



SPAFA CON2021

**Papers from the SEAMEO SPAFA International Conference on
SOUTHEAST ASIAN ARCHAEOLOGY AND FINE ARTS**

13 - 17 December 2021

Editor: Noel Hidalgo Tan

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INTRODUCTION

This volume contains the extended abstracts from the papers presented at the SEAMEO SPAFA International Conference on Southeast Asian Archaeology and Fine Arts, which was held online from 13 to 17 December 2021. Also known as the SPAFACON2021, this conference was organised online due to the pandemic. Despite the disruption brought about by Covid-19 to our in-person events, training programmes and field research, it is heartening to see that archaeology and cultural heritage has continued under new modes of communication and collaboration.

This fourth iteration of the SPAFACON is also scheduled a year earlier than our usual triennial cycle to commemorate the 50th anniversary of SEAMEO initiating a centre dedicated towards archaeology and the fine arts. Over the past year, SPAFA has also been highlighting this legacy of international cooperation and capacity-building by sharing our photographic archives on our social media.

I am delighted by the high level of enthusiasm and intellectual curiosity brought by the participants to the conference. During our call for papers we received close to 90 submissions, but owing to the pressures of time and the online format, we were only able to accept 34 papers for the conference. The variety of papers present here, although a small set compared with our usual proceedings, reflects the breadth of the centre's ambit – covering not just archaeology, but also performing arts, visual arts, museum studies, and other aspects of Southeast Asian cultural heritage.

I would like to thank all the participants, without whom this conference would not be possible in its present form, in particular, our Governing Board members who represent every country in Southeast Asia, and to the Ministry of Culture, Thailand and the Ministry of Education, Thailand for their long-standing support of SEAMEO SPAFA and its activities.



Mrs Somlak Charoenpot

Centre Director

SEAMEO SPAFA

As my father said: Traditional boatbuilding in Pasuruan, East Java

Seperti kata ayahku: Pembuatan perahu tradisional di Pasuruan, Jawa Timur

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Abstract

This paper reports the ethnoarchaeological project conducted in shipyards in Pasuruan, East Java, Indonesia, where boatbuilding skills and knowledge are exclusively transferred from fathers to sons. It aims to describe how the traditional boats are built, including details of the technique, tools, and materials used in the process. It will also overview the wooden ship and boat remains found in Indonesia to date, to make a comparison between archaeology and ethnography data. This paper proposes that an in-depth study of traditional boatbuilding that is still in practice today can contribute significantly to the study of wooden shipwrecks in archaeological sites.

Tulisan ini memaparkan penelitian etnoarkeologi yang dilaksanakan di galangan-galangan kapal di Pasuruan, Jawa Timur, Indonesia, dimana keahlian dan pengetahuan membuat perahu hanya diturunkan dari ayah ke anak laki-lakinya. Tulisan ini menggambarkan secara mendetail teknik, peralatan, dan bahan yang digunakan dalam proses pembuatan perahu tradisional. Selain itu, diberikan gambaran tentang tinggalan kapal dan perahu kayu yang ditemukan di Indonesia untuk memperbandingkan data arkeologi dan etnografi. Para penulis berpendapat bahwa kajian mendalam tentang pembuatan perahu tradisional yang masih ada sampai sekarang dapat berkontribusi secara signifikan pada penelitian tentang tinggalan kapal kayu yang ditemukan di situs-situs arkeologi.

Keywords

traditional boatbuilding; shell-first construction; Pasuruan; East Java; ethnoarchaeology
pembuatan perahu tradisional; konstruksi shell-first; Pasuruan, Jawa Timur; etnoarkeologi.

Introduction

In Indonesia, as well as Southeast Asia, the studies of the traditional ship- and boatbuilding was initially dominated by historical and ethnographic research. Archaeology has then contributed to the discussion since around the 1980s (Manguin 1989). While the archaeology of traditional ships and boats thrived from the absence of investigation on shipwreck sites, as the subdiscipline advanced, it was undeniable that the mostly fragmentary nature of the data many times limits researchers to draw a comprehensive conclusion. Recent archaeological investigations on one of the Southeast Asian wooden vessel-building traditions—the lashed-lugs—have put forward particularities found within one tradition (Lacsina, 2016; Mochtar, 2018). The reasons behind this variation are still unanswered and scholars are starting to show interest to follow their predecessors' path by looking at ethnographic data of today's traditional boatbuilding practices to enhance the understanding of the whole process. Meanwhile, the number of traditional boatbuilding practices has decreased in almost a century, especially in Indonesia. This situation calls for urgent documentation of the remaining practices so that we will not lose them completely.

Boatbuilding practice in Pasuruan, East Java

Pasuruan is located on the east coast of Java Island, directly adjacent to Madura Strait. As commonly found in a coastal city, many people are still using traditional boats for their daily activities. Around half of the locals are fishermen and the non-fishermen are still involved in sea-related activities, such as fish-selling, smoked-fish making, boat-building, and attending the festival/celebration held on the beach. There is one large harbour in the city, and there are at least five small ports in the villages that the team visited. These ports are mainly used by small-scale fishermen, as well as by boatbuilders to deliver their final products to be sent out to the customers.

The team visited ship/boatyards in the villages of Semare, Kisik, Panggung, Lekok and Nguling, consecutively from the west to the east coast of Pasuruan. However, our main informant was Salman (41 years old), whose boatyard was the sole workshop in the village of Semare. We interviewed him, his father—who taught him how to build a boat, and his two sons in law who were apprenticing under him. We also observed and recorded the process of making a boat. At that time, Salman and his sons in law were building a 12m-long fishing boat. The visits to other workshops in other villages were conducted to collect more information about the boatbuilding tradition in the area and to investigate whether there are some variations in the techniques or in the materials they used.

The builders in all shipyards that we visited make the boat using the shell-first technique. The first step is to lay the keel. For a 12m boat, a keel consists of three pieces of wood,

which are connected by half-lap splice joints. They then pile the hull plank in a strake system, one strake consists mostly of three planks. Each plank is bent by the fire to fit the desired shape of the hull. Salman uses dowels exclusively for the plank fastening, while some other builders use a combination of dowels and iron nails. The dowels will later be locked by pegs. There are seven strakes on the starboard as well as on the port side. The fore planks meet on the bow end, consisting of several thick timbers stacked on top of the other. A similar system is apparent also on the bow assembly.

The boatbuilders choose two types of wood to build their boats: teak and *pung* wood. Teak is used in almost all components of the boat, except for dowels and pegs. The locals call the wood chosen to be made into dowels *kayu pung*. This specific wood is reported to be very pliant but strong. A sample of dowel is currently being analysed in the laboratory to identify the species of the wood. In terms of tools for building a boat, the modern machines they use are the electric saw, sander, and grinder. Salman is one of the pioneers who integrated the utilization of modern machines to make the building process faster than it was in his grandfather's workshop. However, he keeps all the principles and standards taught by his predecessor. Many of their tools are handmade, customised to a specific duty. For example, a metal hook to help them position the dowels when adjoining the planks and a tool to make sure the seam of a plank perfectly fit the adjacent plank.



Fig. 1 Salman and his sons in law in his workshop.



Fig. 2 The process of bending a plank

Wooden shipwreck/boat remains sites in Indonesia

To date, the majority of shipwreck/boat remains sites in Indonesia are lashed-lugs vessels. Other sites are of South China Sea hybrid vessels (Manguin, 1993) and West Indian Ocean vessels (Flecker, 2000). All three types were built with shell-first construction technique, the builder assembled the hull planks after laying a keel/keel plank, and later strengthened the hull with frames. The oldest site is Kolam Pinisi, dated from the fifth to seventh century C.E. in Palembang, South Sumatera (Manguin, 2012). Some of them were found with a large number of cargoes, mostly ceramic, making them obvious as trading ships, such as the Belitung wreck (Flecker, 2000), the Cirebon wreck (Liebner, 2014), and the Java Sea wreck (Niziolek *et al.*, 2018). In contrast, others were found in the coastal area without contextual other artefacts, making them difficult to be identified in terms of the original function.

Regarding this ethnoarchaeology study, the team will only focus on the lashed-lug watercraft, for a few reasons. First, this is local traditional boatbuilding. Although this tradition did not belong exclusively to Indonesia, rather to a broader region of Southeast Asia, most of the sites were found in Indonesia, indicating that in the past the tradition was commonly in practice in the archipelago. Second, according to the ethnography reports, up to the twentieth century, some people in a small part of eastern Indonesia were still making boats in the same way (Horridge, 1981; Dwyer and Akerman, 1998), indicating

that there was a continuation of such tradition. Third, most of the archaeological remains of lashed-lug vessels were fragmentary, except for Punjulharjo, Cirebon wreck, and Lambur. This opens an opportunity to use ethnographic data to aid in analyzing those sites.

Discussion

Shell-first construction is a much less common ship/boatbuilding technique among builders. Since its initial invention in the first millennium C.E., many builders around the world shifted to the arguably easier frame-first construction. A builder must have had a mental capability to imagine the curve of the hull they intended to make when building with shell-first construction. This was confirmed by Salman, who found it difficult to describe with words how he calculated the hull curve and how he decided a plank was suitable for a specific location. The best answer he could give us was that he saw it in his mind, but more importantly, that he felt it in his heart. It was truly like watching an artist work when the team observed the process of making a boat in Salman's workshop.

According to Salman, he learned the skills to build a boat from his grandfather. His father was also a boatbuilder, but Salman started very early when he was still a teenager, possibly when his father had yet mastered the skills himself. Salman is currently training his two sons-in-law because his son is still a toddler. His oldest son in law, Sutrisno, started making a small boat by himself under the supervision of Salman. It is a common occurrence in all shipyards that we visited, where a boatbuilder is assisted by his sons or sons in law, and in rare cases, by his nephew/s. All builders also confirmed that their father or grandfather taught them how to build a boat. This system of transfer of skills and knowledge might be the reason why the number of traditional boatbuilders is continuously decreasing. However, the team recognized the resilience of these people in safeguarding their profession. Before having their workshop, the builders used to go to other cities to make boats and ships according to the request from the local customers. They retain the skills to make various types of vessels so whenever the orders come from their customer they will readily accept them.

The observation of the traditional boatbuilding process provides new insights to re-analyzing shipwreck/boat remains sites. The most prominent is to re-examine the conclusion drawn previously about the sequences of work of building a boat. Another is to re-examine details, for example, dowel holes and the seam between planks. Interviews with the boatbuilders offer a new understanding of the cognitive aspect of people who make ships and boats in the past.

Conclusion

By observing the process of building a traditional boat, the team had gained much information that would be helpful in better understanding archaeological sites of shipwreck and boat remains. Sometimes it would be hard to explain much from fragmentary ship/boat components found, without proper background knowledge of ship/boatbuilding. Even for the sites with shipwreck or boat remains that are in remarkable condition, many questions are often left unanswered when researchers do not know where to look at. However, researchers need to be conscious when using the information from ethnographic data to explain archaeological data.

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