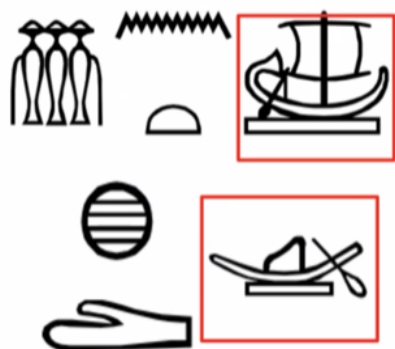


Essex Egyptology Group: Sunday 4 June 2023: Ancient Egyptian Boats and Ships - A talk given via Zoom by Dr Ziad Morsy

Ziad Morsy, who has recently completed his PhD on 'Nile Boats and Riverine Traditional Communities in Egypt' at Southampton University, began his talk by explaining his role in the Honor Frost Foundation which supports maritime archaeology in the Eastern Mediterranean area. Speaking to us from Alexandria,



Dr Morsy reminded us of Herodotus's famous quote "Egypt is the gift of the Nile" and that boats have therefore been of paramount importance to Egyptian society since predynastic times. Hieroglyphs that feature boats include *hnt* with a determinative of a fully rigged boat for sailing southwards with the North wind, and *hd* where the sails are down for rowing northward with the current.

Our evidence for ancient Egyptian boats is two-fold: iconographic evidence and archaeological evidence for the boat building tradition. Images of boats have featured on pots, wall scenes in tombs and temples, in model form, and full-size boats have been excavated from the desert - most famously the Khufu boats.

The earliest evidence for the use of boats in Ancient Egypt is circumstantial. Fish bones found at the camp sites of prehistoric hunter-gatherers include larger deep-water fish that can only be caught by deep-water fishing in some form of boat. Images of a boat with oars featured on a pot from the Naqada I period (Suez Museum) and a Naqada II pot depicting a boat with a sail (British Museum) were shown. Egyptian Nile boats of various types and purposes were a common sight and remain so in Egypt today - notably the dahabeah and the felucca.



Naqada II pot with boat. (BM)

There are two main types of ship burials - funerary boats and those used for trade. These were precious commodities in ancient Egypt, so burying them was not done insignificantly. Full-size boats have been excavated at Abydos and Giza, whereas boat models have been found in Middle and New Kingdom tombs.

Abydos boats

The first physical evidence of these dates around 2770-2920 BCE. 14 full-size boats were located next to the funerary enclosure of the 2nd Dynasty king Khasekhemwy, though these predate this enclosure, and have been dated to the 1st Dynasty. The boats measured an average of 18-24 meters (59-78 feet) in length, 2-3 meters (6-9 feet) in width, and about 60 cm (24 inches) deep and may have accommodated up to 30 rowers each. It is unclear, however, if these boats had been used prior to their burial, or were built specifically for funerary purposes.



Abydos Boats next to the 'Shunet el Zebib' funerary enclosure of Khasekhemwy (Wikipedia)

Weret's burial ground - an ancient royal boat tomb - originally contained boats used by the pharaoh during his lifetime. A team of American archaeologists have recently discovered more boats dating from the 12th dynasty (c1850 BCE). The walls of the burial ground have graffiti of boats with rigging.

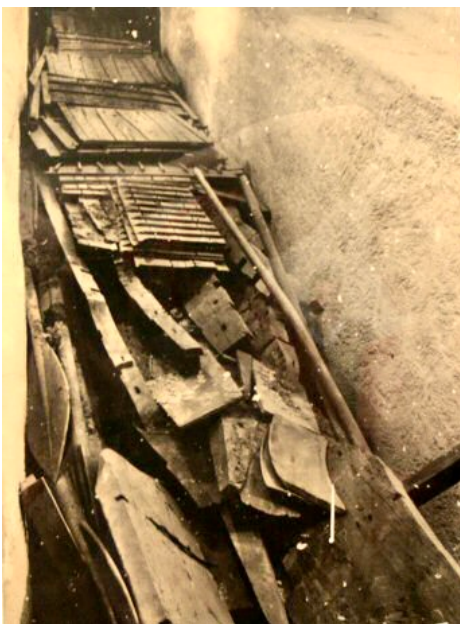


The interior of the boat building (view looking east) at the end of the 2014 season. (J Wenger)

Khufu boat - 4th Dynasty 2650 BCE

Khufu's boat was built either as a 'pilgrimage ship' that he may have used during his lifetime, or as his 'solar barque' for his afterlife use. During preparations for the visit of the Saudi Arabian King Seoud to see Egypt's King Farouk, sand mound debris was being cleaned next to the Great Pyramid when two boat pits were discovered by engineer Kamal El-Mallakh, covered by huge limestone blocks. Ahmed Youssef Moustafa, archaeologist and chief restorer of the Department of Antiquities, experimented with various construction techniques and craftsmanship methods to work out how to reconstruct the Khufu boat. After 5 attempts over 28 years, it was successfully reconstructed - the first example of Egyptian experimental archaeology, bridging the knowledge gap between images & models. Khufu's boat has been displayed next to the Great Pyramid until 2021 when it was moved to the Grand Egyptian Museum (GEM).

The length of the boat is 43.4m, its maximum width is 5.9m, its depth is 1.78m, its papyrus-shaped bow is 6m high, and its stern is 7m high. The boat has ten oars, with five on each side, and their lengths range between 6.5m and 8.5m; a central main cabin and a captain's cabin at the front of the boat. Two large oars formed the rudder, and the whole boat weighs around 45 tons.



Khufu boat as originally found in pit.



Re-assembled boat on display. (Wikipedia)

Khufu Second Boat

The excavation of the second Khufu solar boat and its artefacts which began in 2009 was completed in 2021 by the joint Japanese and Egyptian archaeological mission, led by Sakuji Yoshimura and Issa Zidan of the GEM. The project has

conserved some 1,700 wooden pieces of the boat that were removed from the pit. The structure was in poorer condition than the first boat. A \$3m grant has been made available to complete the final restoration work and the reassembly of the Second Khufu Boat. Once the team has completed their analysis to assemble the ship and the final restoration work is finished, the Second Khufu Ship will be exhibited beside the First Khufu Solar Ship in a new building being constructed just for them at the GEM.

Dashur

Discovered by John Perring in 1839, it was excavated by Lepsius and Maspero, and later by Jacques de Morgan. The site consists of a main pyramid, flanked by seven smaller lateral pyramids. Jacques de Morgan was the first to discover the entrance to the pyramid and to excavate the royal burial vault, attributed to Senusret III. More than a treasure hunter, de Morgan was also a scientist. He was aware of the need to publish an illustrated inventory of his finds, and the context in which they were found. In 1894, de Morgan discovered 4 boats with oars buried in the sand beside the brick pyramid of Senusret III.



Study of the Dashur boats provided knowledge about Middle Kingdom ship construction and compared with reliefs, boat models and the Khufu boats, the

boats show evidence of use and repair. They are mainly made of cedar but with other materials. They were constructed using dovetail joints to brace the long planks together and by lashing them together using wooden pegs and wet ropes which shrank when dry creating a tighter fit.

Two of the boats are now on display at Sharm el-Sheik; the other two in the USA.

Boat Models

In his 1913 book, George Reisner describes 4 categories of boat models: 1. Boats for ordinary use (practical boats for travelling, carrying freight, hunting or pleasure); 2. Boats used for funeral purposes (ceremonial boats); 3. Solar boats for use in the Underworld (magical boats); 4. Boats placed in the temples for the use of the gods, or in ceremonies such as the Osiris mysteries (divine boats).



Fishing boats (Cairo Museum)



Funeral boat (Museum of Fine Arts, Boston)



Solar barque (Harry Burton ?) Horus



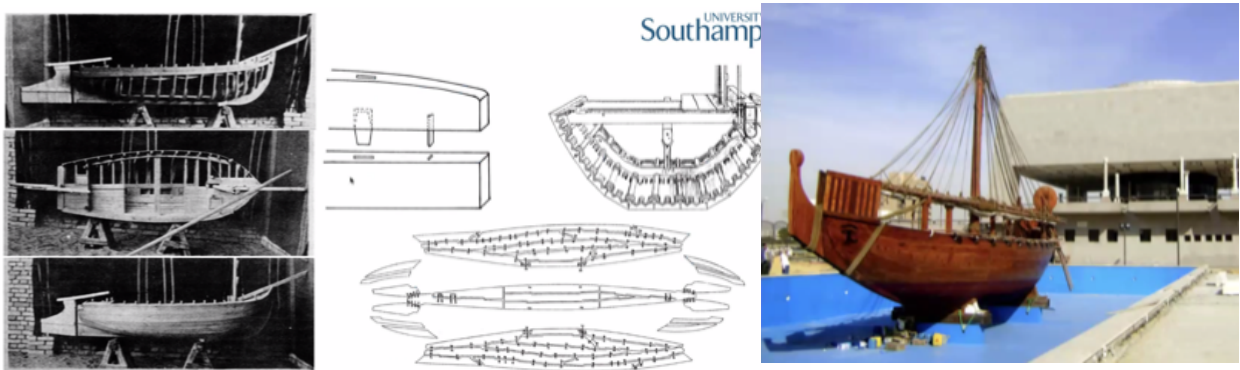
Ceremonial Barque (discopalace)

A free download of Reisner's book is available via this link: <https://archive.org/details/modelsofshipsboa00reis/page/n5/mode/2up>

Trading boats

Archaeological sites of coastal storage facilities for large trading boats have been discovered at:-

1. **Wadi Gwasis** - Middle Kingdom c1985 BCE. A cave gallery cut into the rock escarpment. Boats were disassembled for storage. The size of an anchor & side rudder found indicates boat size. Archaeologists at the New Suez Museum combined iconographic information with experimental techniques using hand tools to construct a replica boat which was sailed to suggest the possible Mediterranean to Punt route.



2. **Ain Sokhna** - Hieroglyphs on the mountainside, a cave system of 8 storage galleries and the charred remains of boats/ships plus a smelting camp site where different metal ingots were extracted have been discovered at Ain Sokhna. Ancient boats were dismantled ~ IKEA flat-pack style ~ before storage in caves then rebuilt for use the following year. Ongoing work since 2008 is accompanied by live tweeting from the site.
3. **Harbour of Wadi el-Jarf** - Old Kingdom - 4th Dynasty (reign of Khufu): comprises 6 zones: zone 1: Boat galleries - zones 2-4 - workmen's camps; zone 5 workshops & repair shops; zone 6 - harbour storage. 'L'-shaped man made port - the largest structure ever found. Sherds, ropes, and papyri describing stone block transportation were found in the galleries. Pierre Tallet, Head of the French archaeological mission excavated the coastal village of Khufu's pyramid builders - elite craftsmen who specialised in moving blocks from the el-Markha plain across the 50km stretch of the Gulf of Suez to the Wadi el-Jarf, then overland for the Nile journey to the Giza building site. Tallet was looking for hieroglyphic rock inscriptions in 2013 when he discovered the papyri, now known as the Red Sea Scrolls - the record by Merer who oversaw workers in the reign of Khufu at the Wadi el-Jarf harbour site. The papyri represents the



archives of a single work gang named 'The Escort Team of The Uraeus of Khufu is its Prow'.

For more detailed information see: Tallet & Marouard, JARCE 2016: <https://www.ancientportsantiques.com/wp-content/uploads/Documents/PLACES/RedSea/WadiJarf-Tallet2016.pdf>

Book: 'How Ancient Papyri Reveal the Secrets of the Pyramids' by Pierre Tallet and Mark Lehner (2022), Thames & Hudson.

For a 1 hour You Tube/York Ideas video with Pierre Tallet and Mark Lehner go to:-

[https://www.google.co.uk/url?](https://www.google.co.uk/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&ved=2ahUKewjXwdrE18r_AhXMglwKHbSvDu0QwqSBegQITxAB&url=https%3A%2F%2Fwww.youtube.com%2Fwatch%3Fv%3DFbny1JsggXY&usg=AOvVaw1m_XydT4HogklnjRsrYw4g&opi=89978449)

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Discussion - Q&A

Q: Janet Brewer: How were the 2m stone anchors were quarried from the mountain?

A: a 1/2 ton block could be cut then moved with only 6 people using sledges & ropes.

Q: Barbara Pentlow: Was cedar the only wood used to build the boats?

A: the wood was 98% cedar, though minor repairing using indigenous wood - sycamore, beech or acacia. Wood for any of the king's boats would always be cedar, whether for Nile boats or sea-going vessels. Daily life boats - papyrus, sycamore or acacia. Ropes were made from hemp or reeds

Q: Pat Kennedy: Was the coastal route always clockwise and was navigation subject to the tides or just the trade route?

A: Coastal navigation always needed sight of land, though we are still lacking evidence of navigation on the Mediterranean.

Michael Tweddle

17/6/2023

Links

<http://news.nationalgeographic.com/2016/11/royal-burial-boat-ancient-egypt-found/>

<http://www.bbc.co.uk/ahistoryoftheworld/objects/-q-160iURT694-i0Eo5b8Q>

<http://www.ancient-origins.net/artifacts-other-artifacts/abydos-boats-transporting-pharaohs-through-afterlife-004999>

<http://www.touregypt.net/featurestories/greatpyramid5.htm>

<https://www.voanews.com/a/egypt-famed-pyramids-new-lab-restore-pharaonic-boat/3786924.html>

<https://www.efe.com/efe/english/technology/egypt-opens-state-of-the-art-lab-to-restore-khufu-ship-near-giza-pyramids/50000267-3222696#>