

## THE GIZA PLATEAU MAPPING PROJECT

Mark Lehner

Ancient Egypt Research Associates (AERA)

The Giza Plateau Mapping Project currently works at two sites at Giza: the Heit el-Ghurab (HeG) settlement, 300 meters south of the Sphinx, and the Menkaure Valley Temple (MVT) –Khentkawes Town (KKT) complex (fig. 1). After a study season in 2010, we resumed excavations at all three sites in 2011 and again in 2012. At the southern end of HeG, we discovered a previously unknown enclosure, possibly a cattle corral and abattoir. At KKT we finished re-clearing and mapping the upper, northern part of the settlement that Selim Hassan excavated in 1932 (1943). East of KKT we uncovered the “Silo Building Complex” (SBC), consisting of silos, bakeries, and a residence, which may have functioned into the Fifth Dynasty. At the MVT we re-cleared and documented the eastern part of the temple for the first time since George Reisner’s 1910 excavations (1931).

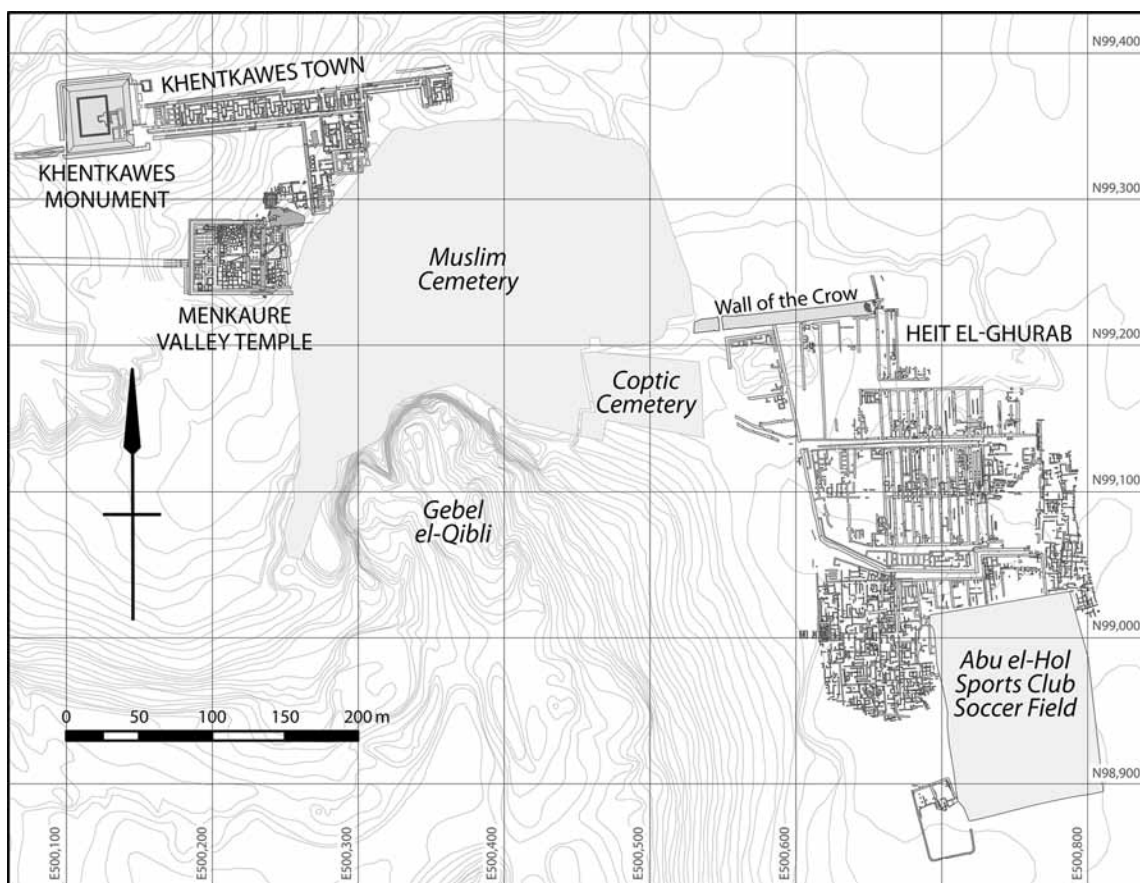


Figure 1. Plan of the southeastern base of the Giza Plateau showing the Khentkawes Town and Monument, the Menkaure Valley Temple, and the Heit el-Ghurab site, by Rebekah Miracle, AERA GIS

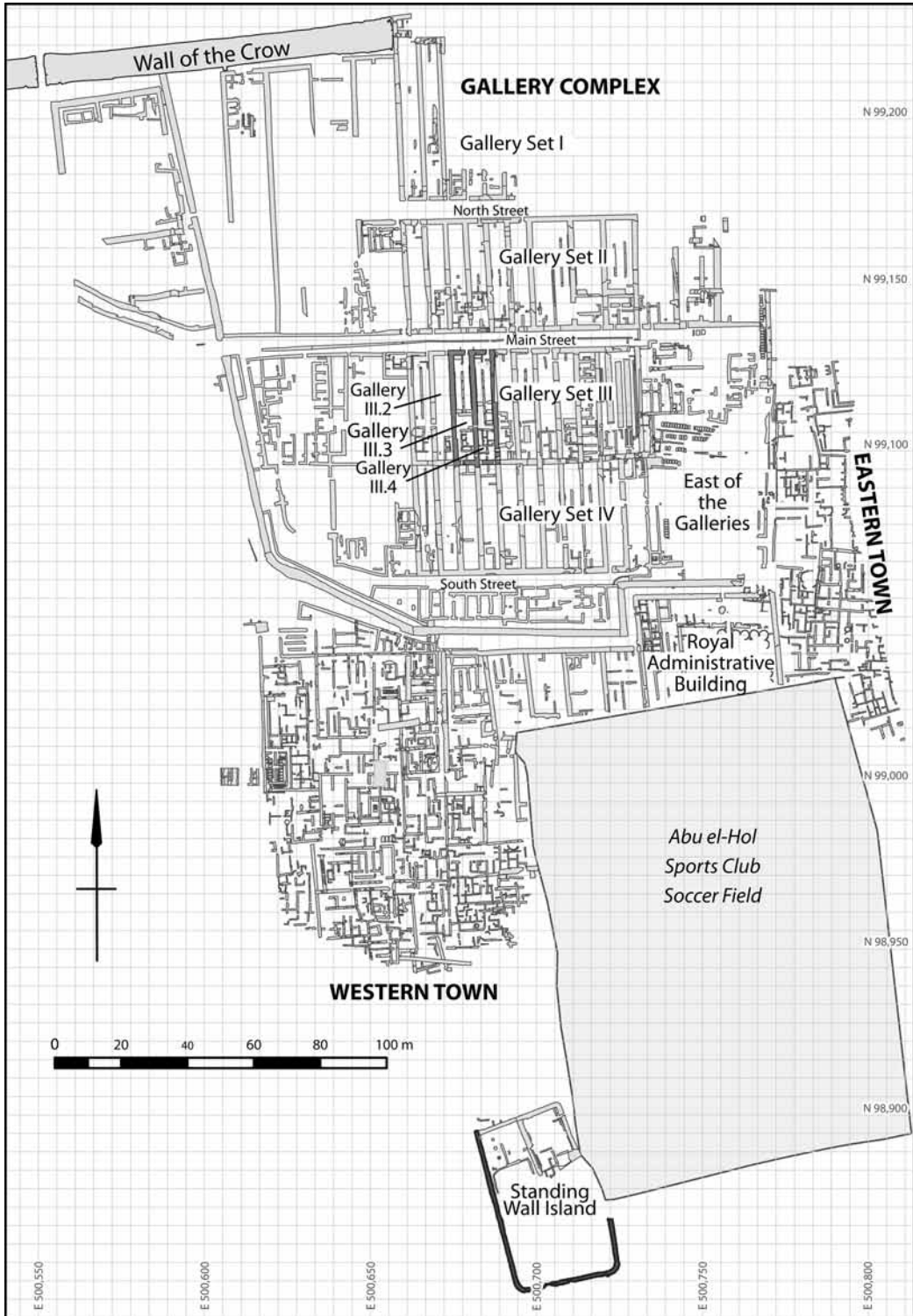


Figure 2. Plan of Heit el-Ghurab settlement site, May 2012, by Rebekah Miracle, AERA GIS

## GIZA PLATEAU MAPPING PROJECT

Co-field directors Mohsen Kamel and Ana Tavares oversaw the work, which ran from January 10 to May 31, 2011, and January 8 to March 29, 2012.

## Heit el-Ghurab Site

### *Standing Wall Island (SWI): An Old Kingdom Corral?*

Since 2006, ground water saturated “Standing Wall Island” (SWI), so named because parts of the fieldstone walls stand a meter or more high and the complex is wedged between two large sand-filled depressions, “Lagoons 1 and 2” (figs. 2, 3). But in 2011, pumps installed by a Cairo University team for the Supreme Council of Antiquities lowered the water enough that we could excavate and resume clearing the overburden, which we had begun in 2004. Simon Davis and Nagwan Bahaa el-Hadedi supervised the excavations.

In 2004 we cleared and mapped the SWI walls that showed in the ruin surface, without excavating intact ancient deposits (Lehner, Kamel, and Tavares 2009, pp. 39–44). Thick field stonewalls comprised two enclosures, ES1 and ES2, that appeared to open to the south. The west wall (Wall 2) of the complex continued south along the western side of Lagoon 2 beyond the enclosures and beyond the limit of our clearing. We did not know if the “lagoons” are vestiges of ancient embayments, possibly harbors, or the result of post-occupation erosion. We wondered if SWI formed a southern portal into the HeG settlement.

In 2011, as we followed Wall 2 south using mechanical excavators to remove overburden, we discovered that it wraps around a large area of about 1,020 square meters, enclosing Lagoon 2. On the northeast (where it disappears under the soccer field) it appears to pass to the east of SWI, creating a corridor.

Faunal analyst Richard Redding saw in the rounded corners of this enclosure (figs. 3, 4) evidence of an animal corral. Redding noted that

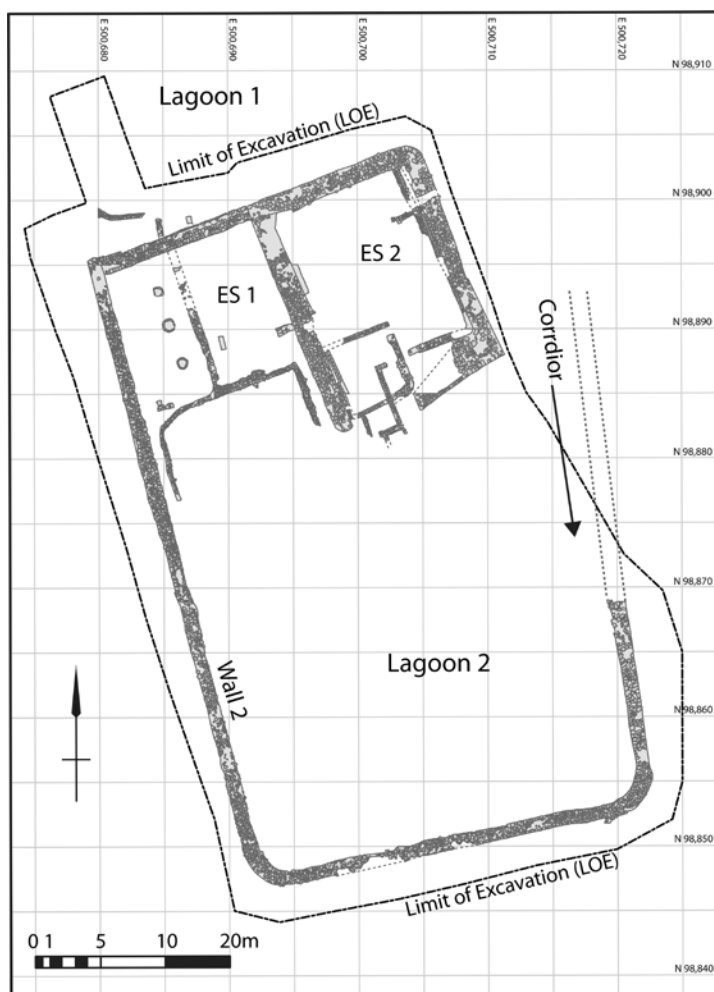


Figure 3. Plan of the Standing Wall Island (SWI) complex after 2011 excavations, by Rebekah Miracle, AERA GIS



Figure 4. Aerial shot of Standing Wall Island (SWI) and the large southern enclosure. Note the people near Wall 2 (toward the top of the photo) for a sense of scale. View to the west-southwest. Photo by Hilary McDonald

contemporary cattle enclosures often feature rounded corners. Cattle will follow a rounded wall, but freeze when confronting a corner (Grandin 2007, p. 85). The corridor east of SWI forms a chute that could have been used for herding cattle into the enclosure. The low, enclosing wall would have been suitable for an animal pen, especially if it had been topped with brush.

Redding pointed out that cattle herders across Africa use round corrals, some with rock walls topped with brush (for example, Mack, Maggs, and Oswald 1991; Greenfield, Fowler, and van Schalwyk 2005, p. 318). He also noted archaeological examples of rounded corrals, such as the two depicted on the Narmer Mace-head (Shaw 2000, p. 4) and the one shown on a New Kingdom block in the Karnak open-air museum (Anus 1971, fig. 3). The earliest known Egyptian structures thought to be livestock pens are found in Sixth Dynasty levels at Kom el-Hisn (Wenke 2009, p. 119).

We further hypothesize that people butchered cattle in ES1, which opened into the corral and probably stood mostly unroofed. Ancient Egyptian abattoirs included an enclosed open-air space for slaughtering and butchering, rooms with chopping blocks and cooking facilities, and magazines (Arnold 2005, p. 15). ES2 may have contained processing rooms and magazines. Mudbrick walls divide ES2 into small rooms, which we did not excavate in 2011.

So far, the pottery from SWI dates to the late Fourth Dynasty. We were keen to test the abattoir hypothesis during our 2012 field season, with more extensive excavation and analysis of the objects, lithics, and fauna. However, this year the pumping system shut down while the Arab contractors for the Ministry of State for Antiquities installed a comprehensive USAID-funded system, designed by the American firm AECOM. The ground water rose again, temporarily, putting excavation in SWI on hold.

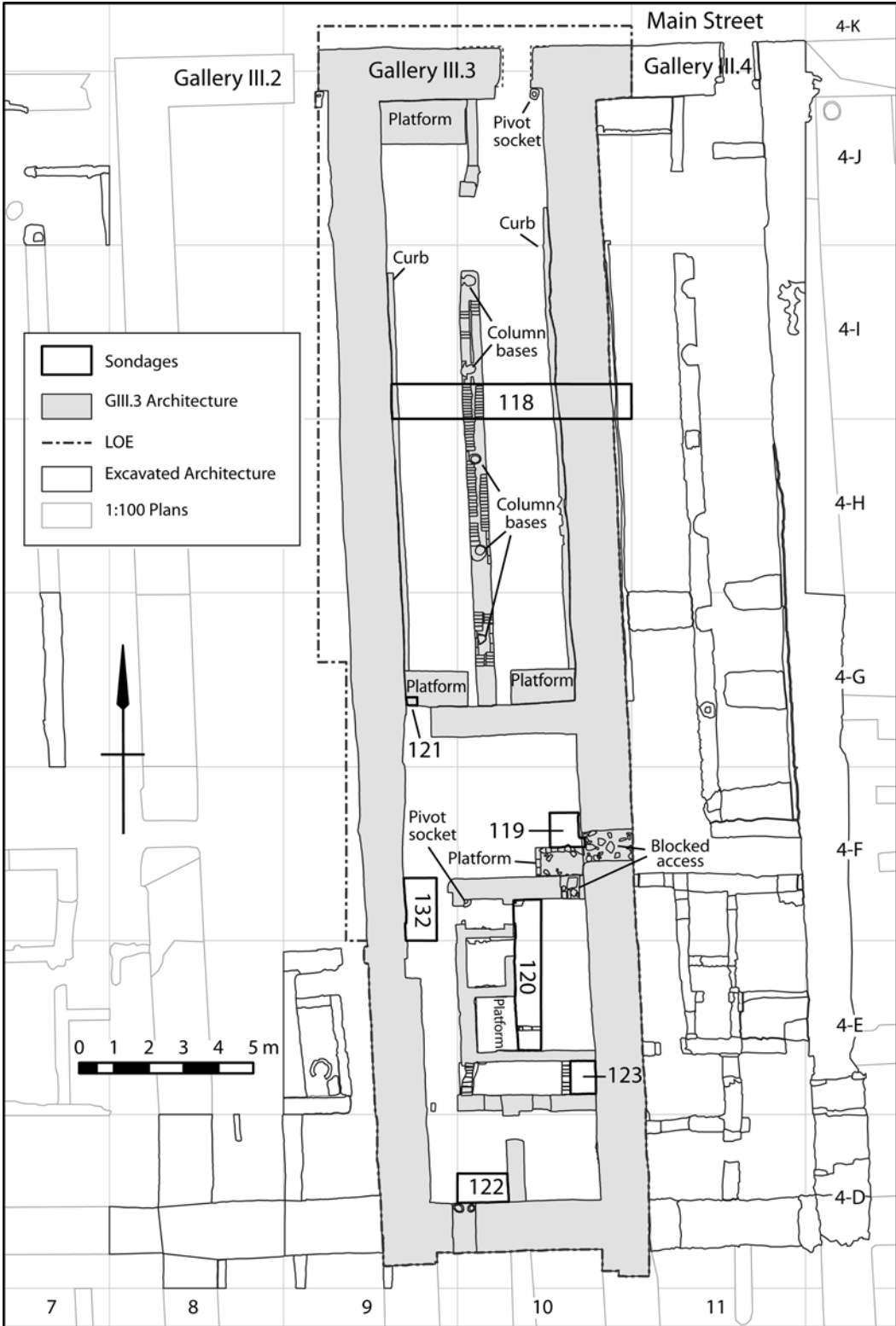


Figure 5. Plan of Gallery III.3 showing location of the 2012 test trenches, by Rebekah Miracle, AERA GIS

### Sampling Another Gallery: GIII.3

The 2012 season saw a return to the Gallery Complex. Four large blocks of elongated structures, 34.5 meters long, separated by streets form the central feature of the HeG (fig. 2). In 2002 when we excavated one entire gallery, Gallery III.4 (fourth from the west in block 3), and found sleeping platforms in a long, open forecourt with a house-like structure in the rear (south), we hypothesized that the galleries served as barracks for groups under an overseer residing in the rear chambers (Lehner 2002, pp. 49–52).

In 2012 Ashraf Abd el-Aziz and Dan Jones supervised excavations in the adjacent gallery, Gallery III.3 (GIII.3). We chose GIII.3 partly because team members had already dug portions of the rear chambers and the northern section in previous seasons. In addition to garnering evidence on the galleries' functions, we wanted to compare the layout of GIII.3 with that of GIII.4 and with what we know of other galleries based on partial, isolated excavations and from walls showing in the ruin surface. Although the galleries share some standard features, they also differ. In addition, we wanted to examine the foundations of the principal walls and investigate how a single gallery changed over time. We excavated GIII.4 to only the latest phase of use.

While we could not excavate the entire GIII.3 through all phases, we targeted seven sondages, three of which exposed the base of the main gallery walls. Trenches 118 and 119 (fig. 5) revealed that the main walls were founded on relatively clean sand. Trench 123 showed cuts and fills of charcoal and pottery fragments.



Figure 6. Galleries III.3 and III.4 following excavation. Gallery III.4, excavated in 2002, was cleared of the backfill to reveal its layout and for comparisons with Gallery III.3. View to the south. Photo by Yasser Mahmoud

## GIZA PLATEAU MAPPING PROJECT

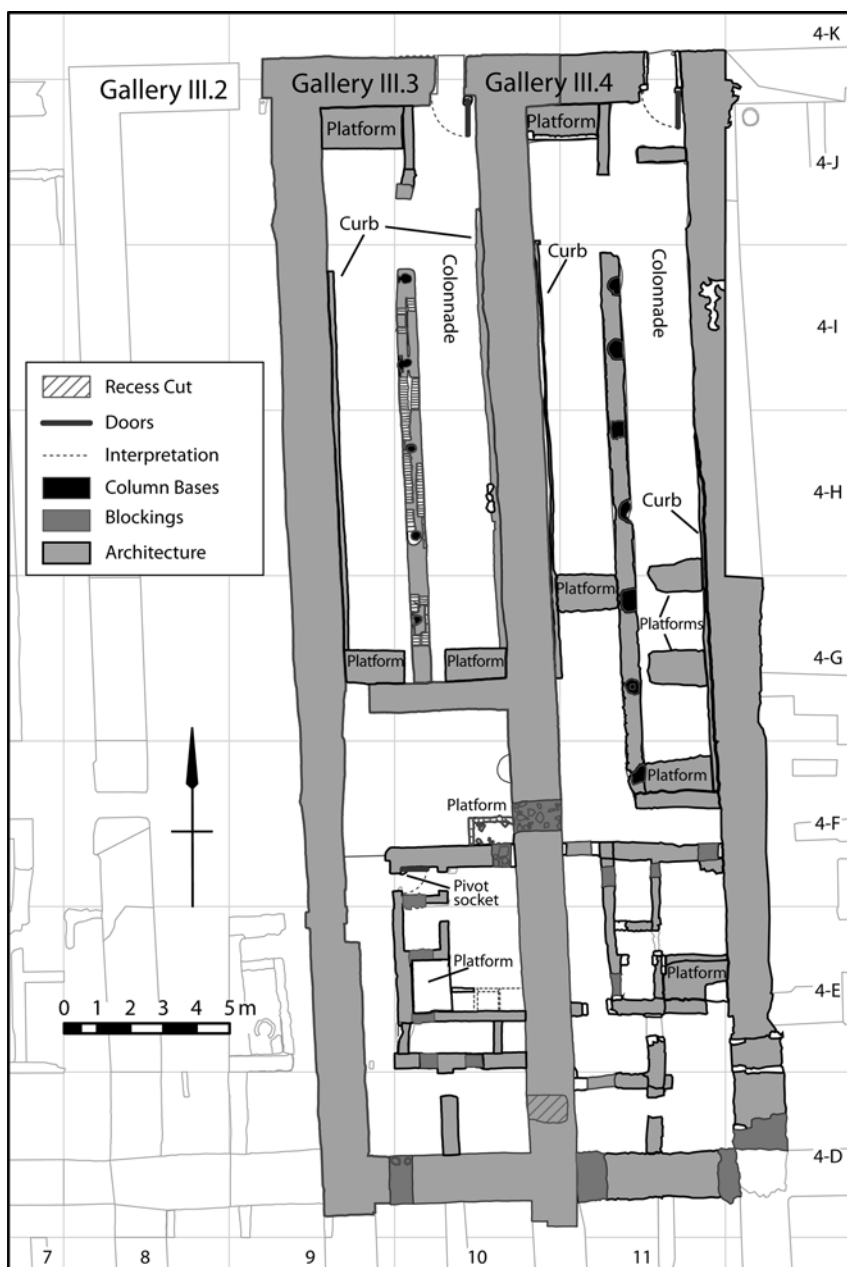


Figure 7. Plan comparing Galleries III.3 and III.4, by Rebekah Miracle, AERA GIS

These trenches are important in light of the extensive evidence we have of older-phase occupation: architecture below the area east of the galleries and under the so-called Royal Administrative Building (Lehner 2006, pp. 58–60, 2008, pp. 59–64), near the Wall of the Crow traces of an early Gallery I.1 (Lehner 2002, pp. 52–53), and in GIII.2, traces of older phase features cut by the trench for GIII.3’s western wall (Lehner 1999, p. 69).

So we were keen to know if Gallery Set III replaced an older layout, possibly an older block of galleries. We could not excavate our 2012 probes much deeper than half a meter

because of the water table, but they do not show older gallery walls, although we have evidence of an older occupation to the west. Builders may have spread the sand at the base of the eastern wall as a bedding for the foundation.

GIII.3, like GIII.4, features an entrance at the northeast corner into a small foyer; a platform in the northwest corner, which we interpret as a sleeping platform for a guard; a 14-centimeter-high bench running along the long center axis of an open hall or colonnade, with holes and limestone pads for columns; a row of single brick stretchers forming a curb along the bases of the sidewalls; a rise in foundation level from front to back; and two possible sleeping platforms, at the south end of the hall (figs. 6, 7).

Trench 118 across the colonnade showed that the low central bench dates to the oldest floor levels. This differs from excavations in Gallery Sets 1 and 2, which revealed that the earliest floors of some galleries lacked the central bench. Perhaps the blocks were built starting on the north, and over time the design developed such that when Block 3 was added, the low wall — implying the colonnade — had become standard.

We knew before our 2012 work that GIII.3 differs from GIII.4. A thick fieldstone cross wall delimits the front colonnade to 17.50 meters in length, two column-intervals shorter than that of GIII.4. This wall was the only one bonded into a gallery frame wall, indicating it was part of the initial design. South of the cross wall an open space, 4.0 x 4.9 meters, featured a doorway in the southeast corner allowing access to GIII.4. The opening was blocked at some point and a low, flat platform was built in front of it.

The southern part of GIII.3 resembles a residence, as in GIII.4; in fact, the northern walls of the domiciles align. Access to the front room in GIII.3 was via a small vestibule once closed with a door, as evidenced by a pivot socket. In GIII.4 a sloped platform in the southern end of the front room may have served as a bed platform. In GIII.3 a level platform was created in the alcove on the west side of the space, but was probably too small for sleeping.

In both GIII.3 and GIII.4, a corridor leads south past the core “residence” to the back where people used fire, probably for preparing food, as in the rear spaces in other galleries. Instead of the four roughly symmetrical chambers in GIII.4, GIII.3’s corridor gives access to a narrow chamber oriented east–west and two rear chambers. The floor of the corridor was trenched in ancient times along the west wall, probably to remove the large casing bricks.

In the narrow chamber, the latest floor, featuring a raised platform at the east end, included seven hearths, which scorched the walls. Clay-lined holes in a lower floor may have served as sockets for bread pots or storage jars. A door through the north wall once opened onto the platform in the front room, but this opening, and two through the southern wall, were blocked at some point.

The western rear chamber was a bakery, as evidenced by remains of a baking pit: round cuts and re-cuttings for bead molds, concentrated ash, and charcoal. The eastern rear chamber was also used for cooking. Here we excavated down to a dark ashy sloping surface that might have been the side of a baking pit. In the northeast corner, we found traces of a possible vat emplacement, a circular depression, 40 to 45 centimeters wide.

The residence was probably the most active area of the gallery. Our trenches here revealed six to seven different superimposed floors, whereas Trench 118 across the colonnade showed only one floor.



## GIZA PLATEAU MAPPING PROJECT

## Khentkawes Complex and the Menkaure Valley Temple

### *KKT-E (East of Khentkawes): A Fifth Dynasty Silo Building Complex*

In 2009, in the area we call KKT-E (Khentkawes Town East), we excavated the northwest corner of a monumental valley complex built in limestone quarry debris and mudbrick (fig. 8). A corridor ran east beyond our clearing between the Northern Enclosure Wall, an extension of the wall bounding Khentkawes Town, which Selim Hassan excavated in 1932 (1943), and a terrace along a deep basin on the south (Lehner 2010, pp. 54–56).

### *The Khentkawes Basin: Northeast Corner*

During 2011 we continued clearing east (KKT-E+) and exposed the enclosure wall and the corridor wall running straight east, reduced by erosion to a height of only a few centimeters. The corridor ended at a niche, where the enclosure wall turned south and ran 17.69 meters enclosing the eastern side of the basin. We also found remains of the thin mudbrick wall retaining the edge of the basin (figs. 9, 10), allowing us to finally determine the basin's east-west width: 37.20 meters. Daniel Jones and Kasia Olchowska supervised the 2011 work.

### *Enclosures Back to Back*

East of the basin, under 8 meters of sand, walls showing in the surface of the settlement ruins signaled a rectangular building containing round silos and possibly a court and magazines. We suggested that the niche at the end of the corridor might have been an access to this

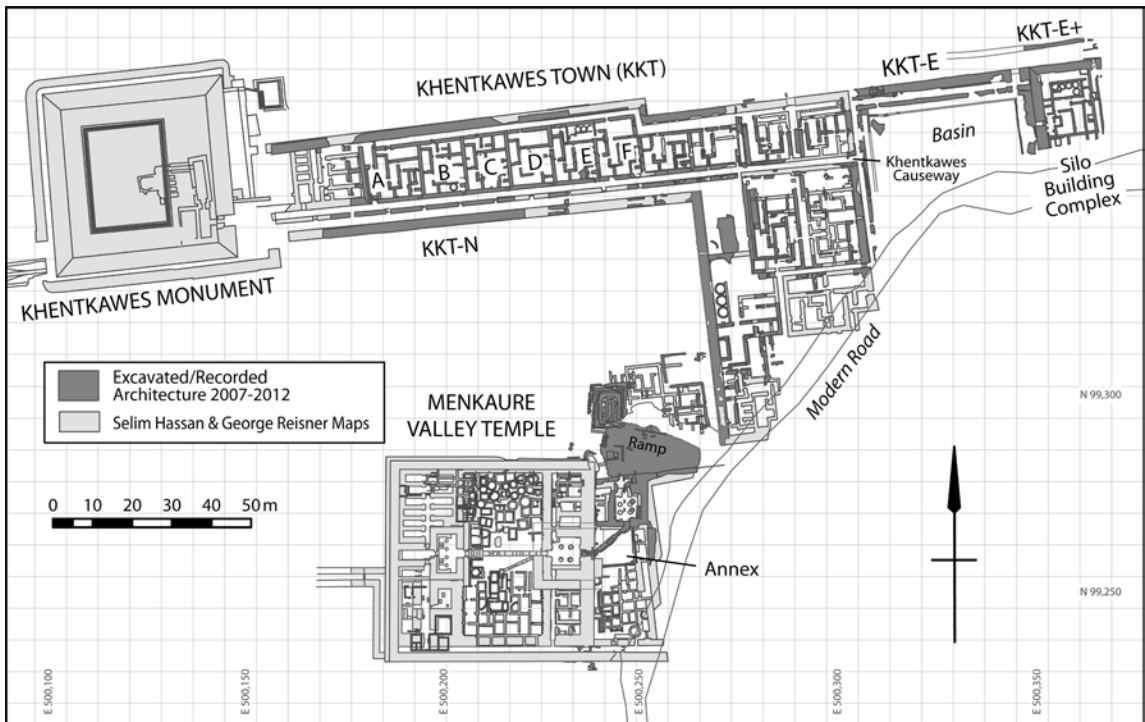


Figure 8. Plan of the Khentkawes Monument, Khentkawes Town, and Menkaure Valley Temple. The figure shows the combined maps published by Selim Hassan (1943) and George Reisner (1931) with our 2007 through 2012 excavations. Plan by Rebekah Miracle, AERA GIS

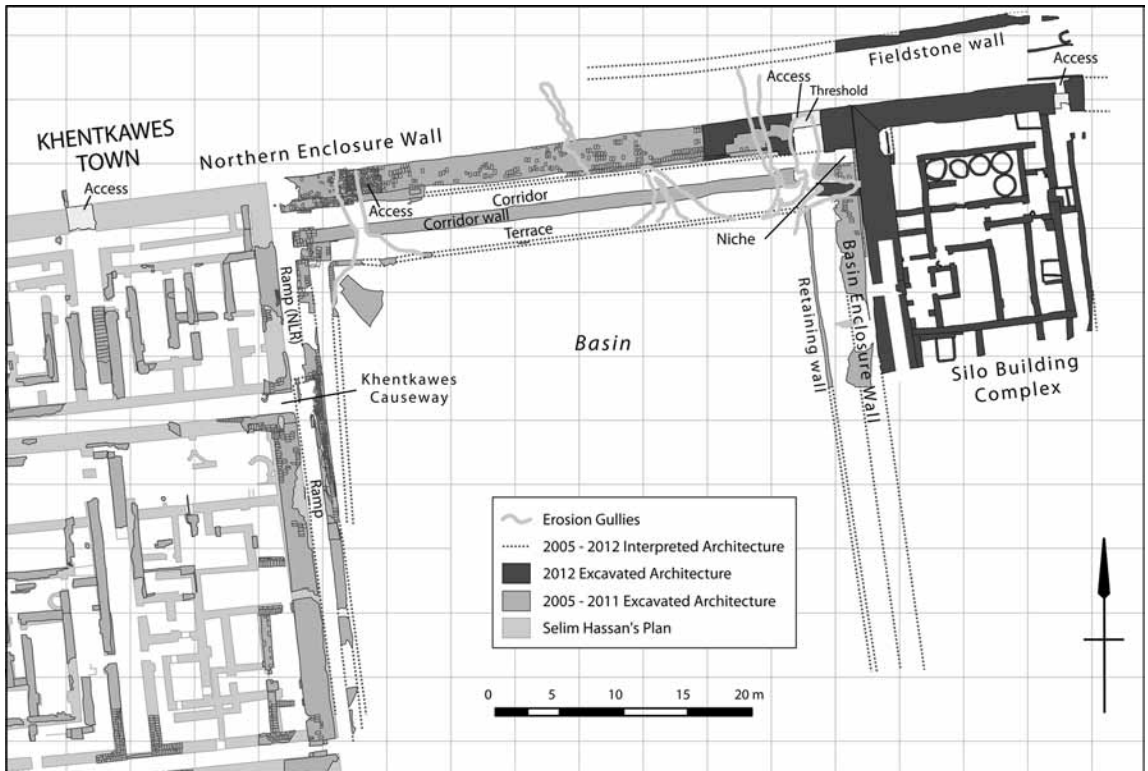


Figure 9. Plan of KKT-E and KKT-E+ 2005 through 2012 excavations, by Rebekah Miracle, AERA GIS



Figure 10. The 2011 field season in progress at Khentkawes Town. In the foreground workers clear KKT-E+. The basin, the approach ramps, stairs, and corridors to the Khentkawes Town appear in the background. The Khentkawes Monument stands to the west. View to the west. Photo by Mark Lehner

## GIZA PLATEAU MAPPING PROJECT

layout, which I dubbed the “Silo Building Complex” (SBC). In 2012 we excavated to test this idea, with Rabee Eissa and Hussein el-Rikaby supervising the work.

Given that the basin enclosure walls were preserved to only a few centimeters on a foundation of compact limestone debris, we expected to find only the lowest centimeters of the SBC walls. But the limestone debris was banked up against the face of an older enclosure wall that wrapped around the SBC on its west and north sides. The SBC walls were founded at a deeper level. Some stood a meter high (fig. 11). The newly found enclosure around the SBC predates the Khentkawes basin, but the SBC postdates these walls. We do not know what existed in this corner before the SBC, and as of yet we have no direct stratigraphic link between the SBC and the Khentkawes basin enclosure. However, sealings and ceramics indicate that people used the SBC into the middle of the Fifth Dynasty, so it likely postdates the Khentkawes Valley Complex.

We do not know how high the older enclosure wall stood when Khentkawes builders created the basin enclosure up against it. If the older wall was eroded to the level we found it, then the niche at the end of the corridor might have been an access and step down into the SBC. On the other hand, people could have accessed the basin enclosure at the end of the corridor through a wide opening with a limestone threshold at the eastern end of the Northern Enclosure Wall. The southern wall of the corridor appears to end here, suggesting that the formal access continued across the corridor and down to the basin on the south.



Figure 11. The Silo Building Complex during excavations. Beyond (left), groundwater floods the ancient basin during March 2012. In the far left background stands the Khentkawes Monument and behind it, Menkaure's Pyramid. Khafre's Pyramid dominates the center background, while the southeastern foot of the Khufu Pyramid appears on the far right. View to the northwest. Photo by Mark Lehner

We know of two other entryways into the Khentkawes complex through the Northern Enclosure Wall. Another doorway with a limestone threshold opened at the eastern end of the older northern enclosure wall of the SBC (fig. 9). These four formal entryways signal the importance of access to the north, where high status people were developing the Fourth Dynasty quarry into a Fifth Dynasty necropolis.

### ***Khafre's Pyramid Town in Niuserre's Reign?***

What did the older walls around the SBC originally enclose? One possibility is the pyramid town of Khafre. Residents of pyramid towns, largely known from texts, served in the pyramid temples and endowments of deceased rulers. We found in one of the SBC silos a clay sealing inscribed "Overseer of the Pyramid, Great is Khafre." Khafre's cartouche appears horizontally above two serekhs of Niuserre, the king who ruled in the middle of the Fifth Dynasty, around 2,416 to 2,392 B.C., some fifty to sixty years after Menkaure (fig. 12). The title is well known from elite chapels attached to the great mastaba and rock-cut tombs on the high Giza plateau. But the sealing is not quite complete. Missing signs below could have completed, "Overseer of the Pyramid Town, Great is Khafre." The sealing could suggest that the older enclosure, with the SBC later tucked into its corner, could belong to the Pyramid Town for Khafre. Egyptologists have suggested that pyramid valley temples formed the focus of pyramid towns. However, the older enclosure wall forms a corner open to the southeast, while Khafre's Valley Temple stands only 60 meters to the northeast. Conceivably, the enclosure might take a turn in that direction under the sand beyond our clearing.

Other sealings from SBC bear the serekhs of Niuserre. John Nolan and Alexandra Witsell will study them in our coming 2013 field season.

### ***The Silo Baking Complex?***

We hypothesize that someone administrated an SBC establishment for high-volume bread (and possibly beer) production from Rooms E, P, and G (figs. 13, 14). Room G, oriented north-south, with pilasters at the south end forming a niche or bay, resembles what Felix Arnold (1998, pp. 12–13) proposed as the reception room in the houses at Khentkawes Town; here the master received visitors and conducted business (Lehner 2010, pp. 49–52). Rooms H, Q, and V yielded evidence of small-scale food preparation.

In contrast, evidence indicates industrial-scale production, most probably of bread but also perhaps beer, in Spaces A through L, along the north and east sides of the SBC. We found ashy floor deposits and low bins in Spaces A and M–L, a vat in Space N, and a circular emplacement in O, as well as bread molds and beer jars. Space B contained five silos, most probably for storing grain, very possibly assigned to the five *zau*, "phyles" of a Pyramid Town. I should note that we have not yet excavated down to the floor over most of the SBC.



*Figure 12. A clay sealing fragment from the fill of a silo in the Silo Building Complex with the title "Overseer of the Pyramid, Great is Khafre" between two serekhs of the Fifth Dynasty king Niuserre. Photo by Yaser Mahmoud*

GIZA PLATEAU MAPPING PROJECT

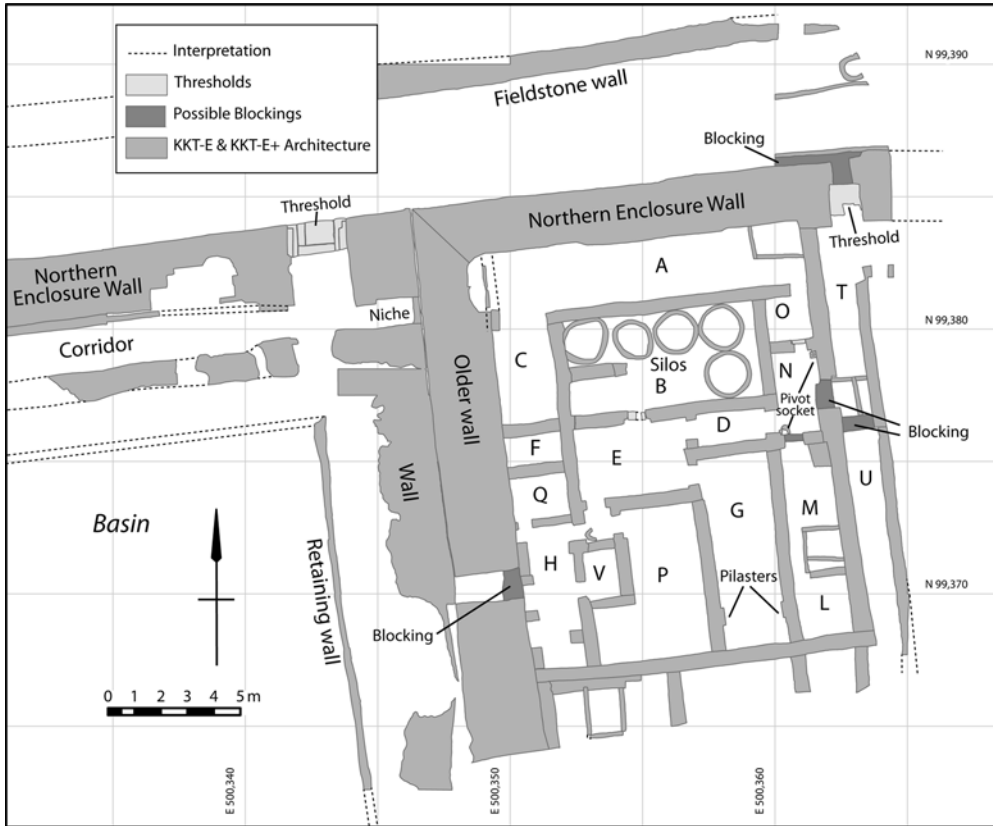


Figure 13. Plan of KKT-E+ and the Silo Building Complex, by Rebekah Miracle, AERA GIS



Figure 14. The Silo Building Complex at the end of the 2012 excavations. The rooms, or spaces, are labeled, as in figure 13. View to the north-northwest. Photo by Mark Lehner

Evidence of function derives so far only from clearing mudbrick debris from the collapse of the walls down to the latest occupation deposits or from small trenches down to floor level.

### ***SBC Access Shut Down: Transfer between Cults?***

The architecture within the massive older enclosure walls, opening to the southeast, continues east beyond our clearing. But in what we have so far mapped, it appears that people could only enter the SBC through a doorway with a limestone threshold at its northeast corner, thence through corridor T leading to an access through the eastern wall into Space N. At some point, people blocked this entrance shutting down the way into the SBC. So far, we see no other way into the SBC, unless through the niche at the end of the Khentkawes corridor, and then over the (low-standing?) broad wall of the older enclosure.

Perhaps people blocked the original SBC entrance to cut it off from the older complex extending east beyond our 2012 clearing, and to turn it over to the authority of the Khentkawes establishment? It would make sense that the SBC furnished offerings to the KKT (and Menkaure Valley Temple?) communities, storing grain and processing it into bread and beer.

In summary, we found the SBC at the end of that long corridor running east along the northern side of the Khentkawes basin. A ramp (NLR) once ascended from the western end of the corridor to the threshold of the Khentkawes causeway, which runs 150 meters west to the chapel in the queen's monument (fig. 8). Again, it would make Egyptological sense that the SBC produced offerings for the queen's cult and, thereby, everyone attached to her endowment.

But this interpretation stands against the evidence of the separate, but back to back, enclosures bounded by massive walls, which makes the question of access from one to the other critical: the issue of the niche at the end of the corridor, the original height of the SBC Enclosure Wall, and the timing of the SBC eastern blocking. We will investigate these issues in our next excavation season.

## **Resurvey and Documentation: The Menkaure Valley Temple and Khentkawes Town**

### ***Menkaure Valley Temple***

Each season we re-clear and document another part of the Menkaure Valley Temple, excavated by George Reisner (1931) between 1908–10, and its eastern Annex, which Selim Hassan (1943) excavated in 1932. For decades the relationship between the Khentkawes Town (KKT) and the valley temple of the Menkaure Pyramid (MVT) has remained a curiosity. On the map they look like two ancient architectural footprints jamming into one another (fig. 8). Indeed Hassan thought that the Annex at the front of the MVT was the valley temple of Queen Khentkawes. Reisner recognized that the MVT had a complex history with building, renovation, and more building across dynasties. We now know that history included an expansion onto the Annex, which we studied in 2005 and 2008.

Between 2011 and 2012 we entered, for the first time in the 101 years since Reisner's excavations, the front, eastern one-third of the MVT (fig. 15). We targeted small excavation trenches to resolve the relationship between the MVT proper and the Annex, and also to clarify the complex phasing. Our results give more weight to the hypothesis that builders made the Annex terrace and enclosure soon after they had finished the main part of the MVT. It was possibly during the mid-Fifth Dynasty reign of Niuserre when builders returned

## GIZA PLATEAU MAPPING PROJECT



Figure 15. 2012 operations in the eastern third of the Menkaure Valley Temple. A workman clears the southern enclosure wall, while others work on top of the massive eastern enclosure wall. In the background team members clear walls and floors in order to trace the construction history and phasing. Beyond the Menkaure Valley Temple, the Khentkawes Monument stands with the Khafre Pyramid rising behind. The Khufu Pyramid stands in the distance to the right. Photo by Mark Lehner

to rebuild and add limestone features to the MVT. Twin vestibules with identical sets of four round alabaster column bases, one opening east inside the eastern entrance of the MVT proper, the other opening north in the northern end of the Annex, may date to this time, some eighty years after the first temple was finished under Shepseskaf, but well before the “second temple” was built in the Sixth Dynasty.

### **Khentkawes Town-North (KKT-N)**

In season 2011 Ana Tavares directed a project with architect Günter Heindl and mudbrick specialist Ashraf Abd el-Aziz to backfill and essentially cap what remained of Building E, one of the houses along the Khentkawes causeway (fig. 8). They capped the remains of walls with a reconstruction above the exact location of the original (fig. 16), following a protocol for conservation that the AERA team worked out when we conserved the Eastern Town House (ETH) in 2005 (Lehner, Kamel, and Tavares 2006, pp. 81–82; AERAGRAM 2006, pp. 8–9). In preparation for conservation work on Building E, which we re-excavated in 2009, Hanan Mahmoud mapped and documented the remains of Building D to the west.

The primary objective of our 2012 season was to document and study all that remains of KKT from Building D to the western end of the town (fig. 17). Essam Shehab led a team that completed this task (fig. 18). In two trenches across the causeway the team discovered that the builders founded the western end of the KKT over a 2-meter-deep quarry, which they filled with debris to complete an even plane for the foundation. They recorded more



Figure 16. In 2011 as part of our conservation program, Ana Tavares, Günter Heindl, and Ashraf Abd el-Aziz built a mudbrick replica of Building E in the Khentkawes Town upon the archaeological remains of the original structure, after carefully covering it with a protective blanket of sand and mudbrick. The team matched the dimensions and composition of the original brick, and the position and dimensions of the original structure. The Gebel el-Qibli rises in the background behind the modern Muslim cemetery. View to the south. Photo by Hilary McDonald



Figure 17. Panoramic view of 2012 operations at the Khentkawes Town and Menkaure Valley Temple. The team cleared and mapped the western end of the Khentkawes Town (left). The basin and Silo Complex Building occupy a lower terrace in the background. The eastern end of the Menkaure Valley Temple can be seen at the far right. The walled, modern Muslim cemetery occupies the wadi mouth below the Gebel el-Qibli (upper right). View to the east taken from the top of the Khentkawes Monument. Photo by Mark Lehner



## GIZA PLATEAU MAPPING PROJECT

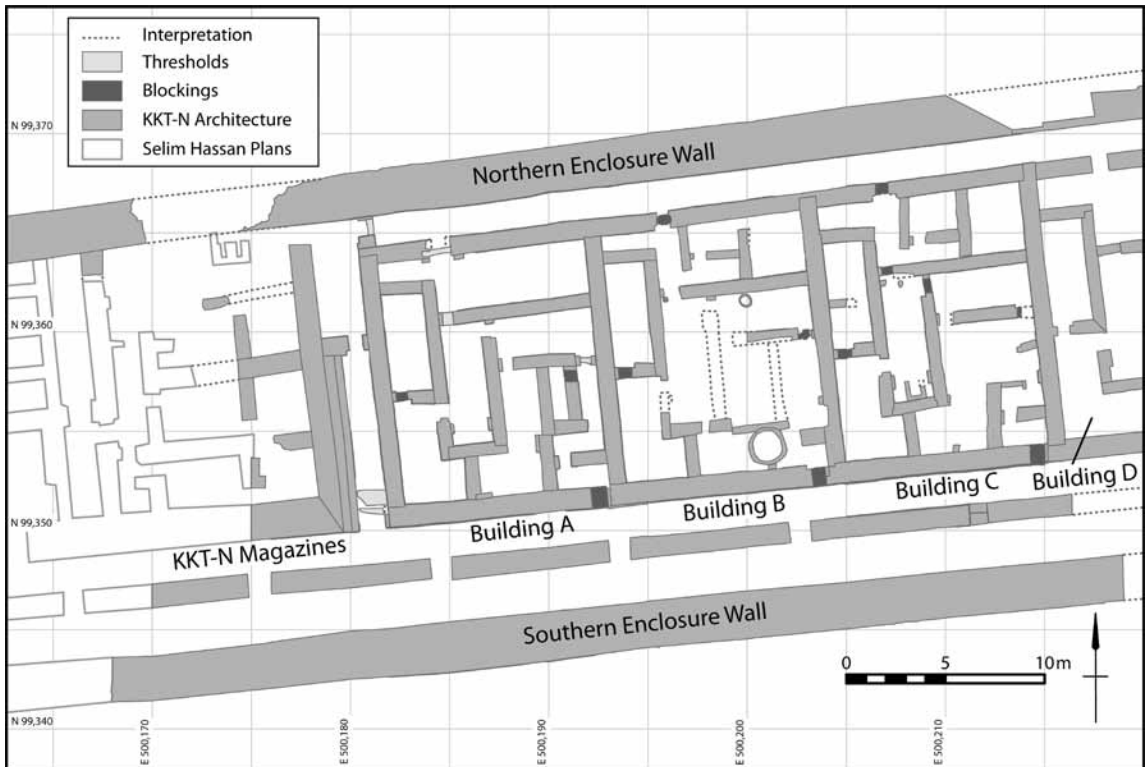


Figure 18. Plan of the structures at the far western end the Khentkawes Town, by Rebekah Miracle, AERA GIS

evidence that people rebuilt the settlement after a period of abandonment. It appears the reoccupiers blocked the doorways opening onto the causeway from the houses, which would imply a major change in the function of the town, since it has long been thought that these structures housed priests who tended the Khentkawes cult in her chapel at the western end of the causeway.

## Conclusion

We have gained in our work of over twenty-seven years, between 1988 and 2012, a continuum of settlement from the HeG to the MVT and KKT that sees the functional transition from a town to accommodate the infrastructure of pyramid building, and its administration, to a community established for the royal memorial foundations and their administration. Egyptologists have for some time debated the transition from workers' installations to pyramid towns on the basis of texts. We can now contribute to this discussion a detailed footprint of the actual settlements, complemented by rich material culture corpora. The transition from the HeG to the MVT and KKT also tracks the chronological transition from the Fourth to the Fifth Dynasties, when the royal houses moved away from Giza to Saqqara and Abusir for their memorial complexes. Evidence indicates they kept their attention on Giza. Perhaps we shall derive from this record more about the mysterious Queen Khentkawes and her role during this time of both change and continuity.

## Acknowledgments

For a successful season 2011 we would like to thank Dr. Zahi Hawass, Minister of State for Antiquities (MSA); Mr. Atef Abu el Dahab, General Director of Pharaonic Monuments; Dr. Mahmoud Afifi, General Director of Cairo and Giza Central Department; Mr. Ali El Asfar, General Director of Giza Pyramids area; Mr. Mohamed Shiha, chief inspector; Mr. Afifi Ruheim, chief inspector; as well as Ms. Abeer Awad and Ms. Nagwan Baha Fayez from the Giza inspectorate for serving as our site inspectors, and Mr. Ahmed Ez as our lab inspector. We would like also to thank Mr. Shabaan Abd al-Gawad for the administrative help with the field school and training program, and Dr. Mohamed Ismaiel of the permanent committee at the MSA Zamalek office.

For a successful season 2012 we would like to thank Dr. Mohamed Ibrahim Ali, Minister of State for Antiquities; Dr. Mostafa Amin, Secretary General of the Ministry of State for Antiquities (MSA); Mr. Abd El Hameed Marouf, General Director of Pharaonic Monuments; Dr. Mahmoud Afifi, General Director of Cairo and Giza Central Department; Mr. Ali El Asfar, General Director of Giza Pyramids area; Mr. Mohamed Shiha, Director of Giza Pyramids area; Mr. Afifi Ruheim, chief inspector; and Mr. Abd El Qader Karamani, chief inspector; as well as Mr. Mohamed Hemida and Mr. Hany Abdu from Giza inspectorate for serving as our site inspectors, and Mr. Ahmed Ez as our lab inspector. We would like also to thank Mr. Shabaan Abd al-Gawad for the administrative help with the field school and training program, and Dr. Mohamed Ismaiel of the permanent committee at the MSA Zamalek office.

## References

### AERAGRAM

2006 "Conservation Pilot Project: A Humble Compound Reborn." *AERAGRAM, Newsletter of the Ancient Egypt Research Associates* 8/1: 8–9.

### Anus, P.

1971 "Un domaine thebain d'époque 'amarnienne' sur quelques blocs de remploi a trouves a Karnak." *Bulletin de l'Institut français d'archéologie orientale* 69: 69–88.

### Arnold, Dorothea

2005 "The Architecture of Meketre's Slaughterhouse and Other Early Twelfth Dynasty Wooden Models." In *Structure and Significance: Thoughts on Ancient Egyptian Architecture*, edited by P. Jánosi, pp. 1–65. Vienna: Austrian Academy of Sciences Press.

### Arnold, Felix

1998 "Die Priesterhäuser der Chentkaues in Giza." *Mitteilungen des Deutschen Archäologischen Instituts, Abteilung Kairo* 54: 1–18.

### Grandin, Temple

2007 *Livestock Handling and Transport*. Cambridge: CABI.

### Greenfield, H. J.; K. D. Fowler; and L. O. van Schalwyk

2005 "Where are the Gardens? Early Iron Age Horticulture in the Thukela River Basin of South Africa." *World Archaeology* 37/2: 307–28.

### Hassan, Selim

1943 *Excavations at Giza, Volume 4: 1932–1933*. Cairo: Government Press.

## GIZA PLATEAU MAPPING PROJECT

Lehner, Mark

- 1999 "Giza." In *The Oriental Institute 1998-1999 Annual Report*, edited by Gene Gragg, pp. 66-76. Chicago: The Oriental Institute.
- 2002 "Giza Plateau Mapping Project." In *The Oriental Institute 2001-2002 Annual Report*, edited by Gil Stein, pp. 49-75. Chicago: The Oriental Institute.
- 2006 "Giza Plateau Mapping Project." In *The Oriental Institute 2005-2006 Annual Report*, edited by Gil Stein, pp. 46-64. Chicago: The Oriental Institute.
- 2008 "Giza Plateau Mapping Project: 2006-2007 Season." In *The Oriental Institute 2007-2008 Annual Report*, edited by Gil Stein, pp. 49-62. Chicago: The Oriental Institute.
- 2010 "Giza Plateau Mapping Project." In *The Oriental Institute 2009-2010 Annual Report*, edited by Gil Stein, pp. 40-64.

Lehner, Mark; Mohsen Kamel; and Ana Tavares

- 2006 *Giza Plateau Mapping Project Season 2005 Preliminary Report*. Giza Occasional Papers 2. Boston: Ancient Egypt Research Associates.
- 2009 *Giza Plateau Mapping Project Season 2004 Preliminary Report*. Giza Occasional Papers 1. Boston: Ancient Egypt Research Associates.

Mack, K.; T. Maggs; and D. Oswald

- 1991 "Homesteads in Two Rural Zulu Communities: An Ethnoarchaeological Investigation." *Natal Museum Journal of Humanities* 3: 79-129.

Reisner, George

- 1931 *Mycerinus, the Temples of the Third Pyramid at Giza*. Cambridge: Harvard University Press.

Shaw, Ian

- 2000 *The Oxford History of Ancient Egypt*. Oxford: Oxford University Press.

Wenke, Robert J.

- 2009 *The Ancient Egyptian State: The Origins of Egyptian Culture (c. 8000-2000 BC)*. Case Studies in Early Society 8. Cambridge: Cambridge University Press.