



**Ur Digitization Project**  
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**Advisor: William Hafford**

This summer I had the incredible opportunity to conduct original research as a PURM intern with the Ur Digitization Project. This project, a collaboration between the Penn and British Museums with the goal of digitizing and making freely available the records of Leonard Woolley's excavations at Ur in Iraq, was coming to a close at the end of June. My task was to conduct a study using the new Ur Online database, demonstrating its usefulness and producing new research in the process. My supervisors, Dr. Hafford and Dr. Zettler, encouraged me to pursue a project that interested me personally: I chose to study the textiles of Ur.

Though it is widely acknowledged that textiles played an important role in ancient societies, they have been little studied until recently. There is much to be done, and I am passionate about contributing to this important work. The first phase of my project involved collecting what data I could from the Ur-Online site and from Woolley's publications. This preliminary research revealed that Woolley's data on the textile tools he excavated was woefully incomplete; the majority of the whorls from Ur that had made it into the Penn Museum collections were not even mentioned in Woolley's field notes. The next step, then, was to examine these whorls and record my observations. I entered the data I gathered into the Ur Project database so future researchers will be able to build off of the work that I did.

While working with the objects, I became intrigued by the apparent use-wear on some of them. Several whorls had notches; others were chipped or scratched. There are two primary spinning techniques--low whorl and high whorl. As each method is equally efficient, the choice is culturally determined. It is thus profitable to determine the spinning method used at a particular site, though this is difficult without textual or iconographic evidence. I wondered if use-wear patterns could be established for different spinning techniques, and designed an experiment to see if I could reproduce the wear I was observing on the archaeological whorls. I spent a week spinning wool and flax

with custom-made whorls from Hershey Fiber Arts. Sure enough, after a week of intensive spinning, the whorls had developed use-wear patterns comparable to those I had noticed on the archaeological whorls.

I also examined textile pseudomorphs on bronze objects from the Royal Cemetery. Pseudomorphs are formed when a metal object corrodes in contact with textile or wood. Minerals from the metal take the place of the organic molecules, resulting in a mineral deposit that preserves the shape of the textile or wood long after these perishable materials have vanished. I was able to identify several different thread and weave structures in the textile pseudomorphs from Ur. Most excitingly, I was able to identify several samples of what appears to be felt. Dating to the second half of the 3rd Millennium BC, this would be some of the oldest felt identified in the world so far.

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