An aerial view of excavations of the West Settlement at the base of the Tsaghkahovit Fortress in Armenia.

Photo provided by Project ArAGATS

EUROPE | ARMENIA

BIRD'S EYE VIEW | The sky is probably not the first place you might think of to begin an archaeological excavation, but for **Ian Lindsay**, it is the logical place to start. Lindsay, an associate professor of anthropology and co-director of Project ArAGATS (Archaeology and Geography of Ancient Transcaucasian Societies), a collaborative American-Armenian research initiative, is using drone technology in order to capture data from Bronze Age sites in Armenia.

Lindsay has found drones to be a good alternative to kites, balloons and cranes, as they offer a more detailed aerial perspective and an immediate sense of the spatial scale of the region's sites. The aerial view provided by the drones has allowed him to collect both still images and video over much of his study area in the Kasakh River Valley of northern Armenia, while the spatial technology has allowed for more detailed 2-D and 3-D observations of ancient fortifications — sites that date back to 1500 B.C. Last summer, Lindsay outfitted one of his drones with a multispectral sensor to detect subsurface architecture with thermal imaging, pushing new boundaries of the use of drones in archaeology.

Lindsay's archaeological fieldwork has been funded by the Executive Vice President for Research and Partnerships Office and the College of Liberal Arts, which culminated in a $220,000 grant from the National Science Foundation in 2016 to study how ancient communities in the South Caucasus thrived 3,000 years ago. Specifically, Lindsay's team is surveying and excavating cemeteries and fortresses to understand how warfare shaped the region's earliest complex societies politically, socially and ritually, as well as the lifestyles of people who lived around the forts.

In addition to his use of drones, Lindsay also uses a tablet-based mobile geographic information system (GIS), a collaborative tool that allows his survey team to add, edit and update data about field sites, helping them 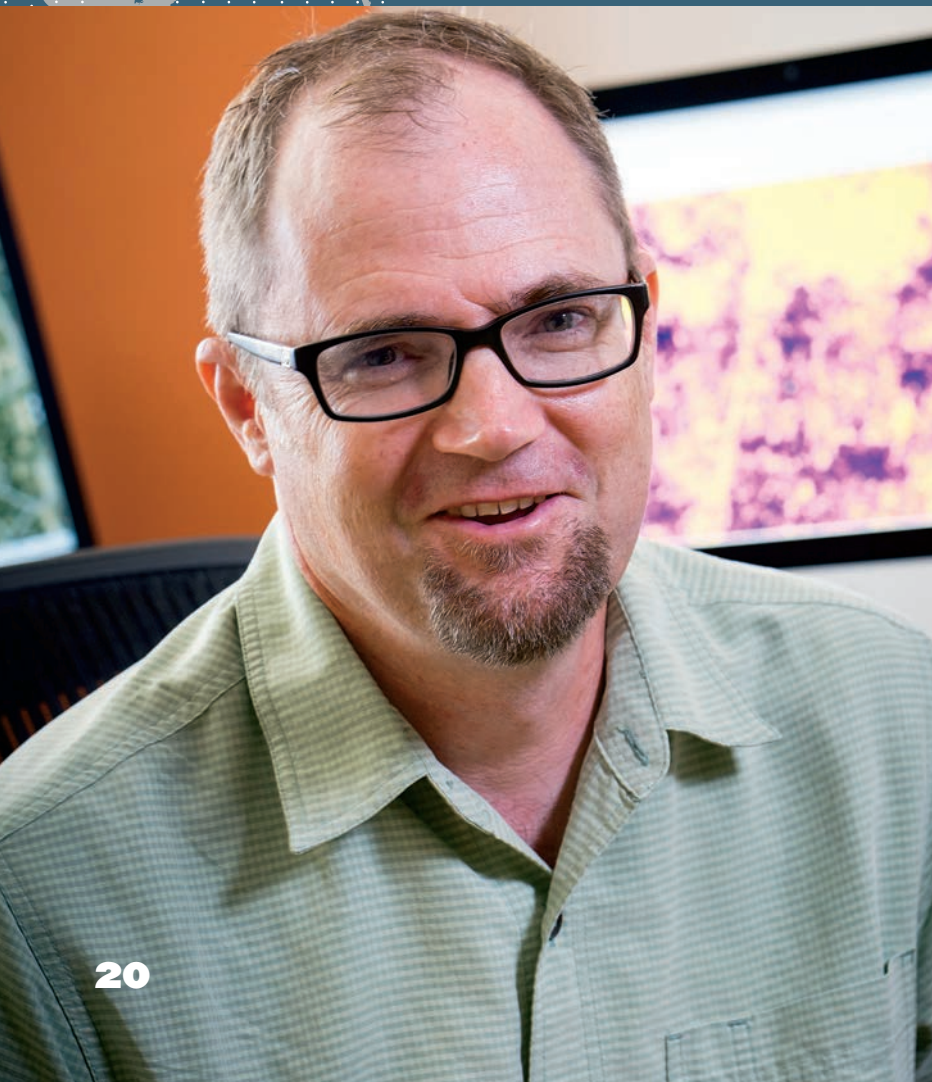to be more efficient in the field.