

# Archaeology expands beyond traditional scope into other sciences

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The popular perception of archaeology is a team of dusty individuals in wide-brimmed hats unearthing treasures from a pharaoh's tomb or an ancient collection of Native American artifacts.

Archaeology is that, but it is also a social science that utilizes information from other disciplines to inform and enhance [archaeological data](#) and to provide input to other sciences. Arizona State University Anthropology Professor Michael Smith explores the broadened scope of archaeology in the paper "Archaeology as a Social Science" published this week in [Proceedings of the National Academy of Sciences](#). Gary M. Feinman of The Field Museum in Chicago, Robert D. Drennan of University of Pittsburgh, Timothy Earle of Northwestern University and Ian Morris of Stanford University are co-authors of the paper.

"A lot of people's perceptions are based on classical archaeology (such as the study of [ancient Greece](#) or Rome), or on the latest tomb discovered or the biggest palace," says Smith, of ASU's School of [Human Evolution and Social Change](#). "Viewing archaeology as a social science advances how we interpret sites and how we do research."

Archaeology has greatly advanced during recent years. The discipline has expanded beyond anthropology, which studies the societies and cultures of the world, to include data and perspectives from other social sciences such as sociology.

"Looking at sociology and disciplines such as political science gives us

more to draw from," Smith said.

And archaeologists are able to reach beyond the time of written records to provide data that can be utilized in other sciences. For example, data on patterns of inequality and social stratification among ancient peoples can be utilized by sociologists.

Archaeologists also offer evidence that at times contradicts commonly held views of societies, for example, that of [political scientists](#) who may believe that life is chaotic outside of a state system with rulers and laws. This belief doesn't hold up when one examines the lives of Native American societies such as the Hohokam that lived peacefully in tribal settlements, Smith says.

Archaeology provides a full range of the human experience, including societies that are unlike any that exist in modern times. It provides records from all levels of society, including peasants and slaves, who often are left out of historical accounts, the archaeologists write in the paper.

Archaeological findings also provide a long-term perspective on change, documenting the origins of agriculture, the Urban Revolution, and other transformational social changes. Indeed, archaeology is crucial to a renewed interest in what is now called "Deep History."

Practices that may be thought of as new phenomena may be traced through archaeological data. Urban farming is often thought of as an emerging trend in cities, but it was practiced by the ancient Mayan people 2,000 years ago.

"The whole notion of farming within cities is a pattern that has a lot of history," Smith says.

Likewise, urban neighborhoods can universally be traced back thousands of years, indicating that neighborhoods are crucial in the ways that cities work.

"We look at the past and see lessons for the future," he says.

This theme is the basis for a series of research projects within the School of Human Evolution and Social Change called "Late Lessons from Early History." Funded by the Intellectual Fusion Investment Fund at ASU, these projects are built around cutting-edge transdisciplinary research in anthropology. Smith is working on a project that is focused on urban neighborhoods in ancient and modern cities.

While items like broken pieces of pots and stone tools might not seem ideal for analyzing past social systems, economic processes or political dynamics, "analytical advances, including increasingly sophisticated applications of methods from chemistry and physics, now permit many past economic phenomena to be reconstructed with considerable detail," the social scientists write.

Among additional recent advances in the science are the ability to pinpoint the places of origin of many raw materials and objects, reconstructing ancient technology and manufacturing, and new computing power that allow archaeologists to find and compare patterns in small finds from sites, the social scientists write.

Archaeologists increasingly are utilizing techniques such as radiocarbon dating of charcoal and a variety of instrumental methods from physics, chemistry and biology to contribute to their studies. Smith's archaeological studies in Central Mexico take into account obsidian, used to make tools, that occurs naturally in 20 places throughout the region. Each obsidian source contains different trace elements.

"We can trace exactly where the rocks came from," Smith said.

Archaeological data from many regions are now available, allowing comparative analyses of changes and social patterns. Furthermore, archaeology can contribute a new perspective because many of the societies they reconstruct are independent of the western cultural tradition that has been the focus of analysis by most of the social sciences.

Provided by Arizona State University

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