

## GIZA PLATEAU MAPPING PROJECT

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### Introduction to Season 2014

After a study season in 2013, we resumed fieldwork from January 31 to May 30, 2014, east of the Khentkawes Town (KKT) in the Silo Building Complex (SBC) on the eastern bank of a small basin. We have cleared the northern side of this basin; the southern remainder lies under a modern road and cemetery (fig. 1).

The Khentkawes Town and SBC were only part of a zone of settlement along the low southeastern base of the Giza Plateau (fig. 2). The basin is no doubt the westernmost reach of a larger ancient canal basin, now deeply buried to the east of the Sphinx and Khafre Valley Temple.



*Figure 1. Area KKT-E+ (east of the Khentkawes Town) with the Silo Building Complex, foreground, during season 2012. Our protective sand covers the western edge of the basin, which in 2012 filled with groundwater, and the upper Khentkawes Town and causeway leading to the chapel cut into the southeastern corner of her monumental tomb. The pyramids of Khafre (right) and Menkaure (left) rise in the background. View to the west*

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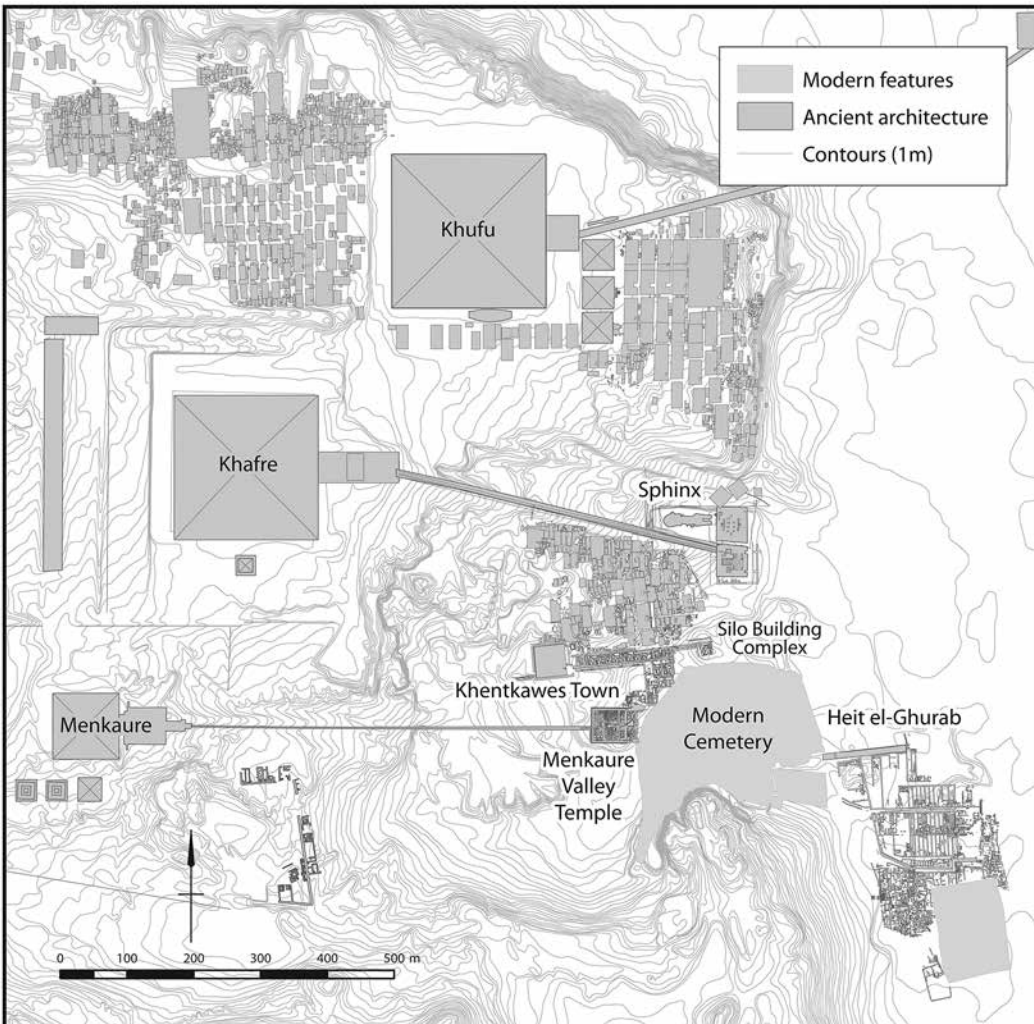


Figure 2. The Giza Plateau, showing the locations of KKT, the Menkaure Valley Temple, and the settlement of Heit el-Ghurab (illustration prepared by Rebekah Miracle from AERA GIS)

The small basin was part of the route from the Khentkawes chapel in the southeastern corner of the queen-mother's monument to the valley floor. Anyone who came to the end of the causeway corridor, which ran 150 meters through the upper town, could turn south or north to descend lateral ramps built against the vertical bedrock face of an old quarry. The southern ramp let onto a terrace around the basin. The northern ramp delivered one to stairs that descended onto the terrace or to the western end of a higher corridor that turned east and ran another 40 meters along the northern side of the basin (figs. 3–4). We found these structures and the basin between 2007 and 2009.<sup>1</sup> The combined lower layout extends east of the limits of Selim Hassan's 1932 excavations of the KKT upper town.

The walls of the eastern end of the corridor frame a small niche (a *bowab's* chamber?) against the wall that encloses the Silo Building Complex, so named because it includes a storage chamber with five round silos that were probably granaries. Just before the niche, a large limestone threshold on the north marked a monumental doorway through the once-

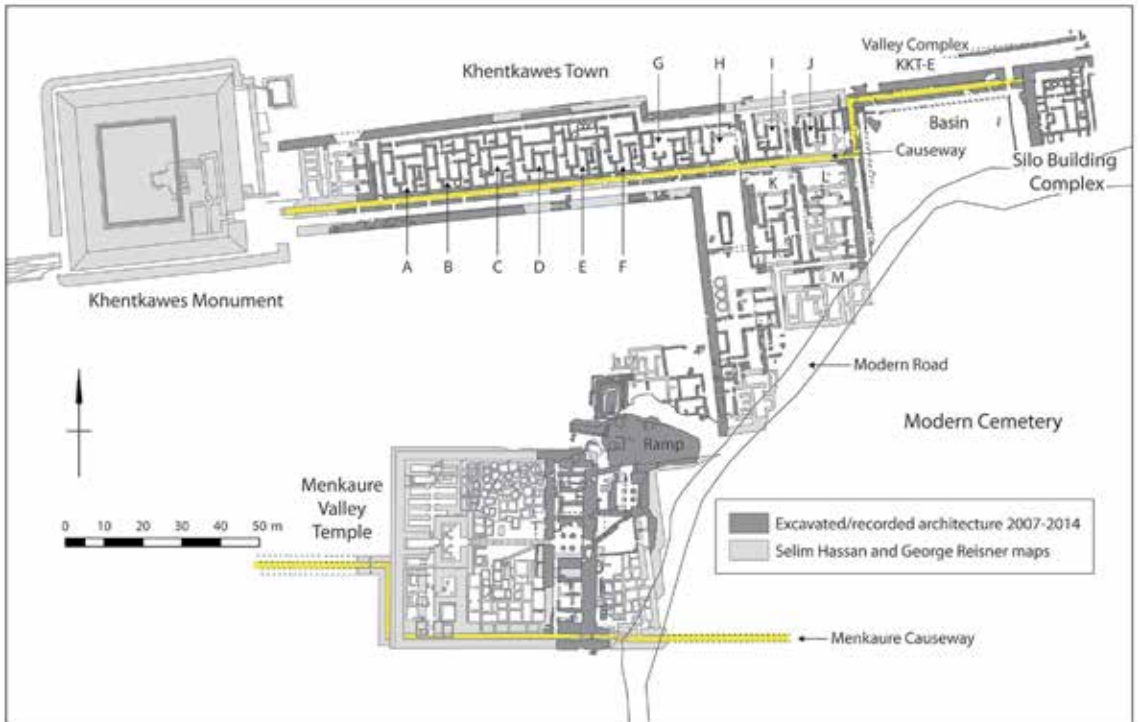


Figure 3. Map showing the location of the Khentkawes basin and the SBC in relation to the Khentkawes Town and funerary monument and the Menkaure Valley Temple (illustration prepared by Rebekah Miracle from AERA GIS)

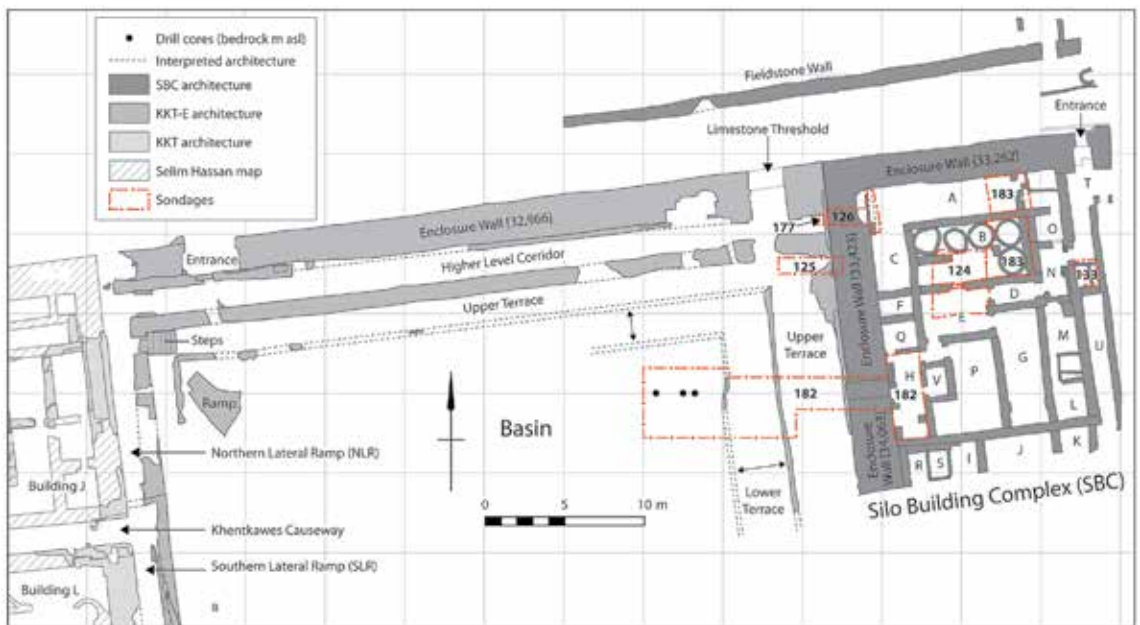


Figure 4. The KKT-E Valley Complex and Area KKT-E+ (illustration prepared by Rebekah Miracle from AERA GIS)

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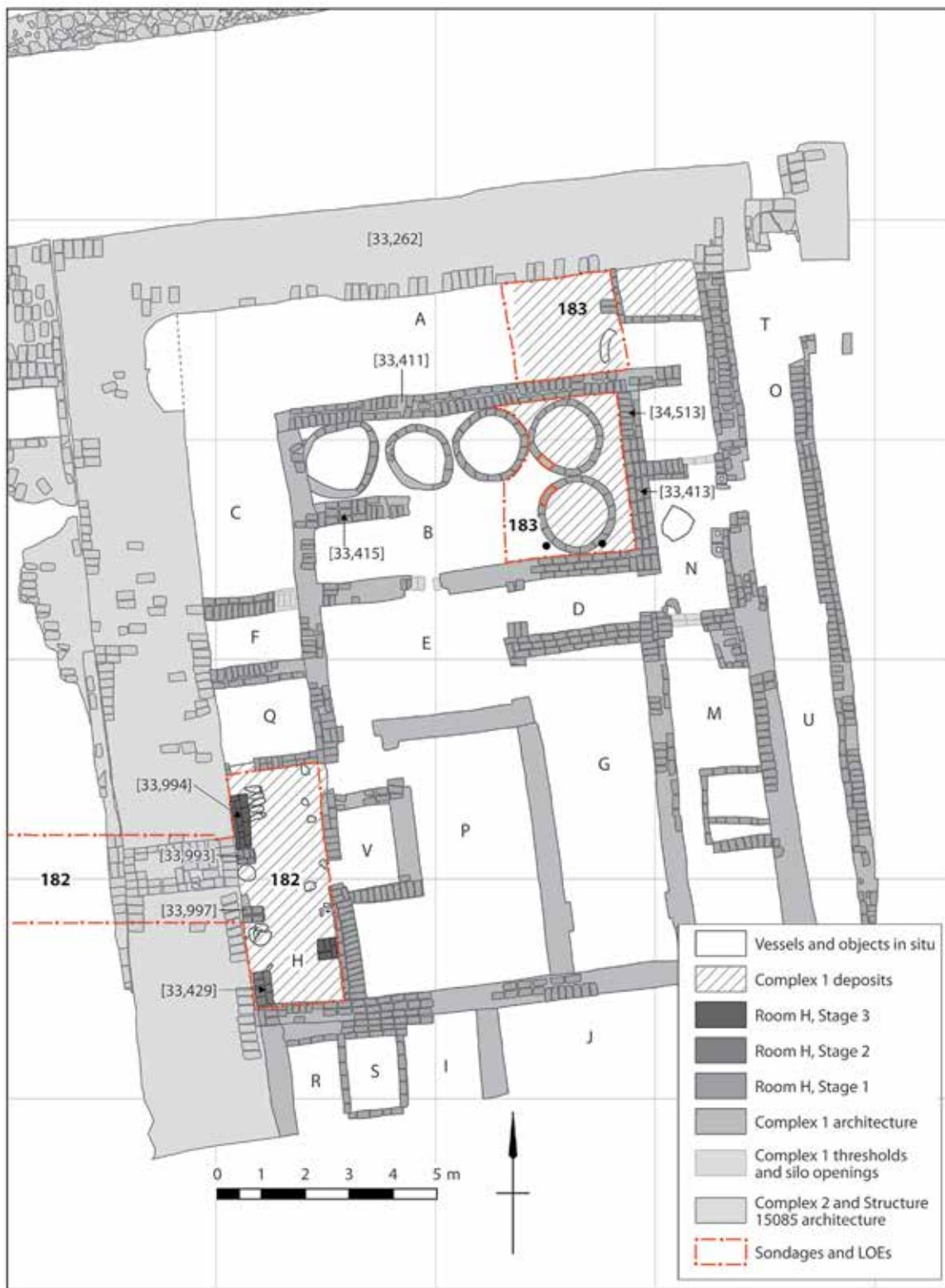


Figure 5. The Silo Building Complex (Structure 15,085, Complex 1) during the Fifth Dynasty (illustration prepared by Rebekah Miracle from AERA GIS)

massive northern basin wall. This entrance (fig. 4) gave access across the corridor down into the basin.

In 2012 we found the five silos and evidence that the long chambers on the north (fig. 5, A–C) and east (L–M) were bakeries. Food storage and production made sense at this location. People could deliver grain to the SBC via the basin, process it into flour and bread (and maybe beer), then take the food as offerings up the corridor and northern lateral ramp ramps and through the causeway to the queen’s chapel.

But we thought we had a problem for this idea: the thick corridor walls and niche abutted the wall enclosing the SBC. The corridor was clearly built later than the SBC enclosure. This made it appear that the basin, which the corridor helps frame, was also built later than the SBC enclosure. The older enclosure wall appeared to screen off the SBC from the basin and from the Khentkawes corridor, weakening the idea that this storage and production center served the Khentkawes I memorial.

When we found a clay sealing impressed with the title “Overseer of the Pyramid, Great One of Khafre” between Horus names of Niuserre, who was king in the mid-Fifth Dynasty some eighty-five years later than Khafre, we thought the older enclosure might delimit Khafre’s pyramid town.<sup>2</sup> The Niuserre sealing, sealings of other Fifth Dynasty kings, the pottery, and the stratigraphy indicated that the SBC was built in the Fifth Dynasty. Its walls abut interior sides of the older enclosure walls.

## Season 2014 Questions

Prior to season 2014, AERA team members met in workshops led by Richard Redding to carefully plan sondages 182 and 183 (figs. 3–4) that would address specific questions about access between the basin and the SBC and about the ritual and economic functions of the SBC over time. To address these questions the team analyzed a range of freshly excavated material culture before the end of the season.

Within two weeks of the end of work, Ana Tavares, Daniel Jones, Freya Sadarangani, Hanan Mahmoud, Mohsen Kamel, Rabea Aissa, Hussein Rikhaby, Ali Witsell, John Nolan, Sherif Abd el-Monaem, Nermeen Shaban Aba Yazeed, Rodayna Bayoumy, Richard Redding, Claire Malleson, and Emmy Malak submitted a preliminary report on the results of the 2014 excavations and analyses for publication in the forthcoming issue of the *Bulletin de l’Institut française d’archéologie orientale* (BIFAO).

While I draw on their report for results and illustrations, I intend to address a broader issue pertinent to our 2014 results: the structural-stratigraphic relations between the SBC and the Khentkawes complex, and the implications for and ritual-economic relations.

## Earlier Layout: Framing an Open Working Basin

We now realize that the basin must have existed before it became part of the lower approach up into the Khentkawes Town. This reverses the idea that the enclosure around the SBC pre-dates the creation of basin itself.<sup>3</sup>

Buildings older than the Khentkawes Town framed the basin on the east and west (fig. 6). On the east bank we now have the SBC enclosure wall. On the higher bedrock terrace to the west, Buildings I, J, K, L (see fig. 2) also existed before they became incorporated into the eastern “foot” of the L-shaped Khentkawes Town (Lehner et al. 2011, pp. 147–53). These



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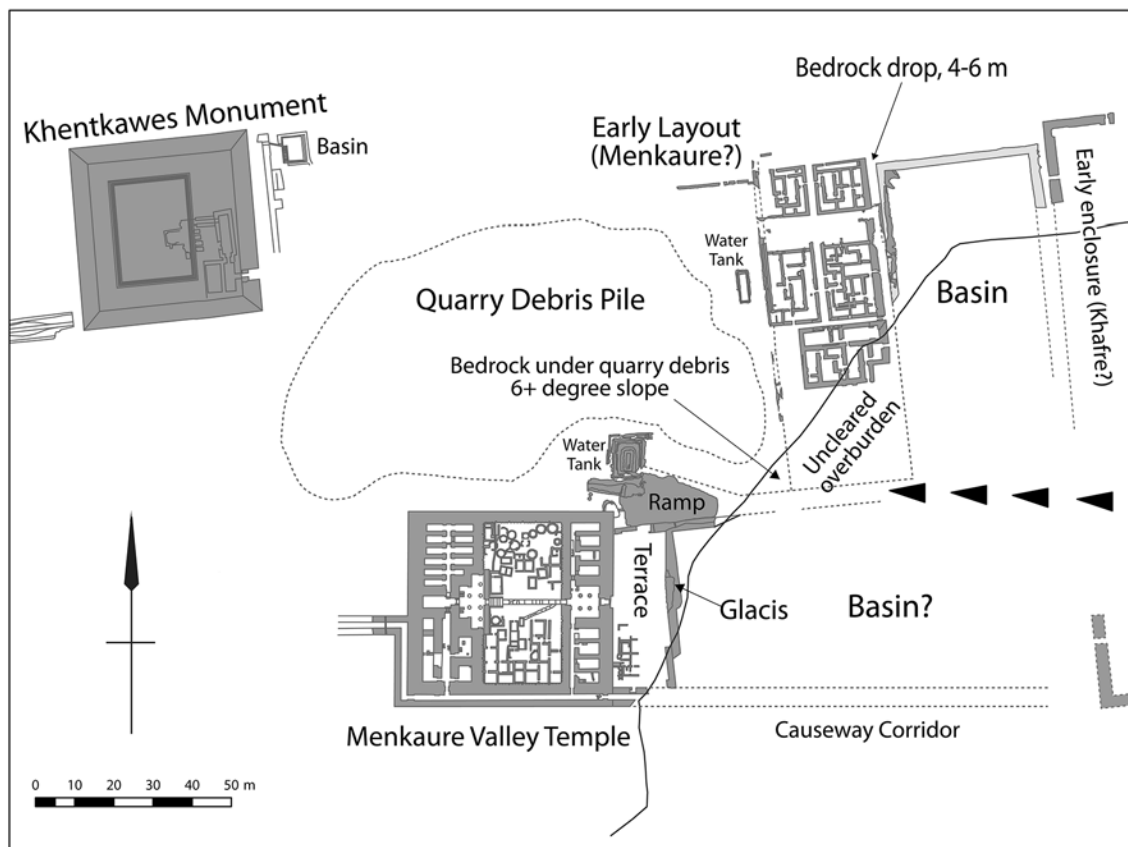


Figure 6. Map showing the early layout east and west of the basin, the Khentkawes Monument, and the Menkaure Valley Temple. The L-shaped basin may have served as a small harbor inlet for both the Khentkawes complex and the Menkaure Valley Temple (illustration prepared by Rebekah Miracle from AERA GIS)

buildings might have housed people and activities associated with the project to build Menkaure's pyramid complex (fig. 6).

Having started his valley temple only 30 meters to the south of this early block of structures, Menkaure's workers might have used the basin to bring building supplies for work on the king's pyramid complex. The basin probably extended as a reversed L-shaped harbor, as projected in figure 6. We have to guess because 6 to 8 meters of sand and a modern road and cemetery cover the southern part. Officials who stayed in buildings I, J, K, and L may have accounted for deliveries of supplies, labor, and produce. Workers could have delivered supplies up a very broad ramp sloping up to the northeast corner of the Menkaure Valley Temple.<sup>4</sup>

### This Old Terraced Basin

Our sondages 125 in 2012 and 182 in 2014 gave us cross sections that showed how builders formed the eastern bank of the basin by dumping layers of limestone quarry debris ("limestone crush"). They spread a bedding of sand, on which they built the SBC enclosure wall, 2.60 meters (5 cubits) thick, leaving a gap for access, 1.10 meters wide between the enclosure and the basin (fig. 7).



Figure 7. The early enclosure, Terraces 1 (upper) and 2 (lower) and the northern fieldstone wall (map by Rebekah Miracle from AERA GIS)

The eastern doorway opened from the older enclosure onto a terrace that once extended between 4.13 and 4.31 meters. Already in 2011 we mapped the eroded remains of the mudbrick casing (32,993), the width of a single brick, which once rose vertically to form the eastern edge of the terrace (fig. 8). We found this same mudbrick casing in the northwest corner and on western side of the basin. The builders probably intended the terrace to be 8 cubits (4.20 m) wide.

This season we found the remains of a lower mudbrick casing (34,544) that once delimited a second terrace, 1.00 to 1.13 meters lower than the upper terrace. The silt-plastered surface of the lower terrace remains for only a meter from the base of the upper casing. For convenience, I refer to these planes as Terrace 1 (upper) and Terrace 2 (lower), which leaves open the possibility of finding yet a third, lower terrace. Terrace 2, like Terrace 1, eroded into a slope cut through the foundation material of limestone quarry debris (fig. 8). In the exposure of our Sondage 182 the lower casing appears to jog (fig. 7), probably due to its col-

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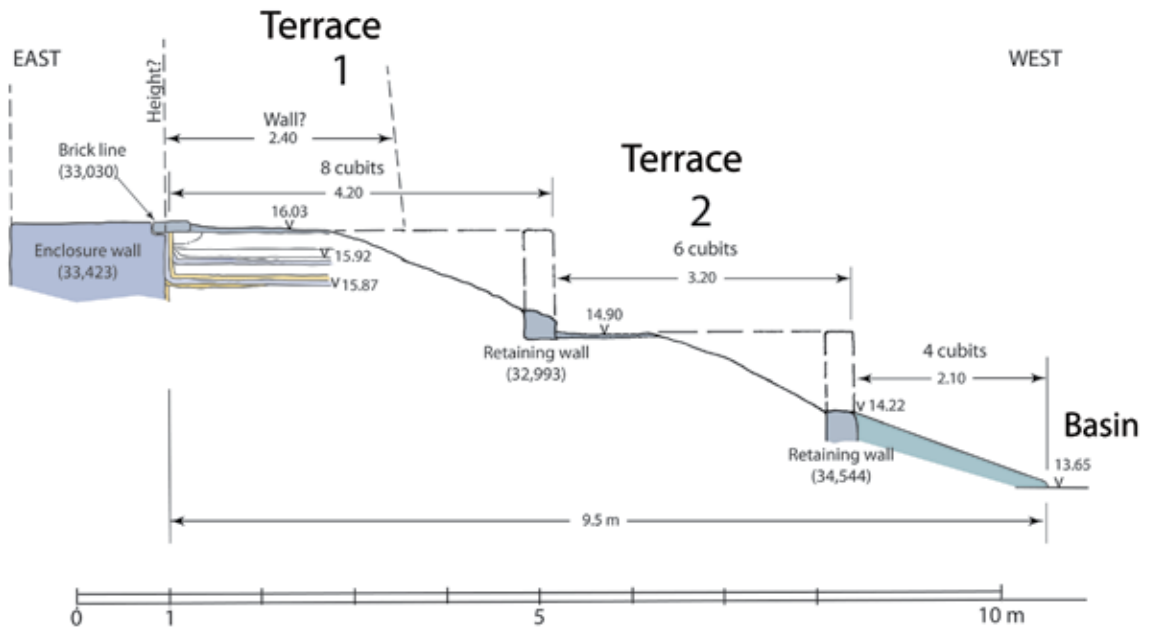


Figure 8. Reconstruction of the two terraces evidenced in Sondage 182 on the eastern side of the Khentkawes basin. Prepared surfaces against the enclosure wall (33,423) of the Silo Building Complex suggest the open terrace functioned in an earlier phase when this wall was plastered, and a later phase contemporary with the structures that Khentkawes builders made when they incorporated the basin into her memorial tomb complex (based on a sketch by Dan Jones)

lapse and slipping, so that Terrace 2 ranges from 3.10 to 3.44 meters in width. The builders probably intended a width of 6 cubits (3.15 m).

For convenience we have called the single-brick terrace linings “retaining walls.” Only one brick thick, they could not have retained loose debris. They are really casings or linings of limestone debris so compact that it held like cement. The builders laid the bricks to form the linings into a vertical face they cut into the compact debris

When we excavated the west and north sides of the basin in 2009–2011, we had no inkling of a lower terrace because the groundwater prevented us from excavating deep enough. With lower groundwater in 2014, Dan Jones extended his 2011 cross-trench on the west side of the basin and found the surface of the lower terrace. He could not extend deep enough to find the cased outer edge. But we are now reasonably certain the two stepped terraces extended on all three known sides. We are not certain that builders created the two terraces at the same time they built the SBC (Complex 2) enclosure wall, but we think it is likely.

## Continuity and Change

We do not know what preceded the SBC within the “SBC enclosure wall,” but in the northern end of our 2014 Sondage 183 (figs. 3, 5, 6), we did find one north–south mudbrick wall of the pre-Fifth Dynasty phase (“Complex 2”),<sup>5</sup> as well as evidence of baking, indicating a continuity of function. The wall (34,510), about half a meter thick, ran under the eastern silos and under the northern wall of Room B (figs. 4, 6), which had been had been built directly upon



the wall of the earlier phase, after it had been cut down to the floor or foundation level of the main SBC phase (“Complex 1”; fig. 5).

When they removed the later ashy deposits and floor in the northern end of Sondage 183 in Space A (fig. 5), Rabee Eissa and Hussein El-Rikaby found the continuation of the wall (designated 34,571) of the older phase. Belonging to this earlier phase, they also found in a rectilinear spread of ash with circle patterns against the base of the northern enclosure wall. The ash pattern must mark an egg carton-shaped pit for baking bread in pots set into hot embers such as we found in bakeries in the Heit el-Ghurab (“Workers Town”) site.<sup>6</sup> The heat from baking destroyed the plaster and scorched the bricks of the enclosure wall. Another baking pit showed as a spread of ash against the southern wall of space A, which is the northern wall of the silo chamber. Heat from baking also scorched the face of that wall.

It is clear that people used these baking pits before the silos were built. They continued to bake in Space A until the final occupation phase in the mid-Fifth Dynasty, evidenced by the uppermost layer of dark ash, a very large quern stone, and a bin built into the northeast corner over the latest floor (fig. 5). In a “make-up deposit” below and in the floors of the silos the team found Fourth Dynasty pottery and a Menkaure sealing, which could suggest that the silos were built already before the end of the Fourth Dynasty. The north wall of the silo chamber (B) might likewise have been rebuilt or remained from the earlier phase.

We see here a continuity of function over time, perhaps eighty-five years or more. But during this time, circulation and access changed. With those changes, the allocation of produce and personnel to the nearby royal endowments may have also changed.

Back on Terrace 1, inhabitants used the doorway through the SBC western enclosure for a short time only before they blocked it with mudbrick. Collapsed marl plaster (34,477) and the weathered west face of the wall suggest some time passed before workers next resurfaced the wall and Terrace 1 with a mud render (34,473) and thick marl plaster (34,472). In his stratigraphy of Sondage 183, Dan Jones (2014) ascertained that workers again raised the level of Terrace 1 on a later occasion. First they spread limestone 10 centimeters thick and coated the new surface with a whitewash (34,468) that “lips up” over the prior marl plaster (34,472) on the wall.

It is my impression, following *Indizienkette*, that when workers twice raised and repaved the terrace, they had not yet incorporated into the Khentkawes valley complex the basin and the older structures east and west. However, I believe they may have already built the thick wall (32,966) enclosing the northern side of the basin, which we know existed before builders added the parallel wall to form the corridor (fig. 4).

The north basin wall (32,966) linked the upper buildings (I, J, K, L, and M) with the lower enclosure that came to contain the SBC. With the doorway through the western wall (33,423 + 34,063) of the lower enclosure blocked, people must have entered the basin at the eastern end of the north basin wall through a doorway, 2.26 meters wide, marked by the large limestone threshold (fig. 4).<sup>7</sup> From here a ramp set at an angle might have given access down onto Terrace 2 and into the basin. We have yet to excavate a mass of limestone and silty debris in the lower part of the northeast corner of the basin. This mass might prove to be the remains of a ramp, a counterpart to the lowest ramp we found in the northwest corner of the basin.<sup>8</sup>

## Modifications for Khentkawes

It was the third and highest re-surfacing of Terrace 1 that in 2011 and 2012 I took for the residue of a thick eastern enclosure wall of the basin, which, had it existed, would have been built against and parallel to the thicker SBC enclosure wall, making “enclosures back to back.”<sup>9</sup>

When we exposed the eastern bank of the basin in 2011, we mapped a thin, broad patch of silty mudbrick material (34,270) over a 10-centimeters thick bed of crushed limestone (34,461). While not certain, it now seems likely this is a third re-surfacing of Terrace 1. The brick material is either an intentional render or deterioration from the adjacent wall. Some whole, articulated bricks and the crushed limestone layer suggest it remains from a pavement.

I believe that workers laid down this third, highest surface of Terrace I at the time they incorporated the basin and the upper block of buildings into the Khentkawes complex. At this time they also made the northern corridor and the northern lateral ramp leading up to the Khentkawes causeway. At this time the Khentkawes Town came into being.

A single line of brick stretchers (33,030) along the base of the western wall of the SBC enclosure (figs. 4, 6) ties the creation of the Khentkawes Town to the creation of the corridor. Masons must have laid the brick line, like a street curb, before they made the corridor running along the north side of the basin. The bricks are laid into a cut out of the lower side of the SBC enclosure wall (fig. 8), making us wonder if it might not have been reduced to this level at the time.

Builders made the corridor, 1.60 meters wide, by adding a thick accretion onto the southern face of the northern basin wall (32,966) and by making a parallel wall on the south. At the western end, the corridor turned and continued up the northern lateral ramp to the eastern end of the Khentkawes causeway where they narrowed the entrance of the older block of buildings to 1.60 meters, the width of the causeway on its run to the queen’s chapel 150 meters up the slope.

In effect, from its eastern end, the queen-mother’s causeway corridor now turned 90 degrees north, and turned to run the east as the corridor. Menkaure’s causeway corridor, also 1.60 meters wide, turns 90 degrees south at his valley temple, and then turns again to run east along the southern side of his valley temple (fig. 3). This is one of many indications that the Khentkawes Town and the Menkaure pyramid complex were finished in mudbrick within the same few years, most probably by Menkaure’s successor, Shepseskaf.

The far eastern end of the Khentkawes corridor is badly eroded, but enough traces remain to see the corridor wall stopped at a straight edge, leaving a gap for the access down into the basin from the entrance through the north basin wall (fig. 4). The corridor wall continues on the other side of the gap, where it abuts the line of single brick stretchers (33,030) and the SBC enclosure wall. The brick stretchers run at the back of the (porter’s?) niche, which was framed between the corridor wall and the thickened, massive eastern end of the north basin wall (32,966) (fig. 4). Masons must have laid the brick line (33,030) before they built the corridor at the same time as most of the upper Khentkawes Town. On Terrace 1, the brick line lies flush with, and was laid down nearly contemporary with, the third and highest re-paving of Terrace 1.

Extending the corridor as they did, Khentkawes I’s builders must have intended to connect to the SBC enclosure because it stored grain and processed it into bread and beer as offerings. To bring produce into the Khentkawes corridor people would have to exit a doorway at the eastern end of the northern wall of the older enclosure (figs. 4-5), move through

a broad street defined on the north by a fieldstone wall, and then enter the corridor via the doorway marked by the limestone threshold at the eastern end of the north basin wall. From here the corridor + causeway could have served, in effect, to tube-feed the queen-mother's tomb and chapel, 190 meters up the plateau.

Of course, we know not what kinds of routes and accesses run from the SBC enclosure to the east, and whether they might turn north toward the Khafre Valley Temple. Further excavation in this direction, through 6 to 8 meters of a sand overburden, may tell.

## Provisioning a Pyramid Town: State and Village

Analysis of material from 2012 and 2014 confirms two aspects of pyramid towns that Egyptologists construe from tomb titles, royal decrees, and the papyrus archives of the Abusir pyramid temples.<sup>10</sup> After the royal house moved away for building pyramids elsewhere, the settlements of priests and service personnel attached to pyramid temples functioned as “normal” villages, where people fended for themselves. On the other hand, the residents enjoyed exemption from obligatory labor and tax on their property and at least partial, perhaps sometimes token, provisioning from the royal house and exchange with other pyramid temples.

On the state-supported institutional front, the SBC appears to have served as a combination house, office, grain store, and bakery from the late Fourth Dynasty to the reign of Niuserre in the mid-Fifth Dynasty. Its central layout shows similarities to the modular houses of the upper Khentkawes Town, especially Building E.<sup>11</sup> It might have been part of the institution that texts refer to as *pr-šn*, the “House of Shena,” meaning something like “commissariat.” The Per-Shena stored, processed, and prepared foodstuffs as well as other materials. Large plantations, estates, households, and temples could possess a Per-Shena.<sup>12</sup>

Sealings from the SBC certainly testify to state attention. While they have not yet found the term, *pr šn*, John Nolan and Ali Witsell have documented from our limited excavations more than seventy-five formal sealings “of office” bearing the names of the Fifth Dynasty kings Userkaf, Sahure, Raneferef, and Niuserre as well as Fourth Dynasty Menkaure from the earlier deposits. Two sealings bear the name of Niuserre's pyramid, “Enduring are the Places of Niuserre,” attesting to the exchange between pyramid temples that we know from the Abusir Papyri. Many peg-and-string sealings must derive from official opening and closing of the apertures we found on the silos for removing grain. John and Ali documented sixty-nine “blanks,” dabs of clay prepared for sealing, and forty-three “recycle/discards,” sealings that did not work and were reused or thrown away, indicating that this was a “working environment for multiple steps of the sealing process.”<sup>13</sup> People sealed on-site, and did not just break sealings on containers and documents that came in from elsewhere.

The sealings emphasize the office aspect of the SBC. Flora and chipped stone show the site was provisioned with already processed material. Claire Malleson finds low taxa diversity and few remains of chaff and weeds, suggesting that the grain came into SBC storage cleaned of its chaff, a labor-intensive process which, if emmer, involves pounding with mortar and pestle. Richard Redding's study of the lithics (chipped stone) showed mainly finished tools of imported chert or flint, and only one small core, suggesting the tools were manufactured elsewhere.

The pottery also suggests official, ritual service. Fragments of miniature “votive” vessels account for 20.9 percent of the pottery from the mudbrick collapse, while stands, some

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Figure 9. Hedgehog boat fragment from the Silo Building Complex, limestone (photo by Ali Witsell)

complete, account for 60 percent of the pottery from the fill between the silos and the eastern wall of Space B.

On the village front, while the overall sample of animal bone is small, Richard Redding notes that pig bone is most abundant. Pig is a village animal that can be fed waste organics, produces numerous offspring, and yields high-calorie meat. However, the residents did consume cattle. In the 2012 sample Redding found a preponderance of thirty-one forelimb fragments to four hindlimb fragments, suggesting the first choice of forelimbs commonly shown in tomb scenes of butchering.

Objects used in weaving and fishing again suggest normal domestic life. The limestone end of a hedgehog boat, perhaps the most outstanding object from our 2014

excavations, may also reflect local village culture (fig. 9). Ana Tavares points out that “hedgehog ships” have been interpreted as “private votive objects found in temple contexts and indicative of popular beliefs.”<sup>14</sup> People at Elephantine deposited hedgehog boats at the local Satet temple. In our site, the Khafre and Menkaure valley temples were the local temples, and the foci of pyramid towns we have only partially uncovered. Again, the SBC is only part of a settlement that continues east under thick sand.

Kings kept alive the endowments for the memorials of these Giza kings for some eighty-five years (to the reign of Niuserre). The SBC was clearly part of a state-supported endowment. (So far, we know of no sealings of Khentkawes I. Nor is her name known from any source other than her titles etched into the granite doorjambs and false doors from her chapel.) It appears from the sealings and pottery that the SBC stopped functioning, went to ruin, and became covered by sand already by the Sixth Dynasty. People could not sustain life in the pyramid village, at least not at the SBC. After a time of abandonment, Sixth Dynasty kings renewed the exemptions, and so the pyramid town of Menkaure revived, now clustered in his valley temple. We found evidence that people also returned to and rebuilt parts of the Khentkawes upper town. But they did not rebuild the lower Khentkawes valley complex<sup>15</sup> or the SBC. The valley complex and lower town lay ruined and buried under a thick blanket of sand, well before the end of the Old Kingdom.

## Notes

<sup>1</sup> *Oriental Institute 2009–2010 Annual Report*, pp. 52–56.

<sup>2</sup> *Oriental Institute 2011–2012 Annual Report*, p. 61, fig. 12.

<sup>3</sup> The view that I expressed in as in the *Oriental Institute 2011–2012 Annual Report*, p. 60.

<sup>4</sup> The broad ramp is illustrated in the *Oriental Institute 2009–2010 Annual Report*, pp. 57–58, figs. 18–20.

<sup>5</sup> The team numbers “complexes” top down, so that Complex 2 is older than Complex 1. This leaves the possibility for deeper, older complexes while being somewhat counter-intuitive.

<sup>6</sup> *Oriental Institute 1991–1992 Annual Report*, pp. 60–66.

<sup>7</sup> *Oriental Institute 2011–2012 Annual Report*, p. 62, fig. 13.

<sup>8</sup> *Oriental Institute 2009–2010 Annual Report*, pp. 53–54, figs. 15–17.

<sup>9</sup> *Oriental Institute 2011–2012 Annual Report*, pp. 58–59, figs. 8, 9, 13.

<sup>10</sup> I have used the summaries in the preliminary report that the team prepared for publication after the 2014 season.

<sup>11</sup> *Oriental Institute 2009–2010 Annual Report*, pp. 49–52; *2011–2012*, pp. 64–66.

<sup>12</sup> Papazian 2012, pp. 75–79.

<sup>13</sup> John Nolan and Ali Witsell, forthcoming.

<sup>14</sup> A. Tavares and E. Malek, unpublished report “Grinding Tool Typology, Heit el-Ghurab” citing Kemp 2006, p. 119, fig. 40, p. 127, fig. 44.

<sup>15</sup> Lehner et al. 2011, pp. 172–79.

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