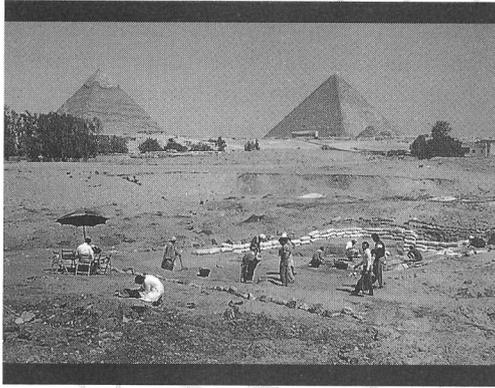


GIZA

Mark Lehner



Excavation in square A7 with Pyramids of Khufu and Khafre in background.

During the late winter and early spring of 1991 the Gulf Crisis made it uncertain whether or not we would have a spring field season at the Giza Plateau. I began to plan for a long fall season and hoped that I would at least be able to get to the site once in the interim to catch up on developments there since the project's last field season in 1988-89. In May it became certain that we would be able to do some survey work on site. David Goodman of CALTRANS (California Transportation Authority), who designed the survey of the Giza Plateau Mapping Project (GPMP) and has worked with the project since 1984, agreed to come over on short notice. Finally, we were given permission by the Egyptian Antiquities Organization (EAO) to excavate, so some of the Yale veterans of the 1988-89 season joined the Oriental Institute students on the team, making our May 8 - June 18 season a sizeable expedition.

In the two years since our last work at Giza there had been much activity at the site, including many discoveries made by the Egyptian Antiquities Organization. Additionally, construction work for a sewage system for the nearby village of Nazlet es-Samman uncovered evidence of the causeway to the Khufu Pyramid as well as basalt slabs that may belong to the Khufu Valley Temple. The EAO supervised borings throughout Nazlet es-Samman and monitored a continuous trench along the Mansouriyah Canal that runs through the center of the town. This work indicated that Old Kingdom material, probably of a settlement context, is very widespread under the modern town. In addition to these and many other works and discoveries, the EAO, under the direction of Zahi Hawass, Director General for Giza and Saqqara, also continued to excavate in the area that our project designated Area A in 1988-89, just south of the Sphinx. Upslope from our 1988-89 excavations, the EAO found a series of unusual tombs in mudbrick and stone rubble.

BACKGROUND

To set our 1991 program of excavations in context, I will review some of the issues with which the project is concerned.

In the course of building the pyramids the Egyptians created dramatic changes in the landscape, such as huge depressions from quarrying stone and massive piles of debris from construction ramps. These features have never been mapped or discussed sufficiently in the literature about pyramid construction. The landscape has much to say about the puzzles of pyramid building—quarries, ramps, and alignments. But a look at the geomorphology of the site also tells us something about the social and economic context of the pyramids. Most authorities on the subject agree that the labor force, while probably not the 100,000 mentioned by Herodotus, must have numbered in the tens of thousands. This implies a substantial settlement and support structure to feed and accommodate these people. Textual evidence indicates that there were also settlements at the foot of the Pyramid Plateau during the several centuries that the pyramids and their temples were functioning to serve the cult of the kings who were buried within them. Yet most of the excavation at Giza in the last two centuries has focused on pyramids, temples, tombs, and their contents; there has been little archaeological investigation of the settlements and the economic system that supported both pyramid building and the maintenance of the pyramid complexes.

To address some of these issues I began the Giza Plateau Mapping Project in 1984. Based on my understanding of the pattern of building at Giza in the twenty-seventh century B.C., it has been my hypothesis that settlement relating to a massive labor force should be at the south-southeast limit of the plateau. Quarries that supplied much of the stone for the inner core of the pyramids run along the low south-southeast part of the Giza plateau, so a settlement should be just beyond the quarries and supply routes. This would put the settlement in an area of low desert, now designated as Area A by our project (figure 1), some 300 meters south of the Sphinx. Another possible location was in a wide and prominent sandy bowl-shaped depression on the Upper Eocene Maadi Formation, about a kilometer south of the Khufu Pyramid. We plan to investigate this site, designated Area B, in the future.

SURVEY

Because the Egyptian Antiquities Organization's work in Nazlet es-Samman created urgent demand for accurate recording of the Old Kingdom evidence that was being uncovered by the sewage project, David Goodman set out a network of survey points to serve any future excavations in the village. His traverse departed from the points on the survey control network of the Giza Plateau Mapping Project near the Sphinx. The survey team surveyed their way through Nazlet es-Samman, down along the Mansouriyah Canal, passing the location of

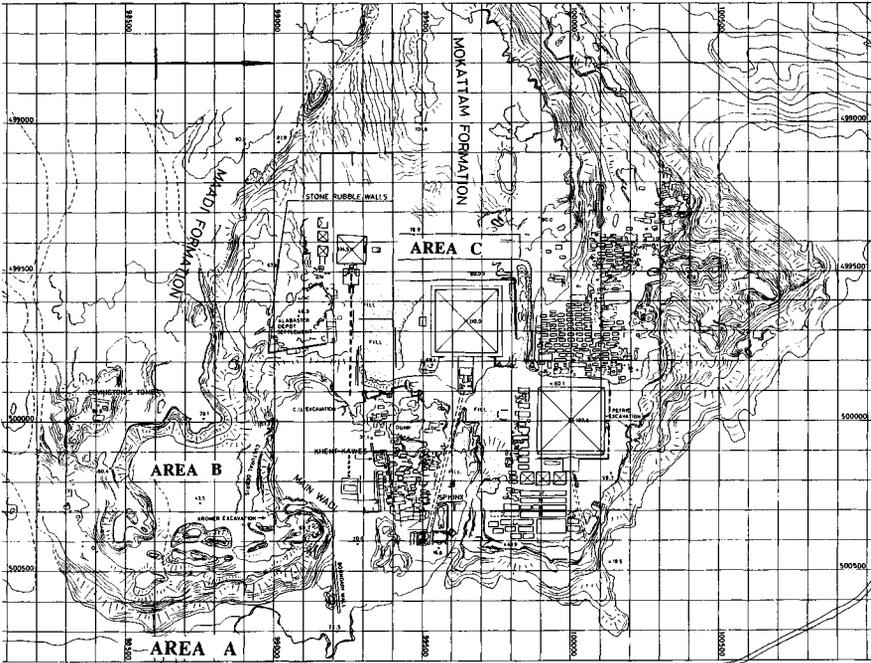


Figure 1. Map of the Giza Plateau showing survey grid and excavation areas.

Khufu Valley Temple blocks, up Pyramid Road past Mena House to link back up to the GPMP network in front of the Khufu Pyramid. An official Survey of Egypt marker on top of the Khufu Pyramid served as the reference for surveying the sewage trenches that had revealed parts of the Khufu causeway.

The survey team next set about making a contour map of Area A (figure 2). Once the general site map was finished, the survey team assisted EAO Inspectors in mapping the newly discovered mudbrick and stone rubble tombs that the Egyptian Antiquities Organization discovered upslope from our excavation squares. Thanks in large part to the excellent documentation of the EAO team of Zaghoul Ibrahim and Mansour Radwan, who are supervising the excavation of this cemetery, and to Sheldon Gosline's exhaustive selection of data points, we will be able to provide the EAO with a computer-generated map and three-dimensional model of this highly important and unusual group of third

millennium B.C. tombs. Sheldon Gosline is producing these records in the Computer Laboratory of The Oriental Institute under the tutelage of John Sanders. The model will be expanded to include the structures unearthed in our excavation squares elsewhere in Area A.

1988-89 EXCAVATIONS IN AREA A

Area A is in the low desert that extends 500 meters south of the large pharaonic stone wall (called *Heit el Ghourab* locally) about 300 meters south of the Sphinx (figures 1 and 2). The width of area A from the escarpment to the modern town of Nazlet es-Samman is 300 meters. The site is located in what may have been a critical juncture just beyond the quarries, supply route, and harbor in the Old Kingdom. Salim Hassan reported finding mudbrick walls and pottery in a series of test trenches that he dug in the area south of the large wall in 1934. Even before excavation, it was possible to see traces of walls and concentrations of Old Kingdom pottery on the surface of the site, because local people have stripped two to three meters of loose sand off this surface to clean horse stables in the village nearby. We located our first excavations in the lowest part of Area A, just off the northwest corner of a soccer field created recently by the local villagers. In the 1988-89 season we excavated five 5 x 5 meter squares.

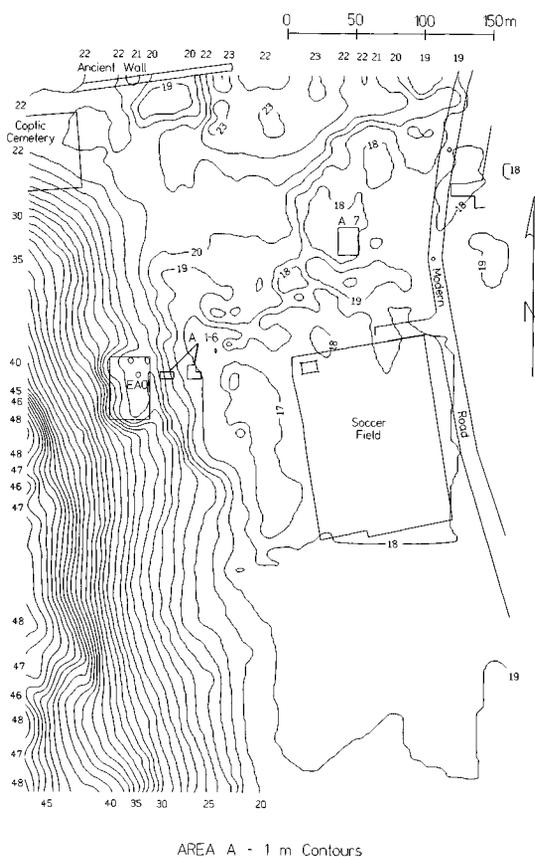


Figure 2. Area A with EAO excavation area, Oriental Institute squares A 1 through 6, and A7.

Squares A2 and A4 are contiguous north-south and comprise an excavation of 50 square meters. In these squares we exposed a building composed of irregular limestone pieces and mud mortar, with walls and floor plastered in calcareous desert clay or marl (*tafla*) (figure 3a). The building is rectangular, about 9 meters long (north-south) and 6 meters wide (east-west). A wall, 50 centimeters thick, runs down the center of the structure dividing it into two nearly equal rooms. The major feature in these long rooms was a series of low rectangular pedestals, about 50 to 70 centimeters in width and 120 centimeters in length, that are constructed of the same materials as the walls of the building. The marl plaster floor is laid over a bed of cobbles, stones, and sherds. There is a gap in this bedding in the form of a narrow trench running immediately in front of the rows of pedestals. In this narrow trench, and in front of the spaces between the pedestals, sherds and small stones were formed in circular patterns that suggest sockets for lightweight poles.

It is possible that this building is a granary. The plan, divided into two long equal corridors with a double entrance at one end, is similar to granaries depicted in certain Old Kingdom tomb scenes in the form of small silos that were set up on a continuous bench or platform, or on individual pedestals separated by narrow spaces into which slats or supports of some kind were inserted vertically (figure 3b, c). The purpose of the bench or pedestal was to keep the grain silos off the ground, away from rodents and dampness, and to allow the grain to be extracted by pouring from an outlet at the base of the silo. The "post holes" in front of the spaces between the pedestals may have been used to hold the poles of a light canopy like those often shown covering the rows of silos in late Old Kingdom depictions of granaries.

There are some problems with this suggestion. We found no trace of the silos themselves in the tumble from the walls of the building. Small granaries of an early date, known in Egypt, are round, not rectangular, and they are composed of mudbrick. Nevertheless, the similarity of the plan of our building with the relief depictions of "the double granary" is intriguing.

In square A1, immediately to the east of this hypothetical granary, we cleared part of a building composed of dark alluvial mudbrick. There was ample evidence of bread baking in the form of many fragments of thick-walled Old Kingdom bread molds. These molds weigh up to 6 kilograms—a very heavy ancient equivalent to our modern bread pan! This building has not been completely cleared so its form is not yet known. The alleyway between this building and the 'granary' was filled with concentrated midden of ash, sherd, and bone. The alley yielded many mud seal impressions. Most of those bearing a royal name are of Menkaure, although one bears the name Khafre.

Upslope from the contiguous squares A1-2-4 we excavated two more squares, A5-6, exposing a double tomb that was oriented north-south. This structure consists of two vaulted chambers of mudbrick with stone rubble retaining walls on the long north and south sides that were covered with a mudbrick casing. The chambers each contained a flexed burial with absolutely no grave goods or pottery of any kind. There were gabled openings in the center east wall of the small chambers. These small doorways were blocked off by the stone

rubble retaining walls. On the basis of these features, we hypothesized that these might be granaries of a different kind that were later reused as poor burials. But the discovery by the EAO team of many such tombs immediately upslope from our squares, and our own investigations of this structure last season, cast doubt on this idea.

1991 EXCAVATIONS

Despite the fact that most of the team members arrived in Cairo by May 9, we were not able to begin excavation work until May 20. This gave us three to four weeks of excavation. We reentered the marl-paved building, the 'granary,' and

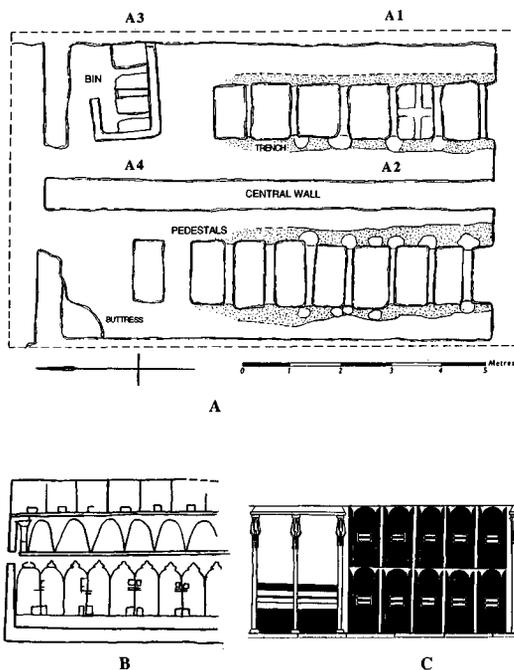


Figure 3. A: Simplified plan of marl-paved building in squares A1-4.
 B: Granary with small silos on a bench depicted on piece from the 5th Dynasty Tomb of Kaemrehu in the Cairo Museum.
 C: Granary with small silos on individual pedestals underneath lightweight canopy, from late 6th Dynasty tomb of Mehi at Pepi II complex, Saqqara.

were able to reexamine it in a good condition thanks to the fact that we had back-filled our excavation squares. We updated our maps and other drawings of this structure, and reexamined details.

One of the most puzzling details of the marl-paved building is a peculiar box-like feature in the northeast corner (figure 3a). In 1988-89 this feature, which appeared as a bin with a low platform inside that was separated into two parts by a narrow space, projected from the balk of square A4 that obscured the northeast corner of the building. We removed the meter strip of fill from adjacent

square A3 in this corner, which brought to light the remainder of the east and north walls of the larger building. The bin attaches to the east wall but opens to the north just inside the entrance to the larger building. There are now exposed two spaces that divide the platform inside the bin into three pedestals. In other words, this seems to be a smaller version of the larger building, with its series of pedestals separated by spaces.

We are still pondering the notion that these pedestals could be supports for small silo granaries, perhaps grain sacks or silos of perishable materials sat above the spaces between the pedestals, so that the spaces received the grain as it was let out. In either case the miniature version in the northeast corner of the larger building could have been for grain of a different kind than that stored upon the larger pedestals. But these ideas are only working hypotheses as we consider other possible functions of the building.

A7

During May-June 1991 we opened one new excavation square, designated A7, about 135 meters southeast of our 1988-89 excavations (figure 4). Here we were responding not only to opportunity but also to concerns for the salvage of settlement remains. In very recent times, this part of Area A has become a trash dumping ground for the nearby town. A backhoe had recently gouged out an oblong hole here, about 5 x 11 meters, through the modern refuse and a thin layer of sand, ripping into more than 1.5 meters of concentrated Old Kingdom settlement debris and mud walls.

We cleaned out the area and surveyed a square around the backhoe excavation. Of two thin layers of sand covering the surface around the hole, the lower one was ancient. It is likely that there was a thick layer of loose drift sand over this place not so long ago, and that this was removed by the nearby villagers. A layer of two or three meters of drift sand directly over Old Kingdom occupation levels is common at Giza. The sand probably represents heightened aridity that came on toward the close of the Old Kingdom and during the time of the First Intermediate Period.

Our operations in A7 next involved cleaning and mapping the Old Kingdom surface that was exposed around the backhoe excavation, and trimming back the section (figure 4). Immediately underneath the surface sand layers we could see a series of wall foundations composed of stone rubble in a compact surface. The walls, which are nicely oriented north-south, formed about a dozen obvious rooms with doorways and living floors. The surfaces outside the rooms are built up from concentrated midden deposit consisting largely of pottery fragments of Old Kingdom bread molds. So many bread mold sherds were retrieved from merely cleaning the surface that we took them up to the store-room in large sand bags filled to the brim. The curious thing about this latest Old Kingdom architectural phase is that the walls are scarcely 20 centimeters deep. The surface around the walls is nicely leveled — there is little or no debris from collapsed walls. Either the walls were carefully removed, leaving only the foundations, or the foundations were intended for perishable superstructures, e.g., wood or reed, or superstructures that were easily removed.

The backhoe excavation revealed an older architectural phase: massive mudbrick walls oriented north-south that descend from the stone rubble walls for a depth of about 60 centimeters. One of these walls is 1.5 meters thick. The backhoe section also showed complex, densely stratified layers that were deposited after the mudbrick walls were built. In just the 25 centimeters that we cut back the section, we recovered a great amount of ceramic, bone, and other materials, including seal impressions and a copper fishhook.

In the oldest layers between the sterile sand at the bottom and the base of the mudbrick walls there is a series of ash layers that indicate large scale controlled burning in large pits. In one place the burning took place within a circle of mudbricks fired red by the heat. This section may give us a profile of the entire occupational history of Area A. It is not impossible that the lowest layers of multiple hearths and burning pits belong to the Egyptians whose task it was to build the pyramids on the rocky plateau to the north.

FUTURE WORK

During the Fall-Winter 1991 season we will expand our excavation in these two parts of Area A. We also hope to carry out more limited excavation across the 450 meter width and 300 meter breadth of Area A to look for the spread of settlements.

We are fortunate to be able to investigate extensive Old Kingdom settlement in this area.

It is sobering for us, however, that the EAO work over the last two years indicates that an even more substantial settlement lies under much of Nazlet es-Samman, the village that sprawls against the entire length of the Giza Plateau. We hope to help out should there be opportunities in the future to salvage and retrieve some of this evidence.

ACKNOWLEDGMENTS

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Figure 4. Nicholas Conard and John Nolan study the backhoe section in square A7.

We are grateful to David Koch and Bruce Ludwig who made our research possible again this season, and in the coming Fall-Winter season, with their generous financial support. We also want to thank William Kelly Simpson and the Yale Endowment for Egyptology for financial help in the survey and beginning of our excavation program.

David Goodman, as always, gave his constant good humor and assistance to the entire team in addition to acting as Surveyor. He was assisted by Katrina Creel of California State University, Fresno. Howard Hecker served as our faunal analyst for the 1988-89 season. Richard Redding continues the faunal analysis in 1991 and challenges the other archaeologists on the team to articulate their paradigms. Wilma Wetterstrom is our paleobotanist. Michael Chazan serves as ceramist and registrar in the storeroom as well as field archaeologist. Fiona Baker supervised the work in Squares A1-4 in 1991, continuing her own investment in these squares and those of Frank Hole and Joy McCorriston from the 1988-89 season. Nicholas Conard has been invaluable in taking on a major area of work under his supervision, Area C in 1988-89 and square A7 in 1991. Diane Kerns has served as square supervisor and architectural recorder. Nicholas Fairplay was architectural consultant and square supervisor in 1988-89; Margaret Sears was project photographer that season. Herbert Haas of Southern Methodist University has acted as our geochronologist, supplying us with radiocarbon dates. University of Chicago student John Nolan served well in the trenches of square A7; fellow student Sheldon Gosline assisted the survey team, designed and carried out the maps of Area A, and acted as square supervisor.

I would also like to thank the staff of the American Research Center in Egypt: former Director Robert Betts, current Director Illya Harik, New York Director Terry Walz, Albert Abd al-Ahad, and above all, Assistant to the Director Amira Khattab.