Heritage Turkey volume 3 (2013) p. 20 | doi: http://dx.doi.org/10.18866/biaa2015.066 | published online: 30 October 2015
© British Institute at Ankara

New research and new technology at Aşıklı Höyük

Brenna Hassett | Natural History Museum

How do you make something 10,000 years old look new? This was the question asked this season at the archaeological site of Aşıklı Höyük, where more than 20 years of careful excavation led by Mihriban Özbaşaran and Güneş Duru of Istanbul University's Department of Prehistory have unveiled the fascinating and complex story of central Anatolia's earliest settlement. Aşıklı Höyük was occupied for nearly a thousand years and its inhabitants were among the earliest adopters of a settled, agricultural lifestyle. Much of the research at Aşıklı focuses on understanding the transition towards a 'Neolithic' settled, farming lifestyle. An international team assembles every year to study and interpret the material and archaeology uncovered with each new field season, and it has been my privilege to work on a small project that looks at how we might see evidence in teeth of this monumental transition in how people lived by the effects it had on child health and development. However, this year also marked the beginning of a new project for me on site, where the 'samples' taken aren't teeth but photographs. As the technology for recording and preserving evidence of the past improves, new methods and techniques for analysis become possible. And at Aşıklı Höyük, where we have an entire experimental village, there is little hesitation to try out something new. So this year, we have been investigating the possibilities of using photogrammetry to build virtual reconstructions of the archaeology.

Photogrammetry has a respectable history in archaeology, starting with reconstructions using aerial photography, which, when multiple pictures are taken at a slight offset, can be used to determine the actual size and shape of something on the ground and reconstruct it in three-dimensional space through a series of geometric equations. This is a laborious process, however, and requires accurate recording of camera positions and angles, not to mention an airplane. More recently in archaeology laser scanning, where the reflected light is measured to build up a three-dimensiona image, has become increasingly popular for recording sites and structures, as it is reasonably fast and effective, though it does require the user to purchase special (costly) equipment. However, with the advent of easy access to powerful computers and sophisticated digital cameras, it has now become possible to accomplish the same ends just by taking a series of digital photos.

While open-source software to make three-dimensional models from photographs exists (for example VisualSFM), I used the application PhotoScan (Agisoft, Russia) to reconstruct objects into three-dimensional models that can be viewed and manipulated on a computer screen, tablet or even a smartphone. This means that from just a handful of photographs, we can make a model of a 10,000-year-old Neolithic house that students, site visitors and members of the public

The interior of a three-dimensional model of the latest reconstruction on site – a Neolithic roundhouse

can hold in their hands. With photo-realistic reconstructions, it's possible to tour the new reconstruction of a Neolithic roundhouse at Aşıklı Höyük from anywhere in the world.

This season's experiment in finding new ways to bring our research out of the field and into the hands of the public has been a great success. The models of houses, burials and objects that were created in the field will be an important part of communicating the fascinating story of this important site to audiences in my home institution, the Natural History Museum, London. The models can also be used as part of the site archive, offering an opportunity for researchers and visitors to get an immediate 'feel' for the settlement in three dimensions. Most importantly, it's a great way to make that 10,000-year-old burial look new again!

Reconstruction of a house floor burial (photos by Brenna Hassett and Güneş Duru, Aşıklı Höyük Research Project)