The bitumen boat belonging to the University of Pennsylvania Museum of Archaeology and Anthropology is one of a number that were excavated by famed archaeologist Sir Leonard Woolley, as part of the joint archeological expedition at Ur sponsored by the University of Pennsylvania and the British Museum. Woolley's decade-long expedition in the early 20th century uncovered vast amounts of information about the ancient civilization of Mesopotamia. Situated in the fertile plains between the Tigris and Euphrates rivers at the heart of modern-day Iraq, ancient Mesopotamia endured for over 7,000 years as an epicenter of culture and power in the Near East [1].

The bitumen boat at the PMAA was given an excavation number (U 8847) sometime between 1926 and 1927 and catalogued at the museum in March 1929. The designation “TTG” or “Trial Trench G” had been assigned to the boat during the expedition. This was one of a series of trenches that were excavated by Woolley within the 1926 and 1927 expedition seasons. The exact location of these trenches is not known, but they are believed to have been cut across the western part of the Royal Cemetery. Woolley didn't assign a specific grave number to the Penn Museum boat and did not include it in the list of objects in the published catalogue. While the Museum attributes U 8847 to grave PG 587 this is most likely a cataloguing error. Based on the location of the trench, the date of the boat is probably between 2500 and 2100 BCE [2].

Woolley asserts that the boats served a religious purpose. Many of the boats were found bearing clay or copper vessels filled with food, perhaps as offerings to deities in the afterlife. Another intriguing theory suggests that the boats were designed to lure demigods away from the body, correlating with the fact that they were often found at what seemed to be a distance from the rest of the objects in the grave [4]. Their presence is also symbolic of the more secular importance of these boats in a society whose many city states were united by a far-reaching network of rivers and canals [2].

Before Treatment, University of Pennsylvania Museum of Archaeology and Anthropology, 2010

The boat was made of a mixture of bitumen - a naturally-occurring tar-like material that was also used as a binding agent for ancient mortars - earth minerals and sand, as well as plant fibers. The surface is now coated with a layer of Paraffin wax, which Woolley commonly used to support artifacts during or after excavation.

The boat had been discovered protruding from the mixture. Above, the color red indicates calcium-rich (calcite or gypsum) areas, blue and pink represent silicon and orange represent sodium chloride (salt) - rich areas. The surrounding green indicates calcium-rich (calcite or gypsum) areas, blue and pink represent silicon and orange represent sodium chloride (salt) - rich areas. The surrounding green represents sulfur, which is a component of the bitumen itself.

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**TREATMENT**

**Rationale**: The decision to treat the bitumen boat was made in consideration of its singularity, as well as its inherent instability. The uniqueness of its materials made developing an appropriate protocol a challenge, therefore conservators at the UPenn Museum and the British Museum who have worked on bitumen model boats in the past were consulted.

1. Loose sand that had been poured onto the boat during its excavation was gathered using a soft brush and vacuum, and bagged according to the location it was collected.  
2. The boat's break edges were found to be actively powdery; these were consolidated with a microproppant, a technique developed at the British Museum for the consolidation of fragile ceramics in the solution of B-67 in lignin, a material chosen for its compatibility with the bitumen.
3. Breaks were repaired with 25% Aquazol 50 in ethanol/balmed with alpha cellulose and glass microbalms, which was tinted with carbon black pigment.
4. Although the paraffin wax applied by Woolley has helped stabilize the surface of the boat over the years, it does obscure its original appearance. Therefore it was decided that the wax should be reduced, in this case delicately with a scalpel after softening the wax with Stoddard's solvent.
5. A storage mount was built out of ethoform and covered with washed Tyvek in order to support the detached prov. Additional supports will be strategically placed beneath the prov and stem in order to prevent further stresses from being exerted on the center of the boat.

After treatment image of the boat.

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References


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