

## GIZA PLATEAU MAPPING PROJECT

### Mark Lehner

The Giza Plateau Mapping Project's fieldwork this year (8 January–31 May 2002) was the third and final season of our Millennium Project, a program of intensive clearing, mapping, and survey of ancient settlement remains at the foot of the Giza Pyramids Plateau (fig. 1). We first began working here in 1988 with a view toward studying the social and economic infrastructure of pyramid building. During our short and intermittent field seasons up to 1999 we had uncovered settlement remains in our concession, which is on the low desert about 400 meters south of the Sphinx. But our scattered 5 × 5 meter squares gave no sense of the size and extent of the settlement, nor its structure and function. It was not until Ann Lurie challenged and inspired us in 1998 to carry out a massive, marathon excavation that we discovered a vast complex, unlike anything seen in Old Kingdom Egypt. With Ann's encouragement and support, along with the steadfast generosity of David H. Koch, Peter Norton, and many other benefactors, we have been able to carry out twenty-one months of excavation over the last two-and-a-half years.

As of last year, our Millennium Project had uncovered about 5 hectares of settlement that we now know was part of an enormous Fourth Dynasty royal complex (the full extent of which we do not yet know). Through clearing the very thick layer of sand and modern dumping over the site and carefully scraping down to walls, we had recovered the ground plan of a great system of long galleries, in four sets, separated by two streets, and bounded on two sides by thick mudbrick walls. We had evidence of the many elements of a city — craft workshops, kitchen areas, houses, storage facilities — but did not yet know how they all fit together. In fact, we had contradictory findings: vast amounts of open space and very few formal housing units, but enormous quantities of animal bone, ash, and pottery.

Our work this last season has brought much of this together and resolved many lingering questions. We did not dramatically expand the total area of the site since our clearance at the end of 2001, but we intensively excavated 1,702.90 square meters, more than 30% of total excavated area from all previous seasons combined (1988–2002). With the complete excavation of a gallery we now have a working hypothesis as to how these odd structures were used, namely as dormitories or barracks for temporary workers. On the south side we continued excavations in the Buttress Building that began to emerge last season. With this year's work we now know it was a royal structure for storage and administration. We also removed vast mountains of overburden from our previous season dumps in a couple critical areas of the site resulting in important findings. After clearing away the east end of the Wall of the Crow, we finally resolved the issue of how the massive stone wall was related to our royal complex. Our excavations at the wall's eastern end confirmed that it was built *after* Gallery Set I and purposely butted up against it. We also discovered that this gallery was built upon the ruins of an earlier phase of the complex. Elsewhere we found evidence of a *later* phase that followed the construction of the Gallery Complex. The Enclosure Wall that runs around the western and southern sides of the site was erected after the Wall of the Crow, which it abuts. The Royal Administrative Building dates from this later phase. After removing overburden from the eastern side of our site we discovered a new area, a town, which looked like a typical ancient Near Eastern village that probably housed permanent workers. (See previous *Annual Reports* for information on earlier field seasons and methods.)

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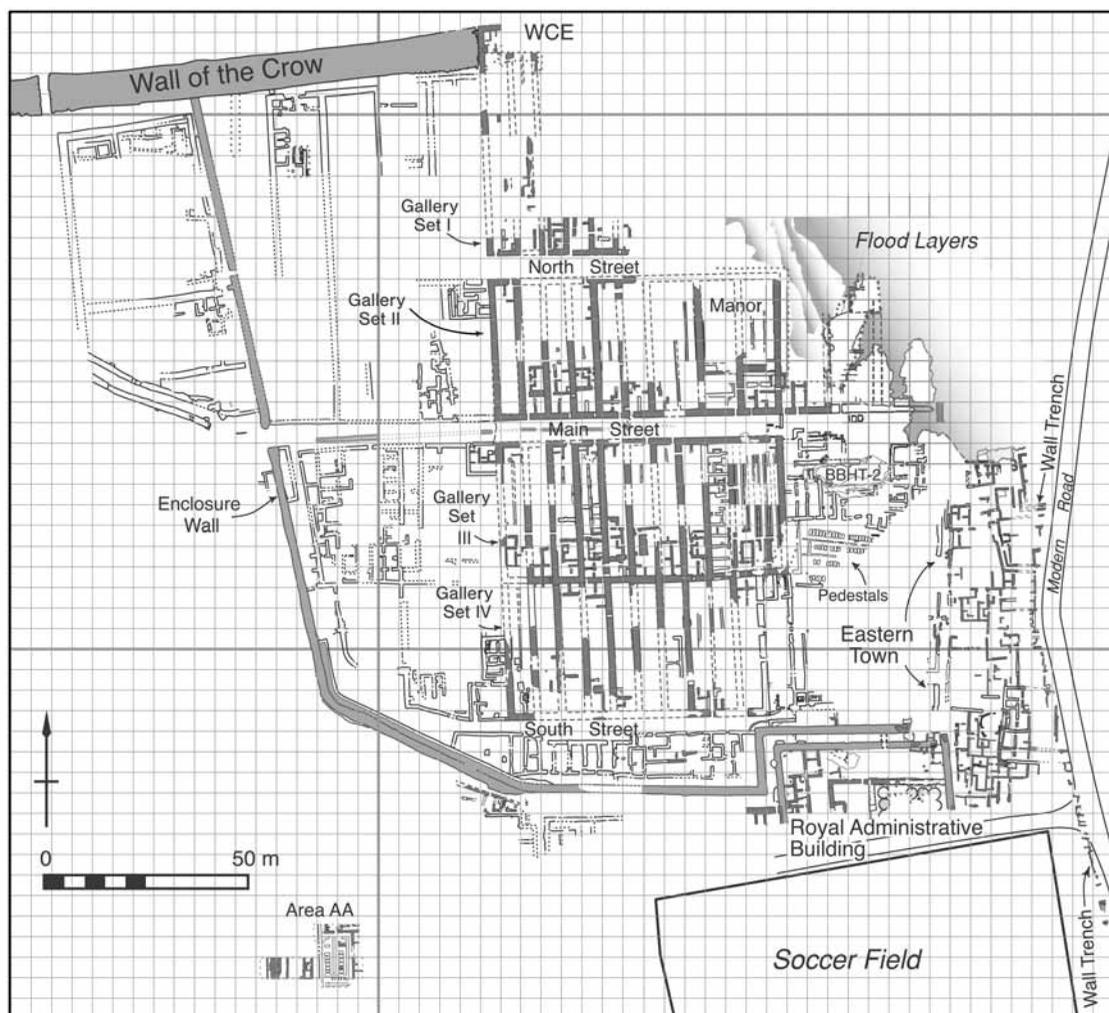


Figure 1. Map of the site as of June 2002. Giza, Egypt

### Gallery III-4

The enormous galleries that we identified in our first season of the Millennium Project remained enigmatic with their large open areas until Ashraf Abd al-Aziz intensively excavated one this season (figs. 2–3). Gallery III-4 (galleries are numbered 1-n, from west to east) consists of a large open area 21.50 meters long, occupying about three-quarters of the structure, and at the back, a house, about 10 meters long, with ten rooms. The north end of the gallery opened onto Main Street through a small foyer with a doorway that turned on a stone pivot socket. The only other access was at the opposite end through doors in the house opening into the adjoining galleries on the east and south. Perhaps this was a means of controlling the movement of people.

The front portion of the gallery was probably covered by a canopy or colonnade supported by columns that stood on a low wall or bench (or stylobate), positioned down the length of the gallery for 16.50 meters, dividing it approximately in half. Aside from the low wall, this long front portion of the gallery was nearly featureless except for four curious “ramps” that might have been platforms for sleeping. The ramps slope from a curb about 9 centimeters high that runs along the base of the gallery walls down to floor level, giving them a low grade. Slightly

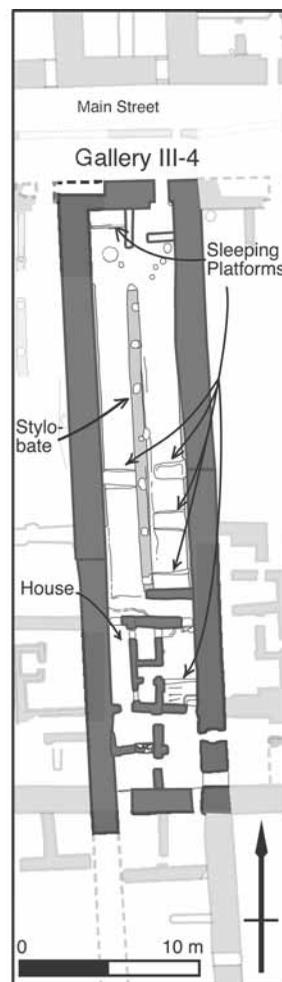
less than 2 meters long, the ramps vary from 110 to 96 centimeters wide at the high end, tapering slightly at the opposite end. Two ramps lie against the east wall, sloping down toward the center. Another is located nearly opposite one of them and butts against the other side of the stylobate. One ramp is built against the partition wall that separates the colonnade from the back “house” part of the gallery. Another is located in the front corner of the gallery next to the foyer, separated from it by a partition. The last of the six ramps is in the house.

It is possible, as Ashraf Abd al-Aziz suggested, that these “ramps” were intended for sleeping, that they were bed platforms (fig. 4). The remaining open space in the front portion of the gallery could have served as sleeping quarters as well, with bodies stretched out on the floor shoulder to shoulder perpendicular to the walls. To determine the gallery’s capacity, our workmen and crew lay down on the dirt floor side by side. Ashraf counted forty people but estimated that up to fifty could have been accommodated (fig. 5). The colonnade was probably the only amenity, providing shade by day and protection from occasional storms at night. The raised platforms might have been for older or higher ranking workers; height is often used to denote relative status.

The house at the back end of the gallery might have been the quarters of a foreman who oversaw the workers housed in the dormitory in the front. With its complex of little rooms, the house probably saw several phases of construction: our excavations of parts of other galleries revealed evidence of floors laid upon floors and renovations of walls and doorways. The entrance was at the east end of a corridor behind the screen wall adjacent to one of the sleeping platforms. But a second “front door” was cut through the west side of the house later. At the south end of the earlier “front room” there is a larger version of a bed platform. From the top of the ramp an irregular mud daub stairway leads up to the back room, which is higher, following the gradual rise in the entire gallery’s floor level from north to south. The walls of the back chamber



**Figure 3.** Gallery III-4 after excavation of its final phase of use, looking northwest. Gallery house is in foreground. Colonnade is in background. Holes in long, low central wall or bench (“stylobate”) in colonnade were bases for wooden columns, about 23 centimeters in diameter, which supported a light shade roof. Giza, Egypt



**Figure 2.** Detail map of Gallery III-4. Surrounding architecture is shown grayed out

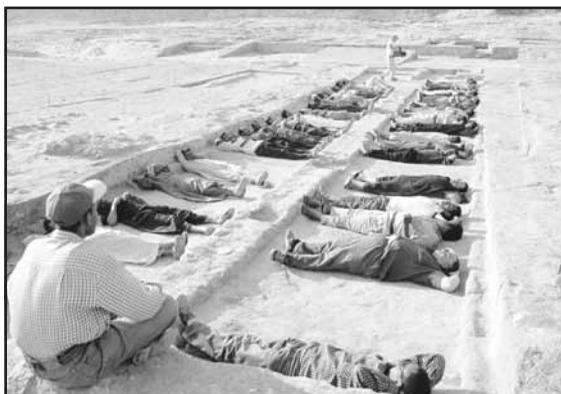
are reddened by fire, indicating burning, cooking, baking, or roasting. In the center of the house, three small chambers also show much evidence of burning. In addition, ash was scattered over the floor throughout the house and in the long front colonnade as well. It is possible that a fire burned roofing materials which ended up as ash on the floors, but there were several layers of ashy material suggesting that the ash derived from more than a single fire at the end of or after the gallery’s useful life.

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**Figure 4.** Gallery III-4, looking south. “Sleepers” mark low bed platforms: one in front northwest corner (foreground), four in colonnade, one in main room of gallery house (background). Giza, Egypt

debris from granite working apparently dumped here late in the Fourth Dynasty, the gallery walls emerged and resolved our lingering questions (fig. 6).



**Figure 5.** Gallery III-4, looking northwest. Ashraf-Abd el Aziz, excavator of gallery, counts “sleeping” bodies in front colonnade, from atop front screen wall of gallery house. Giza, Egypt

If the galleries were in fact dormitories or barracks, the gallery complex could have housed from 1,600 to 2,000 people. These would most likely have been the laborers who rotated in and out of the pyramid building project. Evidence from ancient Egyptian texts suggests that many of the common unskilled workers were temporary, serving short periods on the royal project. Such a large population of laborers living in the galleries may account for the abundance of material culture — animal bone, pottery, ash, and other refuse — that we have recovered over an area equal to four or five football fields where there are only three dozen formal houses.

### Wall of the Crow East (WCE)

Last season we became convinced that the east end of the Wall of the Crow was built as a set piece with the gallery system. But we could not excavate the area where the wall met the northwest corner of Gallery Set I until Late Period burials interred in the path of our trench were removed. This season our Swedish osteoarchaeological team, lead by Jessica Kaiser, excavated some fifty burials in the 2 × 6 meter trench. When Lauren Bruning cleared the trench and the adjoining 5 × 5 meter excavation squares of a thick layer of granite dust,

We found that the western wall of Gallery Set I (the culmination of the western walls of all four sets of galleries running more than 150 meters to the south), plastered with marl, presses hard against the east end of the Wall of the Crow. This plaster surface indicates that the mudbrick wall of Gallery Set I was here first and that the Wall of the Crow was built up to it. It is hard to conceive that the occupants butted such a massive, weighty stone wall up to the much more fragile one of mudbrick. Still, it seems quite clear that they built the stone wall up against the northwest corner of Gallery Set I. The north side of the Wall of the

Crow is on a line with the outer corner of the gallery wall and the gallery's north wall (fig. 6).

Another important finding in this area was an older phase of the complex that continued west underneath the Wall of the Crow. The earlier structure that attached to the western wall of the gallery complex was perhaps a "gate house," similar to the house-like buildings at the western entrances of North, Main, and South Streets into the galleries. We also found an earlier western wall of Gallery Set I about 80 centimeters east of the later western wall.

With the discovery of Gallery Set I's northwest corner and north wall, we know its full north-south extent. It is longer, at more than 55 meters north-south, than the sets of galleries to the south. However, it is not impossible that a street runs along the north side of Gallery Set I and that more galleries lie farther north beyond our clearing.

### Royal Administrative Building

Last season we found the northwest corner of a very large double-walled enclosure, which I called the Buttress Building (BB). This season we discovered it was in fact a large royal administrative building and storehouse (figs. 7–8). Fiona Baker, Susan Bain, and Bob Will excavated about 1,125 square meters of the building which measures 48 meters east to west. We have only 25 meters of the north end of the building. The rest lies under the modern soccer field of the *Abu Hol* Sports Club of Nazlet es-Seman. The outer wall of the two thick stone foundation walls that surround the building on the west and north is a continuation of the Enclosure Wall which encloses the western and southern sides of the site starting from the Wall of the Crow. On the east the Buttress Building is bounded by another fieldstone wall about 1.60 meters wide that tracks north as far as the inner of the double north walls of BB (fig. 8).

The central focus of the building's north end was a 19 meters wide sunken court lined by large mudbrick silos, probably used to store grain (fig. 9). The storehouse was buried under a tumulus or cairn that had been built in later times over the perimeter stone wall which by then had been demolished. With most of the storehouse under the soccer field, the team excavated only 10 meters of its northern end, uncovering 7 silos, each about 2.60 to 2.70 meters in diameter (5 ancient Egyptian royal cubits) leaving additional silos for future excavations. The silos stood in a court that was sunken 1.80 meters below the floor of the rest of the royal administrative building. A mudbrick wall, and later a stone wall, that surrounded the court may have supported a raised walkway used to fill the silos from above. Grain might have been released into the sunken court from small doors or openings at the bottom.

With the discovery of the storehouse we resolved another lingering question. Across the 5 hectares of our site we had found scores of bakeries and baking areas, including some dis-

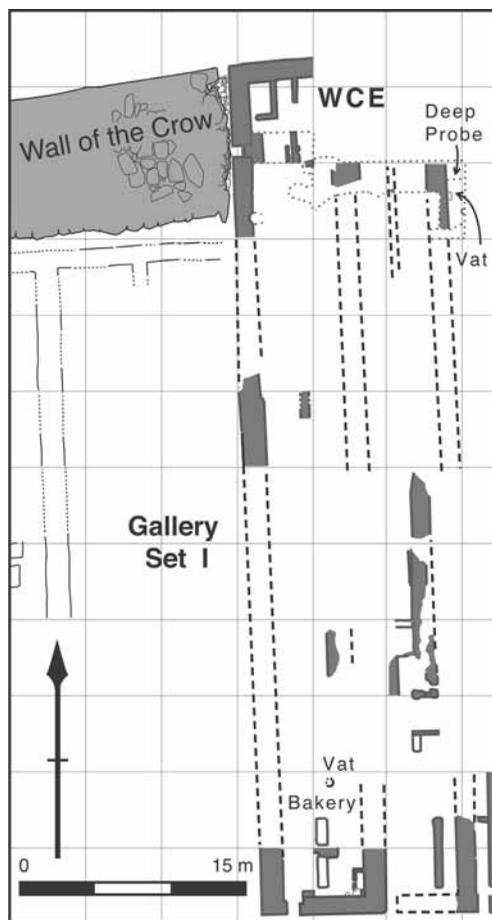


Figure 6. Detail map of northwest corner of Gallery Complex

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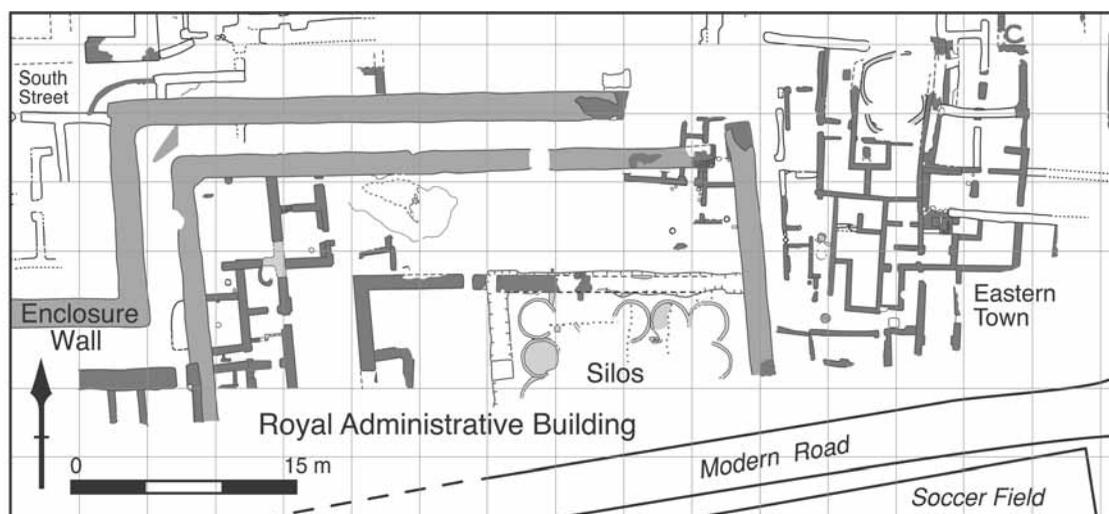


Figure 7. Detail map of Royal Administrative Building

covered this season (see below), but only one possible granary. We had not found grinding stones either, but here too we turned up eight pieces of grinding stones among the broken rocks used to build the cairn.

We found artifacts and features pointing to administrative activities and craftwork in two rectangular mudbrick compounds up to 3 meters wide in the northwest corner of the building. We turned up nearly 200 fragments of mud sealings in three weeks of excavations (compared to less than 500 sealing fragments registered from the rest of the site over the last thirteen years, though there are several crates of possible sealings that remain unexamined). The sealings carry the names Khafre and Menkaure, builders of the Second and Third Giza Pyramids. In addition to the sealings there were little balls of clay with finger marks and pieces pinched off that might be evidence of preparing the extra fine clay used to seal string locks on bags, boxes, doors, and ceramic pots.

Inside the royal building the excavators also found a series of little mud tokens that the Fourth Dynasty Egyptians may have used as counters, additional evidence of accounting and administration. Some are round or oval, possibly standing for a kind of bread called *pesen* in ancient Egyptian that was similar to pita. Others appear to be intentional quarter-*pesen* loaves. One small mud token looks like a haunch of beef. Elsewhere on the site we have found little conical mud tokens — possibly representing the conical bread made in the bread pots so numerous in bakeries across the site.

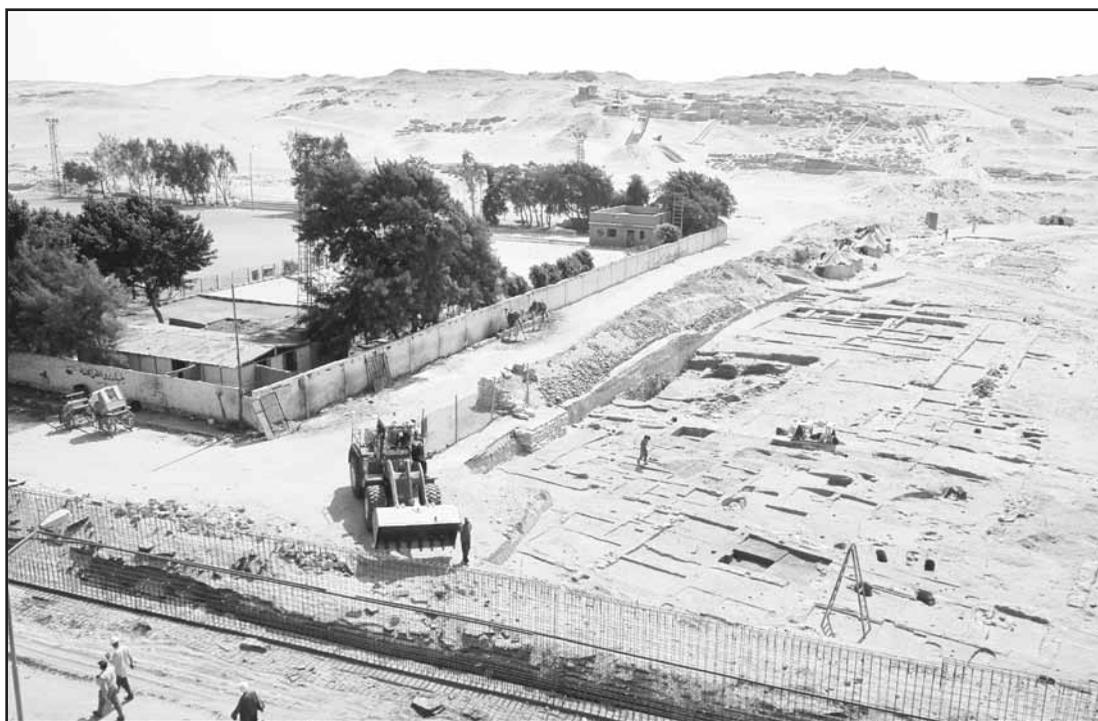
There were signs of copper and alabaster working in a series of covered chambers and in a square court tucked just inside the northwest corner of the inner enclosure wall. Directly south of the court, a rectangular chamber, which was probably roofed, could have been a store or magazine. Small basins and jars were buried here and there in the floors of the smaller chambers. There was evidence of weaving in the form of loom shuttles fashioned from pot sherds and loom weights of mud.

There was also a rich trove of animal bone in the trash middens. These remains, which differed from faunal remains elsewhere on the site, offered some interesting insights into shifts in diet. Our faunal analyst Richard Redding identified pig, cattle, and small quantities of sheep and goat among the remains. This was a striking contrast to the abundant cattle, sheep, and goat that we had found in previous seasons from deposits across the site, especially from a broad swath of galleries. Another difference was in the age of the cattle: the previous seasons'

finds were primarily prime beef, males less than 2 years old, probably raised in special estates, such as on the Delta, and driven to Giza. On the other hand, the animals from the administrative building middens were older individuals. The mix of cattle *and* pig in this collection is curious — the opposite ends of the menu from imported-and-costly to local-and-cheap. But this combination of pig and older cattle might have been merely a result of the royal house's departure from Giza that occurred late in the Fourth Dynasty. When the royals moved to Saqqara under pharaoh Shepseskaf prime beef may have gone with them, while other sorts of meat were sought out for workers left to finish the monuments at Giza. Older cattle and pig, which was raised as a cottage industry in ancient Egypt, more likely came from local villages than distant royal estates. The sheep/goats were apparently delivered as “packages,” rather than the usual animal on the hoof, since all the bone was from meat bearing limb elements.

### Eastern Town

On the eastern edge of the site we made a remarkable discovery this season: a town that we believe was home to a permanent work force at Giza (figs. 10–11). Early in the season we began clearing overburden east of the Administrative Building in anticipation of a new high security wall for the Giza Plateau that was to be built between our site and the modern road along the town of Kafer Gebel. As excavations for the wall's foundation trench approached the eastern rim of our site from the south, we moved our clearing as far east as we could to see what the ancient layers held near the path of the wall. We expected to find more alluvial layers from the Nile flood like those exposed in the northeast part of our site. Instead our clearing immediately exposed marl lines — the signature of walls — in the light brown ancient surface.



*Figure 8. Southeast corner of site, looking southwest. In foreground is trench of new high security wall. Beyond on right (north) is Eastern Town and Royal Administrative Building, and on left, Abu Hol Sports Club and soccer field. In distant background is Workmen's Cemetery on slope of Maadi Formation. Giza, Egypt*

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*Figure 9. Royal Administrative Building, looking northwest. Silos emerging from excavation of toppled fieldstone wall. Giza, Egypt*

We found a very different kind of settlement from the formal, large-scale planned architecture of the gallery system and the administrative building. Here was a warren of small rooms, thin mudbrick walls, and a more “natural” organization than the massive, rigid, pre-planned orthogonal architecture of the gallery complex. The layout is more or less regular and approximate to the cardinal directions. In contrast to the gallery system and the Wall of the Crow, which are oriented slightly north of east (or west of north), the orientation here trends slightly south of east (or east of north), except in what is now the town’s north end where the orientation abruptly shifts to west of north. The settlement traces include some forty to forty-five rooms, mud-lined bins, courtyards, and corridors. We also found two circular domestic granaries, with an interior diameter of 1.01 to 1.03 meters (probably an intended 2 cubits), and several grinding stones.

Altogether we cleared and mapped this settlement over an area of about 90 meters north-south and 35 meters east-west but do not know the Eastern Town’s full extent. It continues under the modern road and town on the east. On the north side we were able to trace the village until it dove under the Nile flood layers that had washed over the northeast corner of the site in antiquity. On the south the town extends under the soccer field and here, as a result of test pits, we have some idea about its southern reach (see below). We do not know how far the town extended to the west, but we found that the northeast corner of the Royal Administrative Building was superimposed on it. The foundation trench of the eastern wall of the building cuts walls and deposits of the Eastern Town, indicating that the royal building was built later. We do not know how far the Eastern Town extends north of the administrative building or how it relates to the galleries and a recently-discovered complex of bakeries (see below). We have yet to excavate a large area between the gallery complex and the town — the blank area on the map (fig. 11). This season the area was off limits because here we set up our camp and

tents for the guards, parked the two trucks and front loader overnight, and created an access road to the overburden in the northeast corner of the site.

When the 2 meter wide foundation trench for the new wall was finally dug, it was not cut through our concession after all, but about 5 meters farther east through the asphalt sidewalk along the west side of the modern street. This gave us another window onto the ancient town and for several days we worked down in the trench recording walls and other remains along the entire 100 meters of ditch (see fig. 10). Since the bottom of the trench, 1.30 meters below street level, was near the top of the layer of ancient settlement remains, we were able to find the 4,500-year old walls after only a little scraping or clearing.

### Eastern Bakeries and Pedestals

In the area around a massive backhoe trench (BBHT2, Big Backhoe Trench 2) just east of Gallery Set III, we uncovered a complex of bakeries filled with black homogeneous ash like the bakeries we found in 1991 (shown in fig. 1). Our 1991 bakeries sit within a gallery-like enclosure of modular width and length on the east side of Gallery Set IV. But they appear to be of the same phase as the bakeries around BBHT2. In the cut of BBHT2 one can see the bakeries clearly overlying deeper walls of an older architectural pattern. This lends support to a general and persistent impression that much of the baking is of a relatively late period in the history of the site.

Just south of these bakeries we found another pattern: long rows of separate pedestals formed of fieldstone, each about 60 by 120 centimeters. Two long rows of pedestals appear to form a set 20 meters long, separated by a very thin fieldstone wall. Two other, shorter rows of pedestals appeared farther south. They are similar to the rows of pedestals we discovered in our first season of excavation in 1988/89 (Area AA, shown in fig. 1) though less formally organized. Area AA's two rows of pedestals were lined up on either side of a wall that divided the building in

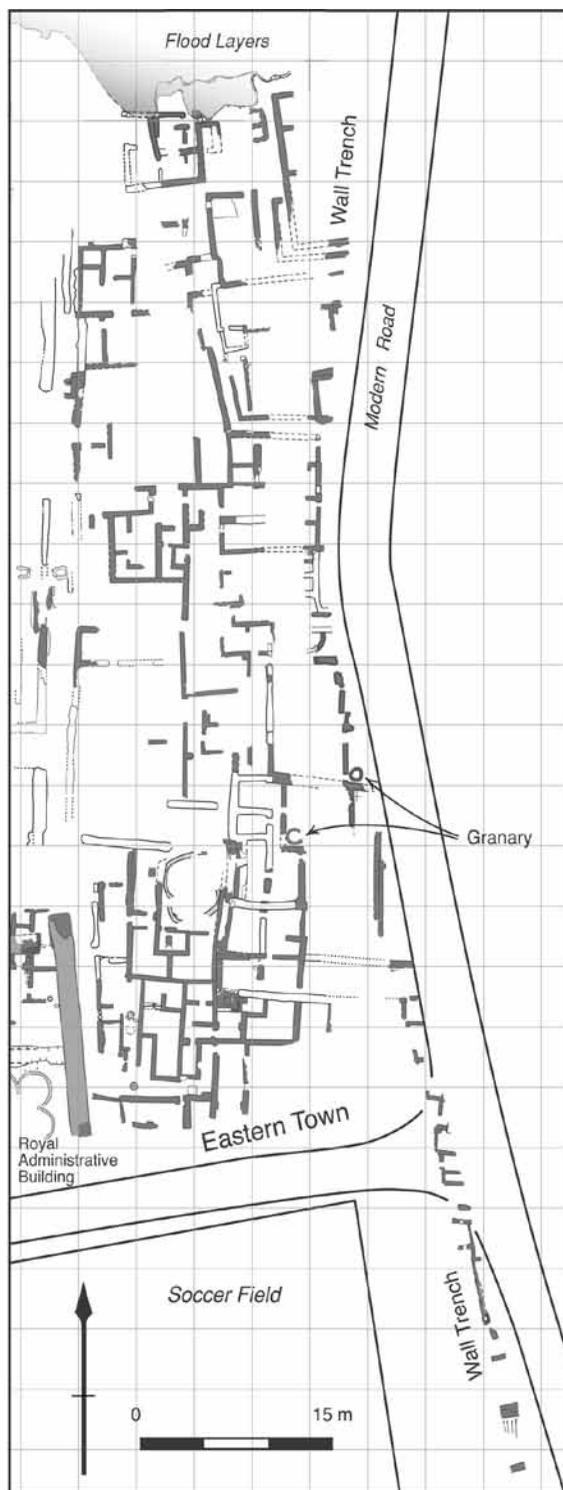


Figure 10. Detail map of Eastern Town

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*Figure 11. Eastern Town looking northwest. Our camp, the void in the site map, is just beyond the town. Giza, Egypt*

half lengthwise. It appears that storage bins were placed up high on the pedestals with space left beneath them for air circulation.

### **The Mounded Town: A Spur into the Floodplain?**

One of the findings of our environmental work is a clearer sense of the local topography. We have found that both on the north and south sides of the site the land surface dips down, suggesting that the settlement was located on a spur into the floodplain. In the foundation trench of the new security wall, we discovered that the surface of the settlement layer slopes down radically at the south end. When we explored farther south with 14 test pits dug into the bottom of the foundation trench, we found no evidence of occupation south-southeast of the soccer field. But as the pits moved north, we encountered a substantial layer of a sand and alluvial mud mixture indicating Nile flood deposits. In previous seasons we found on the northeast that the ancient ground level dips to the north and that thick, loamy layers of Nile alluvium cover the ancient settlement layers as they decline

to the northeast (shown in fig. 1). The dip to the north may lead down to a harbor fronting the valley temples of Khafre and Menkaure's pyramid complexes.

### **Environmental History on the North Side and the Demise of the Galleries**

Karl Butzer joined our project last season to consult on environmental history. His insights have been invaluable in helping us understand the complex geomorphology of our site. One of his findings was that the nearby desert's environment was quite different during the Fourth Dynasty than today, with far more rainfall. As a result of this discovery, we suspect that floods may have washed down on the site through a wadi and caused the severe damage that we have seen in the northern portion of the gallery during previous seasons. This year we traced the gallery's demise in an area at the end of the Wall of the Crow and north of the gallery complex and found more evidence implicating wadi floods. In a 15 meter long trench perpendicular to the north wall of Gallery I, Lauren Bruning determined that compact, coarse gritty sand banked up against the north gallery wall sometime after this area fell out of use. The force that deposited the gritty sand appears to have washed up against the wall, degrading it. Eventually the top of the wall began to dissolve and marl plaster pieces fell or washed to the north. Once the walls gave way, there was no longer any barrier to waters from the wadi. It is also possible that an extraordinarily high Nile flood swept into the gallery from the northeast.

Whatever the cause, the galleries in the northeast area of the site were destroyed leaving a rounded depression. A gushing force of water might not have been necessary to render large tracts of the galleries dysfunctional, dissolving them into “settlement sludge” and leaving standing pools of muddy water. Even a slow-moving flood could have rendered the central part of the gallery complex a muddy mess.

### **Granite Working during the Last Days of the Fourth Dynasty**

In addition to these natural forces attacking the mudbrick walls, humans, it appears, also wreaked havoc on the northern galleries. About 3 to 5 meters east of the end of the Wall of the Crow the galleries were demolished and a deep cut was gouged into the ruins. Sometime late in the Fourth Dynasty this cut was chosen as a dumping ground for a massive layer of granite dust that we have been excavating through over the course of two field seasons (2001–2002). The dust undoubtedly came from massive granite working, but from which project on the Giza Plateau? The two most likely possibilities late in the Fourth Dynasty are:

1. The lowest sixteen courses of cladding on the Menkaure Pyramid, which were never quite finished
2. The chapel and antechamber of the tomb of Queen Khentkawes, close to the Menkaure Valley temple and the west end of the Wall of the Crow

On the other side of the site, the silos in the Royal Administrative Building saw a similar fate. They were cut through and partially demolished and then filled with tons of broken stone — limestone and large fragments of granite (twenty tons were removed this past field season!). While the “granite dust” in the northwest corner of the site suggests the final stages of preparing the stone, the granite chunks found in the administrative building probably came from the initial stages of dressing large blocks, knocking off excess stone in large flakes and chunks. Many of the chunks have a rounded face, like the unfinished faces of the granite casing on Menkaure’s pyramid. It would have been practical for the masons to shed as much excess weight as possible from the granite before the long haul up the plateau to the pyramid. They may have carried out initial granite work in this location because the stone was delivered here via a harbor south of the ancient settlement. It is also possible that the granite was not destined for the monuments up on the plateau but headed instead for a large structure south of the royal storehouse.

### **Conclusions**

With the final season of the Millennium Project we have been able to pull together many diverse strands of evidence and develop a hypothesis for how this vast facility was used. We now see the enigmatic rows of long galleries, the dominant element of the site thus far, as barracks housing for a rotating labor force, perhaps as large as 1,600 to 2,000 workers. The innumerable bakeries throughout the site, especially along the eastern side of the gallery complex, supplied them with their daily bread. They also received rations of meat — beef, sheep/goat, and a rare piece of pork — as suggested by abundant faunal remains throughout the site, especially in the gallery complex.

An overseer may have managed the whole gallery complex from a large house we have called the “Manor.” The largest residential structure we have found thus far, the “Manor” is located at the east end of the galleries on the north side of Main Street.

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Its relationship to the larger gallery enclosure bears some resemblance to that of the small square (thought to be a house or manor by Helen Jacquet) inside the larger rectangle in the hieroglyph for “estate” (*hwt*).

We can only speculate on how the laborers were managed, but the structure of this complex suggests highly controlled movement. While the Enclosure Wall and the Wall of the Crow bounded the settlement on three sides, the layout prohibited much movement within, except east-west via the three streets. Access in and out on the west side was only through the gate at the end of Main Street. A way led from the great gate in the Wall of the Crow, turning into a corridor that delivered one to Main Street. North of Gallery Set I there might have been a harbor, but we do not yet know if there was any access through the north wall of the gallery complex. On the southeast side of the site, there was once an opening into South Street, but the northwest corner of the royal building with its attached semi-circular mudbrick wall restricted the access to and from the Eastern Town to only 90 centimeters wide.

We will not know what lay immediately east of the gallery complex until we excavate the area that is now a void on our site map. Beyond it, however, we know was a very different world from the galleries, a conventional village of small interconnected mudbrick houses and courtyards. Its residents might have been part of a permanent labor force for the Giza Plateau monuments.

Until this season we had no traces of a greater central authority overseeing this whole vast complex. But our discovery of the back end of the Royal Administrative Building has given us a glimpse of large-scale central storage and accounting. In addition to the enormous grain silos we have just begun to uncover, there were huge quantities of royal sealings probably used to secure goods against unauthorized access, as well as tokens for counting. All of this was separated from — or perhaps secured against — the gallery complex and the Eastern Town by thick walls of mudbrick and fieldstone. There might have been only one narrow door to the north in the northeastern corner of the building. Unfortunately we will not know any more about the building’s functions, layout, and full extent until we are able to excavate to the south in the area of the soccer field.

Through the Millennium Project, as we have uncovered this vast complex, we have discovered not only that it was an enormous centrally-planned facility that supported pyramid building, but that it was also a dynamic, ever-changing behemoth. It was battered by natural forces and underwent innumerable renovations. At this point we are most astounded by the addition of the gigantic stone Wall of the Crow, its east end attached to the gallery complex’s northwest corner. We have speculated that such great effort and resources were expended in order to divert flash floods rushing down the wadi just south of the pyramids.

With this season’s work we have begun to thread together the pieces of a chronology but have only the sketchiest outlines of the site’s history thus far. We do not know what prompted the alterations and additions but can speculate about possible causes. Some of the mudbrick architecture probably had to be rebuilt after periodic storms. Other architectural changes may reflect social and economic shifts. For example, the various cycles of pyramid and monument building on the Giza Plateau may have called for changes in the size and nature of the labor force. The methods for organizing and managing construction may have also changed over time and with each pharaoh that built on the plateau. It is sobering to know that under the complex as we have mapped it so far lies an older arrangement. We wonder if the site’s severe limits on mobility and access were related to increasing control over the workers. These limits appear to have developed over a period of time, reaching their apogee in the penultimate phase of the site. The Wall of the Crow and the Enclosure Wall were put up during later stages of

the gallery complex. Were pyramid laborers more regimented during Menkaure's reign? We also wonder if we are seeing efforts to be more efficient. The large complex of bakeries built in the later phase might have been intended to consolidate baking in one location and replace the small, scattered bakeries seen throughout the galleries. We will only be able to explore these issues with more intensive excavation and study of earlier phases.

After three years of the Millennium Project, we have "captured" the footprint of pyramid building's "back room operation." But with this season's work, we realize that we may have only glimpsed the "heel."

## Acknowledgments

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