

# GIZA

MARK LEHNER

The fall-winter fieldwork of 1991 lasted from October 15 until December 13. Once again, our work was made possible through the generous support of David Koch of Koch Industries, Inc. and Bruce Ludwig of TCW Realty Advisors. Our team of twenty students, archaeologists, surveyors, artists, and photographer devoted all their efforts to Area A, the tract of low desert, about  $450 \times 300$  m, to the south of the large stone wall that is about 400 m to the south-southeast of the Sphinx.

The last communication on Giza for the *Annual Report* was written between the spring and fall-winter seasons of excavations by the Giza Plateau Project in 1991. In the spring season we opened a new excavation area, A7, where a backhoe had recently gouged a large trench into the desert, cutting through extensive Old Kingdom settlement remains. When we cleaned this area, we found stone rubble foundation walls that belong to a complex of square rooms attached to a large mudbrick building. During the fall-winter season, we discovered that two of the rooms in Area A7 were relatively intact bakeries of the kind in which the Egyptians made bread in large bell-shaped pots, called *bedja*, during the time the pyramids were constructed. These bakeries are common in Old Kingdom tomb reliefs that show the large pots being stacked and heated over an open fire, perhaps to “temper” the interior of the pots so that the bread would not stick. The pots were placed in baking pits in the ground, were filled with dough from nearby vats, and were covered with another pot upside down and then with hot embers and ash to complete the baking (see further *Oriental Institute News and Notes*, No. 135, Fall 1992). Ours are the first intact bakeries of this kind dated to the Old Kingdom so far discovered in Egypt. Our work during the fall-winter season of 1991 consisted of two operations, Areas AA and A8, in addition to the discovery of the bakeries in A7, which are summarized below.

## AREA AA

We continued to excavate the area formerly designated squares A1–6, now renamed Area AA. The central feature here is a rectangular building of stone rubble and marl clay, divided in half by a low central wall; each half of this building contains a row of pedestals that might be supports for grain storage silos (fig. 1). Fiona Baker supervised the excavation area around this building which we expanded during the fall-winter season. Peter Piccione

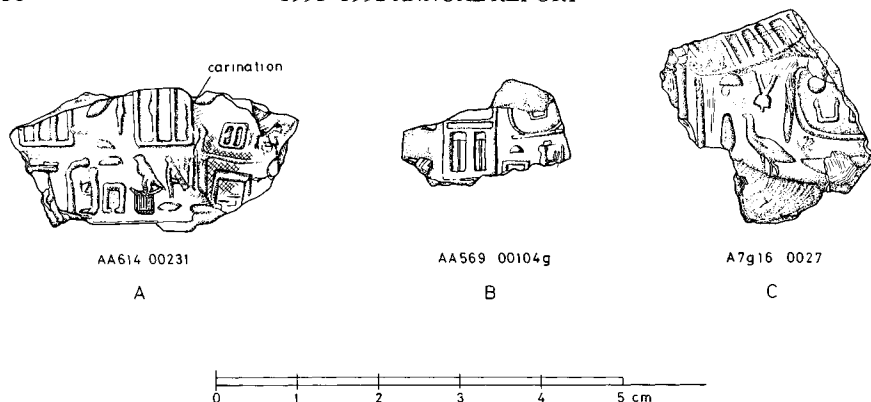
excavated the 5 × 5 m square that linked this building complex to the first of the tombs, apparently belonging to Old Kingdom tomb builders and other workmen, that the Egyptian Antiquities Organization team, under Dr. Zahi Hawass, is excavating up the slope from Area AA.



**Figure 1. Excavation in Area AA, the pedestal building**

During this season we realized the importance of faint traces of partition walls that run across the centers of some of the pedestals. The thin walls formed the sides of compartments, probably for some kind of storage, that sat upon the pedestals. However, the compartments spanned the 10 cm spaces between the pedestals as opposed to being centered squarely on each pedestal. Toward the end of the season, Fiona began to excavate some compartments that are largely intact and attached to the back wall of the building. These are about the same size as those that stood above the pedestals. Unfortunately, the end of the season was upon us and we will have to wait until next season to learn if these compartments contain important clues about the function of this building.

Meanwhile, other clues began to turn up in the mud seal impressions found in Area AA, particularly in the corridor between the pedestal building and another building just to the east (fig. 1, where Mr. Merzug Abd al-Qadar is working in the foreground). This corridor was filled with trash, probably cleaned out of the well-maintained pedestal building. Several of the seal impressions mention the *w 'bt*, sometimes, the "*w 'bt* of Menkaure" (fig. 2a–b). The word is written with the sign of a kneeling man with a pot on his head from which liquid flows down over his outstretched hands. This figure is



**Figure 2. Seal impressions from the Giza excavations: (a) *w'bt*, "mortuary workshop," and "beloved of Sokar(?)" from Operation AA; (b) *w'bt* [of Menkaw-Re] from Area AA; (c) *h'tm wdj* "storehouse seal," with part of Menkaw-Re cartouche on right, from Operation A7**

followed by the *t* hieroglyph and the house-determinative. In figure 2b the top of this group is shown underneath a cartouche that contains the bottom of a *k3* sign, no doubt the end of the name Menkaw-Re, the builder of the third pyramid at Giza. To the left is the bottom of a stylized palace facade, or *serekh*, which must have contained the Horus name of Menkaw-Re. *W'bt*, derived from the root denoting "pure," is a term for "embalming workshop" but may have signified the entire royal administrative unit that equips the grave. If so, a *w'bt* could include workshops with metal workers, joiners, painters, draughtsmen, and possibly storage for food offerings.

John Nolan of the Oriental Institute is presently studying the corpus of sealings. One sealing from Area AA may have the word *šnw.t*, "granary," and another mentions *wdj*, "storehouse." More sealings mentioning the latter term were found in A7.

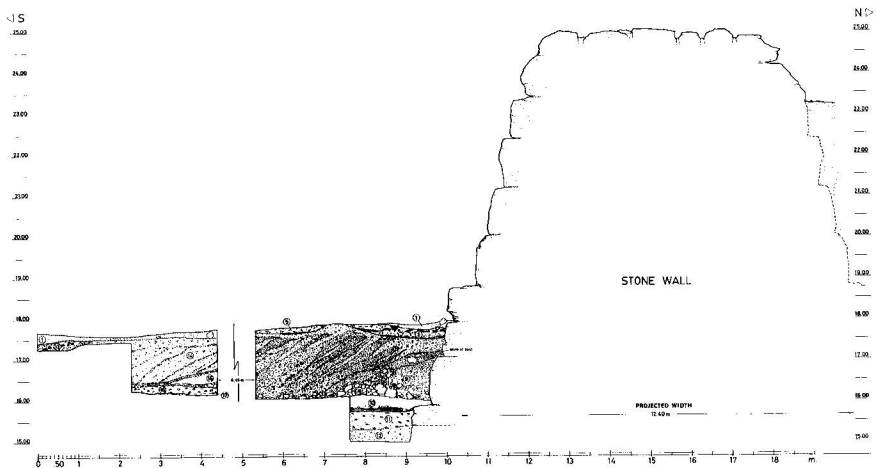
## AREA A8

During the fall-winter season of 1991, Augusta McMahon supervised our third operation in Area A. Designated A8, this operation is located against the southern side of the massive stone wall that forms the boundary to Area A on the north (fig. 3). Augusta excavated about 3 m of limestone chip construction debris that had been left against the wall by its ancient builders. This excavation allowed us to draw this gigantic structure and to learn more about Area A. The wall, built of limestone blocks as large as those in the pyramids, is nearly 200 m long. It extends farther eastward from the escarpment of Giza than any other structure except the causeway of Khufu to the north with which the wall is roughly parallel. The trench and profile (fig. 4) revealed a wall that is at least 10 m tall, which indicates that the gateway through the center of the



**Figure 3. Large stone wall and location of Operation A8**

wall is about 7 m in height, making it one of the larger gates in the ancient world. The base of the wall is more than 12 m wide. The sides of the wall are battered so that, as John Nolan suggested one day on site, the Egyptian builders must have intended a battered wall with a rounded top, a larger version of the enclosure walls around the pyramids. The builders probably stopped work before they completed the rounded top and fine limestone casing.



**Figure 4. Profile of large stone wall and trenches A8a-b**

Such a massive wall certainly exceeds what was required for retaining workmen's quarters, storage facilities, and the industry associated with processing the raw materials that must have come into Giza from the harbors of the pyramid complex just to the north of the wall. The gate appears to have been intended as a major entrance to the Giza Necropolis, and there was probably an important road or track leading to and from it.

Another interesting fact about the wall is that it is founded at an elevation 15 m above sea level. This is generally the *top* of the Old Kingdom level of settlement remains that Zahi Hawass and the Egyptian Antiquities Organization team have found in their monitoring of the AMBRIC/Cairo Waste Water Management Project in Nazlet es-Samman, the Giza suburb that extends eastward from the base of the plateau. The flood plain under Nazlet es-Samman is about 18.50 to 18.00 m above sea level; thus there has been three or more meters of alluvial buildup since the Old Kingdom, more than enough to cover substantial settlement remains. The recent boring and trenching for the sewage project indicates that there may be third millennium settlement covering more than 100 ha stretching from the floor of the Giza Plateau.

## AREA A7

Our fall-winter season of 1991 excavations in A7, under Michael Chazan's supervision, revealed that the backhoe took a bite out of the southeastern corner of a massive mudbrick building with an outer wall up to 1.5 m thick (fig. 5). The two rectangular bakery rooms, A7d-e, are attached to the southern wall of the mudbrick building. There is no access from the bakeries into the mudbrick building. Broken bread pots and other trash were discarded to the east of the mudbrick building and bakeries during the time that the bakeries were in use. During the final phase of the site, shallow (10-20 cm) stone rubble wall foundations were laid down over the thick accumulation of this trash. The areas excavated within Area A7 are described below (see fig. 5).

### Area A7a

Nicholas Conard and John Nolan trimmed back the eastern section of the backhoe trench in the spring season of 1991. This profile shows a series of living floors and controlled burning pits under a layer of discarded bread molds and trash.

### Area A7b

This area, excavated by Meg Hainer of the University of Chicago, Department of Near Eastern Languages and Civilizations, is the floor area just inside the southeastern corner of the mudbrick building. A narrow corridor



Figure 5. Composite map of excavations in A7 at close of fall-winter season of 1991

leads from the west into a broader corridor with low marl-paved shelves or benches separated by narrow channels. On one of these benches we found a cache of pottery consisting of shallow bowls with an interior flange (these were probably covers for jars or bowls) and cylindrical stands for jars or bowls.

#### Area A7c

In this small chamber, entered from the west by another narrow corridor, round ceramic bread trays with thick walls were fired, judging by the fact that we found several of these trays within fire-reddened earth.

#### Area A7d–e

These two bakery rooms, excavated under the supervision of Ann Foster and John Nolan, were filled with homogenous black ash under a layer of mudbrick tumble. In each room there was an entrance at the southwestern corner, a hearth platform in the southeastern corner, and large vats in the northwest corner (fig. 5). The “loose” contents of the two rooms were also similar. Each contained a cache of nearly complete and broken *bedja* pots at the southern end of the room (fig. 6), few flat bread trays, and half of a Nile alluvial clay jar. Apparently, as they were used, the bakeries were allowed to simply fill up with ash. In the final days of the bakery, the ash filled each room to the brim of the vats. In A7e the stone and brick hearth platform, where the bread pots were stacked to be heated, was built on top of successive layers of ash that were intercalated red, black, and gray, a result of the oxidizing atmosphere of the open hearth and its wood fuel, probably acacia (fig. 7). As we cleared the ash down to the marl clay floor in each bakery, we found a series of circular holes in a depression along the eastern wall (figs. 5, 8). We already expected these egg-carton-shaped baking pits from the much more badly denuded bakery that Augusta McMahon discovered near the large stone wall in Area A8. There were three vats in A7d and only two in A7e, although in this room there was a clear impression where a third vat had been removed in ancient times (fig. 9). The bottoms of these vats broke during their use and they had been reinforced with pieces of limestone and granite (fig. 8, nos. 203, 238). The marl clay that composed the floor (fig. 8, no. 122) was packed around the vats to more than half their height, making it difficult, one would imagine, for someone to stand and bend over the vats to mix their contents. It is possible that the mixing was done with feet and legs by someone actually standing in the vats.

#### A7f

From Norm’s meticulous recording of the stratigraphy in this area just outside the threshold to the A7e bakery, excavated under the supervision of Janet Helman and Norm Rubash, we can ascertain that the immediate

environment of the bakeries was sandy low desert at the time the bread was baked 4,600 years ago.

#### Area A7g

The excavators in this area, supervised by Ann Roth and Michelle Fost, opened a deep trench into the bakery dump. The fill mostly consisted of enormous quantities of ash and bread mold sherds. At the end of the season, stone rubble foundations below a marl clay floor were exposed in this trench (see fig. 5).

#### Area A7h

The excavators in this area, supervised by Janet Helman, went through the same massive deposit of discarded ash and bread mold sherds as in Area A7g.

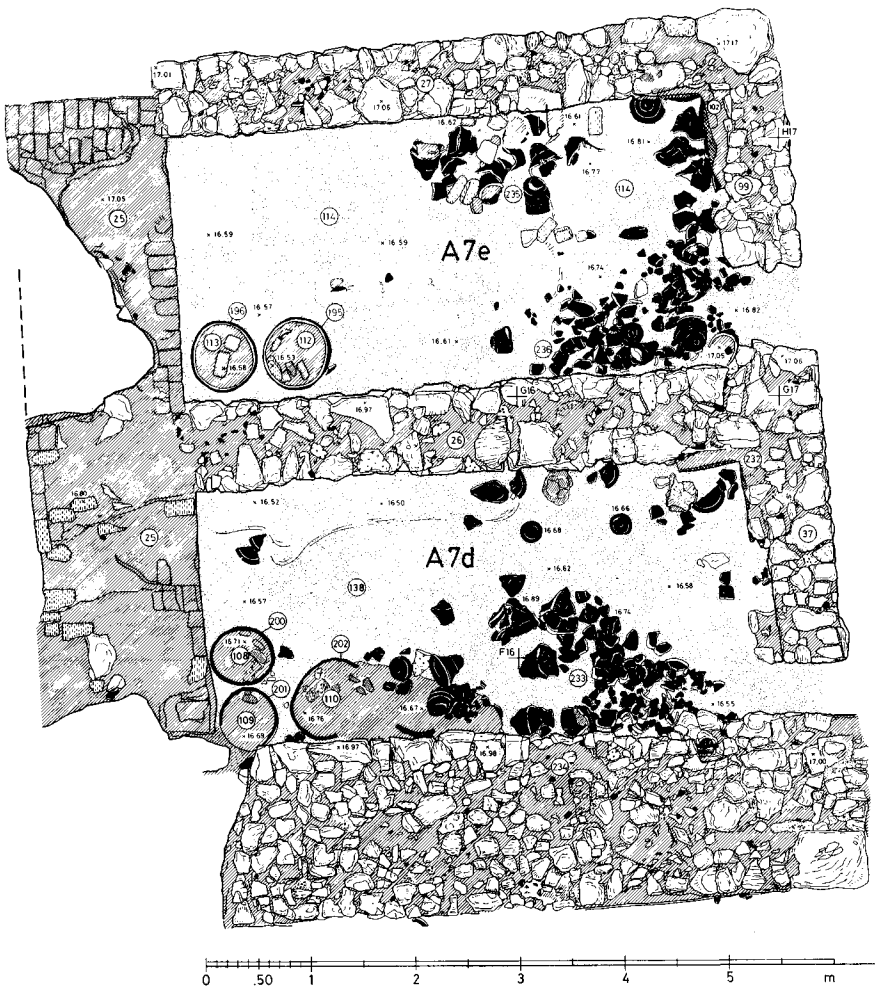


Figure 6. Bakery rooms A7d-e with top of black ash layer, caches of broken bread pots

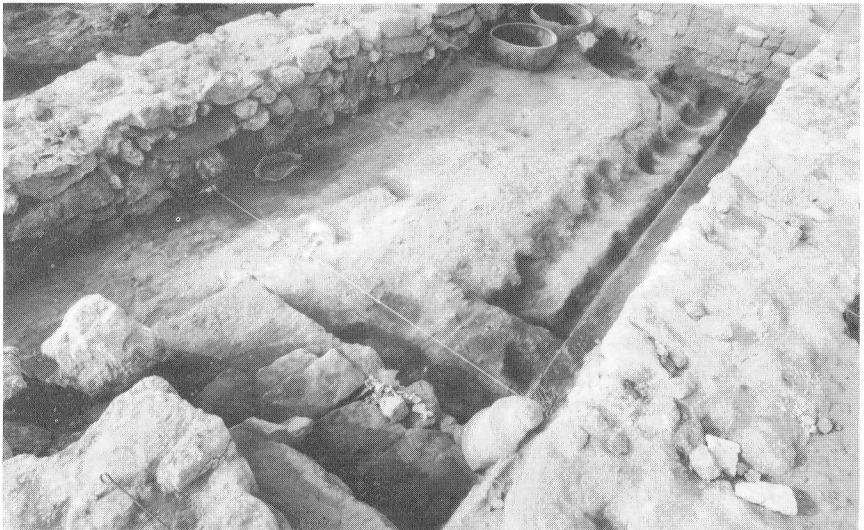


## Area A7i

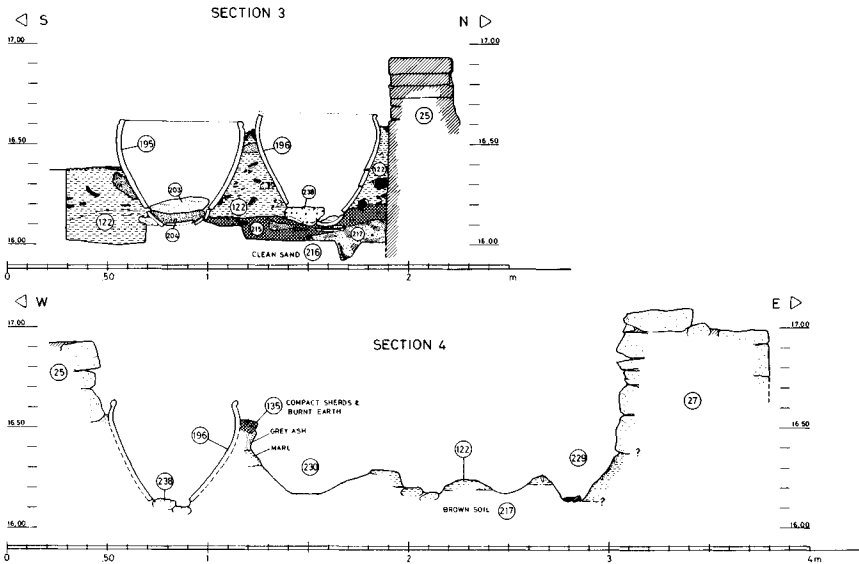
The excavators in this area, supervised by Meg Hainer and Ann Roth, exposed a series of large pits in a marl floor. These pits are part of one of the living floors exposed in the section of Area A7a.



**Figure 7. Hearth platform in bakery A7e area**



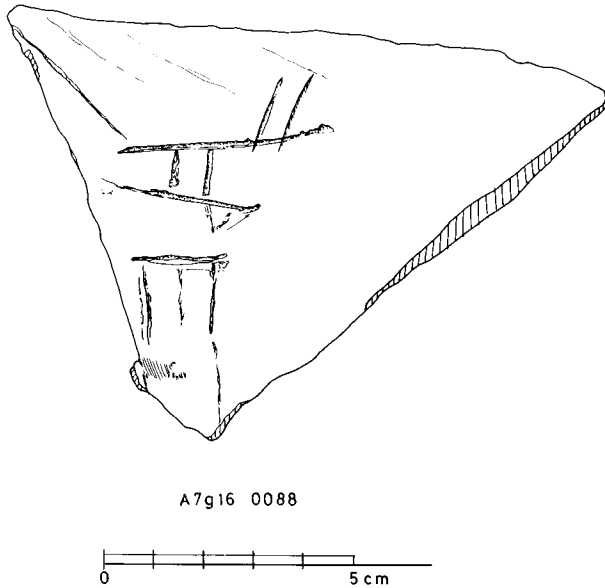
**Figure 8. Bakery A7e after removal of black ash layer down to marl clay floor. The hearth is in the southeastern corner (foreground), the dough vats are in the northwestern corner (top of view). Egg-carton-shaped baking pits are along the eastern wall (right)**



**Figure 9. Profiles of dough mixing vats in bakery A7e**

In summary, the excavations in A7 have given us two intact bakery rooms attached to a much larger installation, the dump from the bread baking, and an ephemeral late phase when thin stone rubble wall supports were laid down on top of the dumping from the bakery. In the Old Kingdom tomb scenes, bread baking and beer brewing occur as part of the same labor establishment, probably because lightly baked dough, in which the yeast was activated but not killed by the heat, was used for the beer mash, while froth from the beer may have gone back into the dough. Bread and beer were also the staple rations in ancient Egypt. Bakeries-breweries were labeled *pr šn* in the tomb scenes. This term indicates a food production house, an establishment that included bakeries, breweries, and granaries. We may be digging a *pr šn* in A7. This is indicated by the fact that we have the clearest possible archaeological correlate of the kind of state, or estate, bakery shown in the tomb scenes and labeled with this term. In addition, we found what is probably a corrupt writing of *pr šn* with the plow- and house-signs etched crudely on a sherd from the discard area of A7 (fig. 10).

The excavations in three widely separated spots in Area A hint at royal institutions connected with mortuary services, storage, and food production. There is still some question as to whether bread baking in these large pots was exclusive to the royal house, temples, and special purposes, or whether it was a common part of the mode of production during the Old Kingdom. The fact that the typical *bedja* pots are found in widely disparate contexts, including



**Figure 10. Sherd from A7 bakery trash deposit inscribed *pr šn***

settlements and campsites, since they first make their appearance near the beginning of the First Dynasty, argues that pot-baked bread was fairly common. There is no doubt, at any rate, that the Giza bakeries are royal. At issue is whether the bread was ceremonial, special purpose bread or whether bread of this rather expensive production was an integral part of the economy of building or maintaining the pyramid complex.

In any case, it may be that in the Fourth Dynasty the area to the south of the large stone wall was the natural place for storage and production, given that there must have been at least three substantial canal-fed harbors to the north of the wall, one for each of the three pyramid complexes at Giza. Here would have been delivered all the goods, cattle, and produce from new towns and estates that were created for endowing the tombs of kings and courtiers. The massive funneling of products from the provinces is expressed by the common scenes of long lines of offering bearers, each a personification of a named estate or foundation, bringing produce to the pyramid and tomb complexes. As the excavations at Giza continue, our goals include learning more information about the relationship between the core area of the Egyptian state at the Delta apex and the development of Egypt's provinces, a relationship that fueled not just the building of the pyramids but the building of the Egyptian nation state. Much of the vital evidence awaits the analysis of the ancient floral, faunal, and ceramic material that we have retrieved from these excavations.

## ACKNOWLEDGMENTS

We are grateful to the members of the Egyptian Antiquities Organization who make our work possible: Dr. Mohammed Ibrahim Bakr, Chairman; Dr. Ali Hassan, Director of Antiquities for Pharaonic Monuments during the spring season; and Dr. Zahi Hawass, Director General for Giza and Saqqara for his assistance and collaboration in the research. We owe a special thanks to Amal Samuel, Chief Inspector of Giza, and to the inspectors with whom we had the pleasure of working on the site: Mansour Radwan, Zaghloul Ibrahim, Mahmoud Afifi, and Mohsen Kamel, and Eman Rashid.

We are grateful to David Koch and Bruce Ludwig who made our research possible again through their generous financial support. I thank Steve Burns and Amy Bucher of National Geographic for their support, Norm Rubash and AMOCO-Egypt for their loan of a vehicle. I am grateful to William Sumner, Director of the Oriental Institute, for the support he gave to the fall-winter season of 1991 and his patience. Lietz-Sokkisha of Overland Park, Kansas once again donated the use of state-of-the-art surveying equipment for which we are extremely thankful. David Goodman, as always, gave his constant good humor and assistance to the entire team, in addition to acting as senior surveyor. John Sanders took over this role when David had to leave. I thank John for his time and for teaching several expedition members the use of the Total Station. Wilma Wetterstrom continues to be our paleobotanist and most cheerful project member. I have already mentioned those who supervised the various excavation areas. I am grateful to all of them. I also want to thank Diane Kerns who, as registrar organized beautifully our Giza storeroom, Brigitte Crowell for processing the ceramics, Ann Roth for assisting us with the seal impressions, and Kathrine Noujaim and Lynn Martella for their volunteer assistance. I thank Peggy Sanders for her work as artist and Augusta McMahon for carrying on in this capacity after Peggy left. I am especially grateful to Peter Piccione for acting as administrator in addition to working full-time as an archaeologist in the field and to John Broughton who donated his insight, energy, and time away from Helix to be our photographer.

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

The AMOCO corporation has provided financial support for a monograph on the results of the Giza excavations, the first, we hope, of a new series, *Giza Reports*.

---