

A shipwreck and an 800-year-old 'made in China' label reveal lost history

May 16 2018



Chinese ceramic bowls in situ at the Java Sea Shipwreck site. Credit: The Field Museum, Anthropology, Photographer Pacific Sea Resources

Centuries ago, a ship sank in the Java Sea off the coast of Indonesia. The wooden hull disintegrated over time, leaving only a treasure trove of

cargo. The ship had been carrying thousands of ceramics and luxury goods for trade, and they remained on the ocean floor until the 1980s when the wreck was discovered by fishermen. In the years since, archaeologists have been studying artifacts retrieved from the shipwreck to piece together where the ship was from and when it departed. The equivalent of a "Made in China" label on a piece of pottery helped archaeologists reevaluate when the ship went down and how it fits in with China's history.

"Initial investigations in the 1990s dated the shipwreck to the mid- to late 13th century, but we've found evidence that it's probably a century older than that," says Lisa Niziolek, an archaeologist at the Field Museum in Chicago and lead author of the study in the *Journal of Archaeological Science: Reports*. "Eight hundred years ago, someone put a label on these ceramics that essentially says 'Made in China'—because of the particular place mentioned, we're able to date this shipwreck better."

The ship was carrying ceramics marked with an inscription that might indicate they were made in Jianning Fu, a government district in China. But after the invasion of the Mongols around 1278, the area was reclassified as Jianning Lu. The slight change in the name tipped Niziolek and her colleagues off that the shipwreck may have occurred earlier than the late 1200s, as early as 1162.

Niziolek notes that the likelihood of a ship in the later "Jianning Lu" days carrying old pottery with the outdated name is slim. "There were probably about a hundred thousand pieces of ceramics onboard. It seems unlikely a merchant would have paid to store those for long prior to shipment—they were probably made not long before the ship sank," says Niziolek.

Plus, ceramics weren't the only cargo onboard. The ship was also

carrying elephant tusks for use in medicine or art and sweet-smelling resin for use in incense or for caulking ships. Both of these materials were critical to re-dating the wreck.

The resins and the tusks come from living things, and all living things contain carbon. A type of carbon atom called C-14 is unstable and decays relatively steadily over time. Scientists can use the amount of C-14 in a sample to determine how old it is. This analysis, known as radiocarbon dating, had been done decades ago and pointed to the shipwreck being about 700-750 years old. However, analytical techniques have improved, and the scientists wanted to see if the date held.

The amount of decayed carbon found in the resins and tusks revealed that the cargo was older than previously thought. When taken together with the place name inscribed on the ceramics, stylistic analysis of ceramics from known time periods, and input from experts overseas, the researchers concluded that the shipwreck was indeed older than previously thought—somewhere in the neighborhood of 800 years old.

"When we got the results back and learned that the resin and tusk samples were older than previously thought, we were excited," says Niziolek. "We had suspected that based on inscriptions on the ceramics and conversations with colleagues in China and Japan, and it was great to have all these different types of data coming together to support it."



Ceramic box base from the Java Sea Shipwreck, with a Chinese inscription that mentions a place, Jianning Fu, that dates from AD 1162 to 1278. Credit: (c) The Field Museum, cat. no. 344404. Photographer Gedi Jakovickas

The fact that the Java Sea Shipwreck happened 800 years ago instead of 700 years ago is a big deal for archaeologists.

"This was a time when Chinese merchants became more active in maritime trade, more reliant upon overseas routes than on the overland Silk Road," says Niziolek. "The [shipwreck](#) occurred at a time of important transition."

Niziolek also notes the importance of the Java Sea Shipwreck collection. "The salvage company Pacific Sea Resources recovered these artifacts in the 1990s, and they donated them to the Field Museum for education and research. There's often a stigma around doing research with artifacts salvaged by commercial companies, but we've given this collection a home and have been able to do all this research with it. It's really great that we're able to use new technology to re-examine really old materials. These collections have a lot of stories to tell and should not be entirely discounted."

Provided by Field Museum

Citation: A shipwreck and an 800-year-old 'made in China' label reveal lost history (2018, May 16) retrieved 3 May 2024 from <https://phys.org/news/2018-05-shipwreck-year-old-china-reveal-lost.html>

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