Archaeologists have long recognized that, when it comes to analyzing ancient stone tools, what they look like and the modern tools they resemble may be poor indicators of what people actually did with them. For several decades scanning electron microscopy (SEM) has been a common, reliable way for archaeologists to assess how stone tools were used, allowing us to focus less on morphological traits alone. Electron-dispersive x-ray spectroscopy (EDS) allows us to use the vacuum chamber of the SEM to perform sensitive elemental analysis of the worked surfaces, which in turn can help identify organic and inorganic residues. Finally, new techniques are in development to create three-dimensional scans of the worked surfaces of the stone tools, in the hope of providing a quantitative analysis of the use-wear (something difficult with SEM.) These techniques have been proven successful on experimental stone tools (e.g. tools made by modern flintknappers and used for various purposes, such as cutting reeds for a grass roof or butchering a horse.) However, their use on ancient tools has been more sporadic, partially due to the expense involved in obtaining access to labs with appropriate equipment.

The current study combines these three techniques in order to provide an archaeological and social interpretation of a cache of flint borers/gravers from a Late Neolithic (c. 8000 y.o.) site in Southern Jordan. The context of these tools provides fascinating clues about the daily life and material culture of ancient people. The timing of the site’s building and occupation coincide with a major social collapse, when large towns were all but abandoned and large portions of the population may have become nomadic. However, these people, contrary to common beliefs about nomads, retained large measures of their prior craft skills and specialization, as well as a lifestyle that looks very unlike anything commonly recognized in the modern world. This specialized workshop, located on the edge of a harsh desert at least a few days distant from nearby sites in more hospitable climates, has the potential to tell us much about the lifeways of these ancient people, how much contact they had with surrounding people, how they supported themselves in a difficult physical and social environment, and about their resilience and inventiveness in the face of social collapse.