containing 2% Ammonium Bicarbonate, 3% EDTA, CMC (Carboxi metil celulose) and distilled water. The solution was applied by means of paper compresses.

Lacunae

Large lacunae were refilled with limestone chips mixed with modern lime mortar (4 parts of sand, 2 parts of lime, 1 part of white cement, and 0.5 to 1 part of hibe) and closed with lime plaster (1 part of lime, 2 parts of sand, 1 part of hibe, and 2-3% Primal). Areas that have lost their original surface were cased with new limestone.

Cracks

Deep cracks were injected with soft lime and closed with epoxy and modern lime mortar. Small cracks were injected with Primal and closed with lime plaster.

Consolidation of Pigment

Pigments were consolidated with a 3% solution of Paraloid B72 in acetone applied with a soft brush.

ABOVE GROUPING:

Reconstruction of the figure of an offering bearer by Abdelrazk Mohamed Ali, Said Ali Hassan and Katherine Blakeney.

PHOTO: ELENA PISCHIKOVA

Injections of a 3-5% solution of Paraloid B-72 were made to support small fragments of pigment. They were administered by syringe.

Process of Reconstruction

East Wall: First Pillared Hall

1. The north section of the east wall (340 x 200 cm) is the best-preserved wall in the tomb of Karakhamun. It contains an offering scene with a large-scale figure of Karakhamun seated in front of the offering table and two registers of priests performing offering rituals carved in sunk relief. 130cm of the 340cm wall was missing. The top of the wall contained an offering list. The lower part of the offering list, *in situ*, provided information on the number of columns (12). The size of the offering list and joins established among the found fragments helped to reconstruct the original configuration of the list, which was organized in three sections. The names of offerings found on the fragments of the collapsed top of the wall show that the lists in the north and south sections of the wall were almost identical and consistent with Barta A/B type of the 6th Dynasty. 20 fragments were placed on the re-built part of the wall to reconstruct the offering list.

2. The offering scene on the south section of the east wall covered an area of 350cm x 215cm and included a large-scale figure of the tomb owner at the offering table, an offering list and offering rituals all carved in sunk relief. Only small remains of the offering list and the figures of two priests were still *in situ*. The rest of the original surface of the wall partially collapsed or was chiseled off. Numerous fragments of the original composition found in debris clearly indicate that it was a mirror image of the much better-preserved offering scene on the north section of the east wall.

The similarities in overall iconography even include sacred oil jars and the figure of a reclining dog under the chair of Karakhamun. However, the remains of Karakhamun's figure show stylistic and iconographic differences. He wears an elaborate wig as opposed to the close-cropped hair of his counterpart and was probably carved by a different artist. Although more damaged, this scene features original colors. 90 fragments were incorporated into the reconstruction of the south section of the east wall.

North-east Pilaster (NP1)

1. The pilasters of the east wall suffered from burning on the floor, a drainage pipe from the house built above this area and other factors. The original surfaces were partially lost, especially in the top registers, while the lower registers were affected by burning. Numerous fragments of the original decoration found in debris allowed a partial reconstruction of the original scenes and inscriptions.

2. The west face of the pilaster was decorated with three registers of offering bearers, three figures in each register. The heights of the figures and the registers are based on the complete figure and register line still *in situ* on the south-east pilaster SP1. The height of the registers was established at 84/85cm and the figures at 65cm.

3. Bottom register – man leading a bull with a flower pendant, woman holding a duck and a basket of grapes and man leading a stork. Partially *in situ*: 6 fragments added.

4. Second register – Man holding a jar, man, woman holding a duck: 6 fragments added. The position of the first man in the second register was confirmed by a corner connection with the text of BD 117 on the north

Head of an offering bearer.
North-east Pilaster. Third
register

PHOTO: KATHERINE BLAKENEY





face of the pilaster. The position of the last woman in the register was established through a connection with the text of BD 43 on the south face of the pillar. 5. The third register consists of the largest figures on the pilaster. The first figure is a woman with a basket, followed by a man with a duck. The sequence of figures was established through a join among these figures at shoulder level. 10 fragments added.

1. The north face was inscribed with BD 117. Partially *in situ*, 7 fragments added. The south face was inscribed with BD 43, partially *in situ*: 5 fragments added.

South-east Pilaster (SP1)

1. Bottom register – man, woman leading an offering animal and man holding two tall jars. Most of the scene was still *in situ*: 6 fragments added.

2. Second register – Man leading an offering animal, man holding a fish and leading an offering animal falling to its front knees, and woman with an offering animal. The position of the first man is determined by a connection with the text of BD 44. The position of the last figure is determined by a connection with the corner of the pilaster and direct joins between the fragments of the figure and the animal. 11 fragments added.

3. Third register – man carrying a calf on his back, woman leading a stork and man holding a fish and leading an offering animal falling to its front knees. 14 fragments added. The position of the last man is determined by a connection with the text and vignette of BD 51 on the north face of the pilaster.

4. The north face of the pilaster is inscribed with BD 51, partially *in situ*, 27 fragments added. The south face of the pilaster is inscribed with BD 44, partially *in situ*: 5 fragments added.

Tornische: South Wall

1. The dimensions of the wall are 331.5 m by 4.25 m. The limestone in this area was considered inadequate for the desired quality of carving and the bedrock wall was cased with slabs of denser stone. Most of the carving was done on the casing. All the casing blocks collapsed or were removed from the wall. The only fragment of decoration still *in situ* was carved in bedrock. The wall under the casing slabs was roughly chiseled and features numerous remains of ancient mortar.

2. Based on recovered fragments, the decoration of the wall consisted of a large-scale figure of the tomb owner at the offering table, a register of male offering bearers and a register of priests performing funerary

North Section. East Wall (before and after conservation and reconstruction)

PHOTO: KATHERINE BLAKENEY

rituals, all carved in raised relief. A large offering list consisting of 28 columns in three sections was left mostly in preliminary drawings, with areas of carving only in the section closest to the tomb owner. The width of the columns is 6.5 cm and the width of the column lines is 1.2 cm. Only two figures of male offering bearers were found *in situ* carved in bedrock. The height of the figures is 38 cm, the height of the register is 40 cm. 8 figures of offering bearers were assembled out of 37 fragments and placed on the wall. The offering list was reconstructed out of 25 fragments.

Tornische Doorframe (front)

1. The doorframe on the west wall of the three-meter deep recess was richly decorated. The decoration was reconstructed based on elements found *in situ* at the bottom of the doorframe and joins made between fragments found during the clearing of the area. The doorframe was outlined with a flat frame connected to the walls and vault (11cm wide) and two three-stem reed bundle elements connecting with the arch on top of the lunette. The distance between the frame and the first three-stem element is 14cm, the first three-stem element is 11cm wide, the distance between

the two three-stem elements is 15cm, the width of the second three-stem element is 11cm, the distance between the second three-stem element and torus is 11cm, and the width of the torus is 9cm. About 150 fragments of the torus and three-stem elements were incorporated into the reconstruction.

2. The height of the doorway was established through the chiseled horizontal surface of the south side of the bedrock, which indicated the position of the drum at a height of 237 cm from the ramp. The height of the ramp is 60cm. The width of the drum is 19cm.

3. The width of the doorway is about 110-112cm as indicated by traces of the doorjambs on the top of the ramp.

4. The inscriptions between the three-stem elements were originally carved in raised relief and chiseled off later. Traces of the original inscriptions with offering formulas to Osiris and Anubis are still visible.

5. Inscriptions on the doorjambs originally carved in raised relief were re-carved in sunk relief for Ankhefenjehuty. They were reconstructed out of 31 fragments.

6. The south wall of the thickness was re-carved with an Ankhefenjehuty stela. The western side of the stela is connected to the corner fragments and a horizontal inscription. The text of the stela is still unidentified. The bottom of the decorated surface was established by comparison with the north side of the thickness – 56cm. The size of the stela is 80cm x 60cm. The inscription in 9 registers contains numerous mentions of the name and titles of Ankhefenjehuty. The number of fragments is 25.

7. The north side of the thickness was decorated with BD 15c with a vignette of Karakhamun standing in front of a deity. 2 fragments of vignette and 2 fragments of inscription.

Lintel

1. A scene of a seated figure of Karakhamun in front of an offering table and a row of large-scale sacred oil jars was reconstructed based on parallels from TT 33 and TT 160. The remains of the composition consist of a toe of Karakhamun and three fragments of large-scale oil jars in raised relief.

2. The bottom of the lintel was inscribed with an offering formula with the name of Wepwawet in raised relief. The name and titles of Karakhamun were chiseled off. The surface was plastered and painted for Ankhefenjehuty. 7 fragments with large-scale signs were incorporated into the inscription.

Cavetto

The full height is 50 cm. The length of the cavetto

Tornische. (after reconstruction)

PHOTO: KATHERINE BLAKENEY





at the bottom is 230 cm. Leaves are 10 cm and their thickness is It is painted red, green, and blue in the following sequence: red, blue, green, blue. 11 small fragments from the middle section of the cavetto range from 4 cm to 33 cm, and two large fragments at the end of the cavetto: north – 30 cm and south – 52 cm.

Vault and Lunette

1. The vault and lunette curve under an angle of 34 degrees and then flatten to 30 degrees. The angle of the vault was determined by a 10 cm long segment on the original surface of the bedrock of the south side of the west wall.
2. The surface of the preserved segment is in the foreground in relationship to the surface outlining the three-stem element, indicating an outer arch on the level of the flat element. Joins established in sand boxes show that two three-stem elements were connected to the same arch.
3. The start of the vault is also marked by a line on the south wall of the niche. There is a 12 cm high flat surface above this line indicating the base of the vault. Fragments of the three-stem elements joined on the floor confirmed the angle of the arch as following the curve of the vault. The top of the cavetto is lined up with the inner corners of the plain and three-stem arches.
4. Both three-stem pilasters end with a flat element. The proof is the lower part of the arch on the south side with a nsu sign between the pilasters and top portions of both pilasters.

5. The three stem arch has three rope elements: one in the middle and two on the sides marking 1/4 sections of the arch. The distance between the ropes is 81 cm, the width of the rope is 11.5 cm.
6. The lunette has a few signs attached to the three-stem arch. They are fragments of the names of the sacred oils. 6 fragments of the lunette allowed partial reconstruction of two Wadjet eyes, and a figure of a reclining Anubis.

Tornische Doorframe (back)

The least number of fragments was identified for the back of the Tornische doorframe. Only three fragments of two seated figures and three fragments of an offering scene with seated and standing figures on the lintel.

Conclusion

The reconstruction of the Tornische area includes seven offering scenes with three offering lists, three processions of offering bearers and five images of the tomb owner at the offering table. The scenes are accompanied by offering and funerary inscriptions and BD chapters. It is the biggest concentration of offering scenes in the tomb. The imagery, carved in raised relief on the front and sunk relief on the back, is among the best quality carving in the tomb of Karakhamun. The Tornische of Karakhamun is the largest and earliest fully decorated Kushite entrance to the subterranean area of a tomb and its reconstruction is a significant contribution to the history of art and architecture of Kushite temple-tombs. 🌸

Procession of offering bearers. South Wall. Tornische. (after conservation and reconstruction)

PHOTO: KATHERINE BLAKENEY

ROCK 'N ROLL

IN THE VALLEY OF THE KINGS

LEARNING TO EXPECT THE UNEXPECTED

WHILE RESTORING A SARCOPHAGUS LID

BY LYLA PINCH-BROCK,

DEPARTMENTAL ASSOCIATE, ROYAL ONTARIO MUSEUM



Nubie Abdul Basset
assembling sarcophagus
parts for restoration
PHOTO: LYLA PINCH-BROCK

A

Our truck loaded with the monastery block approaches the police post in the Valley of the Kings
PHOTO: LYLA PINCH-BROCK

At 7:00 on the morning of September 9 2019, in the Valley of the Kings, the sky is white with heat but no one seems to notice: At this early hour the royal wadi is

already jammed with tourists beaming with wonder and streaming with sweat. The colorful parasols hoisted by wise little Japanese ladies look like water lilies bobbing in a pond. But when our noisy truck, trailing a bit of unwelcome dust, carefully noses past them on their way to KV 10 at the end of the wadi, a few of the more curious crane their necks to see what's happening.

The board weighted down with a rock blocking the entrance to our tomb is roughly shoved aside as we all wrestle the heavy bundle inside. Unlike many of the tombs in the royal *wadi*, the location of KV 10 - the tomb of Amenmesse - is not proclaimed with a shiny aluminum sign, yet, like today, it continues to generate a lot of excitement: In 2006 the archaeological world was astounded by the discovery of a cache of beautiful black coffins, perhaps dating to the time of Amenhotep III, tucked into a small room cut into the rock far below KV 10.



Our team leader is Salima Ikram, a bundle of energy and a professor at the American University in Cairo. Salima joined the KV 10/KV 63 project, begun in 1992, in its later phase. She had been serving as Assistant Director since 2014, and the concession was transferred to her in 2016 when director Otto Schaden passed away. Schaden, known for his eccentricities (playing a trumpet at odd moments, sometimes sporting a pith helmet), fierce loyalties and love of animals, could be spotted sitting on the sand outside the tomb, passing on his lunch to stray dogs and birds. Ikram wants to wrap up the work in KV 10, and the sarcophagus lid is one of the last items on the list – and literally the biggest. I have been given the job of putting it together, since I am a member of the original team and have two other sarcophagus restorations under my belt – those of Ramesses VI and most recently, the sarcophagus of Merenptah. These were my husband Ted (Edwin

C.) Brock’s projects; he was jokingly known as “the sarcophaguy” because of his extensive knowledge of those monuments. Unfortunately, he passed away just before Schaden, leaving his work on the Takhat lid unfinished. Ted had already

The 2018 season of work on the sarcophagus lid was kindly funded by the William Petty Foundation, with funds allocated in memory of Ted Brock.

made a sketch plan for reassembling the massive lid and I have added to it. Soon we will see if it works.

I am optimistic that this restoration might be easier than the others since we have more pieces – maybe 90% of them – and the joins are good. The sarcophagus lid was carved from crisp pink granite, and is incised with elegant inscriptions and figures in a style that is a throwback to the Old Kingdom. The lid is one of three that probably came from the same time period and workshop – the others belong to Nefertari and Meryetamun, the wife and daughter of Ramesses II. Women only started to get stone sarcophagi in the 19th Dynasty.

We prop ourselves against the high limestone walls of the entrance to catch our breath. It has been a busy day, sparked by another fantastic discovery; a huge missing piece of our lid was identified by a Dutch scholar at the Monastery of Mar Girgis not far from Luxor. It was apparently spirited away from our tomb by Coptic monks around 700 AD to use as a mill-stone, and our little team has just succeeded in bringing the piece back. Now we have a bit over three weeks to accomplish what at the moment seems impossible – to put together a puzzle of literally, monumental proportions.

Our gigantic sarcophagus lid was appropriated by a shadowy king or queen who reigned during an equally shadowy period of Egyptian history. The appropriator was named Takhat – apparently a queen and possibly the mother of a king. But three women with that name are known; who is whom we are not sure, but there are some clues. Schaden noticed that the cartouches on the lid originally carried the name of Anketemheb, another daughter of Ramesses II. She was probably buried in the Valley of the Queens or nearby. However, beginning in the 20th Dynasty, most of the royal tombs were cleared of their valuables by an impoverished government, the mummies re-wrapped and replaced in a number of caches. I think that tracking the movement of sarcophagi on the West Bank would make a good board game.

Nubie Abdul Basset Hassan is our *rais*, or chief of the workmen, and he probably weighs less than the heavy granite fragment he is wrestling with. He

Nubie and workmen prepare the monastery block for its descent
PHOTO: SALIMA IKRAM





KV 63 as seen upon its discovery in 2006
PHOTO: E.C. BROCK



LEFT: Lyla, Father Kyrillos and Salima at the Monastery of Mari Girgis
PHOTO: ALI REDA

is the modern equivalent of the ancient Egyptian overseer *shabti* accompanying every 10 *shabti* workmen. Nubie started with Schaden at age 13 and continues to be indispensable to us. It is now up to him to get

the block down into the burial chamber – a distance of about half a kilometer through sloping corridors that end with a ramp descending into the Burial Chamber. We have covered the ramp with boards and plastic foam to ease the block’s journey and protect the stone floor. Last Fall I got Nubie to bring all the other pieces of the lid down into the Burial Chamber and hoist them onto a big table I had built for the purpose. This time Nubie and his men opt for sliding the block, wrapped in a plastic rug, onto a piece of wood, then shifting it onto another in rotation. I can think of an easier way, but I keep my mouth shut; after all, these are the guys whose ancestors built the pyramids. They should know.

September 11

Early in the morning the restorers’ truck pulls up to the tomb loaded with scaffolding. Lotfi Hassan, looking more like an Italian rock star than a stone restorer, leaps lightly out of the back, black hair flying. Lotfi is well-known in the Luxor area for his work

on stone monuments and is part of the team from Chicago House, the outpost of the Oriental Institute. He starts passing out steel beams and soon a line of them, like a robotic caterpillar, is crawling down into the tomb. This is the second batch of scaffolding we have tried; the first turned out to be too small for the burial chamber. This one turns out to be too big, so we install what we can and add on another workman rather than waste more time.

A winch is clamped to the overhead beam set in place, and loaded with chains. The plan is to hoist the blocks and move them along the beam into the assembly, working from the four corners towards the center. I pass out copies of my master drawing of where all the pieces should go, and we pore over them, matching the fragments to the sketch.. But there are still many unknowns, like a small relief showing a human head which does not seem to fit anywhere. We hope we can identify it as the work goes on.

Like all Missions working in Egypt, we are accompanied by an Inspector assigned to us by the Ministry of Tourism and Antiquities. We are lucky to have an enthusiastic young woman named Ablaa Abdel Hakk Akhmed. Mrs. Ablaa, as we call her, is interested in everything and wants to get involved in the restoration process, so Lotfi shows her how to use an alcohol solution to clean the dusty blocks, using a circular motion. At his elbow are his two assistant restorers, Mustapha Akhmed Mohammed and Azab Akhmed Mahmoud, and a conservator appointed by the Ministry, Mohammed Akhmed Salam. The Burial Chamber is now a beehive of activity; the sound of clanking chains reverberates off the high ceiling. I am happy to be down here looking for joins, but guiltily admit to myself that I also enjoy the cooler temperatures. Those pharaohs definitely had the right idea.

September 18

Eureka! Lotfi has found the bit relief showing a human head fits the winged figure carved over the breast on the top of the lid. We were expecting the head of Khnum to be there; now we need to re-think the decoration.

Over the past few days we have made great progress, but we have just run into a hitch: The flat wooden base built to support the restoration has turned out to be too small; in fact, the sarcophagus lid is bigger than Schaden estimated by quite a few centimeters. So we order another base, this time a high one instead of a flat one. We think this will also show off the lid better too. We phone the carpenter who is quite happy to have all this business. He turns up promptly to take measurements.



Our team is the only spot of color in the tomb, the walls are otherwise bare and beige. Once they were carved and painted for Amenmesse, who may have reigned from 1199 to 1203 B.C., but for some reason they were scraped down and re-plastered for a royal woman named Baketwerel. A very small amount of her plaster decoration still remains. Takhat's name can be seen on the older carved surfaces, but hers is the only burial that seems to have actually taken place in the tomb: In 1994 Schaden found parts of her sarcophagus lid, some human remains and canopic jars in room H. The burial was probably robbed, the sarcophagus base later broken up to be used for other monuments like stele, but the lid remained in

TOP: Ted Brock and his team at work on the sarcophagus of Ramesses VI (an ARCE Project)

PHOTO: FRANCIS DYZIKOWSKI

BOTTOM: Otto Schaden and Salima Ikram go over photos of small finds found in the tomb of Amenmesse

PHOTO: GEORGE B. JOHNSON



TOP: Setting up the scaffolding and winch to move the lid fragments

BOTTOM: Inspector Ablaa tries her hand at conservation

PHOTOS: LYLA PINCH-BROCK



the tomb until the Copts came. After that the tomb suffered from repeated flooding (Schaden counted 12 layers). When we went into the tomb for the first time in 1992, we had to enter through a break into the tomb of Ramesses III, as KV 10 was completely packed with flood debris. It took Schaden decades to clear the tomb, with the last bit of material removed only last September. But even then we were overjoyed to pull out a large fragment of the sarcophagus lid from the fill.

September 24

The carpenter's truck with the new wooden base arrives, causing another stir in the *wadi*. Nubie and his workmen deftly lift it out and trot it down the ramp. Lotfi has leveled the floor in the Burial Chamber and the men set the base in place equidistant between the walls. All the sarcophagus lid pieces are waiting on the sidelines in their planned locations, ready the final assembly. Lotfi knows where everything goes, and some pieces have already been glued together. He uses an extremely strong two-part epoxy and then clamps the fragments. The plan is to fix the sarcophagus lid into three or more sections, so in future they can be moved if necessary – perhaps for a display in a museum. We all know if the lid were to be completely fixed together it would be too heavy to move, and certainly, too big for the tomb doorway. So, this is our solution.

September 26

Finally! As I trot down the wooden stairway I can see most of the pieces have been lifted onto the new base; it actually now starts to look like a sarcophagus lid. We are all surprised to see how big it is, even though we had some idea of the measurements. We can also see some evidence for its treatment in ancient times; robbers probably smashed the corner of the head end to get inside, and the Copts bashed away at the foot end to extract a millwheel-sized piece.

Osama wraps the final, precious piece from the monastery in a belt so it can be hoisted above the assembly. With a squeal of metal from the winch and a clatter of chains the huge piece rises; Lotfi and



Lyla showing Lotfi where a block is located on her master plan of the lid

PHOTO: ABLAA ABDEL HAKK AKHMED



The Giza Project at Harvard University

Celebrating 20 years
<http://giza.fas.harvard.edu>



“The sarcophagus lid was carved from crisp pink granite, **and incised with elegant inscriptions and figures in a style that is a throwback to the Old Kingdom.**”

Azzab and Nubie grab it and hold it steady. Mustapha lays pieces of wood against the other fragments to protect them, and the fragment is gently slid by them and lowered into place. It fits the foot end perfectly. We all applaud!

But now there seems to be a crisis; one side of the head end pokes above the other where they are supposed to join in the middle. Lotfi bends down and peers underneath; the obstruction is the wooden lip we added to seat the notched lower edge of the lid. The men strain to lift the right side slightly while Lotfi reaches in and rips off the slat. The men lower the piece and Lotfi replaces the wooden strip. The sides now meet in the middle. We breathe a collective sigh of relief.

Back at my flat in Gurna I check my calendar; we are moving along right on schedule. Our last day will be October 1, *Inshallah*. Payday, tips and congratulations



will be in order. We are all looking forward to that. There are just a few finishing touches left to do.

September 27

I ask Nubie and his men to start clearing away while Lotfi and his assistants take down the scaffolding. It is a relief to finally have more room to work in. I have bought cans of paint and am given the job of mixing colors for the base. Lotfi rubs his chin and declares, “lighter,” or “darker,” as I test them on the wood. I remind him that choosing decoration colors is usually a woman’s job! I have decided that the interior supports should be painted black to make them invisible. Meanwhile, we have visitors: Dr. Fathy Yasine abd El Karim, Director of the Valley of the Kings, and his associate, Ali Reda Mohammed come by, and observing our almost-finished work, nod and smile with satisfaction. Later, Luc Gabolde,

head of the French team at Karnak Temple, appears far above in the tomb doorway, waving. He has been invited to see our masterpiece: He is very interested in sarcophagi and offers some useful ideas about gap-filling the missing areas.

October 1

It’s 6:45 a.m. I stand at the side of the road in front of my flat waiting for our van to pick me up for the last time. My purse is bulging with the money for payday. I am feeling both sad and happy: Sad that my time here will soon be over, but glad that everything has turned out well. All these people that I have come to know, work and joke with over the past few weeks, I hope I might see again – or then I might not. But Luxor is a small place, so there’s always a good possibility.

I hope so. 🌸

TOP LEFT: Fragments of the side of the lid glued and clamped, awaiting assembly

TOP RIGHT: Lotfi explains the stages of work to members of the VOK Inspectorate

PHOTOS: LYLA PINCH-BROCK

Brett McClain and Anke
Weber discussing the
future work plan on site

KWI



PRELIMINARY MEASURES IN THE TOMB OF

RAMESSES III IN THE VALLEY OF THE KINGS

BY ANKE WEBER, HUMBOLDT-UNIVERSITY BERLIN



he tomb of pharaoh Ramesses III, which is also known as KV 11, was destroyed in the wake of several rainwater floods at the end of the 19th and the beginning of the 20th century. Over several thousands of years, such floods have occurred frequently in the Valley of the Kings and quite often they streamed down into the royal burials. It may seem rather unlikely that flooding should be such a threat to burials that lie in the middle of the desert. However, the Valley of the Kings is actually a dried-out river bed (a so-called *wadi*) and it is therefore an ideal conduit for the masses of water streaming down from the mountains to its entrance. Such periodical water intrusions, in combination with some highly water-absorbing layers of rock, have caused major damage to some of the tombs. The floods caused instabilities in the pillars as well as the destruction of wall paintings on plaster. Archaeologists not only have to deal with weather effects or the special geology and nature of the limestone in the *wadi*, but also with the consequences of large-scale tourism, deterioration, and dust accumulation.

Thanks to ARCE's Antiquities Endowment Fund and their generous support, *The Ramesses III (KV 11) Publication and Conservation Project* was able to carry

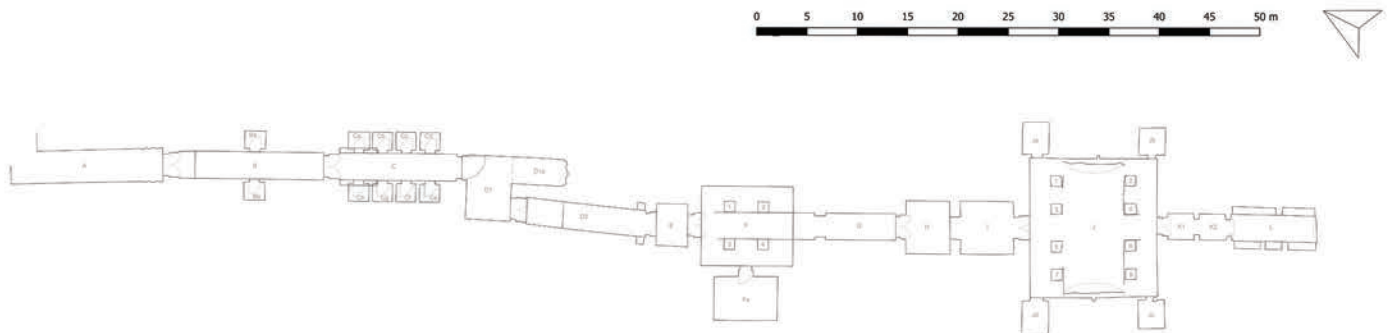
out major preparatory measures during the 2019/2020 winter campaign. This will enable us to develop a strategy for conservation, excavation, refurbishment, site management, and publication of a tomb that is part of the UNESCO World Heritage site: the Valley of the Kings. We would like to share our initial results here exclusively with the ARCE community.

The Tomb KV 11

The tomb of Ramesses III is situated close to the rest house and is accessible via a sloped staircase which leads to the first two corridors. As is usual for this period, these corridors are decorated with texts from the Litany of Ra and sections of the Book of Amduat. Very unusual, though, is the addition of ten small chambers flanking the corridors to both sides. They contain a unique decoration program which does not occur in any other royal tomb before or after. Corridor C is followed by a further curiosity, room D1, which was constructed after the workers broke through to a chamber in another tomb, room Fa in KV 10. By covering the south wall and shifting the axis of the whole tomb, the workmen created additional space for an innovative decoration program. In corridor D2, however, which is decorated with the fourth and fifth hour of Amduat, the tomb returns to late New Kingdom traditions.

Entering the so-called well chamber (room E), the visitor nowadays walks over a wooden bridge that keeps them safe from a deep shaft leading to the Netherworld. Next follows the four-pillared hall F, which includes scenes from the fifth and sixth hour of the Book of the Gates. An annex, room Fa, contains further depictions of the seventh hour as well as scenes of the king being led by Horus-Khenti-khety and Thot in the presence of Osiris, who is seated in front of a golden offering table. A straight stairway cuts through hall F in the middle and leads to the tomb's rear parts. From corridor G on, which once contained the Opening of the Mouth Ritual, the site is not accessible for tourists. Rooms H and I are partly

Ground plan of the tomb KV 11 after the Theban Mapping Project



Photographer
Johannes Kramer
taking pictures in the
burial chamber



filled with sediments and limestones from the ceilings. On entering hall J, the burial chamber, the full scale of destruction comes into view. Layers of sand and sediments are covered by large limestone pieces from the walls and ceiling. The eight pillars carrying the ceiling are heavily damaged and show a number of cracks. The small annex chambers Ja to Jd are filled with limestones fallen from the ceiling and the same holds for rooms K1, K2 and L. For anyone with an interest in the preservation of cultural heritage sites, the spectacle of the burial chamber's current condition will be rather alarming. For a realistic assessment of that condition, however, one needs the empirical data that can only come from closer investigation.

The first priority, therefore, was to conduct surveys and to produce records of the tomb's current condition. Processing these data will take a certain amount of time, after which the various strategies proposed by our specialists will have to undergo a series of tests. Only then will it be possible to develop

a watertight plan for the reconstruction, refurbishing, and preservation of the tomb.

Analyzing the Geology of the Tomb

Before the KV 11 team was able to conduct a geo-archaeological survey in the tomb, it was assumed that the water-absorbing properties of a lower stratum known as the Esna shale might have been responsible for the main destruction in KV 11's rear parts. The water was thought to have entered the tomb several times, not only via the entrance but also by way of certain cracks in the ceiling of the burial chamber. The theory was based on the comparable cases of KV 7 (Ramesses II) and KV 5 (Sons of Ramesses II), which are situated in the vicinity of the tomb. The Esna shale, which consists of calcite, illite (clay minerals), quartz and montmorillonite, has a high swell potential and expands immediately through contact with water. The resulting pressure from below the tomb would have caused the deformation and instability of the tomb's pillars. In order to verify

Head conservator
Karin Schinken
cleaning a relief



the Esna shale thesis, we were fortunate to have the assistance of the petrologist Judith Bunbury who has considerable experience in the field of geo-archaeology, especially in the Valley of the Kings. She carried out a visual survey and preliminary measurements, and was able to draw a clear picture of the tomb's surrounding bedrock and its nature. Bunbury estimated the depth of the water-absorbing Esna shale below the original floor level of KV 11 and concluded it is situated too low to have been affected by water from the tomb. Hence, we knew that there must be another reason for the sharply marked border between the remaining wall paintings on plaster and the destroyed lower part of the burial chamber. Originally, this border was thought to indicate the level of the water that remained in the tomb following the floods.

Investigating the surrounding bedrock, the petrologist noted that the entire tomb was constructed into the wall limestone zones A and B. These zones are different in their quality and water absorbency. While zone B is of a stronger nature and less weather-prone, the wall limestone in zone A is soft and friable. Because it absorbs water very well, it has caused instabilities in the pillars in the burial chamber that led to the destruction of the plaster on the walls. Over a certain time period, water contact caused the decomposition of the plaster's elements and as a result it simply lost its adhesive characteristics and became separated from the walls. The limestone of zone A has a darker color than that of zone B. The geological layers are clearly visible and can be detected under certain light. But the destruction of the tomb's rear parts was not only caused by the properties of the surrounding bedrock. To a certain extent it was also the result of an interplay of different natural conditions. An additional reason for deterioration in the tomb's rear parts were the many faults, which, according to the petrologist, were weaknesses that were exploited by the workmen. They form natural gaps in the limestone, separating certain parts of the bedrock from each other. In order to develop a plan for stabilizing this endangered part of the site, we recorded the main faults. A drawing was prepared based on ortho-photos generated by photogrammetric and Total Station surveys for geo-rectification by Gareth D. Rees (Oxford Archaeology East). Photogrammetry was a major part of our work on site and will provide valuable high-resolution and distortion-free pictures that will serve as a basis for digital drawings. A further advantage of this work was identifying the exact length of the tomb as 113.93 meters, based on new measurements. An updated and detailed plan and section of KV 11 that includes pivot holes and collapses has been prepared and will soon be published.



Once we were aware of the geological structure, the petrologist additionally surveyed the area above KV 11 in order to detect cracks on the surface that might lead to the burial chamber. Bunbury discovered a certain number of fine fissures which can absorb rainwater. Nevertheless, she considered them as too small for actual water ingress since crystals formed in the cracks suggest water evaporated before reaching the burial chamber. The geo-archaeological survey as well as the photogrammetric and Total Station surveys are currently being processed to provide solid data about the nature of the tomb's bedrock and its condition. All this will take a certain time, especially the creation of a 3D-model of the tomb which will serve as a basis for detecting and recording cracks and instabilities wherever they occur in the tomb. Through continuing analysis of the data we are laying the groundwork for the eventual consolidation, conservation, and preservation of KV 11's rear parts.

TOP: East wall of the burial chamber illustrating the visible border between wall limestone A (dark area below) and B (light area above)

BOTTOM: Geo-archaeological survey above the tombs in the Valley of the Kings



TOP: Salt efflorescence in hall J, south wall, east side

BOTTOM: Willem Hovestreydt explaining the advantage of photogrammetry to the field school

Conservation Measures

Further preliminary work has been conducted by our head conservator, Karin Schinken, who is responsible for planning the conservation and restoration for the tomb's rear part. By surveying and recording the areas that are not accessible for tourists nowadays, she was able to develop a damage catalogue with a special glossary. Identifying the different types of destruction will make it possible to assess the requirements for their preservation. The conservator also investigated the building materials and techniques of KV 11 in order to develop strategies for their future restoration. While documenting the present condition, she matched a number of stone fragments in the burial chamber in order to relocate them to their original position. For detecting the ongoing decay a fall control was installed, in rooms L, Jd and hall J.

By damage mapping, the conservator was able to address isolated destructions and their causes in order to provide suggestions for necessary treatment. The main problems in KV 11 are faults (geological causes),

plaster detachment, salt efflorescence, particularly in the faults, dust accumulation, and soiling.

Although we are now familiar with the problems in KV 11, it will also be necessary to investigate their causes in order to avoid these sorts of destruction in the future. Therefore, the conservator carried out preventive conservation measures, including climate control by a permanently installed data logger in the burial chamber as well as several separate climate measurements in the other parts of the tomb. As a preliminary result, she discovered that the daily rise and fall of humidity in the tomb's rear parts must be caused by the perspiration and breath of the numerous tourists visiting the tomb every day. This was suggested by the fact that the same fluctuations were recorded on days when the team was not working. The warm and humid air surge must be pressed from outside into the rear parts, and is not able to evaporate because of the lack of air ducts. However, the areas in the tomb's foreparts, between room D1 and corridor G, display even higher temperatures and relative humidity than the rear. We are currently running a long-term measurement of climate data for prospective comprehensive evaluation. Until we have processed these data, we can only speculate about the daily fluctuation of the relative humidity in the burial chamber. During the documentation of the present condition of the rear parts of the tomb our conservator analyzed some stone fragments in the burial chamber and matched them to their original position on the ceiling and the pillars. For detecting the ongoing decay a fall control was installed in hall I.

A Field School for KV 11

During our work, we received support from our field school students from Luxor University under direction of the Dean of the Faculty of Archaeology, Prof. Dr. Mansour El-Nouby Mansour. During the field school the students received training in archaeology, conservation, state-of-the-art digital methods, and data processing. They learned the techniques and advances of photogrammetry, Reflectance Transformation Imaging (RTI), D-Stretch, and digital epigraphy as well as how to use them. Furthermore, they gained experience in recording and collating texts from tomb walls for editing and conducting iconography analyses of wall scenes as well as giving support in clearing parts of the burial chamber and the processing of finds. The field school was very successful and provides a basis for future work.

Reconstruction and (Re)contextualization

Another important part of our field campaign was the

preparatory work for the reconstruction that is planned in the future. It was based on archival research that we have been carrying out since a couple of years. Thanks to the records left by 19th century travelers and scholars, Willem Hovestreydt and Anke Weber are now able to reconstruct more than 95% of the former wall decoration in the rear part of KV 11. Of particular importance are the drawings made with the aid of an optical device known as *camera lucida*. Such drawings are very accurate and free of distortion, and in combination with recent photographs and ortho-photos they can complement the images of missing wall parts. Loose limestone fragments are scattered all over the burial chamber and knowledge of the former wall and pillar decoration can help us to restore these fragments to their original location.

Reconstructions and providing lost views are part of our site management plan, which includes additional information for visitors. VR-applications will not only make the former wall decoration visible but will also virtually install certain pieces of tomb equipment like the king's sarcophagus and its lid, which are nowadays displayed in the *Musée du Louvre* in Paris and the *Fitzwilliam Museum* in Cambridge.

Our VR specialist Sandro Schwarz ran a test phase within the tomb in order to estimate the number of devices needed. We are currently developing the idea in order to provide the devices within the next years. For the future it is planned to organize a

fluid stream of visitors and to avoid concentrations of people in certain areas of the tomb that are endangered by the fluctuating humidity that causes damage to the plaster.

Outlook

Our team is currently processing and analyzing the data gathered in the winter campaign. With the support of our collaborators and advice from the members of our scientific advisory board, J. Brett McClain and Nigel Strudwick, we will be able to develop the proper methods for saving this important cultural heritage site. Assisted by modern state-of-the-art techniques our research is continuing, and we are looking forward to providing more information soon to the ARCE community. 🌱

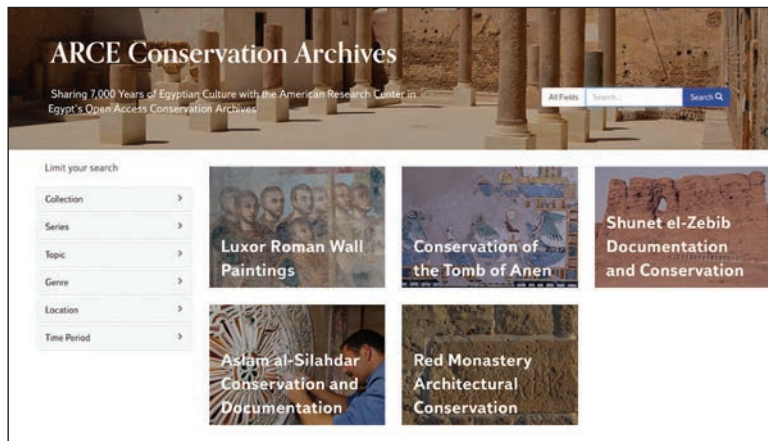
Total Station survey
in hall J



ACKNOWLEDGMENTS

We would like to thank ARCE for their support. We are grateful to the Ministry of Tourism and Antiquities for providing working permission in KV 11 and for their constant support on site. In particular, we thank the Minister of Tourism and Antiquities, his Excellency Prof. Dr. Khaled El-Enany, the director of foreign missions affairs, Dr. Nashwa Gaber, and the members of the Permanent Committee. We are also grateful to Hisham El-Leithy for providing permission to publish the photos in this article. For local support, we thank the director of the local taftish at Luxor's West Bank, Fathy and Ramadan Ahmed Ali; the director of the Valley of the Kings, Ali Redda; the chief inspector of the wadi, Hussein Fawzy, and all the sheikhs and ghaffirs on site. Furthermore, our respect and thanks go to our Egyptian workmen, led by our rais Ahmed Hussein Youssef. We are lucky to have received so much support and well doing by all of them!

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



ARCE's Archives Go Online Thanks to NEH, Continue to Expand with DOE Partnership

In the early 1990s, with support from the U.S. Agency for International Development (USAID), ARCE engaged in vital conservation work at sites throughout Egypt. One of the direct products of these projects was the Conservation Archive, which is housed in the ARCE Cairo Center and available on an appointment basis to researchers and scholars.

In 2015, ARCE began a partnership with UCLA to digitize, describe, and publish ARCE's archival work. The National Endowment for the Humanities (NEH) awarded ARCE a Foundation Grant in 2019 to enable the publishing of five of the project files housed in the Cairo Center's archives online. Thus, the ARCE Conservation Archives portal was born. The website launched online in December 2020 with full records of the following projects:

- The Conservation of the Tomb of Anen
- Shunet el-Zebib Documentation and Conservation
- Red Monastery Architectural Conservation
- Luxor Temple Roman Wall Paintings Conservation
- Aslam al-Silahdar Conservation and Documentation

Now, the website is set to expand with a new and recent award from the U.S. Department of Education (DOE). With this grant, ARCE will continue to publish its physical archive assets online to make them widely accessible, while also providing professional development opportunities for faculty and students at community colleges and minority serving institutions in the U.S. Training workshops hosted by ARCE will familiarize partner faculty with digital humanities and provide them with the necessary skills to incorporate student-curated online exhibits into their course curricula. Selected exhibits that the students design will then be uploaded to the ARCE Google Arts & Culture Partner page.

Dive-in to ARCE's Conservation Archives: archives.arce.org



ARCE launches “Preserving Egypt’s Layered History” on Google Arts & Culture

ARCE's commitment to sharing cultural knowledge with its members and community meant quickly shifting gears to embrace new ways of connecting. In collaboration with Google Arts & Culture, ARCE launched “Preserving Egypt’s Layered History” on January 14, 2021, in celebration of Egyptian Archaeologists day.

The project will give people access to content developed based on ARCE's repository of conservation projects in Egypt that reflect the diversity of its history. From anywhere in the world, people can explore the Tomb of Menna in 3D and go on a virtual tour at the Aslam al-Silahdar Mosque. There is also a range of content such as images, videos, and recordings of other ARCE conservation efforts including the Jewish Basatin Cemetery, the Saint Anthony's Monastery, and the Roman-period Villa of the Birds.

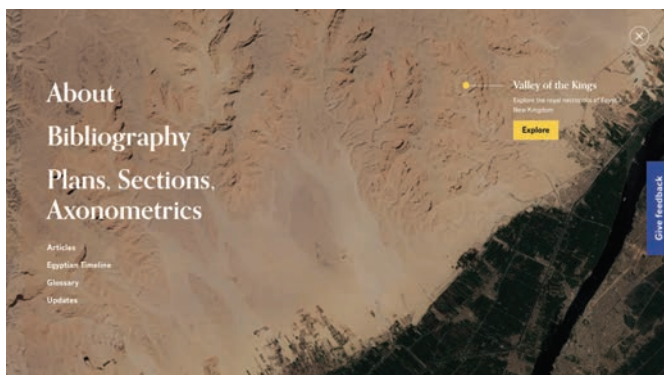
About Google Arts & Culture (GAC):

Google Arts & Culture puts the treasures, stories, and knowledge of over 2,000 cultural institutions from 80 countries at your fingertips. If Google's mission is to make the world's information more accessible, then Arts & Culture's mission is to make the world's culture accessible to anyone, anywhere by means of modern technology such as high-resolution scanning, machine learning, and Augmented Reality.

Visit ARCE's Google Arts and Culture Page: g.co/PreservingEgypt



In Memoriam: Hussein Raouf Hussein Raouf joined ARCE in 1994 and rose up in the organization’s finance department, leading the Cairo Center’s financial operations as its Finance Manager until his retirement in 2020. He was a greatly loved member of the ARCE staff and is dearly missed.



ARCE Relaunches the Theban Mapping Project (TMP) Website

The Theban Mapping Project website (TMP) first came online in 1998 and was known as KV5.com - named for the tomb in the Valley of the Kings that has come to define so much of what the TMP stands for. A little over ten years later, ARCE was proud to officially relaunch the TMP Website on January 1, 2021. With a user-friendly interface and contemporary look and feel, the latest iteration of this data-rich portal is more accessible and engaging than ever. The website showcases the Valley of the Kings in its full magnitude, with in-depth information on its tombs and much, much more.

When the staff of The Theban Mapping Project discovered that KV 5 was in fact a family mausoleum for multiple sons of Ramesses II and the largest tomb in the Valley of the Kings, it made headlines around the world. They established a website, KV5.com,

for a fascinated public to provide reports on its work, together with information about other tombs in the Valley of the Kings. This quickly became one of the most visited sites on the internet. KV5.com, based at the American University in Cairo (AUC), was used as a research tool by scholars and as an introduction to Egyptology by students of all ages. It received over one million hits monthly until it crashed in 2010 and could not be restored. Today, thanks to the partnership of the original TMP team and AUC, the TMP website is back online, and can again provide up to date information on Thebes and its monuments for a wide audience.

To mark the site’s launch, Dr. Kent Weeks gave a public virtual lecture titled, “Does the Past Have a Future? The Work of the Theban Mapping Project” on January 30, 2021. The lecture explored the work of the Theban Mapping Project since its inception in 1979, and attracted over 400 participants.

Speaking about the relaunch of the TMP website, Dr. David A. Anderson, Associate Professor of Archaeology, University of Wisconsin-La Crosse, and the Vice President of ARCE’s Board of Governors, stated: “ARCE is pleased to have been able to fund the creation of the new TMP website. In its hay day TMP was one of the most popular sites for information about ancient Egypt. With the contemporary interface and updated content, it is sure to resume its place as an important resource for the study of ancient Egypt.”

Explore the Valley of the Kings!
www.thebanmappingproject.com

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

Remembering Th. Emil Homerin (1955–2020)



Th. Emil Homerin had a personal relationship with ARCE that began as an ARCE fellow in 2000 and continued for almost a decade in service to ARCE as a board member between 2001-2009.

According to past ARCE Board of Governors President, Janet Johnson (1993-1996), Emil was instrumental “at a crucial junction in the (recent) history and development of our organization. His generous nature, clear vision, and recognition of the need for improved organizational structure, as well as his commitment to ARCE, to Islamic Studies, and to understanding the modern Middle East were extremely valuable as ARCE considered and instituted significant changes in the structure and dynamics of our growing institution. He could see the ‘big picture’ of where we were, where we were headed, and why we needed to change our organizational structure; he also understood the nuts and bolts of size, distribution, inclusion, and participation as they influenced – for both good and ill – this growing organization.”

Among the many remembrances shared about Th. Emil Homerin by his colleagues are the qualities of kindness and generosity and a deep love for his family. A leading expert on medieval Sufi poetry, he had the ability to convey complex and lyrical aspects of mystical thought through brilliant translations and analyses. Emil was the modern interpreter of Sufi poet Ibn al-Farid (d. 1234), the greatest Sufi poet to write in Arabic; he studied the works and life of `A`isha al-Ba`uniya (d. 1517), who wrote on Sufism in both prose and verse. Both poets have ties to Egypt. Ibn al-Farid was born and died in Cairo, and his shrine in the Qarafa remains a pilgrimage site down to today. `A`isha al-Ba`uniya was born in Damascus but spent four years in Cairo before returning to Damascus, where she died.

Sharing her own reflections, past ARCE Board of Governors President, Emily Teeter (2009-2012), recalls: “I served on the ARCE board with Emil for almost ten years, and I had high hopes that we could persuade him to serve as President. Although strongly

committed to ARCE his teaching and research schedule did not allow for it. The board meetings were always invigorating and interesting, but I especially looked forward to them because I would see Emil. He was such good company. In the morning, when so many of us were groggily wandering toward the lobby coffee service, Emil would bound in from his long morning walk, smiling, invigorated, as always, immaculately groomed. He would talk with me (not at me) about some obscure Sufi poetess or early 18–19th century American cemeteries and he always made it so interesting...I will never forget his devotion to his wife Nora and their sons. Nora’s name came up very often...They were just so much a part of each other.”

Carol Redmount (2004-2006), another past ARCE Board of Governors President and former board member underscored Emil’s contribution to ARCE and his love for his family: “His warm

“I embraced my lights and so was their guide;
how wondrous a soul illuminating lights!”

– Sufi poet Ibn I-Farid, Sufi poet as translated by Th Emil Homerin

smile, calm demeanor and positive, common sense approach to issues added humanity and sanity to ARCE committee meetings, the context in which I knew him best. His professionalism, competence, and uncompromising integrity shone through everything he did and ARCE owes him a debt of gratitude for his untiring and selfless work on the revamping of ARCE’s organizational structure. Yet despite all his achievements, what I remember most vividly about Emil is the way his face lit up when he talked about his wife Nora and his two kids – often referencing the latest tie Nora had given him, which he was invariably wearing. He clearly adored his family. His passing is a grievous loss.”

Contributors: Janet H. Johnson, *Oriental Institute of the University of Chicago*; Emily Teeter, *Oriental Institute of the University of Chicago*; Carol Redmount, *University of California, Berkeley*; Adam Sabra, *University of California, Santa Barbara*; Nasser Rabbat, *Massachusetts Institute of Technology*.

Philanthropy in Action: Honoring Norma Kershaw



Before embarking on an adventurous academic career, Norma Kershaw worked in advertising. Norma married Reuben Kershaw, a real estate investor, and together they had two daughters, Barbara and Janet. At the age of 43, after raising her daughters, Norma decided to pursue her education. She completed her B.A. at Queens College, City University of New York in 1972, majoring in anthropology and art history, and subsequently earned a M.A. degree from Columbia University in art history and archaeology in 1974.

She participated in archaeological excavations across the globe - from Israel, to Cyprus, to Egypt. For 18 years, Norma taught art history and archaeology courses at the Hofstra University Continuing Education and Long Island University Post. From 1976 to 1989, she served as a lecturer for the United Nations Cultural Affairs Committee.

In 1991, Norma became a long-time supporter of the ARCE-OC Chapter, helping to build the Chapter from the ground up. Norma made it possible for ARCE-OC to host their monthly lectures in her namesake theater at the Bowers Museum and sponsored numerous lectures. She made multiple gifts in support of ARCE, beginning by naming the ARCE conference room. In 2018, she supported ARCE's communications efforts by underwriting our monthly newsletter, allowing ARCE to share our information seamlessly across the globe.



Norma solidified her commitment to ARCE by supporting ARCE through a planned gift.

In addition to Norma's commitment to ARCE, she helped found the Long Island Society Archaeological

Institute of America (AIA). She was a Lifetime Member, a winner of their prestigious Martha and Artemis Joukowsky Distinguished Service Award, and served as a travel editor for their *ARCHAEOLOGY* magazine. Norma joined the AIA Governing Board in 1992. She was also a founding president of the Cyprus American Archaeological Research Institute, served on the editorial board of the *Biblical Archaeology Review*, was an honorary trustee of the Albright Institute of Archaeological Research, and an honorary trustee of the American Schools of Oriental Research (ASOR).

Norma has left an indelible mark not only at ARCE, but in her steadfast devotion to ancient art history and archaeology. The field of study is stronger because of her commitment to supporting research and scholarship and her enthusiasm to inspire others. ARCE is grateful to Norma for her service to ARCE, and for her contributions to the field.

Contributors: ARCE-OC Chapter; Eva Kirsch, ARCE-OC Chapter President

Establishing Your Living Legacy BY LISKA RADACHI, U.S. DIRECTOR

Given the opportunity, most people would like to leave a legacy and advance the mission of organizations they support during their lives. Planned giving is a process of considering how you can have an impact on goals important to you, while enjoying the benefits of giving today.

Establishing a planned gift through a bequest is one of the simplest ways to create a significant and lasting legacy. Those who have committed to supporting ARCE through a planned gift become members of The Nile Legacy Society. The Nile Legacy Society is an honorary society that recognizes the generosity of individuals who have named ARCE in their estate plans. You may become a member of the Nile Legacy Society by notifying us that you have named ARCE as a beneficiary in your will or estate plan.

As a fundraising professional, I have received countless unexpected phone calls from estate executors and lawyers notifying us that an individual had left a generous contribution to the organization. Without having had the opportunity to speak with these donors or document their gifts, we always hope that the language in their bequest is as detailed as possible so we may implement their wishes.

If you are thinking about making a planned gift, or have already included ARCE in your estate plans, I encourage you to review our planned giving form on page 4. The completion of this form allows ARCE to confirm your intentions and establishes your membership to the Nile Legacy Society. By sharing your future plans with ARCE, we can work together today to ensure that your gift is executed exactly as intended and recognized according to your preferences.

The latest from ARCE's Chapters



Chicago

SUBMITTED BY EMILY TEETER

The Chicago chapter continues to offer a monthly program, although virtually, because of the continuing pandemic. Our recent programs have been: July 11: brief reports from Ashley Arico on the Egyptian collection at the Art Institute, and Emily Teeter on ancient Egypt at the Chicago World’s Fair of 1933; September 12: “A Sepulchral Grand Tour: Exploring Egyptian and Classical Monuments at Graceland Cemetery,” with Foy Scalf and Tasha Vorderstrasse (both Oriental Institute); October 3: Deborah Vichak (Princeton University), “The Princeton-NYU North Abydos Expedition, 2018–2020 Seasons”; November 7: Lisa Saldino Haney (Carnegie Museum of Natural History, Pittsburgh), “Sculpting Identity: Royal Ideology during the Early 12th Dynasty.” On December 5, we had a social hour followed by a well-attended Egyptian trivia game designed by our secretary Karen L. Kobylarz.

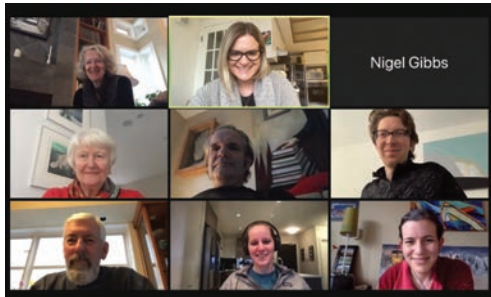
For 2021, we changed our format and publicized our talks nationally and internationally, and we required registration. On January 9, Aleksandra Hallmann (Institute of Mediterranean and Oriental Cultures and the Polish Academy of Sciences), spoke on “Invisible Blue and Searching for Colors in the Kushite Chapel of Osiris Neb-anh/Pa-wesheb-ia in Karnak.” Our chapter, like others is experiencing the upside of going



Screen shots of the Chicago chapter’s Egyptian trivia game

virtual, allowing us to reach a much larger audience. We had 117 registrations, with 71 actually attending. Of those who registered, 49 are not currently members of ARCE, and we attracted 21 members of other ARCE chapters, showing that the program was an effective means of outreach. We are exploring how to combine the advantages of virtual with our traditional in-person format later this year when health conditions permit. Because of complications with distribution, our zoom presentations are not recorded.

The new officers of the Chapter are Ashley F. Arico (President); Joseph G. Barabe (Vice-President); Karen Kobylarz (Secretary); Norene Jamieson (Treasurer); Judith Baxter (Communications).



A Zoom screen shot of our recent discussion of the goddess Hathor with members of the ARCE Vancouver interest group

Vancouver

The ARCE Vancouver interest group has hosted several talks in the past few months, adding to the excellent collection of online events currently available. In October we heard about some of the more modern uses of ancient Egyptian imagery from Dr. Thomas Schneider in his talk, *Ancient Egypt in Political Caricature*. In December, Dr. Danielle Candelora discussed some of the ways that the ancient Egyptians defined the concept of “foreign” in, *Redefining the Hyksos: Immigration, Foreign Pharaohs, and Their Impact on Egyptian Civilization*. In March we look forward to co-hosting a talk with ARCE-Northwest and ARCE-Oregon: *Eggstraordinary Objects*, by Dr. Tamar Hodos. We hope this will be the first of many joint ventures with chapters in the Northwest region. In May, Dr. Kasia Szpakowska will give a talk titled, *Ecstasy and Agony: Dreams and Nightmares in Ancient Egypt*.

In addition to the talks, we have also been meeting online once a month for informal discussion groups. Beforehand we send around a poll with a list of topics, and vote on what we want to discuss next. A selection of related short readings are then sent out – and whenever possible we use the ARCE online resources for this purpose. Our most recent discussion was about the goddess Hathor. We’ve found that this is a good opportunity to talk informally amongst ourselves, and get back some of that feeling of community that we’re missing these days. We look forward to continuing this practice, even after live meetings are possible once again.

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The latest from ARGE's Antiquities Endowment Fund (AEF)



The Osiris- Ptah neb-ankh Research Project (OPNARP)

The Chapel of Osiris-Ptah Neb-ankh (Lord of Life), lies to the south of the Tenth Pylon of the Amun-Re precinct and east of the ram-headed avenue of sphinxes that runs from the Tenth Pylon to the Mut precinct. This somewhat isolated monument is one of a series of Osirian chapels built by the Kushite pharaohs Taharqo and Tantamani. Both kings were represented in the scenes of the chapel. This chapel was located along the processional way, running between the Tenth Pylon of the Temple of Amun-Re and the Temple of Mut.

The chapel built of sandstone contains two rooms: an eastern room (Room I) and a western room (Room II). Additionally, directly in front of the chapel are the remains of four columns. While the outer part of the chapel is not inscribed, it retains reused blocks that can be seen on its rear side.

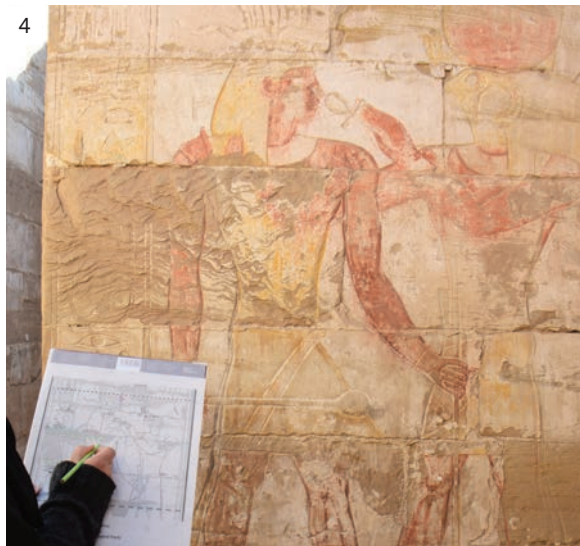
When the Chapel of Osiris-Ptah Neb-ankh was discovered by locals in 1875, it was in a poor condition. In 1921–1922, M. Pillet

undertook restoration work and built a wooden ceiling and a door to protect it.

Last few years the OPNARP team led by Essam Nagy, started the first scientific work at the site and managed to identify the architectural elements of the chapel and the third room and the surrounding building. The new excavations around the chapel revealed the remains of a mudbrick structure beneath the surface, which belong to an enclosure wall. The two rooms are decorated with sunken outlined reliefs.

The ongoing work of the current season is funded by the AEF. The work of the OPNARP team focuses on documenting and excavating the mudbrick structures 2 and 3, located to the east side of the chapel, as well as restoration, conservation, and reconstruction work for the chapel sandstone rooms and columns. The plan also includes replacing the currently damaged roof with another one.

Thanks to the AEF, this season was successfully carried out to protect the neglected chapel Osiris-Ptah Neb-ankh at Karnak and its surrounding ancient cultic area.



3

4

5

- 1 General view showing the chapel and its surrounding area structures and ongoing work
- 2 The roof of the chapel
- 3 A delegation from ARCE visits the project and meets with the team
- 4 The OPNARP team doing a documentation and condition report for the chapel
- 5 OPNARP conservators restoring and preserving the inscriptions and colored scenes

The latest from ARGE's Antiquities Endowment Fund (AEF)

Protecting the Amarna Desert Altars

BY ANNA STEVENS, AMARNA PROJECT (UNIVERSITY OF CAMBRIDGE)/
MONASH UNIVERSITY

Like many archaeological sites in regional Egypt, parts of Amarna, the 18th Dynasty city of King Akhenaten, are threatened by encroaching agriculture.

Recently, the Amarna Project (University of Cambridge), together with the Egyptian Ministry of Tourism and Antiquities (MoTA), started a program of protective walling to try to counteract this, with the support of an AEF grant.

Our target area centers upon a parcel of agricultural land north of the town of El-Till Beni Amran. In recent years, the legally owned fields here started to extend illegally eastwards onto antiquities land, coming to within c. 50 meters of the ancient 'Desert Altars.' This distinctive religious complex, formed of three monumental mudbrick shrines, was possibly intended to support the funerary cults of officials who owned the nearby North Tombs. Like most of Amarna's ruins, the Desert Altars sit directly on the desert, and would be easily destroyed by encroaching field systems, which cut up to 2 meters into the sand, with rising ground water also posing a threat.

In 2017/18, the illegal fields were officially reclaimed, opening a window to more clearly demarcate the boundary between the agricultural land and the archaeological site. It was felt that a boundary wall was a suitable response; this is the first time a program of walling has been trialed at the site. Work on the wall began in December 2020, launching with an initial survey and consultation with local farmers, followed by construction of a 900 meters stretch of wall along the eastern edge of the fields. A second stage of the project will see a shorter wall built along their northern edge, near the ancient North City. It is anticipated that the walls will provide important clarity going forward over the location of boundaries at the site.



- 1** Builders from El-Till Beni Amran and Deir el-Bersha construct the wall in December 2020
- 2** The partially completed wall near the Desert Altars, its foundations still to be backfilled, creating a local access road along the edge of the fields
- 3** Alaa Abdel Rahman (Directorate of Survey) sets the line of the wall, prior to construction

ALL PHOTOS: AMARNA PROJECT

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Ancient Egypt Research Associates

In September AERA returned to the field to begin work on the Great Pyramid Temple Project (GPTP), aiming to conserve the remains of Khufu’s temple and also provide visitors a compelling, meaningful experience of the site. We hoped to salvage this threatened monument before it was lost to future generations. For many years tourists, horses, camels, and carriages trafficked over the Great Pyramid Temple ruins, visitors utterly unaware that they were helping to obliterate the remains of the central focus of Khufu’s complex.

We began by making a comprehensive record of the temple site that included photographs, descriptions, and precise locations of all archaeological features. This data allowed us to worked out how Khufu conceived and built his temple and also envision how it must have looked during his time.

We completed the work in the field by installing a controlled access walkway around the outer wall line of the temple. When visitors began using it, we discovered that fencing off the temple would not be necessary, as people chose the walkway over the irregular surface of the temple remains. To help visitors understand and

appreciate what they were viewing, we installed three large information panels with graphics and text in English and Arabic: one about the pyramid complex layout, another on the pyramid temple, and the third on the sanctuary.

An ARCE Antiquities Endowment Fund (AEF) grant and AERA donors and members supported the GPTP. Mark Lehner and Zahi Hawass co-directed the project, working with archaeologist Dan Jones, surveyor Mohammed Helmi, and archaeologist and overseer of workers Sayed Salah Abd el-Hakim.

Our AEF-funded AERA Objects Project, which began in 2019, continued during fall 2020, with the goal of creating an archive of high-quality inked drawings and photographs of the objects from AERA’s excavations on the Giza Plateau, as well as producing a typology for public use. Because of problems associated with COVID-19, the timeframe of project was extended. Yaser Mahmoud, head of the drawing team, continued inking drawings, while AERA Objects Manager Emmy Malak worked on the publication. The project will be completed this spring.



1 Before the Great Pyramid Temple Project: tourists arrange for rides at a camel parking lot on the temple remains, while visitors and animals meander across the remnants of the temple’s basalt pavement. The queen’s pyramids rise in the background. View to the southeast. PHOTO: MARK LEHNER

2 Early morning view to the southwest of the completed walkway around the Great Pyramid Temple PHOTO: DAN JONES

3 Project surveyor Mohammed Helmy (left) assisted by Emad (right) recording features with the Total Station. Project director Mark Lehner (center) hand drawing features. View to the SW. PHOTO: DAN JONES



Two students create conservation mounts for ancient textiles

PHOTO: KRISTIN SOUTH



Tunic from Fag el-Gamous

PHOTO: ANNE KWASPEN

Brigham Young University

Despite the pandemic preventing our regular excavation season, the BYU Egypt Excavation Project conducted a research and study season, focusing on materials from the Fag el-Gamous cemetery. We were pleased to see our work published as part of Brill's Harvard Egyptological Series in 2020.

We continued to evaluate previous scientific analysis of samples. Isotope studies led to the conclusion that during the initial 700-year span of the samples analyzed, there was no indication of dietary change. Some dietary disruption may be suggested at the end of the cemetery's use, in the 400-500 AD burials. Diet consisted of C₃ and

C₄ plants, as well as animals and some marine fish that was consistent with other population centers in the Nile Valley. These same procedures confirmed that the hillside tombs date from as early as 300-250 BC. Further, we have been able to determine that the burials in the sand portion of the cemetery date from that same time period to about 500 AD. These analyses allow us to further refine our work on dating burials by depth or burial style.

Further, we conducted research on textiles using field books, analysis charts, available samples, and photographs. In an international collaboration, we have done an in-depth study of the types of sprang hairnets used in burials at the cemetery, as well as the kinds of tunics and other clothing that were repurposed for a burial context. These findings have been presented at international conferences and are accepted for publication, with four academic articles on these topics expected during 2021.

We also received a grant which was used to train students in the analysis and conservation of textiles. Because we believe it is one of the great looming needs of the discipline, we are vigorously working to help train the next generation of conservators.

Though current world health conditions interrupted the planned work, it allowed us to focus on projects that needed attention, which we believe will benefit our work and the larger Egyptological community. We are grateful to have been able to conduct a valuable and productive season.



The American University in Cairo

The American University in Cairo is proud to have collaborated with the Egyptian-German Mission to Matariya (Heliopolis), as well as the Ancient Egyptian Archaeology and Heritage Fund's excavation at Deir el-Ballas. Our students have the opportunity to visit these sites as well as participate in the field-work. Our faculty and students have worked on the Deir el-Medina Mission, the Matariya Mission, the NYU Mission to the Ramesses II Temple at Abydos, the South Asasif Conservation Project, the Wadi el-Hudi project, and the Egyptian Museum. The Italian government has conferred a great honor on Dr. Fayza Haikal (emerita): she is now a Knight of the Star of Italy. Despite the COVID-19 situation, we have managed a few socially distant field trips and our MA program is flourishing. We are pleased to have welcomed new students who will, we hope, soon be able to engage in experiencing ancient and modern Egypt's monuments, culture, and people.

FELLOWS FORUM

Conversations with ARCE fellows past and present

This year's cohort of ARCE fellows represents a diverse array of research interests. Learn more about the work that they are undertaking during their time with ARCE, in their own words.

Ali Abdelhalim Ali

Ali Abdelhalim Ali is an associate professor at Ain-Shams University and an Associate researcher at ARCE. His principal research interests lie in the field of Egyptology, Ancient Religions, and Philology. He has a particular expertise and interest in ancient Egyptian religious and funeral texts and vignettes. He is currently investigating the



Adobe Illustrator for the line drawings

inscriptions on the late stelae from Akhmim in particular, those of the late and Ptolemaic period in general (e.g. Kom Ombo, Qus), and the gate of Ptolemy III at Karnak (Porte d'Évergète). His future plans and broad research interests are to build on the foundations of his PhD to further focus on topics of the thoughts in ancient Egypt as well as hieroglyphic inscriptions as main sources of the ancient Egyptian civilization.

Ali Abdelhalim takes part in several archeological missions, including the epigraphical mission of Cologne-Ain-Shams universities at Kom Ombo, resulting in the publication of the Mammisi by the *Institut français d'archéologie orientale* (IFAO) and the anticipated chapel of Caracalla (ARCE). In addition to publishing several

articles and books, he organized the first International Colloquium on Mammisi of Egypt, which was held at IFAO in March 2019.

The Chapel of Caracalla at Kom Ombo

Dedicated to the crocodile god Sobek-Re at Kom Ombo, the chapel of Caracalla is located on the northeastern side of the main temple. It was uncovered by Barsanti in February/March 1914 but remains unpublished. Thus, the aim of Ali's research project at ARCE is to document and publish a detailed study of the chapel.

Unfortunately, the chapel of Caracalla is severely destroyed. Its walls, and consequently scenes, are largely lost. All that remains are the floor, the base of the sacred barque, the entry door jambs, a flight of five steps, and three stone seats on the right side of the stairs. The remaining floor, which measures about 10x5 meters, enables one to reconstruct the chapel as a single room, the pedestal of the sacred barque in the middle of the floor. Visible on the two door jambs are some scenes with their accompanying texts. The severely damaged walls prohibit estimating the height of the former walls.

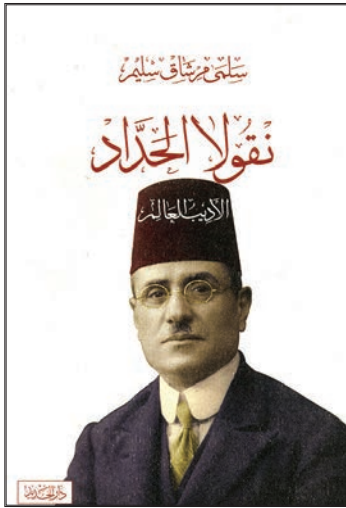
This current research on the chapel of Caracalla represents one part of a larger, ongoing epigraphic project taking place under the direction of Professors Shafia Bedier and Françoise Labrique. Thus, documents from the main temple of Kom Ombo and other buildings will be used for comparison to better understand the scenes and the texts. These documents may be from the reign of Caracalla. It has been claimed, for example, that the well-known scene of the surgical instruments goes back to his reign. Moreover, some blocks found during the last two seasons at Kom Ombo illustrate the same style as found in the chapel, and may belong to it.

Two digital programs will be used for the scenes and texts of the chapel of Caracalla: Adobe Illustrator and Jshesh.



Andrew Mark Henry

Dr. Andrew Mark Henry is a scholar of early Christianity and a recent graduate from Boston University's religious studies graduate program. Andrew's project at ARCE, Coptic Iconography and the Embodiment of Divine Protection, will examine how Coptic icons were viewed as miracle-working objects throughout Coptic Christian history. Coptic literature from late antiquity to modernity describes icons weeping, bleeding, sweating, and performing miracles ranging from healings to exorcisms. A dramatic example occurs in *The History of the Coptic Patriarchs* during the 11th century CE as the bishop Mercurius, desperate to cure his leprosy, visits the Church of the Holy Virgin in Tima to pray before an icon of Mary. After three days begging Mary to heal



Samah Selim

My journey as a scholar of Arabic literature seems to be moving backwards in time. My first book was about the contemporary Egyptian novel, my second book took up the question of translation and the origins of the novel in Arabic. My ARCE project will allow me to delve deeper into this broader foundational period by focusing on a neglected yet enormously prolific and

influential Lebanese-Egyptian writer and intellectual of the nahda era. Niqula Haddad (1872-1954) is primarily remembered as a popular (and hence marginal) novelist and translator, and an early collaborator of his more famous brother-in-law, Farah Antun (1874-1922). Like Antun, Haddad was an active member of the Egyptian press for most of his adult life. He published over twenty novels during the first half of the 20th century, as well as books on political theory, sociology and popular science. His novels were bestsellers and some of his non-fiction books - like *Socialism*, his 1920 introduction to socialist thought- were foundational. He collaborated with his wife, Rose Antun (1882-1955), on her feminist periodical, *Women and Men* (1919-1930). The three comrades (Niqula, Rose and Farah) spent a couple of years in the early part of the century living and working in New York City, where they published successive iterations of an Arabic language newspaper. This short sojourn introduced Niqula to American speculative fiction and the burgeoning American labor movement. He began a correspondence with the seminal socialist labor organizer Eugene Debs (1855-1926) and published an Arabic

translation of a bestselling dystopian novel by the radical abolitionist author and politician Ignatius Donnelly (1831-1901).

Haddad is thus an especially fascinating figure; one who lived and worked at the intersection of a number of transformative international social, political and literary movements in an era of global radical ferment. Having written about one of his early novels in my recent book, *Translation, Popular Fiction and the Nahda in Egypt* (2019), I found myself increasingly drawn to the broader arc of his life and work, and particularly in relation to the family triangle that includes his wife and brother-in-law. All three figures were expatriates who settled permanently in Egypt as young adults. As such they occupied mobile positions with respect to ethnic and national identities and borders, well beyond conventional scholarly categories of ethnicity, religion and sect. Niqula and Farah were intimately involved with both the Young Turk revolution of 1908, as well as the Egyptian nationalist movement and the 1919 revolution. Rose participated in and wrote extensively about the Syrian uprising of 1925 against the French. As such, a deeper exploration of their work, their lives and times is especially suited to re-configuring how scholars of this historical period conceptualize some of the thornier questions surrounding colonial modernity, including those of literature and aesthetics.

In spite of these numerous social interests and political commitments, Haddad never stopped writing fiction, and yet his prolific literary and immensely popular output has been largely forgotten. As I begin research on what I'm conceptualizing at this early point in time as a literary biography of Haddad in his cultural and political milieu, my first goal is to assemble as complete a corpus as possible of his published work. Cairo is one leg on this journey, Beirut and New York are others. While in Cairo I also plan to explore the range of potential biographical sources, from memoirs to obituaries, as well as of course to launch the hunt for private archives – something I have never done before and to which I am really looking forward since deep down inside I often wish I had been trained as a historian!

him, the story says that Mercurius fell onto the icon when suddenly, “he saw the hand of this picture, as if it wiped his body, and he woke up and was cured of his sickness.” This story exemplifies a rich tradition surrounding miracle-working icons and the benefits they were thought to accord their viewers.

Part of Andrew's project involves examining the relevant icons in the ARCE Coptic Icons archive that represent this larger historical tendency to view icons as agents of miraculous healing and protection. For example, the motif of Saint George spearing

a serpent extends throughout Coptic history as a protective image on amulets and icons alike. Paintings of rider saints such as Sissinios and Theodore at the Monastery of Saint Antony or the monastery in Bawit demonstrate that these motifs were believed to offer protection to the monks living there as far back as late antiquity. Andrew's work with the Coptic Icons archive also involves developing a public-facing database that will enable scholars and the public at large to digitally access thousands of high-quality images of some of the most impressive examples of Coptic iconography in Egypt.

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AT JUNE 30, 2020 AND JUNE 30, 2019

<i>All amounts in U.S. Dollars</i>	2020	2019
ASSETS		
Cash and cash equivalents	1,900,695	2,635,882
Short-Term Investment	4,209,506	4,010,493
Other receivables and prepaid expenses	42,842	100,055
Advances and other assets	31,752	0
Pledge receivable	82,880	83,365
Grants receivable	74,950	64,312
Deferred sub-grants - AEF	1,108,510	1,576,152
Investments at quoted fair value	82,024,537	79,099,883
Property, Plant and equipment, net	51,596	34,281
Intangible Assets, Net	195,077	68,556
Library collection	835,440	835,440
Total Assets	90,557,784	88,508,419
LIABILITIES		
Provisions	611,290	549,474
Accounts payable and accrued expenses	93,049	153,637
Grants payable - AEF	392,322	565,373
Refundable advances and custodial funds	43,597	19,096
Deferred revenue	109,835	131,922
Assets held in trust for others	14,619,587	14,083,076
Employee benefit plan obligation	18,362	9,088
Total Liabilities	15,888,042	15,511,666
NET ASSETS		
Without Donor Restriction	4,739,494	4,462,355
With Donor Restriction	69,930,248	68,534,398
Total Net Assets	74,669,742	72,996,753
TOTAL LIABILITIES AND NET ASSETS	90,557,784	88,508,419

Statement of Activities

FOR THE YEAR ENDED JUNE 30, 2020

<i>All amounts in U.S Dollars</i>	WITHOUT DONOR RESTRICTIONS	WITH DONOR RESTRICTIONS	TOTAL
REVENUES AND SUPPORTS			
Grants	318,427		318,427
Membership dues	135,967		135,967
Contributions	85,616		85,616
Meetings, lectures and publications	16,502		16,502
Investment income	139,721	1,514,949	1,654,670
Net unrealized and realized gain / (loss) on investments	103,689	3,275,123	3,378,812
Other	40,948		40,948
Total Revenues and Supports	840,871	4,790,072	5,630,943
NET ASSETS RELEASED FROM RESTRICTIONS			
Satisfactions of grants released from restrictions			-
Satisfactions of investment income released from restrictions	2,700,645	(2,700,645)	-
	2,700,645	(2,700,645)	-
Total Revenues and Other Support	3,541,516	2,089,426	5,630,943
EXPENSES			
<i>Program services:</i>			
Conferences/seminars	75,248		75,248
Fellowships	229,225		229,225
Library	54,956		54,956
Public education	37,670		37,670
Publications	81,514		81,514
Restoration and conservation	728,701		728,701
Total program services	1,207,314	-	1,207,314
<i>Supporting services:</i>			
Management and general	1,833,923		1,833,923
Membership development	58,531		58,531
Fundraising	158,386		158,386
Total supporting services	2,050,840	-	2,050,840
Total Expenses	3,258,154	-	3,258,154
CHANGE IN NET ASSETS BEFORE FOREIGN EXCHANGE	283,362	2,089,426	2,372,788
Foreign exchange (Loss) & gain	(6,221)		(6,221)
CHANGE IN NET ASSETS	277,141	2,089,426	2,366,567
Net assets at beginning of year	4,462,353	67,840,822	72,303,175
NET ASSETS AT END OF YEAR	4,739,494	69,930,248	74,669,742

Recalling moments captured over the decades



Ottoman engineers used this 8th century Islamic river gauge as a historical record of water levels to inform their design of modern infrastructural works

Engineering in the Ottoman-Egyptian Nile Valley

BY SAMAA ELIMAM

illuminating has been my encounter with Islamic land surveying manuscripts, housed in the rich collections of al-Azhar University and the Egyptian National Library at Bab al-Khalq. These sources radically expand the scope and definition of what counts as technical knowledge during this period. Through them, what emerges rather than rupture is proof of the continuity of a rich existing tradition of technical knowledge in Ottoman Egypt across the eighteenth and nineteenth centuries. Alongside these sources, visiting the neighboring Egyptian Society of Engineers and the Engineering Syndicate on Ramses Street has grounded the way in which my historical project contends with current debates in the engineering profession and its entangled relationship to the state. Being able to directly study these collections and to interact with practicing engineers, historians, and scholars based in Cairo increased my familiarity with the conversations happening around engineering in the context where my project unfolds. My time as an ARCE fellow has illuminated new and unexpected threads of research that have significantly enriched my dissertation trajectory. 🌸

Samaa Elimam was an ARCE fellow from 2019-2020 and the recipient of the Council of American Overseas Research Center's (CAORC) Multi-Country Research Fellowship. She conducted her research in Egypt, France, Sudan, and the United Kingdom. Her work is titled, 'On Site: Engineering, Empire, and the Geography of the Nile Valley.'

My research focuses on the cultures of engineering practice in the Nile Valley in the first half of the nineteenth century, particularly the relationship between Egypt and the Sudan. Most historical studies of engineering at this period dwell extensively on the way in which engineers, often of European origin, have controlled the river through large-scale infrastructures. Such histories have resulted in the dominant narrative of European knowledge transfer in one direction, often characterized as the radical 'rupture' wrought by the entrance of modernity—and its accompanying 'modern' profession of engineering—into the Nile Valley. Moving beyond these historiographical tropes is particularly challenging for engineering, a field regularly viewed as the ultimate paragon of modernization. And while such narratives might sound reasonable to distant onlookers, once I started research in Cairo, I located sources that told a vastly more complex and interesting story. To tell this story, I focus on the grounded, material practices of engineering that emerge in the archival sources. Through the support and generosity of the American Research Center in Egypt, I am grateful for the opportunity to conduct research in Cairo and to directly work with sources that serve as the historical evidence for this story.

Opening up entirely unexpected avenues of research, my time as an ARCE fellow brought my attention to repositories—long overlooked by historians of technology—that in fact carry critical primary sources for writing the history of engineering in the Nile Valley. Particularly



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Illustration of restored painted plaster scene showing Baketwerel, and (r) remains of the Amenmesse decoration. See the full feature on page 28.

DRAWING: LYLA PINCH-BROCK