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The Pyramid Age Settlement of the Southern Mount at Giza

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I. Introduction

Since 1988 the Giza Plateau Mapping Project has been carrying out excavations at Giza along the base of the Maadi Formation escarpment known locally as *Gebel el-Qibli* (Southern Mount), about 400 m south of the Sphinx (fig. 1). The goal is to find evidence of the social and economic structures that supported the building and maintenance of the Giza Pyramids and the surrounding tombs and temples. The project has undertaken 21 months of excavation during a marathon season from Fall 1999

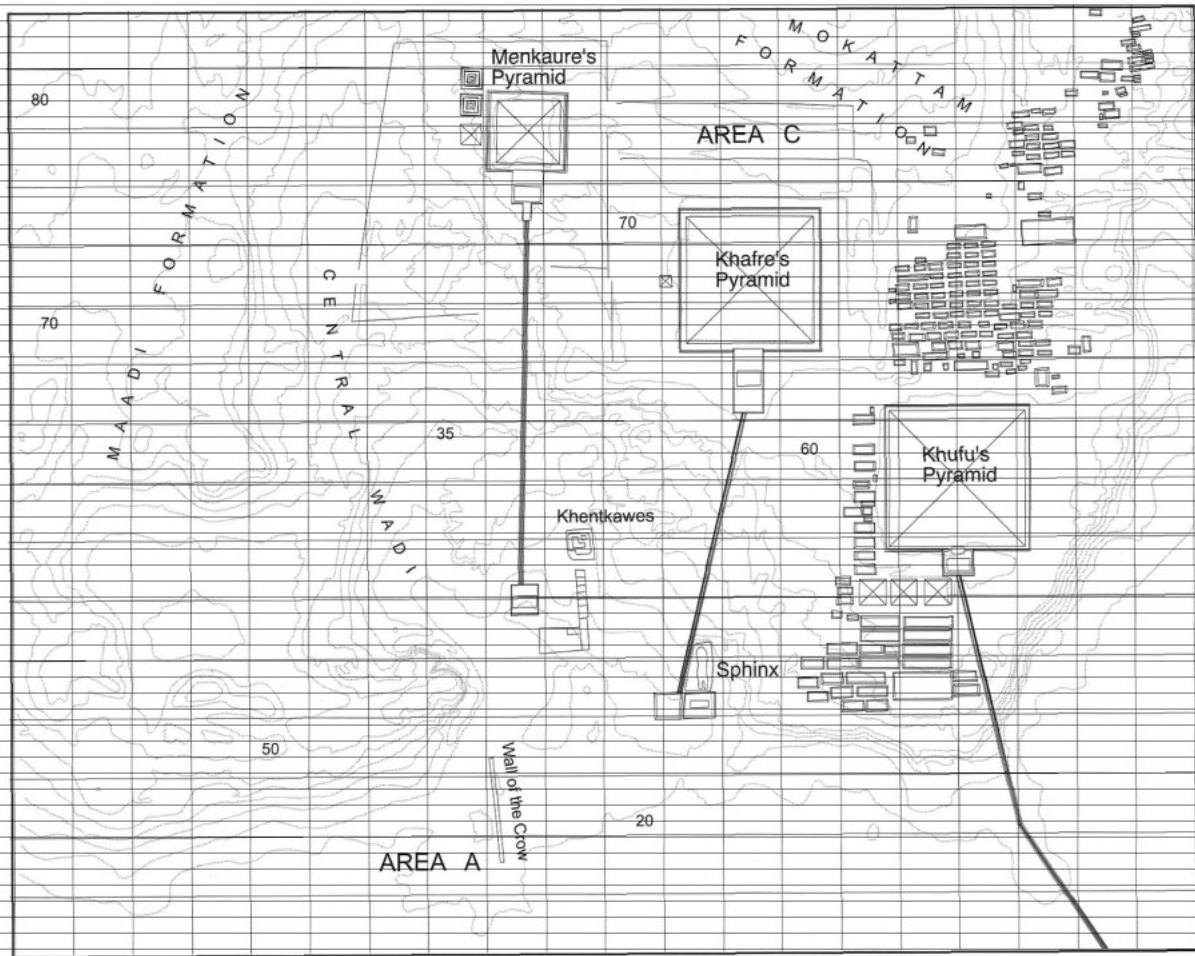


Fig. 1. Giza Plateau map showing location of Areas A and C. Area A is the site of the urban layout at the foot of the Gebel el-Qibli. (North is to the right.)

until June 2002, and a total of 35 months of excavation since the beginning of excavations in 1988 (fig. 2).¹

The purpose of this article is to provide an overview of what this program has discovered: a major urban layout of the Third Millennium B.C. Beyond some suggestions as to the function of the various parts, this report is descriptive, a catalogue of parts, with the aim of introducing of the site. I

¹ Short preliminary reports for each excavation season have appeared in *The Oriental Institute Annual Report 1990-1991* (Chicago, 1992), 19-27; 1991-1992 (Chicago, 1993), 56-67; 1993-1994 (Chicago, 1994), 26-30; 1995-1996 (Chicago, 1996), 54-61; 1998-1999 (Chicago, 1999), 66-76; and 1999-2000 (Chicago, 2000). For additional preliminary reports, see M. Lehner, "Excavations at Giza, 1988-1991," *The Oriental Institute News and Notes* 135 (Fall 1992), 1-8; M. Lehner, "Exploring the Giza Plateau," *The Explorer's Journal* 73.4 (Winter 1995/96), 32-37; Zahi Hawass and Mark Lehner, "Builders of the Pyramids," *Archaeology* 50.1 (Jan.-Feb. 1997), 30-38; M. Lehner, "Lost City of the Pyramids," *Egypt Revealed* (Fall 2000), 42-57; and W. Wetterstrom (ed.), *Aeragram*, Vols. 1-3 (1996-2000) devoted to the methods and results of this research. For additional information see D. Roberts, "Rediscovering Egypt's Bread-baking Technology," *National Geographic* 187.1 (1995), 32-35; M. Lehner, *The Complete Pyramids* (London, 1997), 236-39. For analysis of material culture from our excavations, see R. W. Redding, "Egyptian Old Kingdom Patterns of Animal Use and the Value of Faunal Data in Modeling Socioeconomic Systems," *Paléorient*, 18/2 (1992), 99-107; N. J. Conard, "Flint Artifacts from the 1988/1980 Excavations at Giza," *MDAIK* 56 (2000), 1-17.

offer some hypotheses about the function of the layout and its components. However, because of the size and complexity of what we have revealed so far, detailed analysis, and comparison of this settlement to sites and structures from elsewhere in ancient Egypt and the Near East must follow in later publications.

II. Background to the Excavations

The social and economic history of the pyramids involved more than just the builders and their support. Old Kingdom documents draw our attention to other institutions that must have existed at the pyramid sites long after the workers had left. From titles inscribed in tombs and from royal decrees we know of pyramid towns of priests and functionaries that must have been near the pyramids, probably in the valley.² These and other sources, like the Abu Sir Papyri,³ inform us of economic and social installations (the *pr šn*⁴, *r-š*, and the *hntyw-š*)⁴ that supported the functioning of the pyramid site as a center for ritual.

The aim of identifying areas of settlement and infrastructure that supported pyramid building required an examination of the Giza monuments in relation to the local landscape features.⁵ A prime target area was the east-southeast part of the Giza Plateau, along the foot of the Upper Eocene Maadi Formation (fig. 1). Settlement here would lie beyond the major quarries for pyramid core stone in the southeastern down-slope of the Mokkatam Formation. The main wadi between the Mokkatam and Maadi Formations could have served as an access for non-local materials from the low valley floor, where there was perhaps a harbor, to the higher quarries and construction yards.

Here, projecting 200 m eastward from the southern edge of the wadi mouth, lies partially buried a massive stone wall, known locally as the Wall of the Crow (*Heit el Ghurob*). The wall is the north-west border of a tract of low desert that is our excavation Area A (fig. 1). The concession extends about 250 m from the bottom of the slope of the Maadi Formation escarpment where a Supreme Council of Antiquities team, directed by Dr. Zahi Hawass, has excavated the "Workers' Cemetery" in recent years to the modern paved road and houses of Nazlet es-Semman and Kafr Gebel. The concession runs about 650 m south of the Wall of the Crow, for a total area of about 16 hectares.

During our first season in 1988–89, we also worked in the so-called Workmen's Barracks west of the Khafre Pyramid to test the idea that it was indeed barracks. Our findings suggested that the 4th dynasty Egyptians used this complex for craft production and storage. But we did not find the kinds of structures and features one might expect if people lived or lodged here.⁶ These results inspired us to focus on Area A where we cleared 5.375 hectares of sandy overburden, exposing the surface of Old Kingdom settlement remains over an area 250 m east to west and 215 m north to south. From the beginning of our excavations in 1988–89, until June 2002, we have excavated 5,485.40 square meters, about one-tenth of the total area of the site.

² W. Helck, "Bemerkungen zu den Pyramidenstädten im Alten Reich," *MDAIK* 15 (1957), 91–111; R. Stadelmann, "La ville de pyramide a l'Ancien Empire," *RdÉ* 33 (1981), 67–77; "Pyramidenstadt," *LA* V.1 (1983), 9–14.

³ P. Posener-Kriéger, *Les archives du temple funéraire de Néferirkarê-Kakai, les papyrus d'Abousir*, 2 vols., *BdÉ* 65 (Cairo, 1976).

⁴ G. J. Perepelkin, "Das 'Schnau-haus' im Alten Reiche," XXV. Internationaler Orientalisten-Kongress; Vortrag der Delegation der USSR (Moscow, 1960), 1–7; P. Andrassy, "Das *pr šn* im alten Reiche," *SAK* 20 (1993), 17–35.

⁵ T. Aigner, "Zur Geologie und Geoarchäologie des Pyramidenplateaus von Giza, Ägypten," *Natur und Museum* 112 (1983), 377–88; M. Lehner, "The Development of the Giza Necropolis: The Khufu Project," *MDAIK* 41 (1985), 109–43; "A Contextual Approach to the Giza Pyramids," *Archiv für Orientforschung* 31 (1985), 136–58.

⁶ N. J. Conard and M. Lehner, "The 1988/1989 Excavation of Petrie's 'Workmen's Barracks' at Giza," *JARCE* 38, 21–60.

III. The Site

The concession is a tract of low desert that until recent decades was covered with a substantial overburden of clean sand. The site was already low desert in the Old Kingdom when the settlement was founded. It appears that a substantial amount of sand came down over the site during or shortly after the end of the Old Kingdom. This is in keeping with other evidence at Giza, and at other Old Kingdom sites at Saqqara and Abusir. Over the years, the horse and camel riding stables have proliferated in the nearby communities. Boys with pack donkeys take the clean sand to the stables, where they use it to clean the floor and afterward return it to the site with its new inclusions. Their daily sand digging and dumping has turned over most of the original sandy overburden that covers the ancient settlement remains. It is this sand, as well as some of Selim Hassan's dumps from his 1930s excavation in the Sphinx area and more recent trash deposits, that we cleared through in our excavation squares to reach the Third Millennium B.C. deposits. Before our 1999–2002 marathon, the eastern part of the site was being lost to excavations by heavy machinery such as backhoes.

Underneath the sandy overburden lies a compact surface of gray soil. The "mud mass," as we call it, resulted from the rapid, possibly purposeful, toppling of mud brick walls. Those who abandoned the site removed almost everything of value, such as wooden columns and even many mud bricks from the massive walls. All the evidence—pottery, seal impressions, and stratigraphy—suggests this abandonment took place at the end of the 4th dynasty. Forces of erosion subsequently removed the tumbled ruin mound down to waist or ankle level. However, thanks to these processes, we can discern the outlines of major walls with only shallow excavation through the mud mass and sometimes by just scraping lightly or even brushing its surface. Very often the walls give themselves up because of marl lines—the plastering of desert clay, or *tafla*, on the faces. The Old Kingdom "mud mass" is a hard, compact (sometimes almost cement-like) seal over the fragile layers and living floors from the use of the architecture. As we became familiar with the conditions of the site, it became clear that it was safe to use a front loader to remove the enormous and ever increasing overburden.

IV. Survey Control Network, Excavation and Recording System

We use a grid for our survey control, recording, and, sometimes, excavation in 5×5 m squares (fig. 2). Coordinate values are the local Giza grid established for the entire Giza Plateau by David Goodman of the Giza Plateau Mapping Project.⁷ The GPMP grid takes its theoretical center on the center of the Khufu Pyramid, defined as North 100,000, East 500,000. Values expand north and east. The grid is oriented to true north based on observations of Polaris in 1984–85. Elevations are with respect to sea level. North-south *ranges* of 5×5 m squares have number designations. East-west *tiers* have letters. Letter and number identify each square within six groups of squares (grids) each lettered A to Z from north to south and numbered 1–50 from west to east.

We assign feature numbers to layers, floors, post holes, hearths, and walls.⁸ In 1991 we began a feature log that runs continuously. Feature numbers are checked out as needed, so that the numbers never repeat across the site. Each feature should be recorded on an information form and in narrative notes, photographs, maps and section drawings. The area, square number and feature number

⁷ M. Lehner and D. Goodman, "The Giza Plateau Mapping Project: Season 1984–85," *The ARCE Newsletter* 131 (Fall 1985), 23–56; D. Goodman and M. Lehner, "Unraveling the Mystery of Pyramid Construction," *P.O.B. (Point of Beginning)* 11.4 (April–May 1986), 12–19.

⁸ E. C. Harris, *Principles of Archaeological Stratigraphy* (New York, 1979). Any change from a discrete depositional event is considered a feature (layers, walls, hearths, floors, pit lines, etc.).

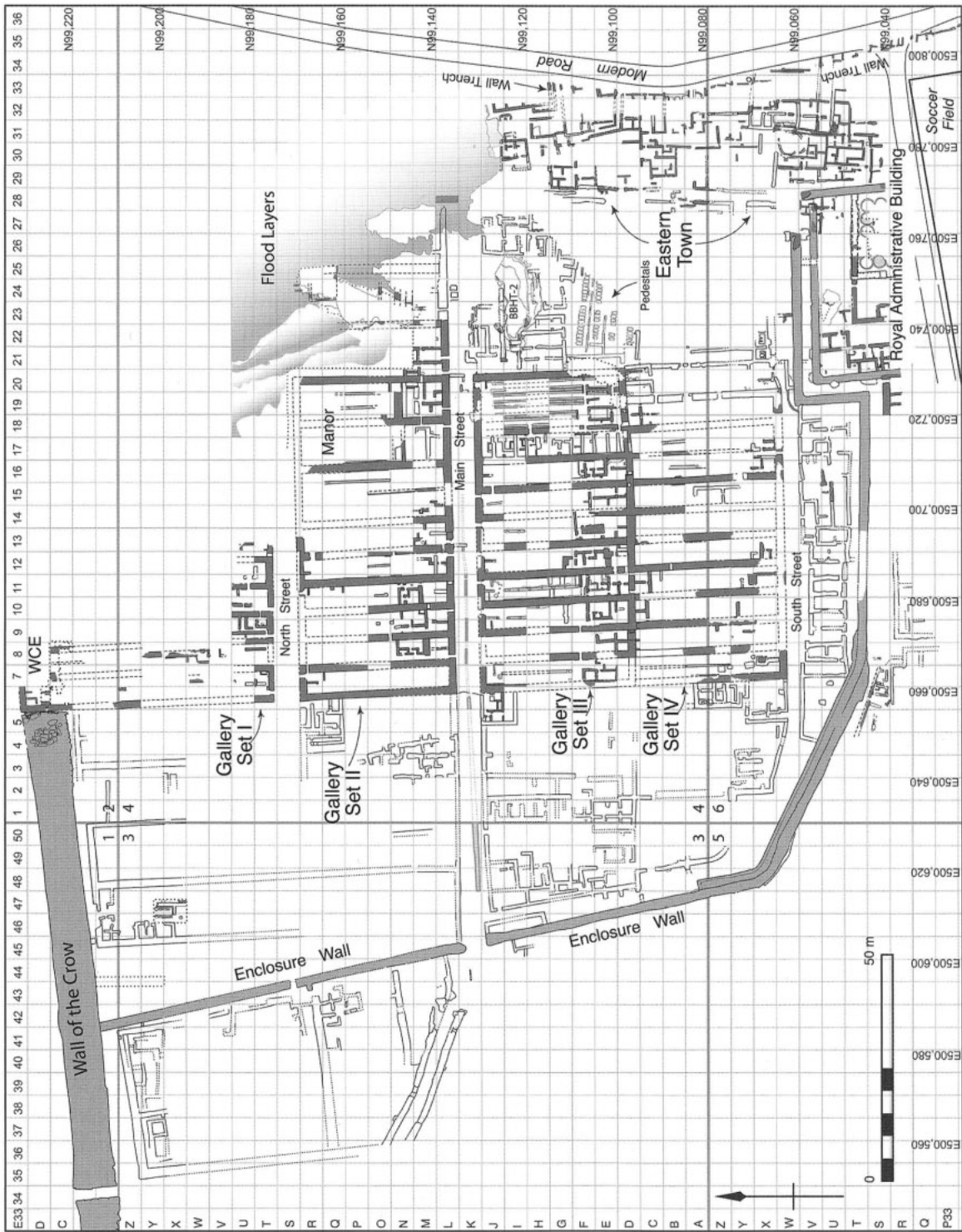


Fig. 2. Old Kingdom architecture in Area A mapped as of 2002, with GPMP grid coordinate and square designation systems

are included on all material saved from the excavation and sent to the storeroom. We number the bags in which we send material up to the storeroom and lab, whether the “bag” is a film canister with charcoal, or a 15 kg sandbag of pottery. When we excavate through the seal of decayed mud brick and other compact sediments to the living floors of the Old Kingdom period, we save and count or weigh all material culture—all chipped stone, pottery, seal impressions, charcoal, and stone such as granite and alabaster exotic to Giza. We take samples of sediments for the flotation process to recover charred plant remains. We dry sieve the sediments on site and wet sieve the finer material in the store to recover the smallest animal bone, chipped stone, pottery, and seal impressions.

V. Millennium Project: 1999–2002

The overburden thickened to 6 m toward the north-northwest part of the site. Our excavation seasons 1988–89, 1991 Spring, 1991 Fall, 1995, 1997, and 1998 lasted two or three months and involved excavation areas of a few hundred square meters. Then in 1999 we received extraordinary grants from the Ann and Robert H. Lurie Foundation, David Koch, Peter Norton, Jon Jerde and our other benefactors. We were able to clear and reveal the footprint of the ancient complex through a marathon of 21 months of field work from October 1999 to June 2002 (fig. 2).⁹

We used the front loader to remove the overburden to within a meter or two above the mud mass. Once workers cleared the remaining sand, we set out 5 × 5 m squares as basic units to record the condition of the surface, to brush, scrape, or excavate lightly to find the walls, and to map the architecture at a scale of 1:50. The 1:50 maps were further reduced to 1:100 and locked together to form the overall plan. Where the ruins were of mud brick we could discern the outlines of major walls with only shallow excavation through the “mud mass,” sometimes just scraping lightly or brushing its surface. Our main goal was to capture the overall architectural plan in a broad horizontal exposure by mapping walls. We intensively excavated certain areas to investigate aspects of the architectural arrangement. When we excavated, we mapped the squares in their final phase at 1:20 and drew our sections at 1:10.

VI. General Layout of the Settlement

The 200 meter-long Wall of the Crow bounds the site on the northwest (figs. 2, 3). The remains of a large building, with evidence of royal storage and administration, are positioned at the far southeast. An enclosure wall composed of broken stone connects the Wall of the Crow and the royal building. The enclosure wall attaches to the south face of the Wall of the Crow, 65 m west of its east end. It runs at an angle 13 degrees east of south, with a thickness of 2 m for a distance of 148 m, opening at its intersection with “Main Street” (see below). Then the enclosure wall thickens to 4 m and curves around to run southeast and then due east to the administrative building.

The Wall of the Crow, the enclosure wall, and the administrative building frame our site on the northwest, west, south and southeast respectively. The mud brick ruins of four rectangular sets of galleries lie within this enclosure on the east, and on the west there are fieldstone ruins of small rooms and open courtyards that we call the “Western Extension.” Three streets cut west to east through both the Western Extension and the gallery complex, North Street, Main Street, and South Street, dividing an area about 185 m north to south into four large blocks. We do not know the full extent of these thoroughfares, but we have traced Main Street for a length of 160 m east to west.

⁹ M. Lehner, “The Millennium Project: Marathon Excavations to ‘Capture’ Area A,” *Aeragram* 3.1 (1999), 1–3.

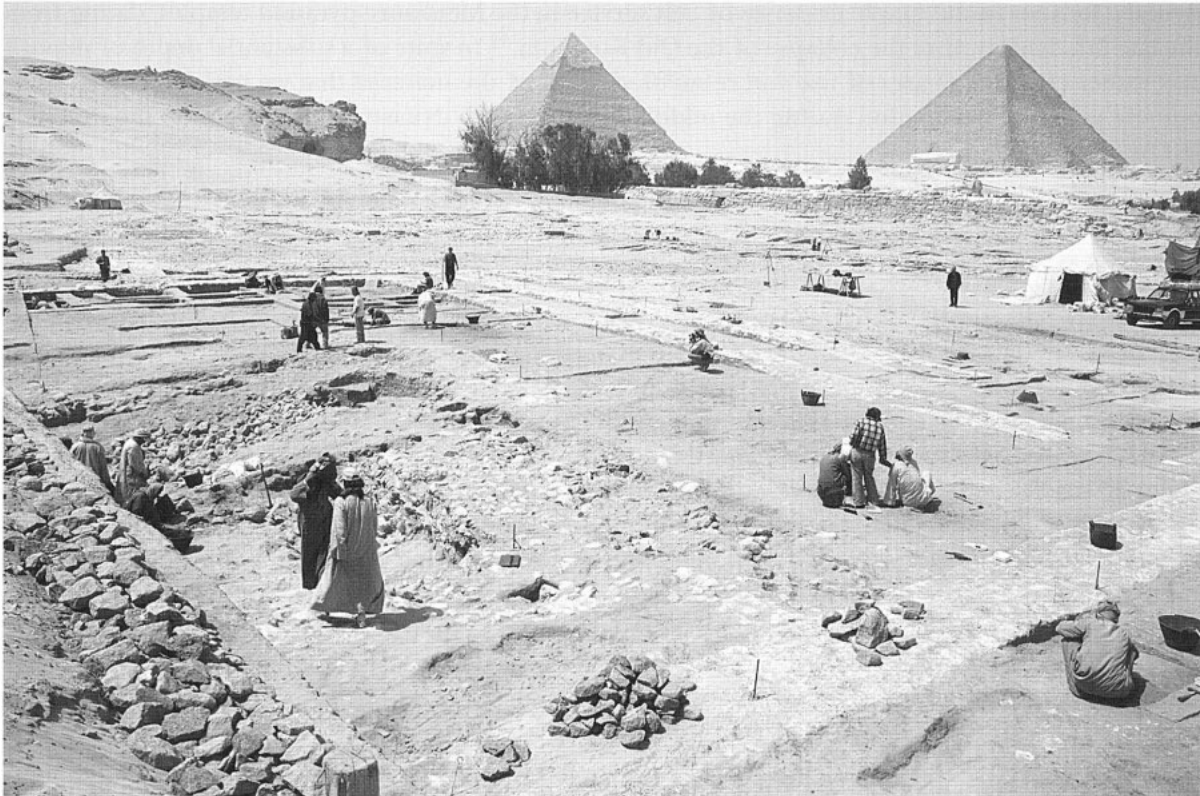


Fig. 3. General view of site, looking from the southeast across the royal administrative building to the Wall of the Crow in the northwest. The stone-filled depression in the foreground is the sunken court of silos early in its excavation.

While these streets allowed direct crossings of the blocks east to west, it appears that there was only one major route through the site from north to south, more exactly, from northwest to southeast. This route led south on a path through the open gateway in the Wall of the Crow, 35 m west of where the enclosure wall attaches to it. The road merges with a corridor, "The Chute," that turns to the east and stops about 15 m before the opening of Main Street that we call "West Gate." From a turn right (south) inside West Gate, a street that we dubbed "Wall Street" runs south along the enclosure wall. From the southwestern curve of the enclosure wall, South Street runs due east to the northwest corner of the large administrative building.

The complex of streets and galleries begins on the northwest on a line where the Wall of the Crow ends, and ends on the southeast where the administrative building begins. Our work in 2002 added to the map a settlement of small chambers and courtyards along the east and southeast part of the site, the "Eastern Town." Less planned and more self-organized than the Gallery Complex, this town is crowded up against the administrative building and extends farther east than our concession underneath the modern towns of Nazlet es-Semman and Kafr Gebel.

VII. Date of the Settlement

It is reasonable to ask whether such an extensive and substantial settlement had a long life, and whether its production facilities furnished offerings for the Giza pyramid temples well after the 4th

dynasty. Reisner found ample evidence of cult service in the Menkaure pyramid temples, dating from the late 5th dynasty until the collapse of the Old Kingdom.¹⁰ In spite of a substantial depth of deposit and rather complex phases of use and rebuilding, most of the material that we have processed from our site points to occupation during the middle to the late 4th dynasty. Here I mention the evidence left by ceramics and sealings.

A. The Ceramic Record

The project has retrieved and processed around 500,000 pottery fragments of which roughly 150,000 are “diagnostic” (fragments of rims, carinations, or bases that allow us to know from what type of vessel they derive). Ana Wodzinska supervised the sorting and counting according to type of 150,000 sherds and drew about 3,000 type examples. Relative frequencies of the various types differ in various parts of the site. In general, the majority are bread molds (roughly 50%), crude red ware jars are the second most numerous, and third are bowls, including type CD7. This carinated bowl, about 20 cm diameter, seems to be unique to Giza (fig. 10). Preliminary comparisons reveal few if any of this type at other Old Kingdom sites. Within such a large corpus, pottery later than the 4th dynasty should have been quite apparent, had it been present. The few sherds of later Old Kingdom pottery come from two areas where later deposits intruded on the site: in a cairn built over the sunken court of silos in the administrative building and from Late Period burials. We hope to retrieve substantial samples from the Eastern Town, to see if life there continued after the royal building and the Gallery Complex were abandoned.

B. The Sealings

From seasons prior to 2002, John Nolan has registered 1,427 fragments of clay sealings, 470 of which are incised, that is etched or cut, or impressed with a text. Of the 300 inscribed fragments, 50 have legible royal names: six are clearly Khafre and twelve belong to Menkaure. Of the 32 remaining sealings, three may be restored as Khafre and 29 as Menkaure. No other names of kings have been recognized.

During the 2002 season Nolan registered 252 additional sealings. Most of these, 196 (more than 82%), were excavated in the administrative building and 111 of these bore impressions. These have yet to be studied, but it appears that none bear the names of pharaohs dating from later than the 4th dynasty.

In spite of the probability that the Giza pyramid temples had a long history, the evidence is that the gallery complex was near its final use in the reign of Menkaure, and that it went out of use soon after his reign. Our deeper excavations indicate an older layout below the gallery complex. We also find evidence that people occupied the site after the gallery complex had either been dismantled, or after it had begun to fall into ruin. It is possible that the gallery complex was purposely dismantled. It is highly probable that the gallery complex, intentionally razed or not, was no longer used except by squatters soon after the reign of Menkaure. Archaeological and historical sources indicate that the royal funerary complex, and so perhaps the royal center of administration, moved away from Giza to Saqqara under King Shepseskaf at the end of the 4th dynasty.

¹⁰ G. Reisner, *Mycerinus*, The Temples of the Third Pyramid at Giza (Cambridge, MA 1931), 19, 278–81, pl. A1.

VIII. The Gallery Complex

The northernmost of four great sets of galleries extends about 55 m south from the east end of the Wall of the Crow (fig. 2). Unfortunately, erosion badly damaged and probably removed much of Gallery Set I in antiquity. But we recovered enough of the plan of the southwestern corner of Set I to know it is separated from Set II by a street ("North Street"), about 5.20 m (10 cubits) wide. Sets II and III are separated by Main Street, a paved way that is also 5.20 m (10 cubits) wide.¹¹ The southernmost set, number IV, ends on the south at South Street and is attached on the north directly to Gallery Set III. Each set of galleries, except I, is 34.5 m north to south. Sets II and III are about 52 m (100 cubits) east to west, excluding the areas on the east ends where there is an enclosure containing a large house that we call the manor in Set II and a hypostyle hall in Set III (see below). In Sets II and III there are eight galleries ranging in width from 4.5 to 4.8 m between the walls. We number individual galleries west to east in each set. For example, Gallery III-1 is the first gallery to the west in Set III.

A. Standard Gallery Plan

We have excavated parts of various galleries in our grid of 5 × 5 m squares and one complete gallery, Gallery III.4 (see below). While each gallery is unique in its details, we can speak of general features that form a standard gallery plan. The complex room structures are to the south, while the middle and northern parts of each gallery are more open. In Set III, the more open northern area is toward Main Street. In Set II, the more open area is to the north, toward North Street that separates Sets I and II (fig. 4). We have few details about the galleries in Sets I and IV.

1. *Front Colonnades.* A low wall or narrow bench divided the northern parts of the galleries in Sets II and III into two nearly equal parts lengthwise. These are similar to the benches in the hypostyle hall on the eastern side of the site (see below). The builders set wooden columns on stone bases, and then constructed benches in small stones and clay above the bases and around the columns.¹² The gallery benches run about 2.60 m—about 5 cubits—from the major north-south gallery wall on the west, and about 2.00 m from the wall on the east. We also find the 5-cubit spacing between column bases in the Hypostyle Hall on the eastern side of our site, and between those column bases and the major walls of that hall.

In 2000 Marian Sadek and Dania Hafez found two column bases embedded in one of these benches in square 4.J7, the street end of Gallery III-1 (fig. 4). One base was under the rounded end of the bench that runs south to north and extends into the south side of square 4.J7. The marl plastering over the top of the bench was broken where the column stood. One semicircular edge gives the diameter of the column, 23 to 25 cm, like the columns in the hypostyle hall. The column bases in the galleries are not as finely crafted as the bases in the hypostyle hall. They are made of limestone and basalt slabs or just hard clay and small stones. The bases are embedded below the tops of the benches at various depths. In square 4.A7, Fiona Baker excavated a low bench in Gallery IV.1. The bench is about 13 cm high and slightly more than 40 cm wide. A marl-lined circle in the top of the bench at the north end marked the diameter of the missing column as 23 cm. A limestone column base lies at

¹¹ M. Lehner, "Interim Report from the Field: A Royal Plan Emerges," *Aeragram* 3.2 (2000), 1–10; "The First Year of the Millennium Project: Unveiling a Royal Plan," *Aeragram* 4.1 (Fall 2000), 1–8; "Great Giza Galleries, Year Two of the Millennium Project," *Aeragram* 4.2 (Spring 2001), 1–7; "Giza," G. Gragg (ed.) *The Oriental Institute Annual Report 1999–2000* (Chicago, 2000), 35–48.

¹² Lehner, *Oriental Institute Annual Report 1999–2000*, 44, fig. 6.

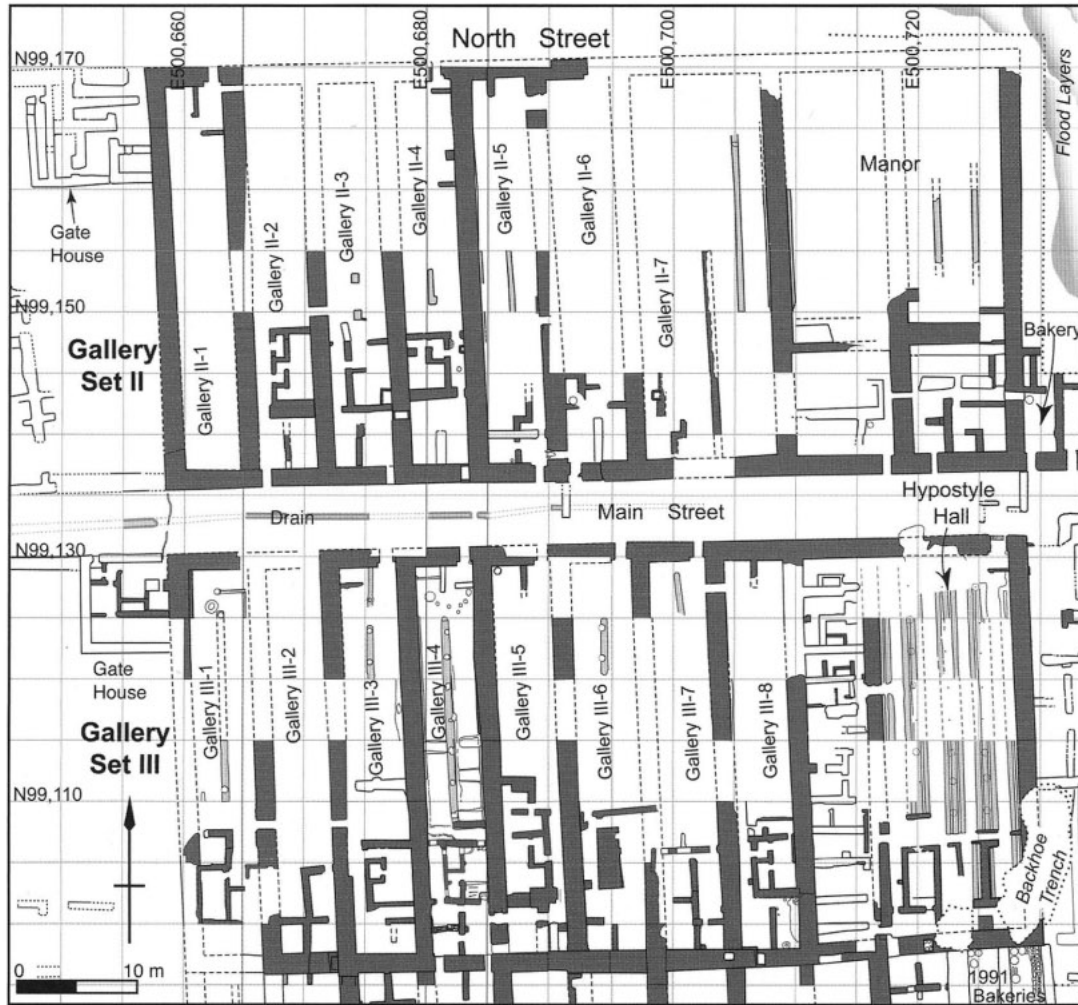


Fig. 4. Map of Gallery Sets II and III

a depth of 16 cm. Gallery II.3, partly excavated in squares 4.N-O8-9, had two square brick pillar bases dividing the open part instead of a low bench.

The low benches may have served as stylobates, “a continuous flat coping or pavement on which a row of architectural columns is supported.” However, these low walls or benches may not fit the general architectural purpose of a stylobate, which is to increase the load-bearing potential and distribute the weight supported by columns. The column bases in question range from slightly above floor level to slightly below. Therefore, it is possible that these low walls and benches might have been protection for the wooden columns against insects, moisture or heat-generating activities that took place in the colonnades along the open ends of the galleries.

In the front of Gallery III-1 (square 4.J7), a nearly perfect circle of burnt earthen floor, 1 cubit in diameter, may be from an oven or hearth that was removed. It would have sat just under the roof of the colonnade, if the 2.62 m (5 cubit) space on the west was roofed, and not the 2 m space on the east.

I should note that not *all* the galleries had evidence of colonnades, although they usually have a partition in the open end. In two places where the 5-cubit spacing would predict a column base in the low walls or benches, we excavated and found none. But the evidence is certain that the open ends of eight or nine galleries had colonnades.

A colonnade, a series of columns set at regular intervals, usually would have supported a roof. It could have been a light roof, possibly consisting only of removable mats. In this case the colonnades would have provided partial shade and protection from wind in the long open ends of the galleries. The side walls of the galleries are unusually thick, up to 1.57 m (3 cubits). Mud brick walls as thin as a meter are known to have supported two and three stories. We have considered that the thickness was to support the springing of vaulted roofs in on either side of each side wall. But the columns argue against vaulted roofs. The thinness of the columns might suggest that a second story could not have borne much of a load. Unfortunately the dampness and compaction of the deposits across much of the site, especially the mass of tumble from the walls, make it difficult to retrieve roofing fragments that might show wood or reed impressions, such as were found in the so-called Workmen's Barracks.

Where we excavated the open northern ends of the galleries, a layer of concentrated ash lay over the marl-paved floor. It is possible that this ash is roofing material that was burnt and collapsed when the galleries were decommissioned. It is also possible that the ashy material is left from the use of the galleries.

2. *Gallery Houses.* Toward the southern ends of the galleries in Sets II and III, walls divide the space into room structures that resemble houses.

In the southern end of Gallery III-2 (Squares 4.D9-E9), we found a rectangular space divided into two rooms by a partition wall.¹³ A later "back" entrance in the south chamber had been cut through the thick southern wall of Gallery Set III. On the eastern side of this forced doorway, a rectangular cooking installation had been created within the core of the wall. We considered the two-room arrangement as perhaps a simpler version of front and back spaces, with a cooking installation ("kitchen") in the rear, such as those that occur in the New Kingdom workers' houses of Deir el-Medineh.

A more complex pattern repeated in eight of the galleries includes a small vestibule, main room, and small niche or inner (sleeping?) room. A wing wall from the eastern gallery wall forms an additional room or corridor on the north. We found such a pattern in galleries I-3, II-2, II-3, II-4, III-1, III-3, III-4, III-5, and III-8. The rooms in the southern part of Galleries II-3 and II-4 (Squares 4.N9 and 4.N11)¹⁴ were plastered in marl, and lacked the layers of ash or debris found in the fronts of other galleries. We hypothesized that the chambers might be the habitations of those who supervised the activities within each corridor.

3. *Rear Industrial Chambers.* Thick deposits of concentrated ash in the southern chambers of the galleries in sets II and III suggest cooking, baking or roasting. Like the northern colonnaded ends of the galleries, the southern ends are often partitioned into two nearly equal halves approximately 2 m wide. But here a more substantial wall, about half a meter thick makes the division.

The southern parts of Galleries II-3 and II-4 (squares 4.L9, 4.M10, and 4.L11; fig. 4) contained thick layers of black and gray ash, sometimes separated by thin marl layers that the occupants probably

¹³ Lehner, *Oriental Institute Annual Report 1998-1999*, 69-70, fig. 4; Lehner, "The Complicated Life of A Workman's House," *Aeragram* 2.2, 5.

¹⁴ Lehner, *Oriental Institute Annual Report 1998-1999*, 74, fig. 8.

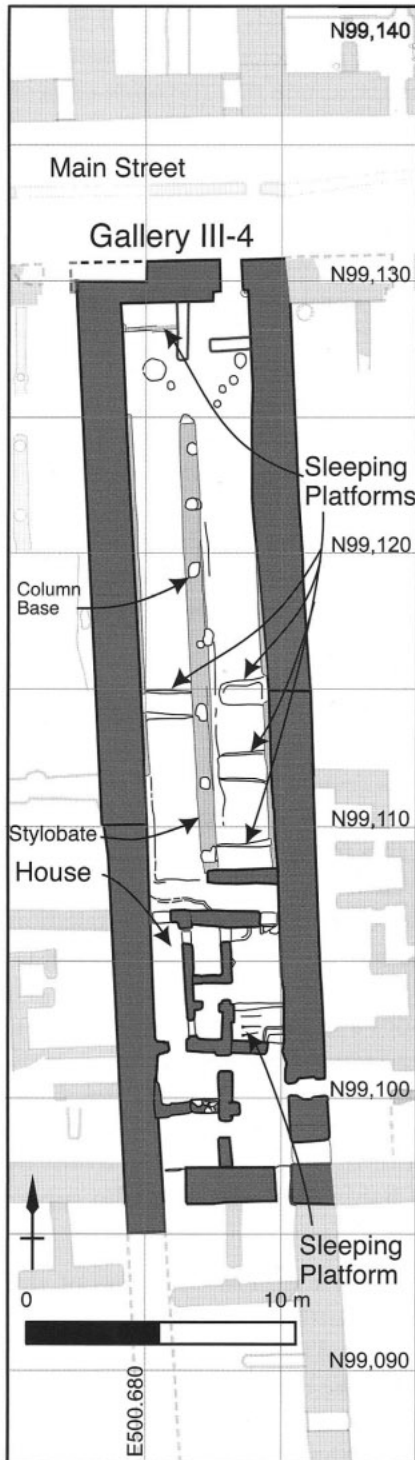


Fig. 5. Map detail of Gallery III-4

threw down wet to contain the powdery ash. Several of the layers in these back chambers included large numbers of bread mold sherds. Several floor levels in Galleries II-3 (square 4.M10), and III-3 (square 4.E9) were pitted with trenches and sockets that the occupants used as baking pits.

The rear eastern chamber of Gallery II-4 (Square 4.L11) was undoubtedly a bakery, similar to those excavated in 1991 attached to the southeast corner of the hypostyle hall. In Gallery III-8 in the southern chamber on the east (square 4.D17-D17x) we found clear evidence of copper working using bread molds as crucibles or small furnaces.¹⁵ This seems to have been the site of copper working for small, household items, since, along with abundant slag, charcoal, and ash, we found a copper fish hook and needle. In Gallery III-2 (square 4.D9), we found, as I mentioned, a cooking installation built into the southern enclosure wall. We also found a thin ashy layer over the floor, with red and yellow ochre, possibly pigment, and a cache of dolerite hammer stones on or near the floor. The material in the southern chambers thus suggests a variety of activities from food preparation to small industry such as manufacture of small copper objects and preparation of pigment.

B. Gallery III-4

The internal arrangements that we have recovered within the galleries include elements also found in ancient Egyptian houses: a columned area that was open and possibly "public," a domicile that was private, and cooking, roasting or baking areas in the rear of the structure, a kind of "kitchen." But the question arises as to why the 4th dynasty planners would elongate the elements of a house into a corridor with a one to seven proportion of width to length, and repeat the pattern in a series. To help answer this question, Ashraf Abd al-Aziz excavated an *entire* gallery, III-4, during our 2001 and 2002 seasons (see figs. 5, 6).

The marl-plastered walls are preserved only 20 cm high at the northern end of the gallery. The entrance threshold slopes down into the gallery from the higher paved surface of Main Street, and a limestone pivot socket is embedded in the floor at the inside eastern corner of the doorway. The door must have been hung in a wooden frame or else the upper pin was inserted into a hinge hole bored through a projecting piece of wood set into the mud brick wall at the

¹⁵ Lehner, *Oriental Institute Annual Report 1998-1999*, 70-71, fig. 5.

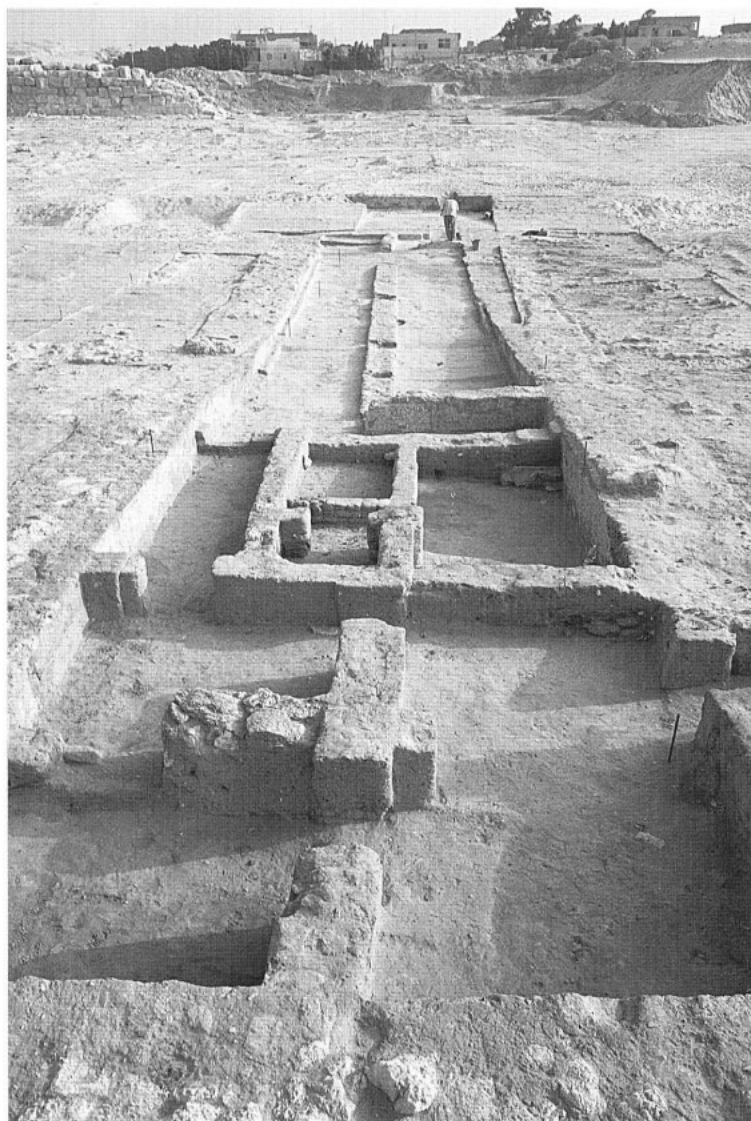


Fig. 6. View of Gallery III-4, looking north. The back chambers for cooking roasting and baking are in the foreground fronted by the house.

top of the doorway. We see such elements in the Middle Kingdom wooden models of granaries, bakeries, and other buildings.¹⁶

The doorway opens into a foyer of thin walls of mud and stone. Between the foyer and the west gallery wall is a low platform formed of mud, one meter wide (north-south) and just long enough for a person to stretch out. The platform is only 8 cm off the floor at the eastern end, and slopes up to 20 cm high on the West.

Under the mud brick tumble of the “mud mass,” a layer of ashy material covered the floor. The fine gray ash was mixed with sand, Nile silt, and marl fragments from the deterioration of the walls

¹⁶ H. E. Winlock, *Models of Daily Life in Ancient Egypt* (Cambridge, MA 1955), pls. 17, 20, 59, 63.



Fig. 7. Gallery III-4, two sleeping ramps, looking southeast. The stylobate with holes marking the positions of column bases runs down the center of the room. The curbs or small ledges are visible on both side walls.

and the plaster. A low wall or bench, such as we found running through the approximate center of the northern parts of other galleries, divides the front of the gallery into nearly equal halves, 1.99 m wide on the west, and 2.14 m wide on the east. The bench runs for 16.50 m and is very regular, rising 15 cm above floor level. The positions of columns are indicated by seven holes where the columns and their bases were ripped out, except for a crude limestone piece set into one of the holes that served as the base.

Altogether the front of the gallery, with the entrance and colonnade, is 21.50 m long. The floor rises gradually to the south, from an elevation around 15.52 m above sea level at the northern entrance to 15.92 m in the entrance to the house at the south end, a rise of 40 cm over 20 m.

The colonnade contains four more of the curious sloping platforms that might be for sleeping, (fig. 7). Low curbs or benches, about 15 cm wide and 9 cm high, run along the base of the gallery walls. Similar curbs run along the base of the walls in other galleries. The platforms slope from the curb down to floor level. They are composed of a marl-alluvial mud mix with limestone flecks that is grittier than the surrounding floor and walls. There are two platforms against the east wall, east of the low bench or stylobate wall that divides the gallery floor space lengthwise. The northern platform

is 96 cm wide at the head, or high end, and about 80 cm wide at the foot, or low end. The southern platform has sloped sides, and is about 1.10 m wide at the head. The foot end of the little platforms meets floor level about 34 and 40 cm short of the bench. The single platform on the western side of the bench is 83 cm wide at the top of the head end and 1.10 m wide at the base of the head end. The foot end is 90 cm wide and meets the bench in the center of the gallery, leaving no intervening floor space. Another platform is against the partition wall that separates the colonnade from the back "house" part of the gallery.

Most probably, these are bed platforms like the low platform tucked against the interior north wall of the gallery, west of the entrance foyer.¹⁷ The slight slope might have served for a high head end, perhaps therapeutic for a sleeping body. It is hard to imagine another function, because at the head end they meet the blank, solid, side walls of the gallery, which, at 1.57 m (3 cubits) thick, rose at least one story.

The southern 11 m of the gallery are taken up by nine major rooms that appear to be a domicile. The entrance is at the eastern end of a corridor behind the screen wall that extends from the east gallery wall to meet the low central bench that runs the length of the colonnade (fig. 5). There is a sixth sloping platform in the front room of the house. It is larger than the others, 1.40 × 1.30 m, and slopes from west down to east, lying against the southern wall in the main room. At the low foot end of this platform an irregular mud-daub stairway leads up to the eastern back chamber.

As we have seen in other galleries, the back part is divided nearly in half by a partition wall. In this case two doorways allowed movement between the two chambers. A wall added later divided the western half into two smaller chambers. As in other galleries, there is much evidence of burning, cooking, baking, or roasting in the back chambers. The walls are reddened by fire, especially the southern walls and in the southeastern corners. At some point, the occupants covered the burnt spots with plaster. Three small rooms in the center of the house, entered from the west of the bed platform chamber, also show much evidence of burning. In a later remodeling, the occupants added an entrance from the western side of the front colonnade by cutting a new doorway into the wall that closed the house off from the front of the gallery. The new door opened into a corridor that leads into the back chambers.

The floor levels of the house rise by 78 cm from north to south. Doorways led into the next gallery to the east (III.5) and to the gallery to the south in Set IV (IV.4). The house within the gallery was filled with ashy layers between two periods of collapse from the mud brick walls, presumably after it was abandoned. I should note that ashy deposits overlay the floor throughout the gallery, including the length of the colonnaded northern part.

C. Manor

The eastern side of Gallery Set II is taken up by a large house-like compound that, for convenience, we call the "Manor" (fig. 4).¹⁸ The compound takes up the width of three galleries. The "house" in the southeast corner measures 10.8 m (close to 20 cubits) east-west by at least 15 m north-south, and

¹⁷ A raised dais fitted in an alcove or between two walls has been taken as a bed platform in houses at other ancient Egyptian periods and settlements. At Amarna, the bed platforms are level; W. M. F. Petrie, *Tell el-Amarna* (London, 1894), 21. See also T. E. Peet and C. L. Woolley, *The City of Akehnaten I* (London, 1923), 45, 63, where the platforms are as low as one brick; J. D. S. Pendlebury, "Detailed Description of the Houses of the North Suburb," *The City of Akehnaten II, The North Suburb and Desert Altars* (London, 1933), 8, pl. XVIII, 2; and B. J. Kemp, *Ancient Egypt, Anatomy of A Civilization* (London, 1989), 296. Parallels from the Old Kingdom settlement that Abd al-Aziz Saleh excavated are sloped, like those in Gallery III-4, A. Saleh, "Excavations Around Mycerinus Pyramid Complex," *MDAIK* 30.1, 142, fig. 1, pl. 27a. Like Saleh, Kemp, *Ancient Egypt*, 135, accepted these as bed platforms.

¹⁸ Lehner, *Oriental Institute Annual Report 1999-2000*, 43.

its outer walls are about 1.5 m thick, like the gallery walls. The south wall of the Manor is a continuation of the north wall of Main Street, while its eastern wall is the eastern enclosure wall of the whole block that contains Gallery Set II.

During the 2000 field season Hrach Papazian excavated in the southeastern room within Square 4.M20. This room was well maintained and probably decorated. Fragments of marl plaster from the fill had thin red paint layers, indicating that parts of the walls, perhaps a dado around the base, were painted red. Sarah Sterling excavated in the western room just inside the narrow western doorway and found a thick ashy layer with ample evidence of cooking or baking. Two bakeries attach to the eastern side of the Manor, with their own entrances through the north street wall. They are similar in size and orientation (north-south) to the bakeries we excavated in 1991. Within the compound of the Manor on the west, there is at least one additional bakery oriented east to west, and possibly two.

Two low, long, thin benches run north-south within an enclosure of the same width as the Manor and to the north of it. The spaces between the two low walls is 2.60 m (5 cubits), while each is about 2 m from the east and west gallery walls. Here is a larger version of the colonnades in the galleries, although we have not yet located column bases or holes for columns in the benches north of the Manor.

D. Hypostyle Hall

On the eastern side of Gallery Set III, the hypostyle hall and small units ("Workers Houses") of field stone walls occupy the width of three normal galleries (fig. 8). Together the hall and small units appear to complement the Manor compound across Main Street. The hall measures 15 × 25 m and is oriented north-south. Its width is thus the same as that of the enclosure that contains the Manor in the southeastern corner.

1. Troughs, Benches and Column Bases. A series of low troughs and benches of about ankle height run lengthwise across the hall (fig. 9). The benches are plastered in marl (*tafla*) and are 30 cm wide at the top and 40 cm at the bottom, trapezoidal in section. The troughs that separate the benches are 14 to 20 cm wide.¹⁹ Three sets of three benches run through the center of this hall. Each set is separated from adjacent sets of benches by about a meter of open floor. Sets of two benches, each about 20 cm wide, separated by a single trough, run along the base of the east and west walls. In our excavations of these features and the intervening floor, fish bone appeared to be more abundant than in most other floor deposits that we have excavated at the site. We have also found fish bone in the deposits filling the troughs between the benches.

Under the center bench in each group of three are a series of fine limestone column bases, each about 52 cm (one cubit) in diameter, set at intervals of 2.62 m (5 cubits). We found the first pair of these bases in 1995 in square 4.G20, but it was only in 2000 that we realized that they belonged to a series that runs under the entire length of the three sets of three benches. (Where we did not actually excavate to find the bases, we ascertained their presence by inserting survey pins that hit a hard surface at just the right spacing and depth.) The east and west rows of column bases run about 2.62 m, or 5 cubits, from the east and west walls of the hall. This appears to have been a standard spacing for supports of light roofs. The columns were probably wood, each about 23 cm in diameter. The builders first set up the columns on the bases and then built the benches around them. The bench was then plastered with *tafla*. When the columns were later pulled out, a few of

¹⁹ Lehner, *Oriental Institute Annual Report 1995-1996*, 56-59, figs. 1-2; Lehner, *Oriental Institute, Annual Report 1999-2000*, 46-47, figs. 8-9.

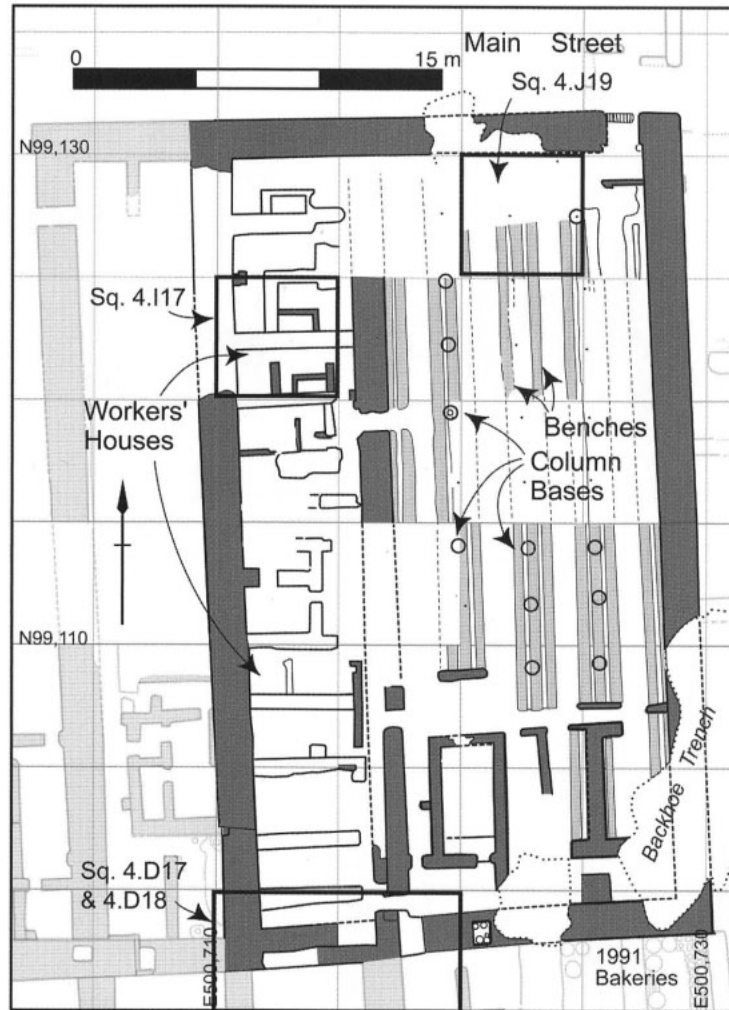


Fig. 8. Map of the hypostyle hall and “workers’ houses.” The bakeries excavated in 1991 attach to the southeastern corner of the hypostyle enclosure.

the holes that mark their position still retain a semi-circle of plaster that indicates the diameter of the column.

This small hypostyle is perhaps the oldest one so far known in Egypt, except for the token hypostyle in stone at the west end of the entrance hall in the Djoser Step Pyramid complex.²⁰ Our hypostyle appears, however, to have served some practical rather than ceremonial function. Possibilities range from fish or grain drying, to a dining hall. In 1991 we found a cache of complete jar stands (Type E2) and shallow bowls, of a type (CD32 and CD33) that might have been lids, on or near one of these benches in square F20 (then designated Area A7b).²¹ Later we found more complete examples of these types on and near the benches in other squares. We have also found, embedded in the floor and troughs of the hall, a number of fragments of our type CD7, a white washed, carinated bowl that may be unique to Giza in the 4th dynasty (fig. 10). Anna Wodzinska, our project

²⁰ J. P. Lauer, *La Pyramide à degrés I-II* (Cairo, 1936), 122, fig. 101, pls. XXXVIII, XL, XLVIII.

²¹ Lehner, *Oriental Institute Annual Report 1991–1992*, 60–62, fig. 5.

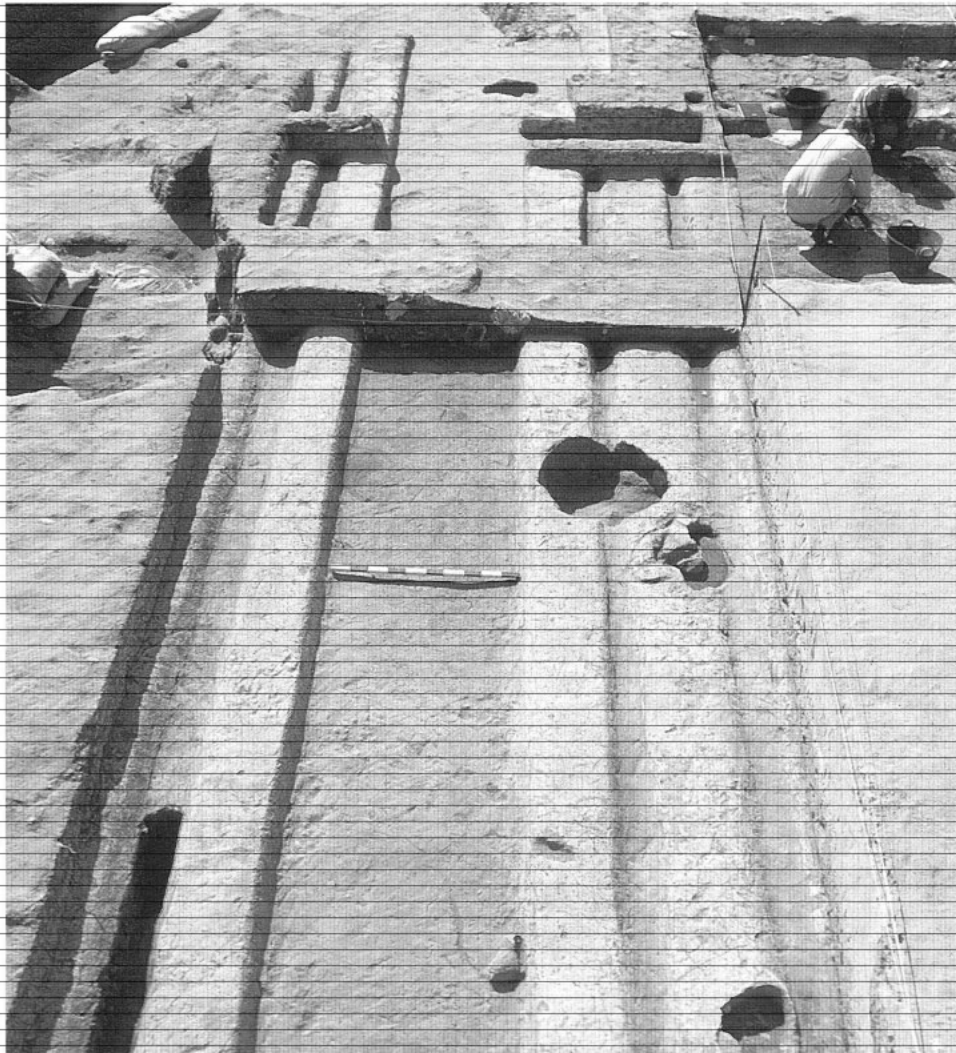


Fig. 9. Hypostyle hall, looking south. Troughs and benches with column bases run north-south through the chamber. To the upper right, excavators uncover another set of benches in 1995.

ceramicist, suggests the CD7's may have functioned, like the so-called Meidum ware bowls which they might replace on our site, as serving vessels, which must be factored into the function of the hall.

2. Parallel Wall Structures and Food Processing. The fish bone that we found in the hypostyle hall was sometimes embedded in a fine gray, ashy, sandy, deposit a few millimeters thick over the floor. In this material we could identify intact pieces of gill, spine, fin, and cranial parts. We also found tiny bits of fish bone in dirt filling the troughs between the benches, raising the hypothesis that the parallel troughs and benches might have been for cleaning, salting, and drying fish.²²

²² M. Lehner, *The Complete Pyramids* (London 1997), 236–37.

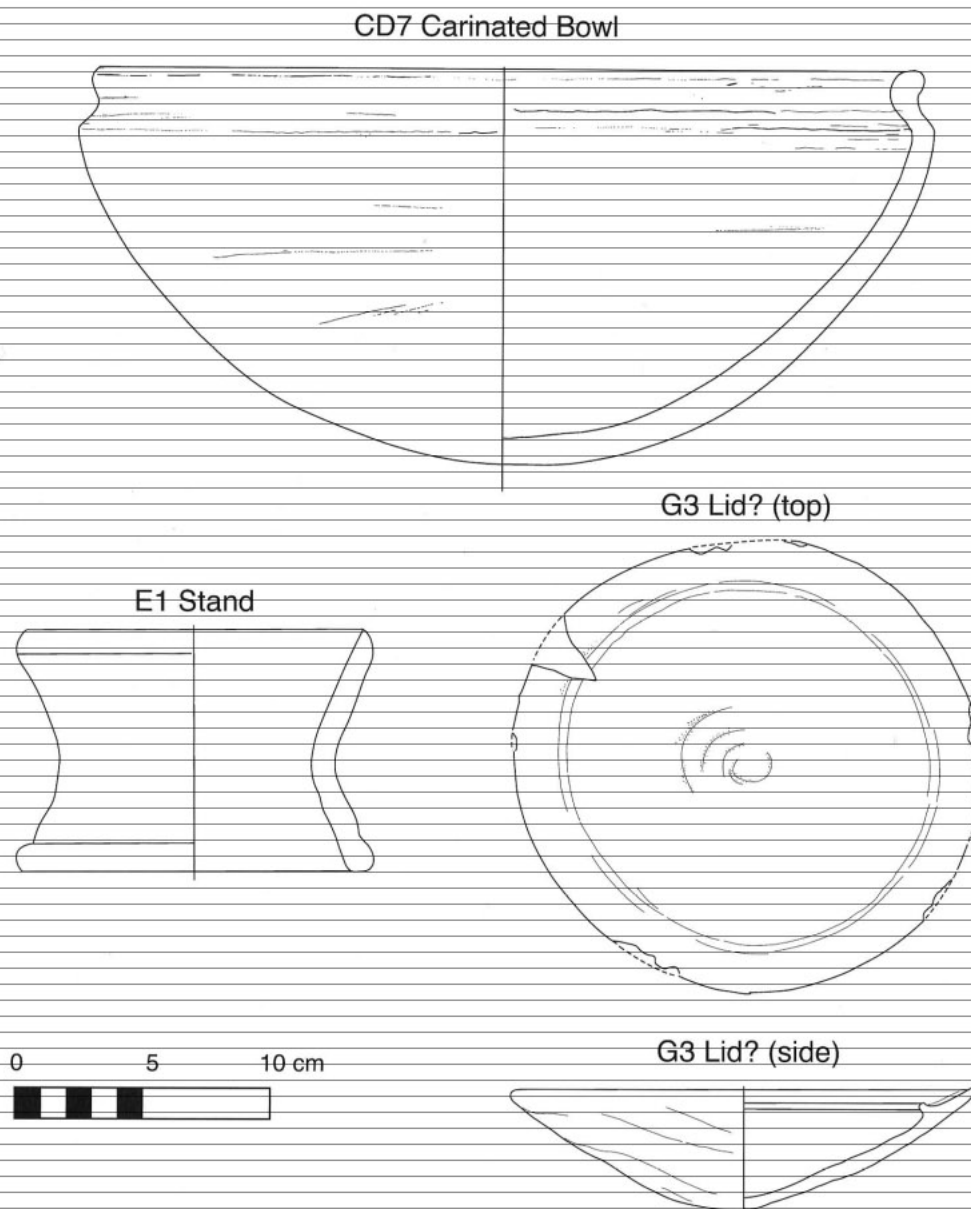


Fig. 10. Ceramic types found in the hypostyle hall: CD7, a white washed carinated bowl; G3, a shallow bowl with an internal flange that may have served as a lid; and E1, a jar stand.

Richard Redding questioned whether the frequency and distribution of fish bone in this area were normal for any living floor across the site. He instituted a procedure to quantify fish bone: 1. Stop sieving the material because this might break up the smallest bone. 2. Place *all* the dirt in a sand bag. 3. Carefully wash the dirt by gently dipping it in water in sieves of very fine mesh. Following this procedure, we collected six large sand bags full from a 2.5×1 m patch, 15 cm thick. We retrieved significant numbers of fish bone, as well as small animal bone. Much of the fish bone was only millimeters long and less than a millimeter thick. Whereas elsewhere at the site we have

found bone from catfish that must have been one to two meters long, the bone from Redding's procedure was of fish, *Tilapia* and schal (*Synodontis schalli*), smaller than 10–12 cm and much of it in the range of 5 cm long. Nowadays in Upper Egypt and the Delta, just such small fish are soaked in salt water, then dried for long-term storage and later consumption.

It is possible, therefore, that the low benches and troughs were used for drying or otherwise processing fish and other food stuff, and placing it in jars or other vessels that are missing except for the lids and stands. The idea might receive support in the parallel wall structures found at a variety of sites throughout the ancient Near East ranging in date from the 7th through the 3rd millennia B.C. Carlo Zaccagnini described parallel wall structures (PWS) at Tell Karrana, a site of the late 4th to the early 3rd millennium B.C. on the left bank of the Tigris.²³ Very much like our troughs and benches, the Karrana PWS consisted of thin, low, parallel walls, 20–25 cm wide and less than 22 cm high, with “spaces between the walls resembling elongated narrow canals about 15 cm wide. . . .”²⁴ The PWS track across open spaces, and show a slight deviation to NW (as do most walls of our gallery complex). The tops of the low walls sometimes show the imprint of reed matting.

Zaccagnini concluded from his survey of PWS at other sites that “the same principle lies at the basis of these structures . . . namely, to build super elevated platforms isolated from the ground level and provided with under floor ventilation . . . the prevailing opinion is that these structures served as grain-drying platforms.”²⁵ The excavators found abundant cereal seed on top of, and between, the Tell Karrana PWS. “At the same time, the retrieval of numerous bones belonging to domesticated and wild animals hint at the possibility that these platforms also served as open air support for salting/drying/smoking(?) pieces of chopped meat of freshly slaughtered animals.”²⁶

Why process fish or other foodstuffs under a roof supported by columns? Modern facilities for drying grapes and plums for raisin and prune production involve expansive canopies to filter sunlight so the fruit is not too rapidly desiccated. The same might be done for meat. In the tomb of Antefoker, meat, and possibly one fish, is shown hanging from lines between columns on bases.²⁷ We might imagine a similar function for the slender columns of our hypostyle. However, tomb scenes indicate the fish were gutted and splayed near the water where they were caught, sometimes on the skiff or boat. The same scenes indicate that the, fins, gills, and sometimes the heads were left intact as the fish were gutted.²⁸

In thinking about the function of our low parallel walls, we have to keep in mind the clues provided by the jar stands and small bowls that might have been used as lids. Were jars set into these stands and covered by lids? What did the jars contain? Or were the CD7 carinated bowls set on the stands, covered by lids tied off with ribbons, like covered casseroles, as often shown as offerings in tomb seasons? Could the evidence point to fish *consumption*? One possible function of the hypostyle hall was as a communal dining hall.

3. *Magazines South of the Hall.* The area south of the troughs and benches is taken up by three rectangular magazines oriented north-south. Unfortunately, modern backhoes removed large parts of the magazines on the east and south (fig. 8). A corridor leads south to a doorway, later blocked, at

²³ C. Zaccagnini, “Comments on Parallel Wall Structures,” In G. Wilhelm and C. Zaccagnini (eds.), *Tell Karrana 3* (Baghdader Forschungen 15), 29–33. I would like to thank Dena Faltings for this reference.

²⁴ C. Zaccagnini, *Tell Karrana 3*, 30.

²⁵ C. Zaccagnini, *Tell Karrana 3*, 32.

²⁶ C. Zaccagnini, *Tell Karrana 3*, 29.

²⁷ N. de G. Davies, *The Tomb of Antefoker, Vizier of Sesostris I, and of his Wife, Senet* (no. 60) (London, 1920); S. Ikram, “Meat Processing,” in P. T. Nicholson and I. Shaw (eds.), *Ancient Egyptian Materials and Technology* (Cambridge, 2000), 659, fig. 25.5.

²⁸ Y. Harper, *Decoration in Egyptian Tombs of the Old Kingdom* (London, 1987), 148–49; Ikram, “Meat Processing,” 659; D. Brewer and R. Friedman, *Fish and Fishing in Ancient Egypt* (Warminster, 1989), 12.

the southwest corner of the hall and to compartments south of the three magazines. The first magazine to the east of the corridor is 2.10 m east–west by 4.10 m north–south. The central magazine, 3.30 m east–west by 4.10 m north–south, is divided lengthwise by a low wall or curb. A wall, 60 cm thick, separates this magazine from the eastern magazine, which measures 2.60 m east to west and 4.80 m north to south. Two narrow benches separated by a single trough run along the western base of the wall. Along its eastern base is a single bench, or curb, similar to curbs running along the bases of several of the major gallery walls in connection with the hypothesized sleeping platforms, such as in III-4 described above.

4. *Workers Houses.* Houses were built within Gallery III-9 upon a fill of trash, including broken pottery and animal bone. The houses consist of a series of oblong chambers, about 2 m wide and 4 m long, oriented east–west (fig. 8). The series runs the entire length of the gallery. Although we have not yet confirmed the function of these units, we call them “workers’ houses” for convenience. They do resemble simplified versions of workers’ houses known from other sites and periods. John Nolan excavated the southern of the two units in square 4.I17.²⁹ They are divided into two chambers by a partition wall, with evidence of cooking in the rear (west) chambers. Four of the units have low rectangular platforms or bins in the east room against the southern wall. The “workers’ houses” attach to the western side of the Hypostyle Hall.

5. *Phases of the Hypostyle Hall.* The hall once had a western wall, about 1.30 m thick, separating it from the gallery in which the workers’ houses were built. Those who built the workers’ houses took down parts of the wall, created doorways through it, and reduced the width of its southern part to 60 cm. The openings through the wall allowed direct access on a gently sloping floor from the houses down into the hall.

We do not know if the enclosure of the hall was actually a hypostyle (a hall with a roof supported by rows of columns) during the earlier period. A section in a backhoe trench at the northern end of the hall (square 4.J19) shows two floors, separated by layers of compact mud and marl fragments. Karl Butzer suggested these layers might have resulted from water, probably rain—unusually high Nile flooding is another, more remote, possibility—that liquefied parts of the site.³⁰ Some of the exposed column bases are tilted and the bases slightly out of alignment with the sets of troughs and benches above them. It is possible that the water that damaged the hall also disturbed the limestone bases, but that the builders left them in position during a rebuilding of the hall. About the same time, these builders built the workers’ houses upon the trash fill of Gallery III-9 and cut doorways through the west wall of the hall. The floors of the southern five or six units are built on the trash, so they are higher than those farther north. The floors of the southern units slope continuously through the doorways onto the floor of the hall in its second phase. In front of the southernmost unit (in square 4.D18), the builders cut steps through the wall down onto floor level of the chambers at the southern end of the hypostyle.

The orientations of walls suggest that the southern wall of the enclosure that contains the hypostyle hall is later than the galleries. This thick mud brick wall angles noticeably northward, about 5 degrees north of east, from the southern wall of Gallery Set III, which runs about 2 or 3 degrees north of east (figs. 4, 8). The deviation begins at the southern end of Gallery III-9 (Square 4.D17). The southern wall of the enclosure containing the hypostyle hall may be an “add-on” to the Gallery Complex. Stratigraphy indicates that the workers’ houses and the hypostyle hall are even later than this southern wall, which may have belonged to the suggested earlier phase. The bakeries we found

²⁹ Lehner, *Aeragram* 1.2, 6–7.

³⁰ K. Butzer, personal communication.

in 1991 are attached to this wall at the southeast corner of the block that contains the hypostyle hall and its southern magazines.³¹

E. Gallery Set I and the Wall of the Crow

Our scraping and cleaning brought out the lines of the plastered mud brick gallery walls in the southwest corner of Gallery Set I (fig. 2). These walls generally align with the gallery walls of Sets II, III, and IV. Though the match is not perfect, we found enough of the ancient architectural layout to be certain that there was indeed a northern set of great galleries between Set II and the eastern end of the Wall of the Crow. It is possible that Gallery Set I may be older, the first of the gallery sets, designed perhaps, before the sequence of modular galleries had been established.

If Gallery Set I was 34.5 m north to south like the other sets of galleries, the northwest corner would fall in square 4.Z6. Jessica Holst Kaiser excavated 26 Late Period burials within this single 5 × 5 m square. In the northern part of the site there are many burials that penetrate the "mud mass" of the Old Kingdom settlement ruins. The burials become more numerous toward the eastern end of the Wall of the Crow. Burials cut into earlier burials, each of which threw up the lower, more ancient dirt, complicating the archaeological strata. In spite of this complexity, we found in this square the plastered face of the west wall of Gallery Set I aligned with the west wall of Gallery Sets II, III, and IV. The west walls of all four sets of galleries thus align with the east end of the Wall of the Crow. We did not find the corner we expected for Gallery Set I, however.

We hoped to clarify the relationship between the gallery system and the Wall of the Crow by extending this excavation to the north. However, there were as many as 60 burials in the two 5 × 5 m excavation squares between 4.Z6 and the Wall of the Crow. For this reason, we could not complete the link between the end of the Wall of the Crow and the west wall of the Gallery Complex.

1. Operation WCE: ("Wall of the Crow East"). Another operation in this area was a large excavation at the very eastern end of the Wall of the Crow (figs. 11, 12). As we removed sand that filled fairly recent excavations, the top of the end of the Crow Wall sloped ever deeper and farther east. The end had collapsed at some point in antiquity, and then stone was robbed, leaving the slope.

The sandy layers covered a thick deposit of mixed sand and granite dust,³² a by-product of pounding or dressing granite to a smooth finish. The grave diggers who prepared the many Late Period burials cast up and turned over this sand and granite dust mixture, which must have been deposited on the site shortly after it fell out of use in the Old Kingdom.

We next excavated a trench oriented north-south at the east side of a 10 × 10 m area cleared at the end of the Wall of the Crow (figs. 11, 12). We began on the east side of the area in an effort to avoid the many Late Period burials apparent on the west. In fact, within a 1.5 × 5 m trench, the osteo-archaeological team removed six Late Period burials, leaving a few more undisturbed in the south end of the trench. The burial pits had been dug down through the concentrated granite dust, which is 1.20 m thick here. After the bodies were laid into the graves, the pits were filled with the same granite dust mixed with sand, which allowed us to see the outlines of the grave pits.

The layer of concentrated granite dust included many large fragments of red granite and dark diorite; we collected several sandbags of larger fragments from the narrow trench. The granite dust layer can only have been produced by work on a large quantity of granite on or near this spot. The last major granite works at Giza were the Third Pyramid of Menkaure, where the lower 16 courses

³¹ Lehner, *Oriental Institute Annual Report 1991-1992*, 56-67; Lehner, *The Oriental Institute News and Notes* 135 (Fall 1992), 1-8.

³² Lehner, *Oriental Institute Annual Report 2000-2001*, 58-59.



Fig. 11. View looking northwest of east end of the Wall of the Crow and Operation WCE in 2001. Lauren Bruning excavated the L-shaped trench, punctuated by Late Period burial pits, through the granite dust to the remains of a mud brick gallery. Two layers of large stones displaced from the east end of the wall delayed our search for the stratigraphic connection to the Wall of the Crow. In 2002 Bruning excavated these layers and extended the east-west trench to the true east end of the Wall of the Crow.

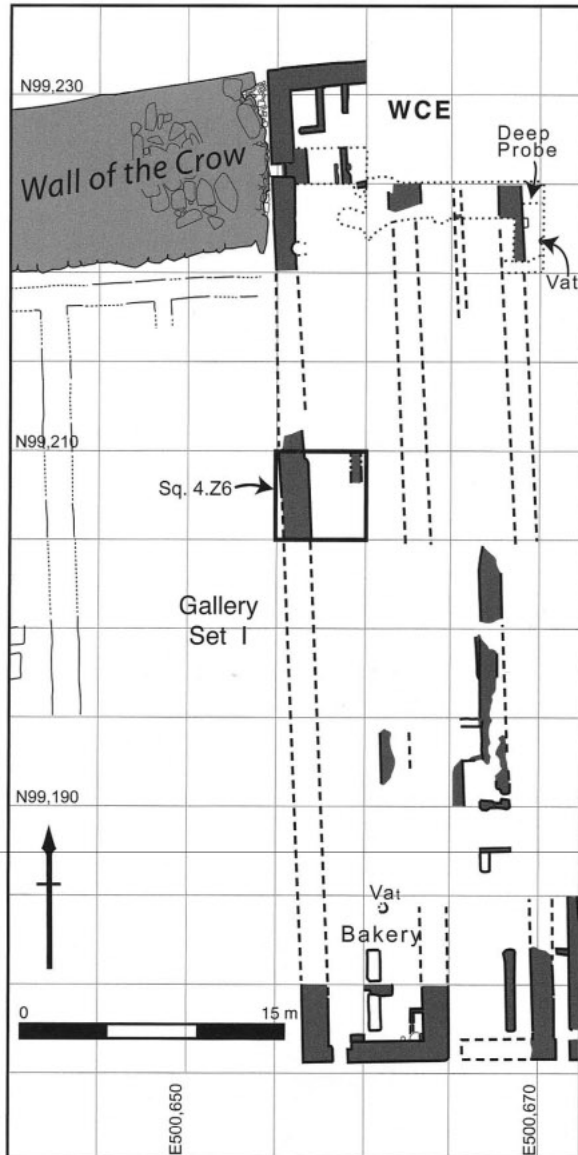


Fig. 12. Map of area WCE, "Wall of the Crow East."

m wide to minimize the number of burials we would have to excavate and record. However, the Season 2001 team encountered eight more burials within this trench (fig. 11). Once again, under the granite dust, which is 85 cm to 1.30 m thick, the remains of mud brick gallery walls reinforced the idea that Gallery Set I continued as far north as the end of the Wall of the Crow.

The gallery walls here are 1.30 m wide, which is the width of a number of walls in the southeast corner of Gallery Set I near North Street. (The gallery walls in Sets II, III, and IV are around 1.60 m wide, 3 cubits). And like many gallery walls in Sets II, III, and IV, the walls had low curbs, about 20 cm wide, running along the base. Bruning also found the remains of a thin, low bench like those that divide the long colonnaded northern ends of galleries in Sets II and III. Six distinct floor layers lay between the walls. Our results leave no doubt that a gallery like those farther south had already

of casing stone were granite, and the royal tomb of Queen Khentkawes, whose interior chamber is lined with granite. Perhaps the royal builders wanted to remove as much of the excess weight of the granite blocks as possible before having to drag them up the plateau to the pyramid. Did they dress the stone, as much as possible, right where they unloaded it from a harbor on the north side of the Wall of the Crow?

Under the granite dust we found a few centimeters of the lowest course of bricks of a mud brick wall plastered with marl (*tafla*). Close by, east of the wall, we found a nearly complete red pottery vat, like the dough mixing vats that we found in bakeries elsewhere on the site (fig. 12). This wall lines up with the third gallery wall from the west in Sets II, III, and IV to the south. These finds indicate that Gallery set I continued as far north as the end of the Wall of the Crow, giving it a north-south width of 55 m.

Since only a few centimeters of the lowest course of mud bricks of the wall remain under the granite dust, this northern gallery must already have been as ruined as we found it before the granite dust was deposited. If the granite dust belongs to work on the royal tombs of Menkaure or Khentkawes, it would indicate that at least this part of the gallery complex was ruined no later than Khentkawes.

In order to learn more about the relationship between the Wall of the Crow, the granite dust, and the mud brick wall, Lauren Bruning excavated another trench two meters wide and oriented east west toward the end of the Wall of the Crow. It stretched across the center of the 10 × 10 m area at the north side of grid squares 2.C7 and 2.C8. We limited the excavation to a trench 2

been demolished when the massive layer of granite dust and chips was deposited. No mud brick tumble from the gradual decay or collapse of the mud brick wall intervenes between the mud brick walls and the granite layer. There is no wind-blown sand or other natural deposits that we might expect if the site were abandoned long before the granite dust was deposited here.

2. *The East End of the Wall of the Crow.* At the east end of the Wall of the Crow, we removed two layers of large toppled stones, separated by a layer of clean sand that contained a human burial. Unlike most of the Late Period burials, which have the arms extended and the hands on the legs or pelvis, this one had the arms crossed at the chest. Bits of darkened material, possibly leather, adhered to the bones. The same sand contained two caches of animal bone, one with a single cattle skull and the skull of smaller animal, possibly a goat. The other cache included two cattle skulls. When we first cleared the southern side of the Wall of the Crow near the east end in April 2000, we found a bovine skull and a Late Period amphorae tucked into a niche between the blocks of the wall. The cattle offerings and the burials certainly attest to a sense of sanctity associated with the wall in late antiquity.

After we mapped and removed the lower layer of large, displaced blocks, the actual line of the built end of the Wall of the Crow was apparent. Sandy granite dust, probably resulting from graves dug into the granite material, continued right up to the eastern end of the great wall. Numerous patches of cleaner sand indicated the presence of graves.

The eastern end of the Wall of the Crow is a built line, but not a line of finished masonry. That is, the line has the appearance of never having been intended to be an exposed, finished surface. The masonry is of many small pieces stuffed between larger blocks. The western mud brick wall of the Gallery System, 1.30 to 1.33 m thick, adjoins this crudely finished wall. The western face of the Gallery wall is plastered with marl along the line where the stone of the Wall of the Crow presses hard against it. This plaster surface indicates that the mud brick wall was here before the Wall of the Crow. This makes it probable that Gallery Set I was here first, and the gigantic Wall of the Crow was later built against it. With the addition of the other three sets of galleries to the South, the whole Gallery Complex came to "hang off" the Wall of the Crow like a giant flag in map view. It is hard to conceive that the builders butted such a massive, weighty, stone wall up to the much more fragile one of mud brick. However, that is what the evidence suggests.

3. *Northwest Corner of the Gallery System.* The western mud brick wall of Gallery Set I forms a corner with a thick east-west wall on line with the north side of the Wall of the Crow (fig. 12). The latter mud brick wall is 1.30 m wide and forms the northern boundary of the Gallery Set I, and, in effect, the whole gallery system.

The relationship between the northwest corner of the gallery system and the east end of the Wall of the Crow is complicated by another marl line marking the western face of an older, deeper mud-brick wall that we exposed at the bottom of one of the burial pits. This deeper wall also ran parallel to the eastern end of the Wall of the Crow about 80 cm farther east than the western face of the upper, later, wall. The upper wall is partially built over what remains of the lower wall. This deeper wall is more appropriately spaced in relation to the scant remains of gallery walls in the east-west trench through the layer of granite dust (see above). Bruning excavated 5 floors associated with the upper wall, and one floor belonging to the lower wall. Along the base of the lower wall she discovered a low bench or curb, like those we have seen along the walls of the southern galleries walls. Around a bench-like feature of the lower floor there were many large animal bones.

The lower wall and associated floor and the upper wall represent two distinct phases of the gallery pattern. Before the Wall of the Crow was built, the mud brick architecture continued west of the western wall of the Gallery Complex, with marl plastered floors that were probably roofed.

Later, the 4th dynasty builders constructed the immense eastern end of the Wall of the Crow over the location of older mud brick structures. It is possible that the earlier structure attached to the western wall of the gallery complex was another "gate house" like the buildings that look like houses south of the western entrances of North Street and Main Street (see below), and north of the western entrance of South Street. There might have been another street running along the North side of Gallery Set I, as indicated by a smooth paved surface that Bruning found in a trench north of the north wall of Gallery Set I. We need to excavate farther north to ascertain this.

To summarize, Bruning revealed two major phases to Gallery Set I. The eastern end of the Wall of the Crow was built on top of the ruins of the first phase and up against the western wall of the second phase when the galleries still functioned.

4. *The Cut through Gallery Set I and the Granite Dust.* At some time, either natural or human forces cut a deep and yawning pit into galleries off the end of the Wall of the Crow. Later (but probably still in Dynasty 4), builders dumped a massive deposit of chips, fragments, and dust of granite, diorite, and dolerite into this pit. The thick layer of granite dust begins from 3 to 5 m east of the east end of the Wall of the Crow. The layer of granite waste lay directly upon a low bench or dividing wall, a rectangular fireplace, and the highest of a series of marl floors between the remains of gallery walls. The granite waste fills the pit, a swath cut through the northwest corner of Gallery Set I, removing all but several centimeters of the gallery walls.

Closer to the east end of the Wall of the Crow, Bruning found mud brick walls of Gallery Set I that stand waist-high or higher, albeit punctuated by Late Period burial cuts. These walls survived the cut through the galleries apparently because they are so close to the end of the Wall of the Crow, which is only 3–5 m away.

The deep cut into the northwest corner of the gallery complex appears to have been sudden, not the result of gradual erosion after the occupants left these buildings derelict. The cut through the galleries in area WCE aligns with a depression in the mud ruins to the south of the Wall of the Crow, about on line with its eastern end. The same forces may have cut through the gallery complex in front of the end of the Wall of the Crow and created the depression farther south. Granite waste immediately filled the cut to the north in front of the Wall of the Crow, while later, wind-blown sand filled the depression to the south. Forces of erosion cut the depression before the Late Period burials were interred. Later still, the Nile flood waters from the east reached this far westward, staining the top of the sand with gray silt.

It is most probable that people, rather than natural forces, dumped the enormous quantities of granite waste into the cut soon after this destruction to the galleries occurred, before wind blown sand or rubble could accumulate. As noted above, it was probably done by late 4th dynasty builders working massive amounts of granite for the lowest 16 courses of cladding on the Menkaure Pyramid or for the chapel and antechamber of the tomb of Queen Khentkawes.

What natural force severely damaged the northwest corner of Gallery Set I already before the end of the 4th Dynasty? One hypothesis is that after hard rains, water flowed through the wadi between the Maadi and Mokkatam Formations and found its way around the end of the Wall of the Crow.³³ Or maybe an extraordinary high Nile flood filled the natural depression in the northeastern part of the site (see below) and reached across the northern part of this block of galleries. A gushing force of water may not have been necessary to render large tracts of the galleries dysfunc-

³³ For the wadi, see M. Lehner, "The Development of the Giza Necropolis: The Khufu Project," 115, figs. 3A–C; for evidence of wadi flooding, see Lehner, *Oriental Institute Annual Report 2000–2001*, 64–65. For the Wall of the Crow, the cut through Gallery Set I and the granite dust, *Aeragram* 5.1, 6–8.

tional, dissolving them into “settlement sludge” and leaving muddy pools. Even a slow-moving flood could have rendered the central part of the gallery complex a muddy mess, a larger scale version of the damage to the site that we have witnessed after a couple of days of sustained, hard, rain.

Perhaps the occupants perceived the threat of wadi flooding and built the Wall of the Crow to force the flow farther east into a natural dip or basin. If so, why not extend the stone wall farther east, up against the northern (east–west) back wall of the gallery complex? Perhaps they thought that the back wall of mud brick, 1.30 m thick, would itself withstand wadi flood water dispersed this far east of the wadi mouth. Also, the fact that we did not find muddy layers between the granite dust and the remains of the gallery walls and floors does not support the hypothesis that it was wadi flooding that cut through the galleries near the end of the Wall of the Crow.

F. Summary Observations about the Gallery Complex

The four large blocks of galleries, plus the Manor enclosure and the hypostyle hall, comprise an area of 12,375 square meters. Much of this area is empty space, due, principally to the long colonnaded front ends of the galleries and the hypostyle hall. Within this area, we recognize less than three dozen formal housing units. The count includes the house-like room structures within the galleries, the “gate houses” near the western openings of the three streets between the blocks of galleries, the Manor, and the row of “workers’ houses” along the west side of the hypostyle hall. The count excludes the habitations in the Eastern Town, though those who inhabited that part of the settlement must be considered a possible source for the distribution of material culture within the Gallery Complex. Although we do not have the complete ground plan of the Gallery Complex, the impression is that a substantially denser settlement pattern did not obtain in the missing parts.

Our excavations within the Gallery Complex retrieved an abundance of material culture—thick deposits of discarded bread molds and other pottery, ash, and animal bone. Cattle, sheep and goat remains are particularly abundant. Richard Redding estimates that 11 cattle and 30 sheep/goat were slaughtered per day, enough for several thousand to have eaten meat every day over a period exceeding three generations.³⁴ The evidence suggests large scale consumption.

A principal question then arises from a combination of the architecture and material culture retrieved from the Gallery Complex. Who were the consumers, and where did they live?

IX. The Western Extension

The Western Extension is the area south of the Wall of the Crow between the Gallery Complex and the enclosure wall (fig. 13). Instead of the mud mass characteristic of the surface of the ruins in the area of the galleries, we found here compact, stony ridges and mounds. These are the remains of foundations of buildings composed of yellowish broken stone that the builders took from the Maadi Formation rising above the site on the west. The structures of the Western Extension appear to have been added onto the Gallery Complex and are less formally organized.

In the northern part of the Western Extension, along the base of the ancient stone Wall of the Crow toward its eastern end, we exposed large rectangular areas of dark ash enclosed by field stone walls. Thick, mounded, reddish dumps of concentrated pottery sherds—mostly bread molds—lay up against the Wall of the Crow. In 1991 we discovered similar thick deposits of “bread pot gravel” east of the bakeries at the southeast corner of Gallery Set IV. Long field stone walls divide the area south of the eastern part of the Wall of the Crow into long rectangular strips. Other walls run east-

³⁴ Richard Redding, personal communication, and forthcoming.

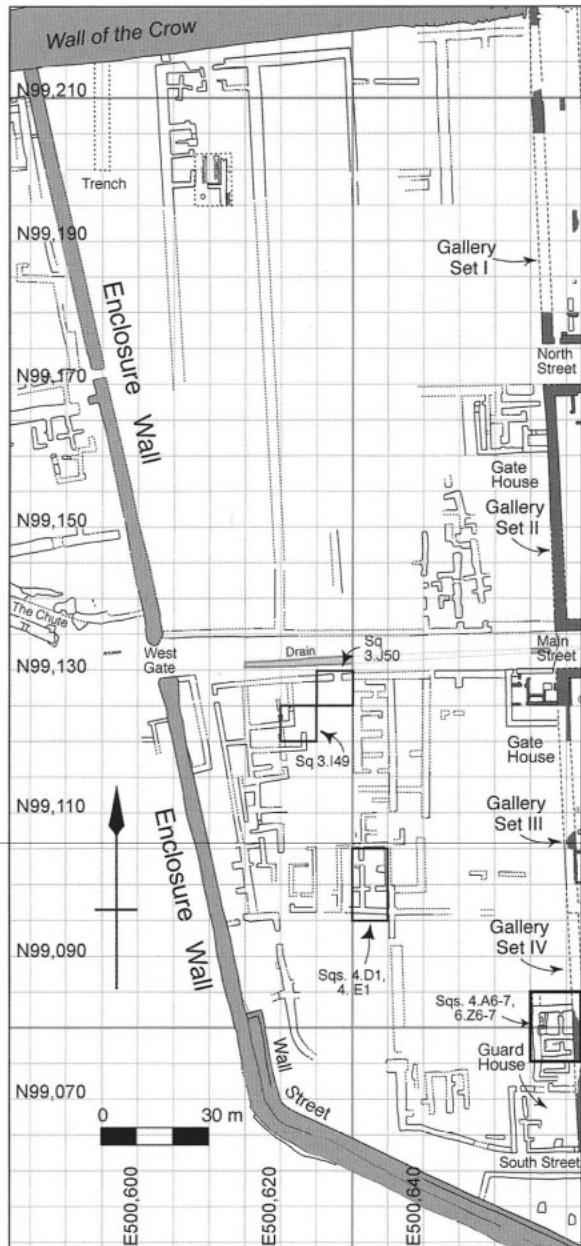


Fig. 13. Map of the Western Extension. The architecture in much of the area north of Main Street has yet to be exposed and mapped.

Under a layer of limestone rubble that had toppled from the walls was a layer of toppled mud brick. The upper parts of the walls must have been built in mud brick and have fallen first. The lower parts of the walls, formed of broken stone, then collapsed onto the fallen mud brick. We found the same sequence in our excavations of the fieldstone architecture elsewhere on our site. If

west to divide these corridors at fairly regular intervals. These are probably more bakeries like those we found close to the Wall of the Crow and a short distance to the west in Area A8j in 1991 (fig. 13).

In the southern part of the Western Extension, an area 50 × 60 m south of Main Street includes a number of rocky mounds and ridges that are the ruins of a series of magazines and chambers arranged around open courtyards. After the site was abandoned these courts filled intermittently with water that left a series of layers of finely levigated desert marl clay separated by thin sandy layers marking dry spells.

A. Excavations in the Western Extension

1. *Squares 3.I49 and 3.J50.* In square 3.I49, Lauren Bruning excavated part of a building and courtyard in the Western Extension immediately south of Main Street. The building, courtyard, and the other structures were founded on a higher level than Main Street. Square 3.J50 takes in part of the southern wall of Main Street including an entrance that opens onto a long rectangular courtyard in front of the building partially excavated in square 3.I49. The floor of the opening sloped up to the higher level.

2. *Squares 4.D1 and 4.E1.* Cordula Werschkun supervised excavations in squares 4.D1 and 4.E1 which takes in a rectangular building (fig. 14) that is one of a series oriented north-south and flanked north and south by broad courtyards.³⁵ This building has three rooms, each about 3 m wide, east to west. This is about the limit for roofing with organic material like palm log, sticks, and reed. The southern room, around 2.20 m north-south, might have been more easily roofed. It contained much ash under a trampled floor of deteriorated *tafla* (desert clay). A hearth occupied the northwestern corner.

³⁵ Lehner, *Oriental Institute Annual Report 2000–2001*, 51–52, 54, fig. 8.

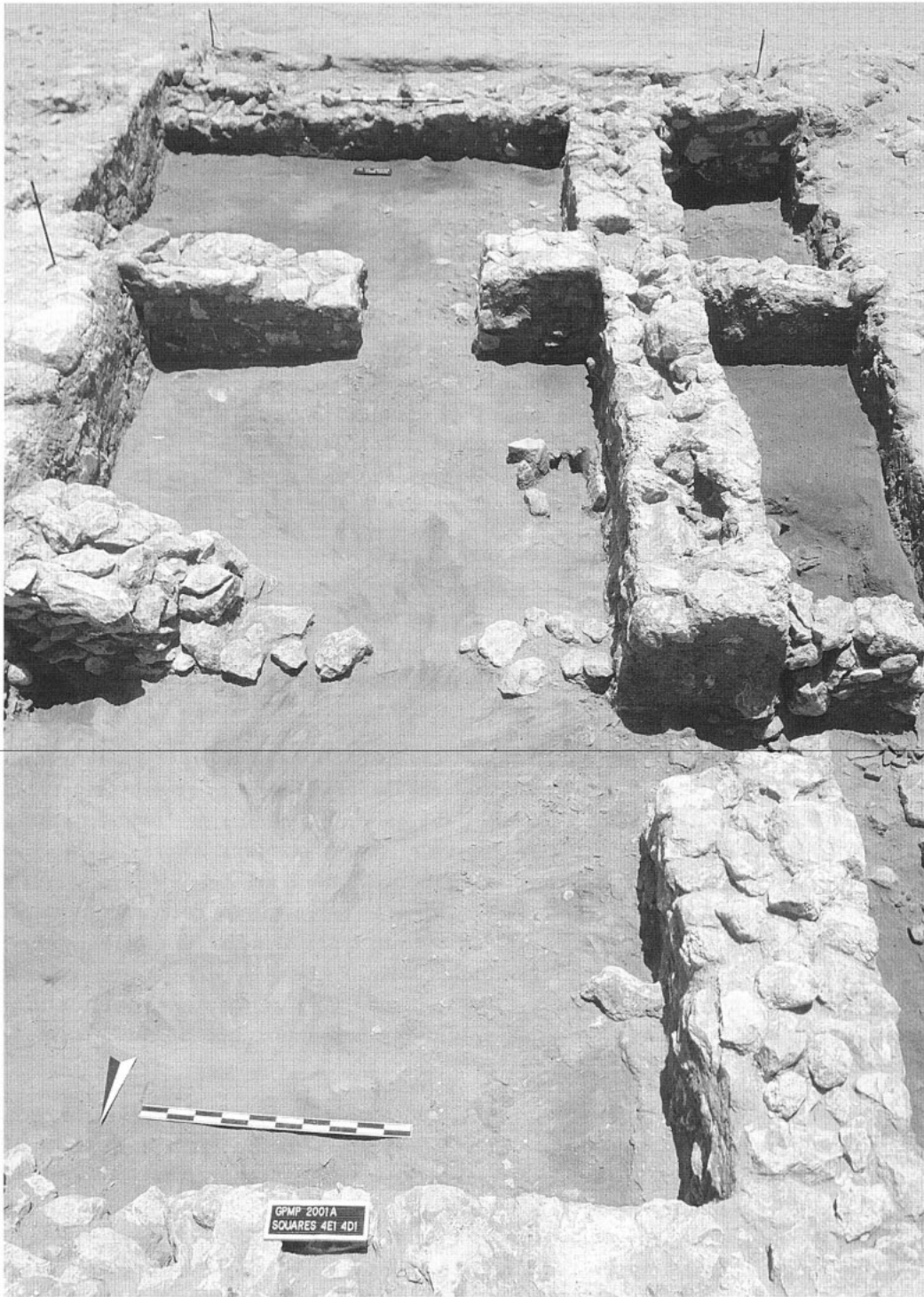


Fig. 14. View of Squares 4.D1 and 4.E1, looking south. Fieldstone was used as foundations for walls that were continued in mud brick. Ashy deposits fill the chambers above the floor level of the first phase of the building after the second phase floor level has been removed.

the upper parts of the walls in much of the Western Extension were of mud brick, the fact that what remains of these walls is mostly broken stone or fieldstone would testify to the extensive erosion of the site. This would be the same erosion process that cut off at knee-or ankle-level the gallery complex, composed almost entirely of alluvial mud brick. The evidence from squares 4.D1 and 4.E1, where the fieldstone walls stand up to 80 cm high, would suggest that the upper mud brick parts of the walls fell as the erosion was cutting the settlement material and removing it from the site, or shortly thereafter. The stony parts of the walls stood longer in derelict buildings. In several places it is clear that when the fieldstone sections collapsed, the mud mass had already eroded down to the level at which we find it.

There is evidence of two periods of collapse for the stone parts of the walls in squares 4.D1 and 4.E1. There is also evidence of two phases of use of the three-room structure. In the second phase, people occupied the building after the mud brick had fallen from the walls, but before the broken stone lower parts of the walls fell. Two small bins formed of stone against the west wall in the central room relate to its use after an initial period of collapse. A round pit inside the southern bin contained the skeleton of a human infant. The child must have been buried in the bin at sometime before the last collapse of stone rubble from the wall. It is not likely, therefore, to belong to the Late Period population. Another child burial was located in a pit just north of the northern bin.

3. *Main Street Gate House.* South of the entrance to Main Street from the Western Extension into the Gallery Complex, the "Gate House" occupies the better part of 100 square meters.³⁶ This building of field stone walls has a well-paved floor and a pillar, .90 × 1.10 m, made of stone and clay. The Gate House may have its counterpart in the "Manor" at the east end of the street (fig. 2). The purpose of these buildings may have been to control and monitor the movement of material and people through the streets into and out of the gallery system.

4. *North Street Gate House.* Mohsen Kamal supervised excavations of a large rectangular structure immediately south of the North Street entrance into the Gallery Complex, between Gallery Sets I and II. About 10 m (north-south) by 12 m (east-west), the building is similar in size and position to the Main Street Gate House. The room structure, however, is more complex. There is a doorway at the northeast corner opening onto North Street. Along the west, there are a series of long corridor-like rooms, oriented both north-south and east-west. One is as narrow as 80 cm for a length of 6.2 m. These appear to be magazines for storage. Indeed, various types of nearly complete pottery vessels were stacked against the walls, including bread molds, beer or storage jars, and carinated bowls. The structure was excavated with some difficulty owing to many Late Period burials cut into the architectural remains. In square 4.S6 there were so many burials it was impossible to expose North Street at the entrance to the gallery system.

5. *South Street Gate House.* Another structure of fieldstone walls, 9 × 10 m, lies just north of the entrance to South Street where it passes between Gallery Set IV on the north and a series of magazines or chambers on the south. In 1998 Fiona Baker excavated an architectural layout immediately north of the South Street Gate House in squares 4.A6-7 and 6.Z6-7.³⁷ She found small chambers filled with ashy soil containing large quantities of pottery sherds of many different types, including many crude bread molds and fragments of a polished red ware jar stand. On the floor of one chamber there were several dolerite hammer stones. The eastern part of this small complex included a courtyard with an entrance formed by two crude limestone pediments on the southeast. The entire

³⁶ Lehner, *Oriental Institute Annual Report 2000-2001*, 44.

³⁷ Lehner, *Aeragram 2.2* (Summer 1998), 5; Lehner, *Oriental Institute Annual Report 1998-1999*, 68-69.

set of stone walls was a rebuilding of, and upon, earlier mudbrick walls, including the western Wall of Gallery Set IV, that had fallen into ruin or had been partially dismantled. It is probable that this structure dates to the later phase of occupation in the Western Extension, the same period as the later occupation in the building in squares 4.D1-E1.

B. Parallels for the Pattern of the Western Extension

The Western Extension south of Main Street is a series of broad open courts surrounded by small buildings, possibly houses and magazines, attached to the walls of the courts—all of broken stone walls. In 1971 Abd al-Aziz Saleh found a similar pattern in a settlement southeast of the Menkaure Pyramid.³⁸ The settlement occupied the narrow southeastern angle of the secondary outer enclosure around the Menkaure Pyramid, at the southeastern rim of the main quarry for the core stone of that pyramid. Large pieces of Egyptian alabaster lay in an open court. The alabaster may have been left over from the alabaster paving and statues that graced the pyramid temples of Khafre and Menkaure. There were houses within the court, some attached to the eastern enclosure wall. The houses included ovens. Elsewhere in the court copper may have been worked in a row of horseshoe-shaped hearths.

Another parallel may be seen at the site of an Old Kingdom dam in the Wadi Gerawi in the eastern desert near Helwan, opposite Dahshur (about 40 kilometers south of the latitude of Giza). There Jaritz and Dreyer found a 4th dynasty workers' settlement of open courts, fieldstone huts and magazines.³⁹

The Western Extension might have seen work similar to the activities in these industrial settlements. The very different layout from the Gallery Complex certainly suggests a different function than that of the galleries. The open courts served as spacious and well-lit working areas, while materials and supplies could be stashed in the buildings along the walls. Perhaps craftsmen retired to some of the structures each evening.

X. Eastern Bakeries and Pedestals (Area BBN)

We excavated a large sample of compacted pottery debris—mostly bread mold fragments discarded from nearby bakeries—east of the hypostyle. Thin fieldstone walls that run north-south over this bread mold gravel form a strip about 2.60 m (5 cubits). Like the entire gallery system, they run slightly west of true north.

Bakeries adjoin the hypostyle hall on the east and south (figs. 2, 4). We excavated two, filled with homogeneous black ash, on the southeast corner of the hypostyle enclosure in 1991. These bakeries sit within a gallery-like enclosure of modular width and length on the eastern side of Gallery Set IV (fig. 8). Another series of bakeries lie north and south of BBHT2, a large backhoe trench just east of the hypostyle hall. Although the backhoe trenches destroyed big pieces of the ancient site, they do offer a vertical exposure of the site's development. In the cut of BBHT2, the bakeries are founded upon deeper walls of an older architectural pattern. This lends support to a general and persistent impression that the bakeries bordering the Gallery Complex on the northwest, east, and south are from a relatively late period in the history of the site.

³⁸ A. Saleh, "Excavations Around Mycerinus Pyramid Complex," 131–54.

³⁹ G. Dreyer and H. Jaritz, "Die Arbeitunterkünfte am Sadd-el-Kafara," *Mitteilungen Leichtweiss-Institut für Wasserbau* 81 (1983), B-1–31.

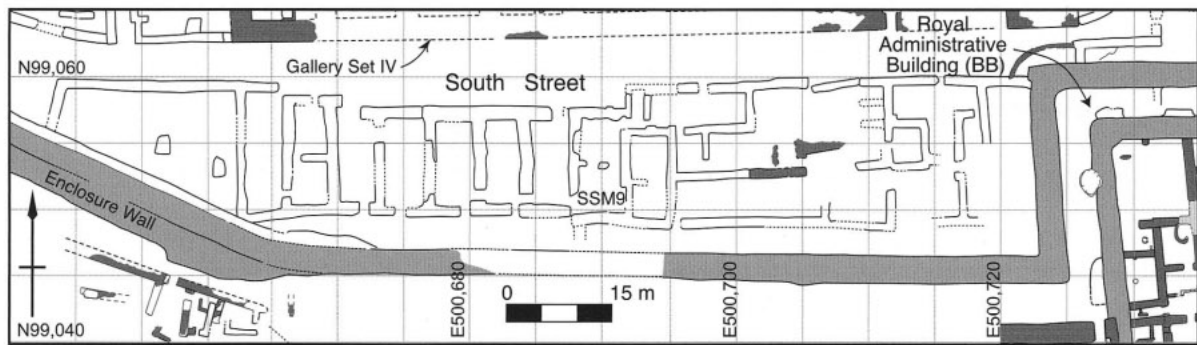


Fig. 15. Map of South Street Magazines. The enclosure wall turns, thins to 2 meters, and runs east to the royal administrative building, leaving a corridor with the southern wall of the magazines.

South of the bakeries around BBHT2, we found long rows of separate pedestals formed of fieldstone, each about 60 cm wide by 1.20 m long (fig. 2). Two long rows of pedestals appear to form a set 20 m long, separated by a very thin field stone wall. Two other, shorter rows of pedestals appeared farther south. These are similar to the rows of pedestals we found in a rectangular building in Area AA, 45 m southwest of the thick bend in the enclosure wall.⁴⁰ Two rows of pedestals were lined up on either side of a wall that divided the building in half lengthwise. One of the pedestals retained its top marl plaster surface, which was divided into four quadrants by the traces of a partition wall, one brick thick. This feature seems to indicate that compartments about 60 cm wide were arranged up on the pedestals—perhaps to keep contents away from moisture and rodents—albeit situated over the 20-cm spaces between the pedestals rather than squarely on them. The fact that the compartments straddled the spaces between pedestals may indicate that they have functioned like other ancient storage systems to allow air to circulate through underlying empty space. The pedestals east of the Gallery Complex are less formally organized than those in Area AA.

XI. South Street and Magazines

The south side of South Street is bounded by the fieldstone walls of a series of chambers that we refer to as the “South Street Magazines” (fig. 15). The middle section of the street is 5.20 m wide—close to 10 cubits—the same width as Main Street and North Street. But it narrows on the east and west where some of the fieldstone structures intrude into this open space. South Street runs the length of the south side of Gallery Set IV to the northwest corner of the administrative building, our area BB. Between the north wall of South Street and the northwest corner of the administrative building the “street” shrinks down to a corridor only 2.80 m. A semicircular mud brick wall on the northwest corner of the building constricts the corridor further to a passage only .90 m wide.

On the south side of South Street, the ruins survive to a greater height than anywhere on the site. Here the well-preserved fieldstone walls enclose chambers, or magazines, some of which are packed tightly with reddish-purple disintegrating pottery. Nine rectangular magazines line up east to west. The magazines attach to a common southern wall that forms a corridor with the thick enclosure wall where it begins to run east, parallel to the magazines. The bank of magazines is 7.60 m wide north to south, with dividing walls about 90 cm thick. The largest compartment is about 3 m

⁴⁰ Lehner, *Oriental Institute Annual Report 1990–1991*, 19–27.

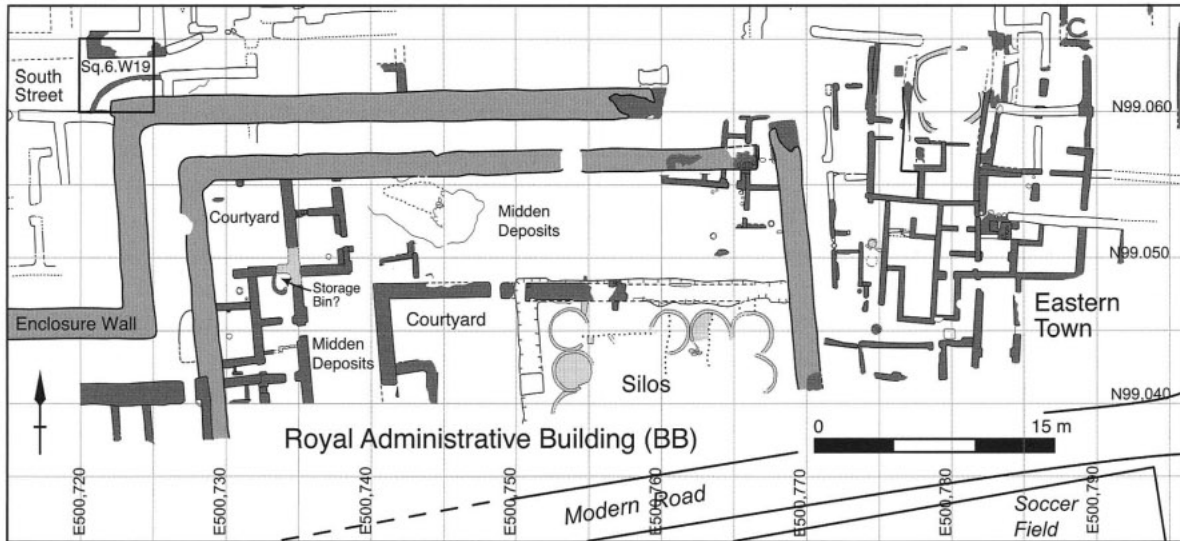


Fig. 16. Map of the Royal Administrative Building (BB) and southern part of the Eastern Town. Square 6.W19 is in the upper left corner.

east to west and more than 5 m north to south, while one of the smallest is 1.20 × 2.00 m. Several of the rooms are 2.60 m (5 cubits) by more than 5 m (about 10 cubits), about the size of the bakeries. At least some of the chambers might be bakeries. Others could also have been used as storage compartments. Compact pottery sherds, mostly of bread molds, fill some of the chambers. In the fill we can see bread molds, in profile and in plan, stacked one atop another and then shaved off by erosion.

Ana Wodzinska excavated into one of these pottery-filled units, SSM9 (“South Street Magazine 9”), the ninth enclosure along South Street counting from the West. This chamber has a little rectangular appendage on the northeast that might have been a stairway down to the level of South Street. One quadrant of the magazine contained three stacks of four large bread pots, placed upside down. Clumps of yellow desert marl clay (*tafla*) brace the stacks. The rounded, knobby bottoms of the uppermost pots extended through soil deposits up into a dense layer of concentrated bread mold sherds about 50 cm thick that filled the upper part of the magazine. The bread molds appear to have been stacked for storage.

XII. Administrative Building

Late in our 2001 season we found the northwest corner of a very large double-walled enclosure in the far southeast of our site (fig. 16).⁴¹ Fiona Baker, Bob Will, Susan Bain, Stephanie Durning and Dave Swan mapped and excavated in the area of this enclosure, 25 m (north-south) × 45 m (east-west). Sealing fragments and silos within the enclosure indicated royal administration and storage. For convenience, we call the enclosure the administrative building.

The outer west and north walls of this building are a continuation of the enclosure wall along the west and south of the Gallery Complex. On the south side of the complex the enclosure wall runs east at a width of 2 m. Then it turns to run north 15 m as the outer wall of the administrative building

⁴¹ Lehhner, *Oriental Institute Annual Report 2000–2001*, 61–63, fig. 17.

(fig. 2). The wall then turns 90 degrees to run east as the northern of two parallel walls of the building. The continuity of the enclosure wall and the administrative building indicate that the two structures are part of the same phase, or the same building project.

On the north and west sides of the administrative building, the exterior fieldstone wall ranges in width from 1.80 to 2 m. On these sides of the building an inner wall runs parallel, separated from the outer wall by a corridor 2.00 to 2.60 m wide. The width of the inner wall ranges from 1.50 to 1.80 m. On the north side of the building the walls run very slightly north of east while on the west side they are oriented slightly west of true north, like the gallery walls. This results in an odd corner, slightly less than 90 degrees, where the two segments meet. The inside corners of both walls are curved. A single fieldstone wall, 1.60 m wide, defines the eastern side of the administrative building, which is 48 m wide east to west.

The overburden that we removed in the area of the administrative building was entirely modern, ranging from only 15 cm up to 90 cm thick, with plastic wrappers, chaff, and modern brick. Sand diggers from the nearby riding stables had removed the ancient sand cover right down to the surface of the ancient ruins. The site had been wet in recent times as evidenced by tire tracks of heavy machinery impressed in the ancient "mud mass" in the administrative building and Gallery Set IV. Here the sand diggers left the archaeological layers more exposed and facing more certain destruction than elsewhere on the site.

A. Northwestern Corner of the Administrative Building

Courts and chambers occupy the interior northwestern corner of the administrative building (fig. 16). An open court in the far northwestern corner measures 5.20 m east-west by 5.90 m north-south. In the floor of the court, excavators Bob Will and Susan Bain found a series of mud-lined shallow depressions and pot sockets, and a long pit against the north wall that looks very much like the baking pits in the bakeries.

Mud brick walls define a chamber, 2.40 m east-west by 5.40 m north-south, against the inner enclosure wall to the south of the court. A later wall partitioned the space into a main room and antechamber. East of these rooms, three doorways open through walls that partition a corridor 2.40 m wide into a series of small chambers. A curious semicircular wall restricts the last doorway on the north, which opens into the northwestern court. It may have functioned as a storage bin when the doorway was later blocked. Two chambers east of the corner court are about 3 m wide.

A broad corridor separates this group from another court, 8.5 m wide, that once attached to the western wall of the silos enclosure (see below). A thicker mud brick wall, 1.05 m (2 cubits) wide, defines this court. The mud brick wall runs south to north, and then turns to run east toward the corner of the wall robbed out from around the sunken court of silos. A doorway at the junction of this mud brick wall with the northwest corner of the robbed wall is .60 m wide.

B. Evidence of Diverse Activities

The excavation work inside the northwest corner of the administrative building turned up diverse artifacts suggesting a range of activities. Little balls of clay with finger marks and pieces pinched off might be evidence of preparing the extra fine clay used to seal string locks on bags, boxes and doors, or sealing of ceramic pots. Sealings and facilities for making them are often taken as evidence of administration. John Nolan registered more than 195 sealings, 170 of which are inscribed or incised, from one crate of possible sealings picked from the deposits in the administrative building within three weeks. There are several more crates of possible sealings from the building still to be examined. From the entire six previous seasons between 1988 and 1998, 470

registered inscribed or incised sealing were recovered. The sealings indicate far more intense “administrative” activity here than elsewhere on the site.

A series of little mud tokens that the inhabitants might have used as counters also come from the administrative building. Some are round and oval, possibly standing for a kind of pita-like bread called *pesen* in ancient Egyptian. Others appear to be intentional quarter-*pesen* loaves. One small mud token has the form of a haunch of beef. Elsewhere on the site we have found little conical mud tokens—possibly representing the conical bread made in the bread molds so ubiquitous across the site.

Bone points and rods from the northwest corner of the administrative building were probably used for weaving.⁴² Deposits in the small corridor chambers south of the northwestern court yielded evidence of the working of copper and alabaster. Other evidence of diverse activities and animal bone (see below) comes from a series of large hearths and broad midden pits just north of the court that is attached to the western side of the sunken silos. The occupants appear to have engaged in diverse activities loosely distributed within the formally structured open courts.

C. Animal Bone from the Latest Deposits

The open area along the north part of the administrative building contained midden deposits (fig. 16), that included abundant cattle and pig bone, but comparatively few bones of sheep and goat. This collection was strikingly different from the enormous quantities of cattle, as well as sheep and goat, from deposits elsewhere across the site, particularly in the broad swath of galleries. Redding believes that during the use of the galleries, herds were being culled for provisioning the site. A significant number of cattle bones were from males under 2 years old.

Redding’s preliminary impression is that the cattle evidenced in the middens of the administrative building were not young. The low numbers of sheep and goat bone, and the relative abundance of cattle *and* pig—the extreme ends of the menu from local and cheap to imported and costly—are curious. This combination suggests a different sort of provisioning than is seen in the deposits from other areas. It may reflect the departure from this site of the royal house in the late 4th dynasty. If the royal house moved to Saqqara when Pharaoh Shepseskaf began to build his funerary monument there, prime beef may have gone with them. In place of royal herds, perhaps local village cattle and pigs, which were raised as a cottage industry in ancient Egypt, provisioned the workers who stayed on to finish the monuments at Giza.

It is possible that more permanent residents of the Eastern Town might have dumped some of this material into the pits and ruins of the administrative building after it had been decommissioned (see below). As yet, we have no certain evidence on the longevity of this part of the settlement. However the stratigraphic links across the site suggest the administrative building itself dates to the later phases of the 4th dynasty complex.

D. Sunken Silo Court: A Royal Storehouse

The surface of the ancient ruins that we exposed within the outer walls of the administrative building was flat except for a stony tumulus or cairn. This isolated pile of broken stone, about 7.4 × 7.2 m, was situated 6 m south of the north inner wall of the building.⁴³ The cairn sat on clean sand above the mud mass, and post-dated the destruction and erosion of the Old Kingdom

⁴² Ana Tavares, forthcoming, compares the bone points and rods to similar implements from Amarna. Other evidence might include oval lenticular objects fashioned from pottery sherds, two unfired mud objects with rounded tops and beveled holes that appear to have been weights and a limestone socket block similar to the socket blocks of New Kingdom vertical looms. However, we would not expect these objects to have been used with the horizontal looms of the Old Kingdom.

⁴³ Lehner, *Oriental Institute Annual Report 2000–2001*, 62.

architecture. The stones surrounded a pit that was sunk through the mud mass of the Old Kingdom ruins. When Fiona Baker excavated the cairn, she found among the broken stones many pieces of red granite and eight pieces of querns or grinding stones. Previously, we had found only two or three fragments of grinding stones in spite of dozens of bakeries and baking activity evidenced by bread molds over an area of 5 hectares. In the southern part of the Eastern Town we have found two or three quern stones in what appear to be houses (see below).

The broken stones of the cairn came from a thick fieldstone wall that someone had removed from this location. The trench and lower stone material that remain from the missing wall passed under the cairn and turned a northwestern corner. The wall was almost completely removed, leaving fairly straight edges to the foundation and/or robbers' trench, 1.57 m (3 cubits) wide. Stone from the collapsed and robbed wall filled a rectangular depression, 15 m wide east to west, in the southeast corner of the administrative building. The depression proved to be a sunken court, about 19 m wide east to west, of which we have about 10 m of the north end. It disappears into the sand balk under the modern road to the "Workers' Cemetery" west of our site, and under the *Abu Hol* sports club and soccer field. The bottom of the sunken court is 15 m above sea level, while the floor level in the galleries is 16 m above sea level and higher, and the mud mass in the western part of the Administration Building is higher still.

A lower lying, earlier mud brick wall, 1.20 m wide, appeared at the bottom of the robbers' trench. The earlier mud brick wall was later built over by the field stone wall that, later still, was robbed, leaving only its foundation trench.

1. *The Silos.* The stony fill of the sunken court overlay a series of bases of round silos (figs. 16, 17). We did not finish removing the sandy and rocky fill. However, before the end of the 2002 season, we ascertained that there had been at least seven and possibly eight mud brick silos in this enclosure. Each silo is 2.60 to 2.70 m in diameter (5 cubits). We have only the lower parts of the silos, which do not show the spring of a domed or vaulted top (fig. 17). However, the model mud brick silos from earlier dynasties show vertical or slightly flaring sides for most of their height, with the springing of the dome very near the top.

The silos were probably for grain storage. This might explain the fact that bottoms of the silos are much lower than the base of the mud brick wall and later fieldstone wall that surrounded them. The walls might have supported a parapet, a raised walkway, along the tops of the silos, used to fill them from the top. Grain could have been let out openings low in the silos and into the open court. However, a sunken court, close to the damp subsoil, would not have been an ideal place to store grain.⁴⁴ It is possible that some other commodity was kept here.

If the silos were indeed used for storing grain it would resolve an issue of storage for the numerous bakeries we had found across the site. We have almost no other evidence of grain storage. We can imagine that grain was dispensed from this central storehouse, protected behind the double walls of the administrative building, under the direction of royal administrators.

2. *Decommissioning the Silo Enclosure.* As with the galleries at the eastern end of the Wall of the Crow (WCE), the silos were cut through and partially demolished at some point before the end of the 4th dynasty. In WCE at the northwest corner of the site, tons of granite dust were dumped onto the pitted galleries. In the administrative building in the southeastern part of the site, tons of broken

⁴⁴ The bottom of the silos, or floor level of the court, was very damp at an elevation close to 15.00 above sea level. We know from the deep probe alongside the eastern wall of the building, and from a core drilling, that the water table is around elevation 14.40. However, for reasons too detailed to go into here, we can estimate a 4th dynasty flood plain at elevation 13.00 to 13.50 in the area of Giza, as opposed to a general elevation of 17.00 to 17.50 in recent times. The water table might have been correspondingly lower in the 4th dynasty, thus the court of silos would not have been so damp as today.



Fig. 17. Two of the silo foundations in the western side of the sunken court in the Royal Administrative Building (BB). The northwest corner of the trench remaining from the robbed (parapet?) wall around the silo court is seen in the center right side of the view. To the left are the chambers on the higher floor level in the northwest corner of the building.

stone from the wall around the sunken court were toppled onto the ruined mud brick silos. Most of this broken stone is limestone, but a significant quantity of it consists of large fragments of granite. Fiona Baker estimated that 20 to 30% of all the stone that she removed from the 8 × 19 m of the silo court is red granite, weighing more than 20 tons. These are large granite fragments (20 × 25 × 15 cm) that show sharp breaks from the initial stages of dressing blocks. Many have a rounded face, like the unfinished faces of the granite casing on Menkaure's Pyramid. Some pieces look like lopped-off "handling bosses" such as were left on some of those casing blocks. It would have been practical for the masons to dress the granite to remove as much weight as possible before the long haul up the plateau to the pyramid. But why would they have been dressing pyramid blocks here, so far away from what must have been the supply tracks leading to the pyramids, at the southeast corner of our site?

On the other hand, is it more than coincidence that we have evidence for substantial granite working in later phases of occupation at the far northwestern (WCE) and southeastern corners (administrative building) of the site? There *is* a marked difference between the two deposits of granite. The many fragments we find in the administrative building suggest the initial stages of dressing large blocks, shedding extra stock of stone in large flakes and chunks. The "granite dust" on the Northwest, while it includes some large fragments, on the whole might suggest finer dressing that produces a powder. Could the presence of numerous granite fragments in the southeastern corner of the site hint that there was a delivery area, maybe a harbor, south of the ancient settlement? Or is it more likely that the 20 tons of granite from less than 80 cubic meters of stone debris were left from work on some large granite structure a little farther south of the silos, just under the *Abu Hol* Sports Club?

The whole of the administrative building—the suite of rooms and courts on the west, the thick enclosure walls, the robbed wall around the silos, and the silos—continues south of the modern road along the soccer field. If and when the soccer field is removed, we may be able to track these features to their southern end.

XIII. The Eastern Town

Early in the 2002 season we were informed that work had begun to the south on a new high security wall for the greater pyramids zone. Ultimately the new wall would replace the cement and limestone wall between our site and the modern road along the town of Kafr Gebel. Because this work was approaching the eastern rim of our site from the south, we moved our clearing as far east as we could before the new wall's foundation trench, 2 m wide and about 1.30 m deep, was excavated.

This area, which we call the Eastern Town, is farther east than the alluvial layers from the annual Nile inundation that we had exposed in the northeast part of our site near the Big Back Hoe Trench (BBHT) (figs. 2, 18, 19). We therefore expected similar natural deposits of alluvium in the southeast corner of our site. Instead, our clearing immediately exposed marl plaster lines—the signature of walls—in the moist light brown ancient surface. The walls appeared in patterns of dry, light gray mud within darker and moister soil that fills the rooms. The walls are well preserved, and after a first scraping of the surface, we could see individual bricks—a rarity in the compacted mud mass in the area of the galleries. We suspect the walls show so readily because the density of the many small chambers held the soil against erosion, melting, and smearing that we see in the mud ruins of the widely spaced galleries to the west, especially in the more open northern ends of the galleries.

The arrangement of structures we found was very different from the formal, large-scale planned architecture of the gallery system and the administrative building (figs. 18, 19). The layout is more or less regular and approximate to the cardinal directions. The orientation of the southern part is



Fig. 18. Map of the Eastern Town, including the traces of walls mapped in the foundation trench for the new high security wall along the modern road. The road to the "Workers' Cemetery" and the soccer field of the Abu Hol Sports club limited our exposure of the settlement on the south.

trending slightly south of east (or east of north), as opposed to the gallery system and the Wall of the Crow, which are oriented slightly north of east (or west of north). At grid line N99,100, the walls take a decided angle west of north, an orientation shared by the gallery system. The complex is a warren of mostly small rooms and courtyards, much denser than the gallery complex. The larger chambers measure about 2.40 and 2.85 m wide and up to 3.30 m long. There are mud-lined bins, ash-filled smaller chambers, and at least one circular domestic granary, with an interior diameter of 1.01 to 1.03 m (probably 2 cubits intended).

We traced the walls of this town in the cleared mud mass for 95 m north to south. Outlines of small square structures show clearly all the way north to N99,125 where they disappear under alluvial layers left by the annual Nile inundation. This obvious settlement, so different from the rest of the complex, but so similar to many ancient Near East villages, was probably home to long-term residents.

A. The Eastern Town in the Wall Trench (Area WT)

When the contractors for the new high security wall arrived, they did not cut the 2 meter wide foundation trench through the site, but about 5 m farther east through the asphalt sidewalk along the western side of the modern street. At 1.30 m deep from street level, the bottom of the trench was near the top of the ancient remains, giving us another window onto the settlement (fig. 18). By scraping or clearing just a little sand we were able to expose the ancient walls in a 104 m stretch of trench along our site. For several days we recorded about 208 square meters of ancient settlement exposed in the trench.

These remains included long runs of marl lines where an ancient north-south wall happened to match the course of the trench. We saw two or three circular or semicircular mud brick features that could be domestic granaries. Ana Tavares excavated sections through two of the



Fig. 19. General view of the Eastern Town, looking north. The new high security wall can be seen on the right side of the photo. The small, closely packed rooms of this area are very different from the rest of the site with its massive walls, large open areas, and large chambers. The deep probe along the eastern wall of the Royal Administrative Building can be seen on the left side of the view.

circular mudbrick features. One was a domestic granary made entirely of small marl bricks. There were pits that appear to have been for burials, but when Jessica Kaiser excavated several they turned out to be empty—not a scrap of human bone remained (although in one case there was some animal bone).

B. The Mounded Town: A Spur into the Flood Plain?

With ancient walls coming up so dramatically in the wall trench along our site, it was important to check what lay under the sand at the bottom of the new wall trench to the south. We excavated 14 pits into the bottom of the new wall trench where it ran 135 m south of our site as far as the far south end of the *Abu Hol* Sports Club. Our test pits were spaced about 5 m apart. Mohsen Kamal and Ashraf Abd al-Aziz supervised the excavations, monitored the layers, and took samples while Ana Tavares and Kevin Kaiser established control and surveyed the locations and elevations of features in the pits.

The surface of the settlement layer slopes down radically on the south. At the southernmost point to which we traced the surface of the settlement mud mass, it was 2.60 m below street level. This steep southerly slope may be why we did not see the settlement layers in the 14 test pits we dug through the new wall trench farther south. An upper layer of Nile alluvium in those pits is 16.90 to 17.00 m above sea level, and the lowest layer of Nile alluvium is 16.27 to 16.36 m above

sea level. In the bottom of the southernmost test pit we reached elevation 15.72 m above sea level, the deepest level achieved in all 14 of our southern pits. The occupation layers across our site bottom out near 15.00 m above sea level (the base of the Wall of the Crow is around 15.40 m). However, we have seen traces of deeper settlement deposits, such as in the WCE.⁴⁵ Deeper settlement remains could also lie undetected south of the soccer field below the sand we encountered in our test pits.

The high point of the settlement layer is near our point WT.N2, near grid line N99,070 (fig. 18), where it is about 1.17 m below street level, or 16.86 m above sea level. The settlement mud mass also slopes down to the north of this point, albeit more gradually than on the south. Therefore we have a mounding that we also see in the cleared surface of the ancient settlement ruins of the Eastern Town within our site. There the settlement mass rises between grid lines North 99,055 and North 99,075. Farther north (from about north 99,140) we have the Nile flood layers that extend more than 75 m west of the new wall trench (fig. 2). With Nile alluvial layers reaching so far westward south and north of our site, the ruins of the Eastern Town must have stuck out east into the later Nile floods. During its life in the Old Kingdom the town must have been on a spur at the edge of the low desert.

C. The Interface of the Administrative Building and Eastern Town

The eastern wall of the administrative building runs north toward the east end of the double north walls. The corner with the inner north wall is not closed, however. A space of about 3 m was left open between the walls (fig. 16). Marl lines indicate the plaster faces of a mud brick entrance similar to the entrances (about 80 cm wide) into the galleries. But within the settlement layers, preserved here for a thickness of only a few centimeters, there are other marl plastered wall lines forming little chambers that do not seem in phase with this entrance. It appears that the large administrative building was superimposed on part of the Eastern Town. On the other hand, to the east of the administrative building, a much thinner wall, about 38 cm thick, runs parallel to the east wall of the administrative building, creating a corridor about 1.70 m wide. The thinner east wall of this corridor belongs to the Eastern Town.

Paul Sharman and Stephanie Durning worked on the complex stratigraphic relations in this zone in 2002. The foundation trench for the thick eastern and northern fieldstone walls of the administrative building cuts walls and deposits of the Eastern Town, indicating that the administrative building is later than parts of the Eastern Town which has its own complex development.

A deep trench, 1.50 × 1.90 m along the eastern side of the eastern wall of the administrative building revealed that it is preserved to a height of 70 cm. The trench reached a depth of 2.40 m, at elevation 14.48 m above sea level, where work was suspended for safety reasons about 8 cm above the water table. The probe revealed the very curious fact that below the eastern wall of the administrative building and town strata there is a consistent series of dark sandy mud (settlement debris?) layers alternating with layers of clean sand. These layers slope down to the south by more than 45 degrees, all the way to the bottom of the probe. It is most probable that they are "tip lines," that is, episodes of intentional dumping, rather than episodes of natural erosion forces. Was some great depression being filled? Perhaps the inhabitants dumped sand and debris to build up and extend the southern slope of the spur extending into the flood plain, upon which the Eastern Town was founded. Another possibility is that the area around the administrative building was artificially built up to create a raised terrace around the sunken silo court, so as to facilitate filling the silos.

⁴⁵ For the deep probe in WCE see Lehner, *Oriental Institute Annual Report 2000–2001*, 60.

XIV. Stratigraphic Links and Site Phasing

We have evidence of major activity in the southeast area of our site at a time when at least some of galleries were already ruined. As noted above, the southern wall of the hypostyle hall complex, which is a continuation of the southern wall of Gallery Set III, makes a decided bend, diverging from the original alignment (figs. 5, 9). This segment was probably a later addition or rebuilding. The “workers houses” along the western side of the hypostyle hall were built after the first gallery wall to the west and the aforementioned southern wall were already in ruins, partially stripped of bricks. We know that the “workers houses” were in use at the same time as the hypostyle hall (and also perhaps at the same time as the “Manor” across Main Street). The bakeries we found in 1991 attach to the southern mud brick wall of the hypostyle hall, indicating that the bakeries are later than the hall in its last phase.

With the excavation of square 6.W19 we can link up the stratigraphic matrices for areas WCE, WCS (Wall of the Crow South), and WCG (Wall of the Crow Gate),⁴⁶ via the enclosure wall with the stratigraphic matrices for the administrative building and the Gallery System. Square 6.W19 takes in the southern ends of the fieldstone gallery walls that enclose the 1991 bakeries (figs. 2, 16) as Gallery IV-11. Those walls run more than 25 m south to the northwest corner of the administrative building. The western of the two walls turns west to become part of the north wall of South Street in square 6.W19.

Ana Tavares excavated square 6.W19 and adjacent areas. The stratigraphic relationships indicate that the administrative building and the gallery walls containing the 1991 bakeries were in use at the same time, although we have to excavate further to determine the founding of the structures relative to one another. If the 1991 bakeries are later than the hypostyle complex and if the hypostyle is later than Gallery Set III, the administrative building is probably also later than Gallery Set III, but it was in use at the same time as Gallery IV-11, which contains the 1991 bakeries.

The connections between the administrative building, the enclosure wall, Gallery Set IV and the 1991 bakeries suggest that the administrative building is a late feature of the site. The curved wall constricted the eastern end of South Street to 90 cm, probably to control passage from the Eastern Town into the Gallery System.

XV. Meaning and Function of the Ensemble

It is possible to construct a set of hypotheses about the significance and function of this new-found architectural complex from the time of the pyramids. This model functions in response to questions raised by the material culture as well as by the architecture. Why in the Gallery Complex, over an area of nearly two hectares, is there so much empty space, due, principally to the long open ends of the galleries? Why, over such a large area, are fewer than three dozen formal housing units clearly recognizable? Yet why is there such an abundance of material culture, especially pottery, ash, and animal bone? The evidence indicates enough cattle, sheep, and goat for several thousand to have eaten meat every day over a period exceeding three generations. Again, who were the consumers, and where did they live?⁴⁷

⁴⁶ For our work in the Gate and along the south side of the Wall of the Crow (Area WCS) see, Lehner, *Oriental Institute Annual Report 2000-2001*, 52-57, figs. 9-11; Lehner, *Aeragram* 5.1, 6-9.

⁴⁷ Richard Redding, personal communication. Redding's estimate is preliminary and meant to indicate the order of magnitude of meat-bearing bone from the excavations of our site. He has examined 2,928 bags of bone containing 151,083 bone fragments, including 10,610 fragments of fish, 7 of reptile, 503 of bird, and 139,963 of mammal, 2,356 cattle, 6,897 sheep and goat, and 386 pig. The faunal data have much more to tell us in interesting ways, not least of which is the distribution of different kinds of animal parts in different parts of the site.

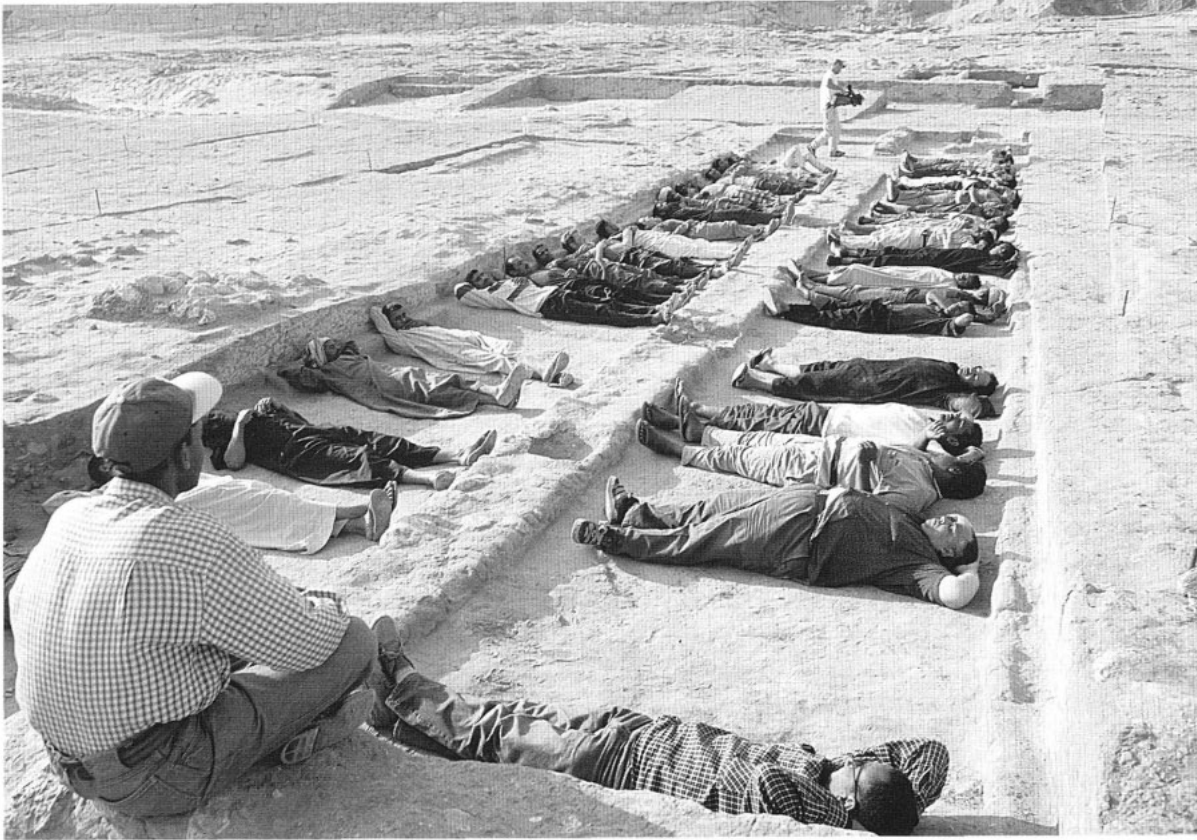


Fig. 20. Ashraf Abd al-Aziz counts “sleeping” team members and workmen who demonstrate how Gallery III-4 might have been used as a barracks. He is seated on the mud brick wall separating the back house from the front part of gallery.

A. The Galleries as Barracks

The idea that the low platforms in the front colonnaded part of Gallery III-4 were for sleeping raised the additional hypothesis that the galleries could have functioned as barracks. It is true that there were only seven of the low, sloping platforms in Gallery III-4. But people could have slept side by side down the length of the front part of each gallery. Ironically, for more than 100 years Egyptologists have accepted that the narrower galleries (3 m wide) in a 450 × 80 m enclosure west of the Khafre Pyramid were “Workmen’s Barracks” for sleeping as many as 4,000 to 5,000 persons. Our excavations in that complex indicated that only the areas just inside the entrances of those galleries were occupied. While we found much evidence of craft work, we did not find the abundance of material culture one might expect for barracks that sheltered thousands of people.⁴⁸

Our team members volunteered to lie side by side the length of the colonnade in Gallery III-4 to see how many people could have slept here. Each side was wide enough for a person to stretch out.

⁴⁸ The ancient Egyptians seem to have had a predilection for organizing material in long parallel galleries in a comb-like pattern. In addition to the galleries west of the Khafre Pyramid, (for comparison to later examples see Conard and Lehner, “The 1988/1989 Excavation of Petrie’s ‘Workmen’s Barracks’ at Giza,” 48ff.), there are three sets of double long gallery-like enclosures in the northern part of the settlement that Abd al-Aziz Saleh excavated, “Excavations Around Mycerinus Pyramid Complex,” fig. 2. Those galleries are about 25 m long. The internal arrangements are different than in the galleries south of the Wall of the Crow, yet they are similar in that the back ends are characterized by a more complex room structure.

The two sides could accommodate 40 to 50 people with room to spare (fig. 20). The entire Gallery Complex could have sheltered as many as 1,600 to 2,000 workers. The galleries might reflect the “team- or gang-organization of dependant population . . . common in ancient Egypt.”⁴⁹ The house in the rear might have been for the overseer of the team accommodated in each gallery. Perhaps the long colonnades in our Gallery Complex were half-covered, or selectively covered, with a light roof, to provide shade and some light while smoke from ovens or hearths (evidenced in other galleries) could escape.

On the barracks hypothesis, we might expect the galleries to have sheltered the laborers who rotated in and out of the pyramid building project. Evidence from ancient Egyptian texts suggests that groups of common unskilled workers were temporary, serving overlapping rotations on the royal project.⁵⁰ Barracks and dormitories throughout time have accommodated conscripts away from home for labor and war, mostly the young under the direction of the old.

These long corridors may have had several phases of use, evidenced by the multiple floor levels Lauren Bruning excavated in the very ruined remains of the northernmost galleries near the east end of the Wall of the Crow (WCE). A function as barracks might explain why the galleries were already falling into ruin, some being filled with trash, in the late periods of the site, even when the hypostyle hall and the administrative building were still used. As the massive pyramid building activities wound down late in the reign of Menkaure, fewer workers were needed. On the other hand, the heyday of pyramid building probably required considerably more than 1600 to 2,000 workers. So far the site is mute as to exactly what part of the overall labor force would have found shelter in the Gallery Complex

B. Function of Other Components

The hypothesis that the galleries were barracks suggests additional hypotheses for the functions of the other components of this complex.

1. The Hypostyle Hall: A Common Area? The open space supported by columns in the hypostyle hall on the eastern side of Gallery Set III might suggest that it was a commons area or “public space.” The fish bone that we found alongside the low troughs and benches running the length of the floor included fragments of gills, fins, and cranial parts, elements that may not have been removed before consumption. Old Kingdom tomb scenes show fishermen gutting and splaying fish near the river bank or on boats (the guts could be thrown back in the water), but not cutting off the heads, fins, and gills. Thus the fish remains, and other small animal bone that we found, could be the droppings from meals of fish and other meat.

In 1991 we found a cache of complete jar stands (type E2) together with small shallow bowls with an internal flange (types CD32 and CD33, fig. 10) on the troughs and benches along the main wall in the southeast corner of the hypostyle hall. More complete examples of these types appeared in excavations across the length of troughs and benches. In our total ceramic corpus, our third most

⁴⁹ B. J. Kemp, *Anatomy of a Civilization*, 157. Kemp cites the phyle-groups in the Neferirkare archive as an example.

⁵⁰ A. M. Roth, *Egyptian Phyles in the Old Kingdom*, SAOC 48 (Chicago, 1991), 130–33 interprets the evidence to indicate that, in the 4th dynasty, “crews, gangs, and divisions were used to organize workers spatially, but phyles” may have had “some sort of overlapping rotation.” C. Eyre, “Work and the Organization of Work In the Old Kingdom,” in M. A. Powell, ed., *Labor in the Ancient Near East*, American Oriental Series 68 (New Haven, 1987), 15–20 discusses evidence for seasonal and corvée labor. Eyre points out that “there is no good evidence for the length of time men might serve in work gangs.”

common ceramic form is a distinct carinated bowl (CD7, fig. 10). Colleagues working at other Old Kingdom sites reportedly do not have this type.⁵¹ We found several CD7's embedded in the floor and troughs here and there in the hypostyle hall. The CD7's are similar in form, albeit thicker and coarser, to classic Meidum ware bowls (CD6). Old Kingdom tomb scenes and archaeological finds confirm that Meidum bowls were "mainly used for presenting already prepared food, although they have also been considered drinking bowls."⁵² The tomb scenes show carinated bowls on stands like our type E2 and covered with lids that could be our type CD32a, held in place with basketry, or cloth and ribbon or cordage.⁵³

2. *The Manor: Overseer's Residence?* The position of the "Manor," directly across Main Street from the hypostyle hall, and the fact that its compound is the width of three galleries like the hypostyle plus the workers' houses, suggest the two were part of the same plan and functioned together. Could this structure have been for the overseer of the Gallery Complex? Its relationship to the larger gallery enclosure bears some resemblance to the small square that might represent a house or Manor in the lower corner of a larger rectangle in the hieroglyph for "estate" (*hwt*).⁵⁴

3. *The Bakeries, Rations for Rotating Recruits.* The Gallery Complex is flanked on the east and west by bakeries like the ones the Giza Plateau Mapping Project discovered in 1991 within Gallery IV-11. These are recognized as ash filled chambers within walls of broken stone. The South Street Magazines on the south might also be bakeries (fig. 15). Other bakeries occur within the southern mud brick chambers of at least some of the galleries. If a rotating labor force was housed in the galleries, these bakeries are logical facilities for producing the laborers' daily bread. The fact that around 50% of the half million pottery fragments that we have processed are from bread molds suggests these were busy facilities.

4. *Wall of the Crow: Gateway to the Pyramid Zone.* The Gallery System "hangs" to the South off the east end of the gigantic stone Wall of the Crow, 10 m tall, 10 m wide at its base, and around 200 m long. In 2001 we cleared the great gate through the wall, used today by horse and camel riders, to reveal a compact road leading through the gate.⁵⁵ Here, deliveries might have been made by way of a harbor north of the wall. The road probably led to the "Chute" at the western end of Main Street (fig. 2).

The purpose of the immense Wall of the Crow is not certain. One suggestion is that the 4th Dynasty Egyptians built it to direct wadi flood waters away from their facility.⁵⁶ They may have also been interested in controlling the flow of people and material into the Gallery Complex. North of the wall there may have been a harbor fronting onto the Menkaure and Khafre Valley Temples and the Sphinx Temple. The principal quarries for core stone for the pyramids lie to the northwest, and higher on the plateau are the construction yards for pyramid building.⁵⁷

5. *The Eastern Town: Permanent Residents.* In contrast to planned blocks and streets, the Eastern Town is a crowded series of small rectangular chambers and courtyards. Here, in a settlement less

⁵¹ Anna Wodzinska, "White Carinated Bowls (CD7) From The Giza Plateau Mapping Project: Tentative Typology, Use and Origin," forthcoming.

⁵² S. Hendrickx, *et al.*, "Milk, Beer and Bread Technology during the Early Dynastic Period," 277-304.

⁵³ Hendrickx, *et al.*, "Milk, Beer and Bread Technology," 277-78.

⁵⁴ H. Jacquet-Gordon, *Les noms des domaines funéraires*, 3-6.

⁵⁵ See n. 46 above. We back-filled the way through the gate with a thick layer of sand so that horses and camel riders could continue to use it for passage into desert riding trails.

⁵⁶ Lehner, *Oriental Institute Annual Report 2000-2001*, 65.

⁵⁷ Lehner, *MDAIK* 41, 121-22.

planned and more self-organized than the Galley Complex, small silos and ash-filled chambers suggest that its residents, perhaps families, stored grain and cooked for themselves. We should note that there are also small ash-filled rooms and hearths in each of the more formal house units attached to the Gallery Complex. Such features in the Manor, Main Street Gate House, the so-called Workers' Houses along the West side of the Hypostyle Hall, and in the houses in the back parts of the galleries suggest that the residents of each of these units cooked within their living quarters and that they were not totally reliant on the 'economy of scale' production facilities in their midst.

If in the night people filled the galleries as barracks, the two very different ground plans of the Gallery Complex and the Eastern Town surely signify people moving in and out of the respective layouts in very different ways. The ground plan of the galleries would in itself make for regimentation along the lines of a school or military drill to move hundreds of (young?) people in and out. The daily movements of people in the Eastern Town must have been freer and less structured.

C. Summary: Truly the Workers City?

The function of the galleries as barracks is admittedly a large leap of inference. But if teams of 40 to 50 people filled the gallery fronts, supervised by an overseer who lived in the substantial house at the back, close to 2,000 people could have slept in the galleries. If the Gallery Complex accommodated people in such numbers, its footprint suggests the kind of regimentation and close order drill that William H. McNeil discussed in his book, *Keeping Time Together: Dance and Drill in Human History*.⁵⁸ Such control and uniformity of action, perhaps for the very task of building the mammoth Giza pyramids, may have temporarily replaced natural sodalities or community structures. Or, the rotating teams could have been recruited on the very basis of these home-spun fellowships. In either case, regimentation, close-order drill, sleeping together, and eating from a common "table," can promote a strong *esprit de corps*.⁵⁹

The large quantities of meat-bearing bone of sheep, goat, and particularly cattle, might suggest that large scale fellowship for building was as much or more a ritual as a civil event. Building for the royal house on the scale of the early giant pyramids must have certainly been the kind of obligatory labor so well attested for ancient Egypt.⁶⁰ Yet the very size of those pyramids and lack of written documentation may leave us unaware of the extent to which such building was accompanied by feasting attendant to such large scale ritual events as known for other ancient cultures.⁶¹ In lieu of texts, we can only suspect such cultural facets to pyramid building on the basis of archaeological data. Here the clues lie in the vast architectural complex of modular units comprising

⁵⁸ W. H. McNeil, *Keeping Together in Time* (Cambridge, MA, 1995).

⁵⁹ The principle of consubstantiality, that is, sharing substance, including food, can be a basis for fictive kin grouping. See L. Holy, *Anthropological Perspectives on Kinship* (London, 1996), 9–12, 165–67, 170–72.

⁶⁰ For the Old Kingdom *corvée*, see Eyre, "Work and the Organization of Work in the Old Kingdom," 18–20; and, for the New Kingdom, by the same author in the same volume, "Work and the Organization of Work in the New Kingdom," 167–221. For a specific Middle Kingdom example relating to people fleeing labor obligations see W. C. Hayes, *A Papyrus of the Late Middle Kingdom in the Brooklyn Museum* [P. Brooklyn 35.1446] (Brooklyn, 1955) and Stephen Quirke, *The Administration of Egypt in the Late Middle Kingdom*, 127–40. As for obligatory (unfree) labor, D. Warburton, *State and Economy in Ancient Egypt: Fiscal Vocabulary of the New Kingdom*, *Orbis Biblicus et Orientalis* 151, Fribourg, 1997), 236–37 observed that "it would appear that the entire population could be rendering some kind of obligation to the state in one way or another."

⁶¹ M. Dietler and B. Hayden, eds., *Feasts: Archaeological and Ethnographic Perspectives on Food, Politics, and Power* (Washington, D.C., 2001). See, in particular in this volume, M. Dietler and I. Herbich, "Feasts and Labor Mobilization: Dissecting a Fundamental Economic Practice," 240–64. The authors begin: "The use of feasts to mobilize collective labor has been a widespread and fundamental economic practice of societies around the world." The proposed "theorized understanding of the specific range of practices that enable voluntary labor to be mobilized on a scale above the household level" needs to be assessed against the role of obligatory labor so well attested for ancient Egypt (see previous note).

mostly empty space accompanied by quantities of cattle, sheep, and goat bone sufficient, on the basis of New Kingdom meat rations, to feed several thousand people daily.⁶²

The entire Gallery Complex and Eastern Town attach to the large administrative building. The sunken storehouse of large silos within this double walled compound is the central storage facility for the grain that supplied the scores of bakeries flanking the Gallery Complex. We might expect storage facilities to lie at the back of such a large administrative building.⁶³ We have only 20 m of the length, north to south, of this enormous enclosure. What does the rest of the building contain? Only the removal of the *Abu Hol* Sports Club and soccer field will allow us to salvage information that is crucial to the royal administration of the pyramid builders of Giza.⁶⁴

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⁶² See n. 47. Redding's (personal communication) preliminary estimate is that 11 cattle and 30 sheep or goat were slaughtered each day.

⁶³ Compare the large circular bins, probably granaries at the back of the archaic palace in Hierakonpolis. The coherent plan or ensemble of an archaic palace, from the elaborately niched gateway that has sometimes been published and discussed out of phase or devoid of its architectural context, including its relationship to the clay platform or dais, and the circular bins in the back interior, is best recognized in W. A. Fairservice, *The Hierakonpolis Project*, Occasional Papers in Anthropology III (Poughkeepsie, 1986), 9-14, figs. 7, 22, 26; See also B. Adams, *Ancient Nekhen: Garstang in the City of Hierakonpolis*, Egyptian Studies Association Publication No. 3 (Whitstable, 1990), 66-68, fig. 24. The circular bins were in "cell-like rooms" or magazines. Compare also the circular storage bins behind the suggested throne room at the rear of the palace at Kerma; see Charles Bonnet, *et al.*, *Kerma 1991-1992, 1992-1993*, 3-7, where the bins are 7 m in diameter. For a later example, see storage facilities at the rear of the King's House at Amarna, behind the Window of Appearances with its interior platform, B. J. Kemp, "The Window of Appearances at Amarna and the Basic Structure of this City," *JEA* 62 (1976), 91-92. Kemp explains the rear storehouse block as the repository of rations, including grain, distributed to officials from the window. See also Kemp, *Anatomy of a Civilization*, 288.

⁶⁴ In the course of the article I have given the measure of ceramics, sealings, and animal bone that we have gathered from our excavations. To complete our sample of material culture, I will add:

The Burial Record

In 2002, we fielded a team of seven osteoarchaeologists, directed by Jessica Kaiser. This team excavated 167 human burials in 2002 and 217 for the past three seasons (2000-2001). Since 1988 our project excavated a total of 242 burials, all but a few of the Late Period, mostly in the northwest corner near the east end of the Wall of the Crow.

The Floral Record

Wilma Wetterstrom was our archaeobotanist from 1988 until 1997 when Mary Anne Murray took over supervising the flotation (water screening process) and analysis of ancient plant remains. Altogether, samples selected for flotation total 40,000 liters of soil. Of 2,950 samples that the site team collected, Mary Anne Murray has analyzed 1,515 samples. She has identified 75,000 different plant remains from these samples.

The Lithics Record

Cordula Werschkun has registered a corpus of some 21,000 individual pieces of chipped stone, our lithic corpus. Additionally, we have retrieved a large corpus of ground stone artifacts.

Victor and Nancy Moss, David Goodman, Marjorie Fisher, Alice Hyman, Don Kunz, Richard Redding, Lora Lehner, Bonnie Sampsell, Art and Bonnie McClure, and Charles Rigano.

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