

From the CAAM Labs to the Field, and Back Again

For this issue of “In the Labs,” two undergraduate students enrolled in CAAM’s Minor in Archaeological Science write on the research they conducted in the field last summer.

RECORDING OF A BURIAL MOUND, GORDION (TURKEY)

BY BRADEN CORDIVARI C18

MY SENIOR RESEARCH PROJECT in the Department of Classical Studies concerns summer fieldwork at the site of Gordion in central Turkey. Gordion is a multi-period site with remains of habitation over nearly four millennia. The city reached its apex from the 10th century BCE to the 6th century BCE as the capital of the Phrygian kingdom, famous for its legendary King Midas, the subject of the recent Penn Museum exhibition *The Golden Age of King Midas*. My research focuses on a nearby tumulus—a monumental burial mound, which was excavated as a joint rescue operation between Penn



ABOVE: The tumuli at Gordion from a hot air balloon. The Midas Mound is at left. Photo by author.



Ben Abbott (Grad Group in Ancient History) and Braden Cordivari setting up survey equipment at Gordion. Photo by Richard Liebhart.

and the Museum of Anatolian Civilizations in Ankara after several illegal looting attempts necessitated action. I was responsible for the recording of the excavation, to which I applied many of the techniques from Peter Cobb’s *Intro to Digital Archaeology* CAAM course. This included drone-based photography, photogrammetry, GIS mapping, and digital section drawing. In my thesis I discuss the construction process of the mound and its social implications. The methods and material-based practices taught in both the *Living World* and *Material World* courses have provided me with much of the theoretical and practical bases for my work, as well as leaving me with questions that I will explore and approaches that I will use in the future. ●



Thread count is an important metric in textile analysis. Here, I use a cardboard viewfinder to count the threads in a wool garment with a silk strap.

ANALYSIS OF TEXTILE FIBERS FROM KHOVD AIMAG (MONGOLIA)

BY KRISTEN PEARSON C18

IN 2016, A WOMAN'S BURIAL dated to the 10th century CE was excavated in Khovd Aimag, Mongolia. The cool, dry conditions of the rock cave where the woman was laid to rest preserved more than 30 artifacts of perishable materials, including horse tack, garments, footwear, etc. This summer, I had the privilege of studying this assemblage in depth, completing the technical analysis of the material in Mongolia and taking samples of the furs and textile fibers back to CAAM for microscopic analysis.

Though an animal fiber might look uniform to the naked eye, it actually has a complex structure that can only be seen under the microscope. All animal hairs—including human hairs—are coated in microscopic scales. These scales have different patterns depending on the species of animal, so they can be used—in combination with other features—to determine the animal origin of a fiber. To view the scales, I make a cast of the hair

surface using clear nail polish; to view other diagnostic features and take measurements of the fiber, I mount the entire hair on a slide.

This semester, I will build a reference collection of modern animal fiber specimens, the first of which have been generously provided by the Academy of Natural Sciences. The next step is to measure the archaeological fibers and compare them to the modern specimens using the high-powered light microscopes available in CAAM. This will enable me to determine the important characteristics of the species involved in the production of the rock burial artifacts, shedding light on animal husbandry and hunting practices in ancient Mongolia. •



ABOVE: Traveling in Mongolia, I had many opportunities to interact with animals—and collect samples of their hair! Photos by author.