

5. Sewn Planked Boats from Early Dynastic Abydos, Egypt

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Introduction

In 1991, archaeologists for the University of Pennsylvania–Yale expedition to Abydos working east of the Second Dynasty funeral monument of Khasekhemwy (2650 BCE) uncovered 12 low, mudbrick structures, some still substantially covered with white plaster (O'Connor, 1991). Measuring 19–26 m long, and under 3 m wide, the structures were identified as boat graves. Both a test excavation and the outline of wooden plank edges in a typical boat shape at the surface of the structures confirmed the identification. The 1991 test excavation in Boat Grave 10 (BG10) revealed the profile of a flat-bottomed hull with angled sides, set into a mud plaster-lined cutting in the ground, and running from northeast to southwest (Fig. 5.1).

A return to BG10 in May, 2000, under the field direction of Matthew Adams, focused on excavating the hull from the 1991 section to the eastern¹ end of the mudbrick grave, a distance of about three meters. At the same time, the other 11 graves were uncovered and

evaluated in order to identify a candidate for full excavation in 2003. Exploratory work South of BG12 revealed two additional boat graves, bringing the total to 14 (O'Connor, Adams, 2001).

Working from the section cut in 1991 to the east, we uncovered approximately 2.6 m of the boat, including bottom and side planking from its eastern terminus. A thick layer of matting above the hull and its fastenings suffered almost complete degradation by insects, but originally was up to 3 cm thick. The boat was filled with one to four layers of mudbrick and mortar above the matting. The sheer strake's upper edge was left exposed at the time of burial. Mudbricks support the sides of the hull, which, in several areas, slumped and took on the shape of the bricks beneath it. Finally, the entire structure was plastered. The mudbrick structure has a rounded end that includes the base of an upright, substantial, round-sectioned timber. O'Connor and Adams (in press) suggest this may be the remains of a flagpole, a common component of later ceremonial sites.

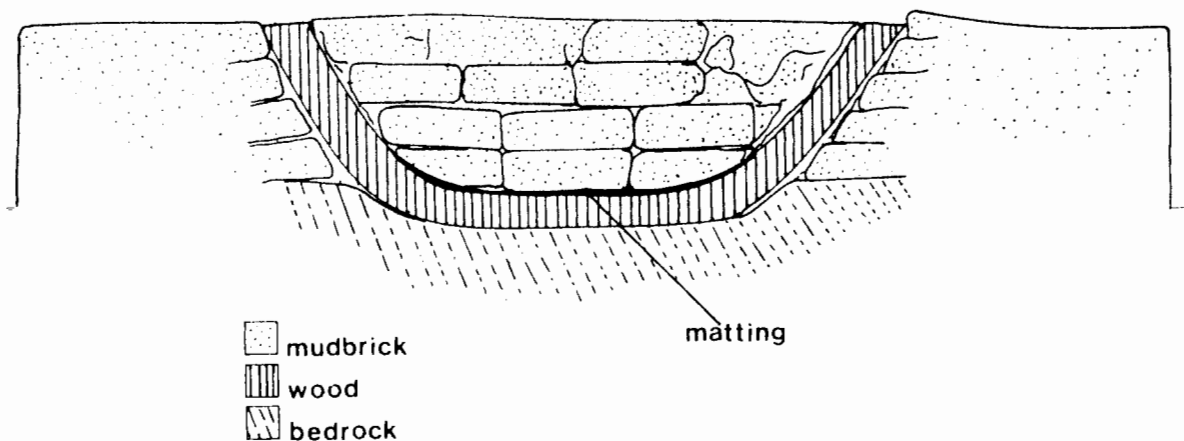


Fig. 5.1. Section opened in Boat Grave 10 (BG 10) in 1991 (drawing: author).

The hull

The results of preliminary analysis and interpretation are presented below. Despite the presence of intrusive burial pits that destroyed part of the hull, significant portions of the planking remain. The excavated area included planks from each side and the bottom of the vessel (Fig. 5.2). The boat is composed of straight-edged planks fastened together by transverse lashing through channels. It is flat-bottomed with an angular chine and rises abruptly towards its end. No floor timbers or beams were used in this portion of the hull, and there is no evidence for them elsewhere at present.

The condition of the planks varies from fair to poor. While almost all timbers include areas close to the plank's

original surface, all surfaces are checked and eroded to some extent. Planks on the southern half of the hull fared better over the millennia than those on the northern half, where insect destruction and erosion destroyed about 60–80% of the planks' original volume. All timbers were fashioned in a similar manner from the same wood type, a non-coniferous species.² The hull's centerline runs along the center of B3, a plank with the finest grain and fewest knots. On the inner face of B3, the centerline bisects a 2.5 cm deep mortise with no outlet.

PLANKS

The excavated area included five bottom strakes and six side strakes (two on the northwest side and four on the southeast side). Planks are labeled sequentially from south to north across the hull, and from the east towards the west. Some of the planks retain their original thickness of 6 cm, and other evidence demonstrates a constant planking thickness of 6 cm in both excavated and visible timbers (sheer plank outboard edges throughout the boat grave, for example). Best preserved areas are those near knots, and exuded resin is visible in a number of areas. The largest plank (B3/2) measured 1.7 m long (remaining) and had a maximum width of 19 cm.

Plank edges are straight, without joggles. As Fig. 5.2 illustrates, some are separated by gaps of up to 5 cm. The edges of these planks are present in most cases. Several planks (S3, S1) probably may be identified as the ends of drop strakes. There are no nibbed ends or joints in strakes. The first plank on each side is adjacent to and fitted to the pertinent bottom plank at an angle of about 140 degrees. The precise nature of the junction is unclear at present, but a subject of intense interest and study to be further explored with fragment models.

FASTENINGS

The boat in grave 10 at Abydos was sewn together through lashing channels that created transverse lines of reinforcement and strength in the hull. The lashing, preserved in two instances, consists of a woven strap about 7.5 cm wide. No wood-to-wood fastenings (mortise-and-tenon, treenail or pegs) were recorded.

Figure 5.3 illustrates the fastenings discussed here. The type of channel is dependent upon plank location in the

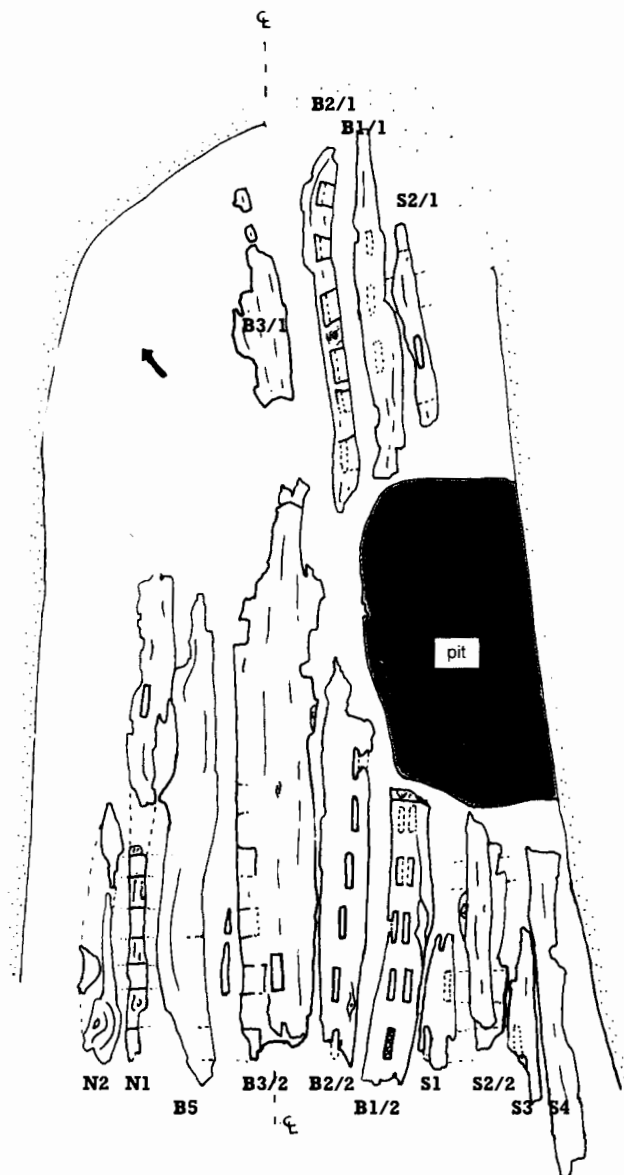


Fig. 5.2. Plan of excavated timbers, BG 10 (drawing: author).

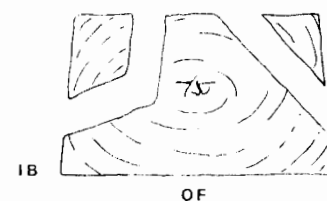


Fig. 5.3. Examples of lashing channels in B1, 6 cm thick (drawing: author).

hull. For example, the outboard edge of B1/2 includes lashing channels that angle from near the plank's centerline to either edge, terminating in a mortise with a center typically 2.5 cm above the plank's outer face. Angles are consistent at approximately 55–60 degrees from the inner face to an edge. The inboard edge of the same plank features L-shaped lashing channels, mirrored by L-shaped lashing channels on the outboard edge of B2/2. Neither the inboard edge of B2/2 nor the south edge of B3 has any fastenings. The north edge of B3 and the inboard edge of B5 have L-shaped lashing channels. At the extreme eastern end of the hull, L-shaped mortises (90 degrees) seem to be the primary fastening mechanism. Side planking was fastened through channels parallel to planking faces and passing completely through individual timbers and with lashing in L-shaped channels.

Whether the channel is angled, L-shaped, or parallel to the face, average mortise dimensions along the edges are 7–8 cm long and 1.7–2.0 cm thick (approximately one ancient Egyptian palm long and one digit thick). Five mortises on two timbers (B2/1 and N1) incorporate chisel blade cuts. The blade probably was metal and measured 2 cm long and about 4 mm thick. Closely spaced (0.6–1.0 mm) saw marks cover about 8 cm of B3's south edge. No other tool marks are visible on the timbers.

BATTENS, BUNDLES AND MATTING

Insect frass and decayed botanical matter filled gaps between planks at the time of excavation. Despite the degraded condition of much of the plant matter, it is clear that many of the plank edges did not originally touch each other, but were separated by a now-vanished intermediate

material. Impressions in mud plaster below and long plant fibers within the gaps between planks document something other than a plank present at the time of burial. Research to identify the filling material continues. A separate layer of matting covered the interior of the hull, and there is some evidence for wood battens of the same species used to construct the boat.

DECORATION

Inside the hull, matting covered its dark, reddish-brown wood. The outer surface was coated in plaster and a solid dark yellow or ochre pigment, also seen on other boats. No other decoration was identified.

Analysis

Figure 5.4 provides a minimal interpretation of evidence for the original construction of the boat. The BG10 profile (Fig. 5.5) is reconstructed from overall measurements and from the rising angle of its eastern end. No determination of bow or stern can be made from available evidence. If a length of 22 m is assumed, with a load waterline of about 30 cm, displacement may be calculated at about 10 metric tons. The weight of the hull will depend upon the wood type used to build it, but it is likely to be at least 1.5 tons.

The flat-bottomed construction and angular chine allow a precise definition of the Abydos hull form, but several areas will benefit from further analysis. Separation or splaying of planks cannot account for the impressions in the mud plaster beneath the 4–5 cm gaps between bottom

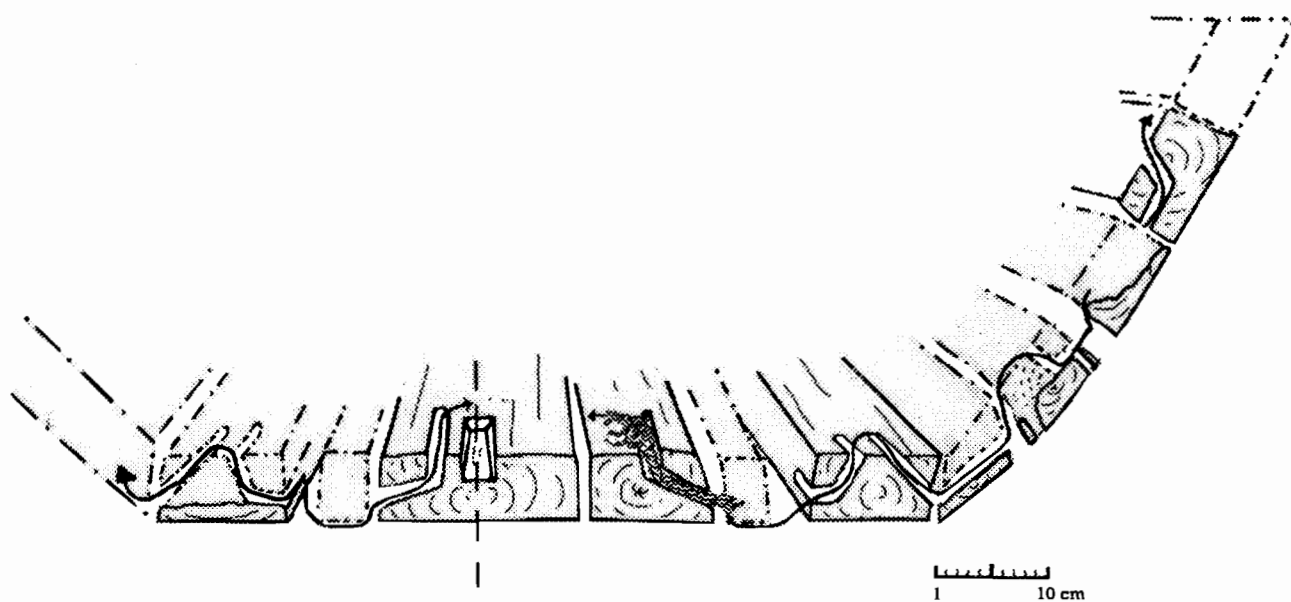


Fig. 5.4. BG 10 section, 2000. Extant planks are indicated by solid lines. This section is between 5 and 10 cm east of the boat's west end (drawing: author).

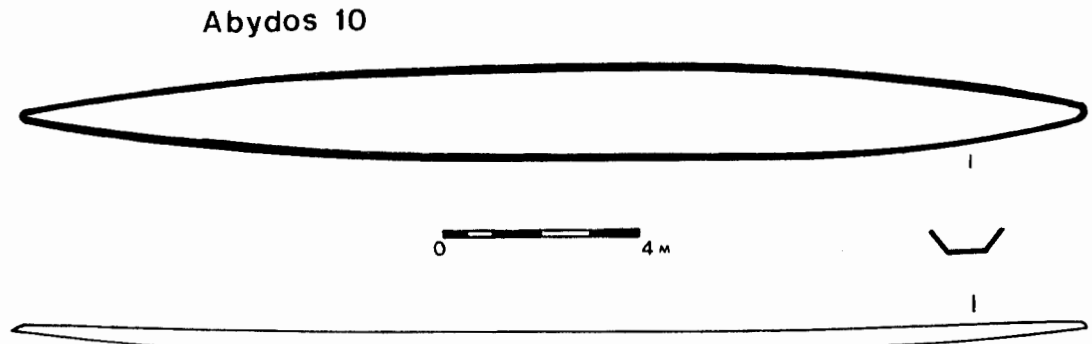


Fig. 5.5. BG 10 profile (drawing: author).

planks. Further study and excavation of an entire hull will clarify this issue.

Similarities with other ancient Egyptian hulls are numerous (see Ward, 2000, for details of other vessels). In the Dashur boats (*ca.* 1850 BCE), the central plank has the closest and cleanest grain. Lashing channel dimensions are paralleled by lashing channels in timbers from Lisht (*ca.* 1950 BCE). Remains of lashing within channels point to the same strap-like composition as that used to join Lisht timbers. Like the Khufu ships (*ca.* 2550 BCE), the timbers have virtually no tool marks remaining upon them. Hull proportions and shape below the waterline point to clear connections between Abydos and Khufu vessels. Like all the craft mentioned above, the lashing is transverse – across the hull, rather than along planking seams – unlike any other sewn boats in the world. And like all the other ancient Egyptian hulls of the pharaonic period, there are no fastenings that penetrate the hull planking – all connections are between plank edges and across the inner face.

Standardization is evident in edge mortises of very similar dimensions placed at the same distance from the hull's outer surface for both angled and L-shaped lashing channels. In addition, channels were cut at similar angles to the plank edge. Standardization is evident in the distribution of fastening types across the bottom, but not in plank shapes where symmetry does not seem to have played the same role it did in later vessels.

The construction of the Abydos boat argues against the interpretation of another group of First Dynasty timbers as belonging to ancient watercraft. Petrie suggested that timbers from Tarkhan had fastening patterns that allowed them to be reassembled into a niched façade similar to a *serekh* (Petrie *et al.*, 1913: pl. IX–X). All of the timbers, now on display in the Petrie Museum of University College, London, have mortises that pass perpendicularly through the planks. These features, combined with plank dimensions, argue against the Tarkhan planks being from watercraft (Ward, 2000: 32–38, *contra* Vinson, 1994: 18). Fastening methods are similar, but the mortises are about half the length of the Abydos examples and not truly comparable.

Conclusion

The presence of so many full-sized vessels in a monumental context is unprecedented in ancient Egypt. Several sites include five or six watercraft outside pyramids (Ward, 2000: 70), but only deposits of models provide such high numbers in later periods. The relationship of boats and funerary complexes offers the opportunity for speculation: if the non-cemetery portion of Abydos includes these boats, probably related to one of the nearby early First Dynasty monuments, then the boats are not specifically associated with the dead ruler's body. By the Fourth Dynasty, mortuary practice included the burial of three intact and two disassembled vessels around the pyramid and causeway of Khufu, who is presumed to have been interred deep within the pyramid. Continuing to investigate the Abydos hulls and their relationship to the funerary monuments will provide insights into the development of state religious practice.

The Abydos boats are the world's oldest planked hulls and are built in a previously undocumented manner, which this preliminary report begins to describe. Although they were buried in a strictly ceremonial context, their function cannot be determined. The long, slender hulls have precedents in the wooden vessels pictured on Naqada IIb pottery and antecedents in the flat-bottomed Khufu ships. The techniques used to build the boats reflect both their antiquity and practices used by Egyptian shipwrights for thousands of years after the desert covered these boat graves.

Acknowledgment

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Notes

- 1 Directions are given in accordance with local North.
- 2 Contrary to previous reports, the boats all seem to be built of

the same wood, which has been identified as an indigenous species. Further scientific identification is planned, but not available at this writing.

References

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