Principles in East Asian Shipbuilding Traditions

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Abstract

The archaeological study of excavated ships has significant potential to contribute to the realm of past seafaring and maritime activities in East Asia. This research assesses ship structure and construction methods, highlighting technological innovations identified in thirteenth and fourteenth centuries’ ship remains in China, Korea, and Japan. The existence of diverse shipbuilding traditions has been noted within the region. Endemic features in shipbuilding, however, have been understood as a linear evolutionary development. Innovations generate from not only endogenous growth but also exogenous factors. Technological hybridization concerning the use of a hull component from different traditions is a principle involved in shipbuilding technologies.

One such hull component that has been identified by archaeologists and historians in East Asia is the bulkhead. This component has been linked to technological innovations and its importance needs more study. This research pursues the bulkhead in the structure of oceangoing ships in relation to technological innovations, diffusion, and hybridization which formed regional shipbuilding traditions with other factors, such as environmental elements and material availability. The examination of these factors contributes to a wider understanding of the formation of shipbuilding traditions identified as a “Yellow Sea shipbuilding tradition,” an “East China Sea shipbuilding tradition,” and a “South China Sea shipbuilding tradition.” This framework is developed through reviewing primary and secondary historical resources and sites’ reports and studies and archaeological investigations, producing a database of excavated ships in the region.

The “Yellow Sea shipbuilding tradition” is primarily identified in ships showing flat bottoms, operating in the northern waters of the Yellow Sea, yet constructed using two different types of transverse components. The early utilization of bulkheads is archaeologically evidenced in the riverine ships dating back to the Tang Dynasty (618–907 A.D.), compared to early East Asian coastal traders using beams in nearby coastal traders of the Goryeo Dynasty (918–1392 A.D.).

Three case studies of archaeologically recovered East Asian ship remains are the focus of this research: the Quanzhou ship, the Shinan shipwreck, and disarticulated ship timbers from Takashima underwater site. Their structure and construction methods are reviewed in detail. The archaeological examination extends to the assessment of their longitudinal and transverse structure, and the type of timbers
and iron nails used for the hulls. The identified technological innovations on these excavated ships suggest an “East China Sea shipbuilding tradition”, which generally shows v-shaped bottoms, keels and bulkheads, and multiple-layered hull planking. Those ships built according to this tradition actively came to be used in seaborne activities within and beyond the region of East Asia and Southeast Asia.

The “South China Sea shipbuilding tradition” has been defined and is reiterated in this research as a type of hybrid ship integrating East China Sea shipbuilding traditions into Southeast Asian (Austronesian) shipbuilding traditions. While the idea of hybrid ships has been presented in previous research, this study traces the formation of such ships as they evolved from, and related to, adjacent shipbuilding traditions including the “Yellow Sea shipbuilding tradition” and the “East China Sea shipbuilding tradition.”
Declaration of Candidature

‘I certify that this thesis does not incorporated without acknowledgment any material previously submitted for a degree or diploma in any university; and that to the best of my knowledge and belief it does not contain any material previously published or written by another person except where due reference is made in the text.’

Singed by Jun Kimura

01/December/2011
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