

In Small Things Forgotten:

EXAMINING THE KIZILBURUN COLUMN WRECK FASTENERS

John D. Littlefield

Excavation of the Late Hellenistic column carrier wrecked at Kızılburun, Turkey began in 2005 under the leadership of Donny Hamilton and current INA President Deborah Carlson. With five seasons of excavation and two seasons of research dedicated to the shipwreck, the field portion of the project concluded in 2011 with the raising of the remaining six (of eight) marble column drums for study and conservation. The drums are very large, in the magnitude of four to seven tons each, and constituted the bulk of the ship's cargo. However, the ship itself survives in the form of over 800 small fragments of wood, comprising only a fraction of the vessel, and more than 1000 pieces of fasteners. It is in these small artifacts that I have found many headaches, enigmatic questions, and great pleasure while attempting to discern details of the ship's construction.

My involvement with the project began in the summer of 2008 when I was tasked with cataloging the previously excavated wood fragments using sketches, photographs and written descriptions. At the conclusion of 2008 I was offered the opportunity to also catalog the ship's fasteners and the wooden remains yet to be raised to form the basis of my M.A. research. As a relatively new student in the Nautical Archaeology Program at Texas A&M University, I was a little daunted by the prospect of drawing conclusions about a ship, of which so little remains. Now, the excavations are complete and I have spent a considerable amount of time handling the vestiges of the hull. Both groups of artifacts suffer from poor preservation, but a considerable amount of information has been gleaned to amend or support our knowledge of first-century BCE shipbuilding and stone transport during this period.

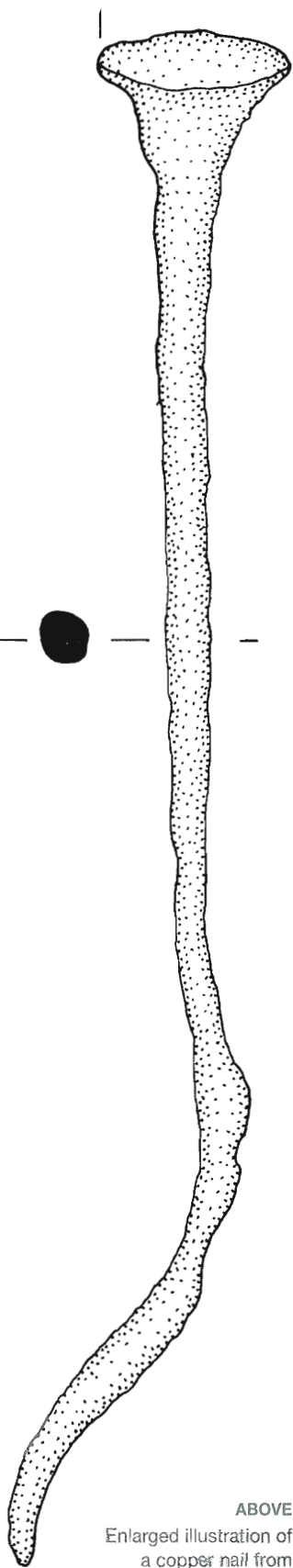
Wooden Remains

The wooden remains of the ship are not only meager, but also heavily fragmented, and particularly friable. After spending more than two millennia pressed beneath marble column drums weighing 6-7 tons each, the fragments are also understandably distorted. Often, recording the ship's timber fragments is

only feasible in two dimensions and not always in the same two dimensions; further complicating the interpretation of a constructional puzzle with most of the pieces missing. Many of these fragments are stand-alone bits, having no adjoining pieces. However, in some cases, especially with the nearly three meter-long keel section and a number of framing elements, fragments were temporarily reassembled into more substantial timbers by utilizing diver's notes, sketches and in situ photographs. The process of gathering these data for a single timber's reconstruction often takes days to locate, collect and evaluate before attempting to reassemble a timber section for recording. There is a need for frequent revisits to a single timber as new questions arise and access to facilities at the Bodrum Research Center have enabled me to stay for extended periods of time in order to record the timbers with as much detail as possible. Still, even with the best of notes and photographs, reassembly was often impossible due to the fragmented and discontinuous nature of the remains. Therefore, in addition to the above mentioned methods of recording, other methods such as 3-D modeling have been employed to gain a better, yet still incomplete understanding of the construction of the vessel. Additionally, other direct and indirect information has been garnered from the ship's fasteners.

Ship's Fasteners

The analysis of nails from archaeological contexts is often overlooked. Seldom are they given more attention than an illustration plate in excavation publications. This is beginning to change, especially in shipwreck excavations as the importance of such seemingly insignificant artifacts has taken on a greater importance in the overall understanding of a vessel, particularly when remains are sparse. Examination of the fasteners confirmed or enhanced data drawn from my study of the timber fragments from the late Hellenistic marble carrier; information that is severely lacking in the on-going debate about the existence of a specialized ship type for carrying heavy stone cargoes. For example, all of the extant frames from the vessel are disjointed and had broken



ABOVE
Enlarged illustration of
a copper nail from
the Kizilburun site.
Mustafa Korkmaz

away from the planking, which made determining the frame spacing problematic. Using the positions of in situ nail heads, I was able to determine the frame spacing of 25 cm. This figure was later corroborated by two impressions from adjacent frames found on a small section of reconstructed hull planking. Frame spacing is one of the major diagnostic attributes of ship construction. In addition to frame spacing, laboratory analysis of the fasteners also offered information about planking thickness and framing dimensions.

All fasteners were tested with a rare earth magnet and found to be of non-ferrous material, which prompted the desire to know if they were made of copper or bronze. Few ancient vessels have been found to have been constructed with bronze fasteners, although translations of ancient texts suggest bronze was the material of choice. This is another on-going question in ancient ship construction, as so few wrecks have had fastener metals identified with little more than visual examination that often proves to be problematic or incorrect. To this end, I requested the use of INA's pXRF (portable X-ray fluorescence) analyzer that gives an elemental breakdown of metals. Luckily, visiting scholar Yuval Goren of Tel Aviv University was in Bodrum to conduct petrographic analysis of cooking pots from the Tektaş Burnu shipwreck and was kind enough to instruct Deborah Carlson, fellow NAP student Ryan Lee and myself in the use and applicability of the pXRF. After a few days of analyzing what seemed like

every available bit of modern metal available in order to test known materials, I turned my attention to the ancient nails and found that they are made of a very pure copper, not intentionally alloyed with another element (such as tin to form bronze). This information amends our still small database of ancient nail studies.

Discussion

It is important to remember, as archaeologist James Deetz wrote, not to overlook the potentially valuable information obtained "In Small Things Forgotten." Thus far, at least 64 architectural stone cargoes have been discovered in the waters of the Mediterranean, dating from the second century BCE to the sixth century CE. Few of these shipwrecks have received little more than superficial examination, and even fewer have been subject to full archaeological excavation. While little is known about the construction of stone carrying vessels of antiquity from the archaeological record, even less information has been obtained from literary and iconographic sources. As a result, my study of the Kızılburun hull remains will contribute to the modest corpus of existing data and is poised to help clarify our understanding of stone transports in the late Hellenistic period.

Texas A & M University MA candidate John D. Littlefield completed his B.Sc. at the College of Charleston, and a dendrochronology certification course at the University of Arizona. In addition to ancient ship construction, his research interests include dendroarchaeology, survey methodologies, and American Civil War Era experimental watercraft.

BELOW (CCW from upper left)

Rows of in situ fasteners.
PHOTO Catherine Sincich

In the wood lab at INA, Bodrum Research Center.
PHOTO Tuba Ekmekçi

Recording a frame fragment.
PHOTO Kimberly Rash

John using a portable X-Ray Fluorescence (pXRF) unit. This state-of-the-art technology uses an x-ray beam to identify the specific elements present within archaeological material and provides archaeologists and conservators with valuable chemical information that can be used to better conserve and interpret submerged cultural heritage.
PHOTO Ryan C. Lee

