

Boat Graves and Pyramid Origins

New Discoveries at Abydos, Egypt

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The study of ancient Egypt revolves around a number of questions about major aspects of Egyptian culture, questions not yet fully resolved in spite of their fundamental nature. One such set of questions concerns that most “Egyptian” of forms, the pyramid, or rather, the pyramid and the complex of cult structures which are attached to it and give it meaning. Recently, excavations at an apparently already well-worked site—Abydos, in southern Egypt—have provided some exciting new evidence about the origins of the pyramids and their associated complexes.

Abydos is located at the junction between the fertile floodplain and the low-lying desert that fronts the steep cliffs of the Nile gorge. The site

lies about 11 kilometers (7 miles) from the river, adjacent to a floodplain that is now, as in the past, agriculturally rich. The arid desert over which the site extends (some 7 square kilometers) is much more forbidding. Much of it consists of cemetery fields; the dips and hillocks covering much of the site are plundered or excavated tomb shafts and pits, with the spoil dumped beside them.

Abydos is most famous as the southern cult-center for Osiris, the god of the dead. However, his cult was not manifest at the site until about 2000 B.C. A thousand years earlier, Abydos was already an important site to the Egyptians, for it was here the earliest historic pharaohs were buried.

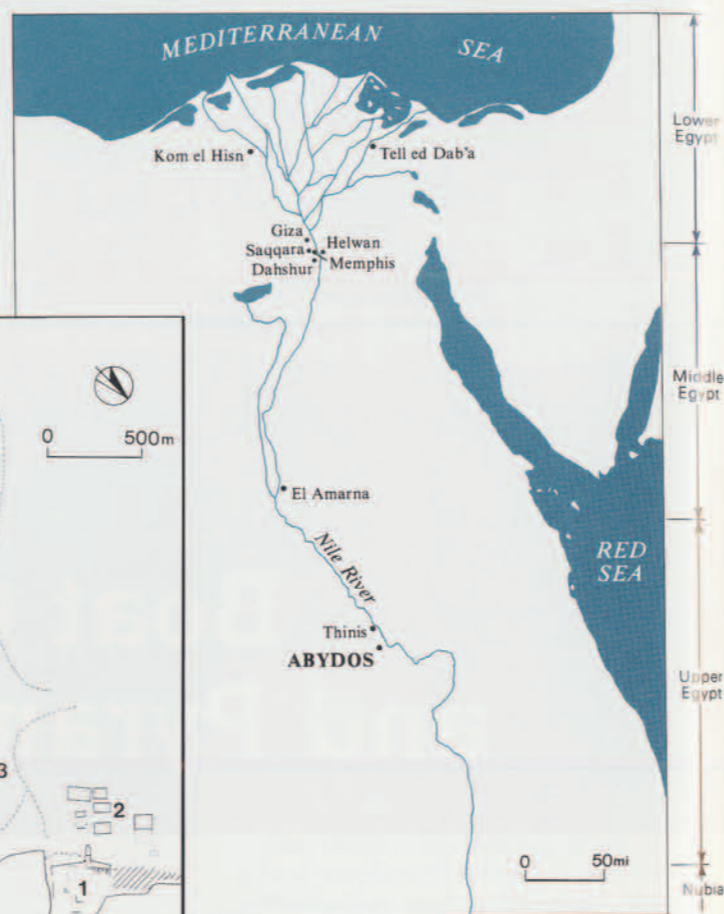
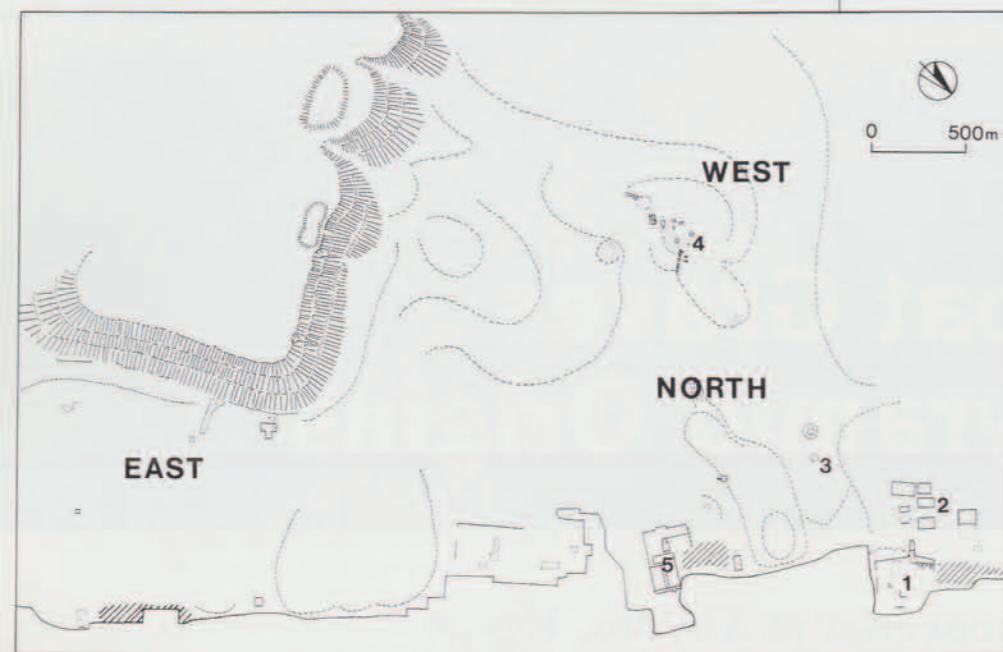
In West Abydos are located the tombs of all kings of Dynasty I, two of Dynasty II, and some of their royal predecessors of Dynasty “0,” most of them excavated by Flinders Petrie at the turn of the century. Abydos was,

Figure 1. Abydos. The severely reduced remains of a temple of Ramesses II lie in the foreground; behind is the massive mud brick funerary enclosure of Pharaoh Khasekhemwy (end of Dynasty II), set in the vast expanse of the hillock-covered North Cemetery.

therefore, the “Giza” of Early Dynastic times, a focus for technological innovations and ideological developments. East Abydos became more important in the Middle and New Kingdoms, and contains a number of royal cenotaphs or dummy tombs from these periods.

North Abydos, however, is the ancient core of the site. Here the funerary cults of the early kings were celebrated within massive mud brick enclosures (Fig. 1). To the east of the enclosures a town grew; dating back at least into Early Dynastic times, it became a major settlement in the Old Kingdom. Within the town stood a

Figure 2a,b. (a, right) Map of ancient Egypt. (b) Map of Abydos showing the location of (1) the site of the Early Dynastic and Old Kingdom town, and of the temple of Khenty Amentiu and, later, Osiris; (2) the royal funerary cult enclosures of the Early Dynastic Period; (3) the Pennsylvania-Yale Expedition house; (4) Umm el Qa'ab, the site of the royal tombs of Dynasties 0 and I, and of late Dynasty II; (5) the temple of Seti I.



temple, dedicated initially to the local god Khenty Amentiu, who eventually merged with Osiris. In the desert hinterland, a vast cemetery developed, for the inhabitants of the town and perhaps for those of the region as well. This cemetery was important in the Old and Middle Kingdoms, but much less so in the New Kingdom, when the chief town or towns probably lay in East Abydos (Fig. 2b).

In this article I shall focus on another perhaps surprising aspect of Abydos: its connection to the great pyramids and pyramid temples that are typical for pharaohs' burials elsewhere in the Old and Middle Kingdoms of Egypt.

Pyramids and Mounds

Pyramid complexes have of course often been excavated, sometimes

very well; outstanding in this regard, for example, were the excavations of George Reisner, the American Egyptologist at Giza. Nevertheless, many questions remain to be answered, and interest in the archaeology of pyramids has revived markedly in recent years. For instance, Zahi Hawass, Director of Giza and Saqqara for the Egyptian Antiquities Organisation, and Mark Lehner, of the Oriental Institute in Chicago, have developed a comprehensive approach to the re-exploration of the Giza Plateau; Dieter and Dorothea Arnold of the Metropolitan Museum, New York, have been re-investigating the great Middle Kingdom pyramids; while Rainer Stadelmann, Director of the German Archaeological Institute, Cairo, is studying the Old Kingdom pyramids of Snefru at Dahshur.

Abydos, however, is particularly important in addressing the question of pyramid origins. The first true

pyramids occur relatively late in Egyptian history, in ca. 2560 B.C.; before then, between 2650-2570 B.C., we have the step pyramids of Saqqara, covering Dynasty III. But the earliest historic royal tombs—those at Abydos—begin in 2900 B.C. What was their connection with the pyramid complex?

Various answers have been proffered. A particularly important suggestion has been that the royal tombs of Dynasties I and II at Abydos had mound-like superstructures, i.e., a sand and gravel mound held in place by mud brick retaining walls, rising perhaps 2.40 to 3 meters (ca. 8 to 10 feet) in height. From these, the stepped pyramid typical of Dynasty III evolved in some way not yet fully documented. However, recent excavations at the Abydos tombs by Werner Kaiser and Gunter Dreyer have shown that the evidence Petrie found and interpreted as the remains of superstructures rising above ground

level, in fact belonged to mounds set over the burial chamber but buried below ground level. The Abydos tombs therefore would seem to have had no visible or prominent superstructures. Dreyer believes they did exist, but so far no trace of them has been recovered.

In Dynasties I and II there were also elite tombs at Saqqara, thought by some scholars to be royal, although this is now a minority view. These Saqqara tombs had large rectangular superstructures; hidden within each was a mound, placed over the burial pit. In one case the mound was in stepped form. Some suggest that the superstructure became transformed into the towered enclosure wall of the step pyramids, and the mound evolved into the step pyramid itself—now visible and on a much larger scale.

Our recent work at Abydos has prompted us to come forward with a new and different theory—at the moment a working hypothesis, but one supported by certain important if fragmentary evidence. This work has focused on the cemetery field of North Abydos. Here, almost two kilometers away from the royal tombs, archaeologists long ago discovered that large mud brick enclosures had been built for some of the early pharaohs, presumably to house their funerary cults. Two were for Khasekhemwy and Peribsen, at the end of Dynasty II (see time chart). There were at least four of Dynasty I (ca. 2920-2770 B.C.), for pharaohs Djer, Djet, Queen Mother Meretneith, and another pharaoh. The existence of Djer's enclosure (and hence the probability of one for his successor, Djet) was proven by our excavations in 1988. However, apart from a few interior features recovered by earlier archaeologists, the large interiors of these enclosures remained generally mysterious and unknown.

We decided to re-investigate these enclosures, including the best preserved, that of Pharaoh Khasekhemwy of the end of Dynasty II (Fig. 3). This extraordinary feature is built entirely of mud brick, defining an area of over half a hectare. Its walls are 5 meters thick and still stand about 11 meters high, although they were built somewhere between 2700

and 2650 B.C., that is, about 4700 years ago. The interior is heavily encumbered with windblown sand which has discouraged systematic excavation (Fig. 4), although there were large-scale—and very damaging—clearances attempted in the 19th century and later. In addition, the whole interior is pitted with large, deep holes used for the burial of sacred ibises in the 1st millennium B.C. (Fig. 5).

We were fortunate enough, despite the difficulties, to expose some surviving fragments of the original Dynasty II surface. Of these, one was particularly important. We found a large expanse of the thick Dynasty II mud plaster floor. At one edge a line of brickwork survived (Fig. 6), belonging to a feature which had otherwise been completely removed in antiquity, at least so far as the area

covered by our excavation units was concerned. The bricks were laid at an angle, i.e., they were not simply part of a horizontally bedded wall. This point is evident in plan and section (Fig. 7).

We are fairly sure that what once stood here was a large mound made of sand and gravel; it was covered with a brick skin, of which this brickwork is the lowest and only surviving piece. Similar mounds were found at Saqqara, placed over the burial pits of the elite tombs. However, the Saqqara mounds were probably smaller than the Abydos example, and they were hidden within the rectangular superstructures of the tombs. They were perhaps inspired by the 'hidden' mound the German expedition has discovered at the royal tombs in West Abydos. Khasekhemwy's mound rose above the

DYNASTY/PERIOD	DATES	PHAROAH	BURIAL PLACE
Dynasty 0	3100-2920 B.C.		Abydos
Early Dynastic Period			
Dynasty I	2920-2770	Djer Djet	Abydos Abydos
Dynasty II	2770-2649	Peribsen Khasekhemwy	Abydos Abydos
Dynasty III	2649-2575	Djoser	Saqqara
Old Kingdom			
Dynasty IV	2575-2465	Snefru Khufu	Dahshur Giza
Dynasties V-VIII	2465-2134		
First Intermediate Period			
Dynasties IX-XI	2134-2040		
Middle Kingdom			
Dynasties XI-XIII	2040-1650		
Second Intermediate Period			
Dynasties XIV-XVII	1640-1532		
New Kingdom			
Dynasties XVIII-XX	1550-1070		

Chronology after J. Barnes and J. Malek, *Atlas of Ancient Egypt* (1980, New York: Facts on File)



Figure 3. The funerary cult enclosure of Pharaoh Khasekhemwy, from the south. The boat graves lie on the far side of the monument.



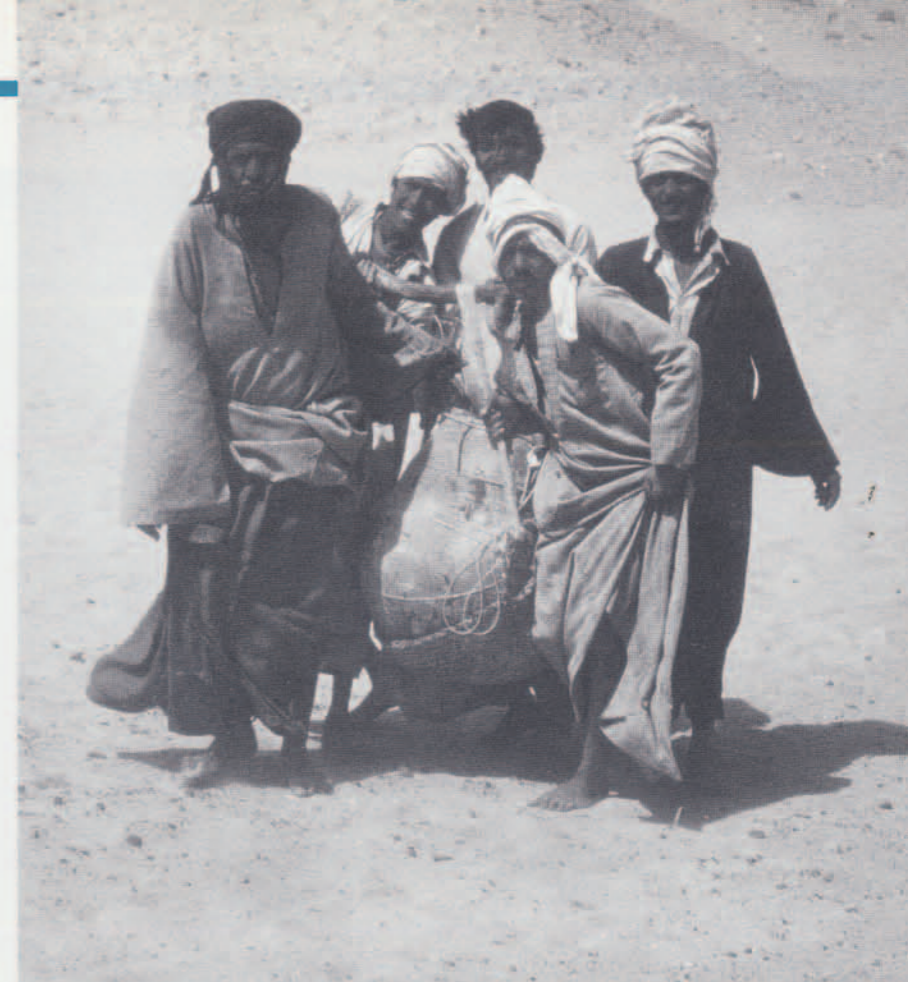
Figure 4. Excavations within the Khasekhemwy enclosure (1988). Windblown sand and later intrusive pitting hampered excavation efforts.

ground surface of the enclosed area and was visible to any one who entered that enclosure.

Now, we also know from the studies of the archaeologist Quibell, and later Lauer, that the Step Pyramid of Djoser at Saqqara, the first built (ca. 2620 B.C.), was simpler in its original form. It had stone-built enclosure walls, and a large mound feature in stone masonry. This stone mound was located in much the same position as that of the brick-covered mound in the Abydos enclosure. In other words, the first version of Djoser's mound looks like a larger-scale stone copy of the Khasekhemwy complex, but led on to the true step pyramid (Fig. 8) and ultimately the true pyramid. Whether the mound occurs in Abydos enclosures earlier than Khasekhemwy's is something we have yet to determine. How-

Figure 5. Workmen carrying an enormous jar filled with mummified ibises to the excavation house laboratory.

Photograph by Matthew Adams



ever, Khasekhemwy's enclosure, like Peribsen's, is closely modeled on the type established as early as Djer's reign, so it is possible that the mound tradition extends back this far as well.

The Boat Graves

The discovery of the Dynasty II mound or proto-pyramid at Abydos occurred in 1988. In October of 1991, we made an equally startling and significant discovery. In 1988 we had found, northeast of the Khasekhemwy enclosure, a bastion-like feature in mud brick which we thought might be the corner of a hitherto unknown enclosure. This past season (1991) we carried out large-scale excavations throughout this area with most surprising results.

The topography of the area excavated was very varied. Sometimes the archaeological remains were virtually coincidental with the modern surface and could be defined initially by scraping with a trowel. In other cases, the remains were buried under several feet of wind-deposited sand, extremely difficult to excavate in. However, it eventually became clear that we were not dealing with an enclosure or the remains of a series of superimposed enclosures. Rather, what emerged was a series of "walls" of a curious shape and all running, in local terms, "east" to "west" (in actuality, northeast to southwest).

Each "wall" is in fact an enormous boat grave (Figs. 9, 10). Some twelve, arranged in a more or less continuous row from north to south, were delineated in 1991. It is possible that the series continues on towards the south—a possibility that will be tested in a future season of excavation. They are not likely to run much further to the north, because in that area is the large



Figure 6. The thick mud plaster flooring within Khasekhemwy's enclosure exposed. Brick debris and a small brick box sit on the surface. On the left is a line of brickwork, clearly contemporary with the flooring, which runs up over the bricks. This brickwork is the bottom edge of a brick skin that covered a substantial mound of sand and gravel. The mound itself has almost completely disappeared.

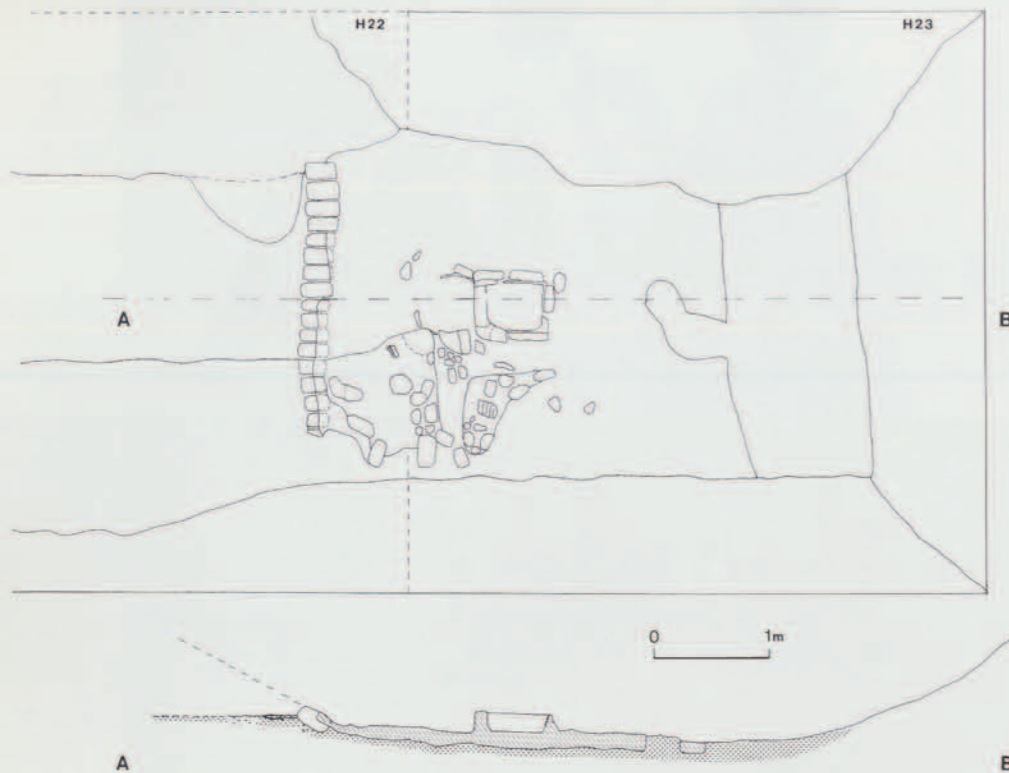


Figure 7. Plan and section of the mud plaster flooring and the line of brickwork illustrated in Figure 6. In section, the angle of the bricks is clear and can be projected upwards to indicate the slope of the rest of the brickwork.

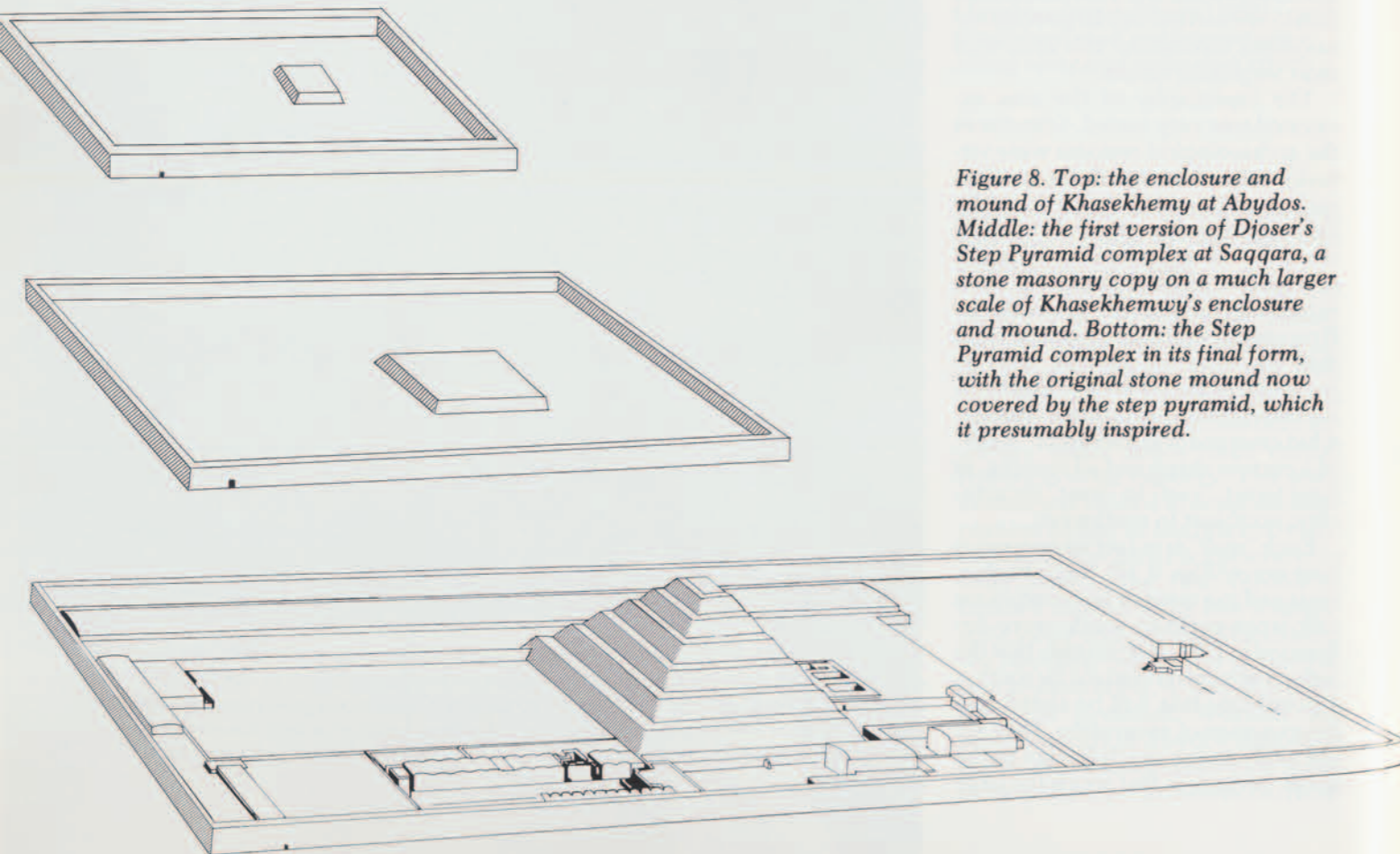


Figure 8. Top: the enclosure and mound of Khasekhemwy at Abydos. Middle: the first version of Djoser's Step Pyramid complex at Saqqara, a stone masonry copy on a much larger scale of Khasekhemwy's enclosure and mound. Bottom: the Step Pyramid complex in its final form, with the original stone mound now covered by the step pyramid, which it presumably inspired.

funerary cult enclosure built for Pharaoh Djer early in Dynasty I. The boat graves are not likely to be earlier than this and may in fact have been built for Djer, but this remains to be proven (Fig. 12).

However, there is no doubt that the boat graves are, like the enclosures which surround them, Early Dynastic in date, i.e., built in Dynasty I or II. The matrix surrounding them was abundant in Early Dynastic pottery sherds, usually unmixed with those of later date (the latter occurred higher up in the overlying deposit). In one case, clusters of Early Dynastic offering jars had been deposited under the "prow" of one of the boat graves.

Why do we call these structures boat graves? The first reason is because of their shape. Each boat grave, when complete, had consisted of a mass of laid brickwork rising up to a height of approximately 50 centimeters above the Early Dynastic ground surface. They were therefore



Figure 9. The "prows" of two brick-built boat graves emerging from the deep bed of wind-deposited sand that covered them.

relatively low in height, but enormously long: the shortest was about 19 meters long, the longest 29 meters. The average length of all twelve was about 27.40 meters (89-1/2 feet). Each grave was quite narrow, typically about 3.25 meters at the widest, and in plan curved gently outward, then in again on each side, replicating the outline of a boat. In addition, each boat grave had a strongly defined "prow" and "stern" (Fig. 11).

The final effect must have been quite extraordinary. Each grave had originally been thickly coated with mud plaster and whitewash, so the impression would have been of twelve (or more) huge white "boats" moored out in the desert, gleaming brilliantly in the Egyptian sun. The notion of their being moored was taken so seriously that an irregularly shaped small boulder was found placed near the "prow" or "stern" of several boat graves (Fig. 13). These boulders could not have been there naturally or by accident; their placement seems deliberate, not random. We

Figure 10. Three of the boat graves, fully exposed, with the enclosure of Khasekhemwy in the background. The "prow" of the central boat grave had been partially removed in ancient times.



can think of them as "anchors," intended to help moor the "boats."

Moreover, these graves are indeed containers—brick-built boxes—for actual wooden boats. Because of the erosion suffered on the top of the graves, we could actually see the outline of the upper edge of each wooden boat showing up as a dark brown line in the surface of the eroded mud plaster. At least in some cases (the situation was not always clear), the boat seemed to fill most of the grave, except for the "prow" and "stern" which were built of solid mud brick. This means that some of these boats are probably up to 22 meters long (72 feet). However, this is an estimate, because we decided not to attempt to excavate any of the actual boats until proper arrangements had been made for conservation and perhaps reconstruction. The excavation, conservation, possible reconstruction and study of selected boats will be carried out in the next season by a multidisciplinary team of archaeologists and other relevant experts. To ensure the stability of the boat graves, they were all reburied under a deep bed of sand; those selected for detailed study will be re-excavated next season.

The exteriors of the boat graves, the surfaces surrounding them, and the stratified matrix in which they lay were all carefully mapped and recorded during the course of excavation. In addition, some of the boat graves had been cut into in ancient times by intrusive pits, probably for secondary graves dating to periods much later than the Early Dynastic Period. We made the most of the opportunity provided by these pits and excavated one (Fig. 14), thereby obtaining a fine profile of one of the boats, or rather of its hull, and a good idea of the internal structure of a boat grave.

The particular segment of wooden hull exposed was about 1.47 meters wide at the top, while the flattish bottom was about 41 centimeters wide. The depth of the hull was about 41 centimeters, but it may have originally been deeper, depending on the amount of erosion the top of the grave had experienced. The wooden planks or shell of the hull was about 10 centimeters thick (Fig.

Figure 11. Two of the boat graves (see Fig. 12). The 'prows' (on right) are clearly articulated, while the beginning of one 'stern' (on left, lower boat) can be seen. Both graves had been disturbed extensively by later pitting, but the many surviving fragments of the hulls, still in situ, can be seen (marked in color) and define the shape and length of each boat. The lower boat is 28 m long as excavated; its full length was probably about 29 m.

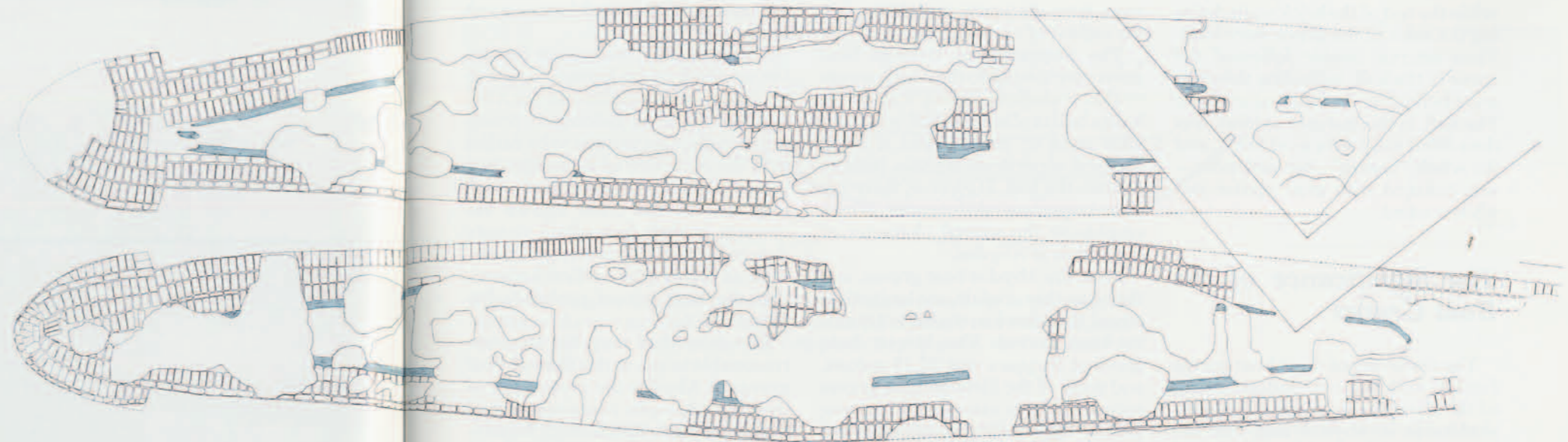
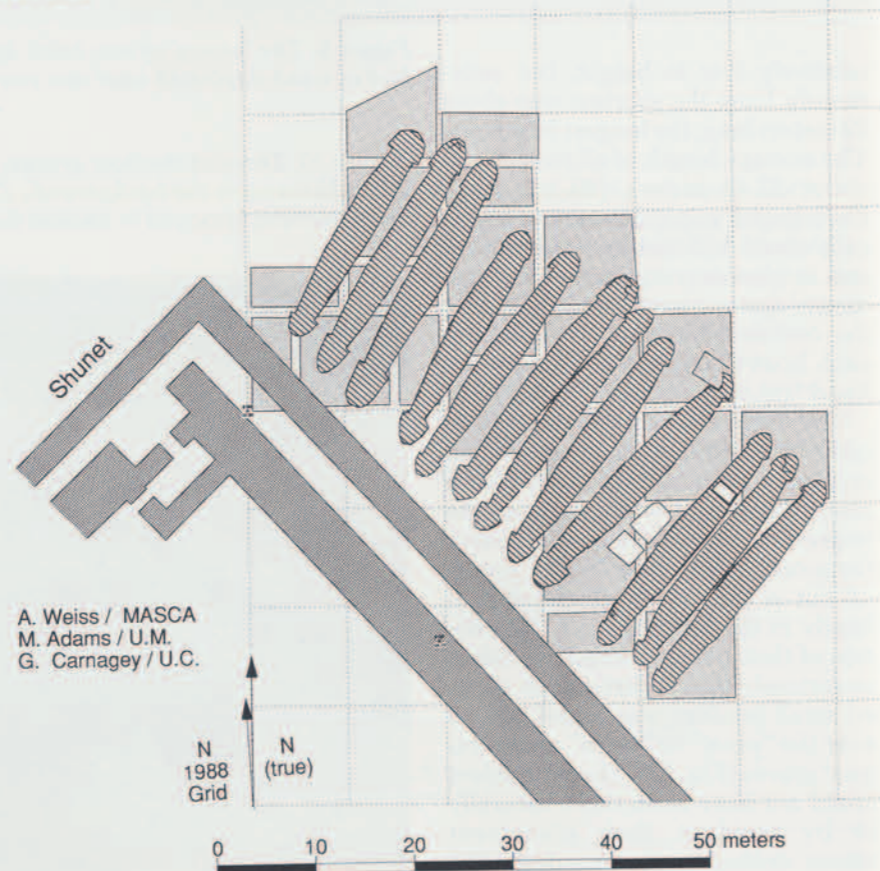


Figure 12. The twelve boat graves, near the north corner of the Khasekhemwy enclosure or "Shunet el Zebib," as it is called locally. Missing or unexcavated segments of each boat grave have been restored. The graves 3rd and 2nd from the southern end of the row are shown in Figure 11.



"the impression would have been of twelve . . . huge white 'boats' moored out in the desert, gleaming brilliantly in the Egyptian sun."

15). These are impressively large vessels, even as defined by the hull alone. The largest actual boat ever discovered in Egypt, from the boat pit at Khufu's pyramid ("the Great Pyramid") at Giza, was 43.40 meters (142 feet) long, about twice the estimated length of the largest Abydos hull; but all other known actual boats from Egypt are smaller.

The profile makes it clear that, at this point, no decking is present. If

cabins, steering oars, rowing oars, or attached prows and sterns were included with any of the boats, they must have been laid flat in the hull, or on the fill of the hull, and remain to be discovered through excavation.

The exposed section also showed how the boat grave was built. First, a shallow trench was cut in the desert surface, and a single layer of brickwork laid down on each side of the trench. This kept the hull in place

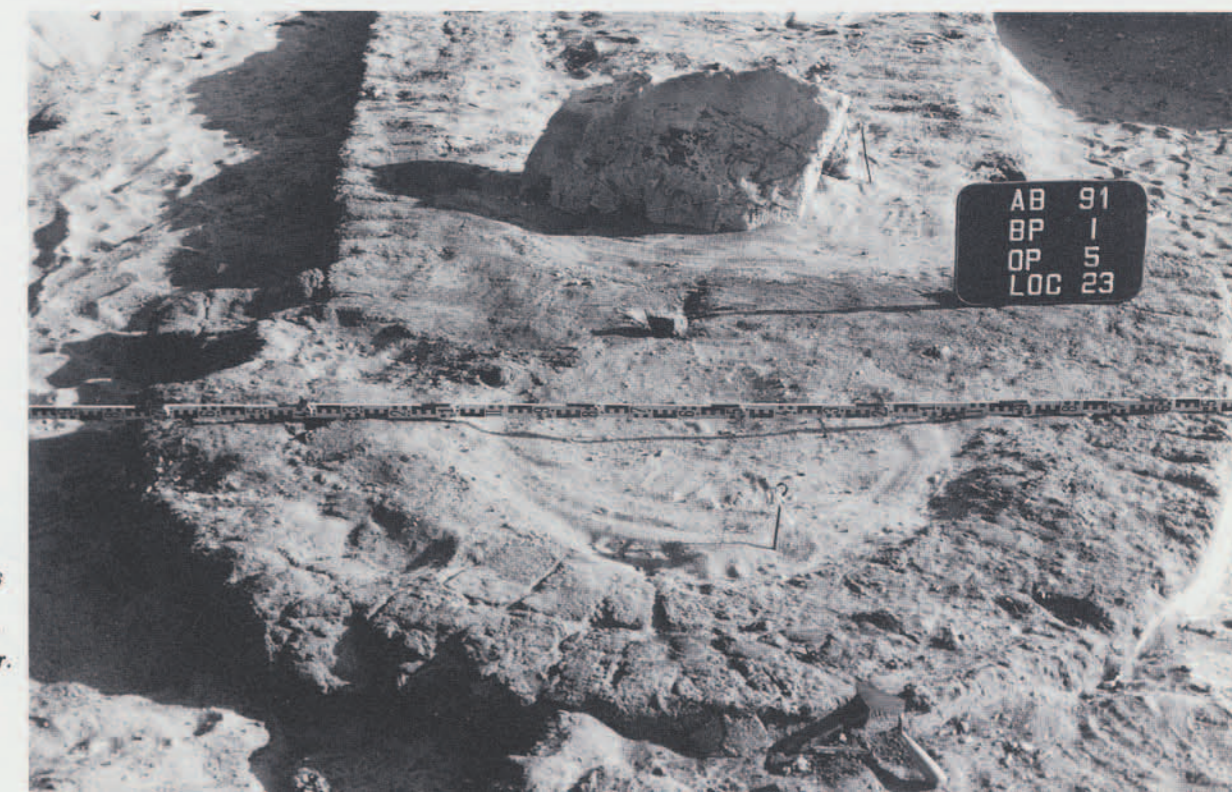


Figure 13. The 'stern' of a boat grave. On the right of the stern, some of the original mud plaster and whitewash is still visible. The large rock sitting on the grave may represent an anchor.

while the rest of the brick walls defining the sides of the grave were built. Their internal profile followed the curve of the hull, indicating the walls were built after the hull was in place. The hull, in this instance at least, was then filled solid with mud brick, and the whole "casing"—top and sides—was covered with mud plaster and whitewashed.

The Significance of the Boat Graves

The discovery of these boat graves further enriches our understanding of the Early Dynastic royal funerary enclosures at Abydos and, like the apparent "proto-pyramid" discussed earlier, indicates these enclosures, their contents, and surrounding features are in the mainstream of pyramid-complex development and evolution in Egypt. Such boat graves of Early Dynastic times are not unique to Abydos. They have been found associated with the elite graves of the First Dynasty at Saqqara, and even with the graves of people of lesser status in the huge Early Dynastic cemeteries at Helwan, across the

river from Saqqara, and Memphis, the capital of early Egypt.

The Saqqara and Helwan boat graves are similar to the Abydos ones in that a shallow trench was cut to hold a hull in place; the hull was filled with sand or rubble, and a brick encased superstructure was built to contain the hull. However, there are also important differences which emphasize the special character of the graves at Abydos.

First, the Abydos boat graves, and the boats they contain, are larger than any of the other known Early Dynastic boat graves. The largest boat grave at Saqqara was 22.15 meters, and none of the Helwan boat graves appears to have exceeded 20 meters; usually they were substantially less than that. Second, the architectural form of the boat graves at Saqqara and Helwan, while trying to convey the impression of a boat, was different from the form employed at Abydos, with its emphatically defined "prow" and "stern." Finally, at Saqqara and Helwan, each boat grave is an isolated unit associated with a specific tomb, i.e., the boat graves are not found arranged in groups, whereas at Abydos they form a virtual fleet, "moored" up

against one of the royal funerary cult enclosures.

Unfortunately, we cannot be sure yet to which of the known (or yet to be discovered!) enclosures the Abydos boat graves belonged. Stratigraphically, they appear to be earlier than the enclosure of Khasekhemwy (end of Dynasty II), in front of which they lie. All the other known enclosures in their immediate vicinity date to Dynasty I. It is to one of these, such as Djer's (the earliest known), that the boat graves probably belonged.

However that may be, it seems reasonable to see in this fleet of boat graves at Abydos the prototypes of the boat pits—pits containing actual (but sometimes dismantled) boats—that flanked later royal pyramids. The most famous are the five of Khufu (one of his queens also had a boat pit; Fig. 16), but such boat pits are found with other pyramids of Dynasties IV and V, and later (with the boat buried in sand, rather than in a pit), with one of the Dynasty XII pyramids. If this conjecture is correct, then the strong relationship between early Abydos and later pyramid sites is again reaffirmed.

The other important aspect of the



Figure 14 (left). Excavating the debris from an intrusive pit so as to reveal the internal structure of a boat grave (see Fig. 15). Upper right: wall of the boat grave, with below the edge of the trench cut into the sand to hold the hull steady while the grave was built around it. Left: a large piece of the side of the hull still in situ.

Figure 16 (opposite page). Boat pits at Khufu's pyramid, Giza; looking down from the pyramid itself. The two larger pits belonged to the royal pyramid complex, the smaller one (arrow) to a queen's pyramid, next to which it is located.

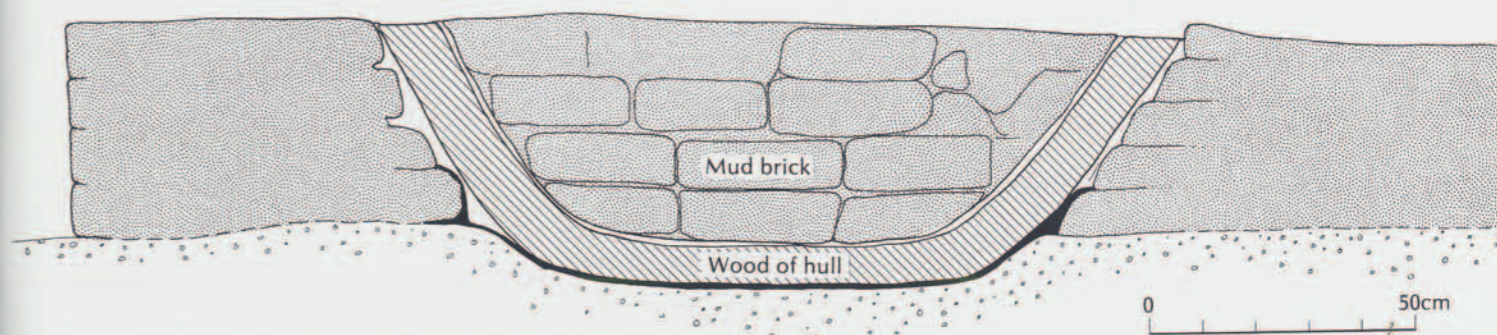


Figure 15. Section of a boat grave. Note the shallow trench cut in the sand, the outline of the wooden hull, the boat-grave walls (stippled) on either side, and the brick filling packed into the hull (stippled). At this point, the boat grave is 2.69 m wide.

Abydos boat graves is that the hulls (and perhaps other components) they contain, while not perfectly preserved, seem generally much better preserved than any of the other boats found at Saqqara and Helwan. At these sites, sufficient traces of the wood remained to sometimes attempt a graphic reconstruction of the boat involved, but the Abydos boats are likely to provide much more material and information. They are therefore significant additions to the tiny list of well-preserved actual boats known

from Egypt, specifically the two boats at the Khufu pyramid, and some six probably real boats (i.e., not models) associated with the pyramid of Senwosret II at Dahshur. The Dahshur boats were each about 10 meters (32-3/4 feet) long.

This is an important discovery then not only for our understanding of boats and ships in ancient Egypt, but also for the development of boat building and use in general throughout the Mediterranean Bronze Age world.

In future seasons, we shall not only search for additional boat graves. Several royal funerary cult enclosures remain to be discovered, for there are more early pharaohs buried in West Abydos than we have enclosures for in North Abydos. Moreover, we shall try to establish if enclosures earlier than Khasekhemwy's, the latest at the site, also had mounds—mounds that, we suggest, are proto-pyramids, from which ultimately the awe-inspiring monuments of Giza emerged.

