

# New technologies expand knowledge of early art in North America

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Art objects created by North American peoples of the Paleoindian period (approximately 18,000 to 8,000 BCE), have been found at the Gault Archaeological Site, which is located about 50 miles north of Austin, Texas. The new methods used by archaeologists to identify the objects, employing sophisticated computerized scanning and analysis, suggest that such objects may actually be more common in North America than previously believed.

Archaeologists Ashley Lemke (University of Michigan), Clark Wernecke, and Michael B. Collins (both from Texas State University) note that early art in North America dating back to the Paleoindian period, which is when most archaeologists currently agree humans first arrived in the New World, has been considered rare when compared to similar findings in the Old World. This may not, in fact, be the case.

Their findings, based on analysis of incised artifacts from the Gault site, were published last year in an article in *American Antiquity*, the flagship journal of the Society for American Archaeology.

They attribute this erroneous assumption to problems of recognition and underreporting. In particular, they write, “an expectation to find such artifacts plays a principal role in their identification.” The building of an appropriate analysis protocol that allows excavators to identify engraved artifacts during excavations resulted in one project identifying “more than 100 stones with incised lines as well as engraved bone.”

The Gault site has been occupied by humans consistently throughout the last 14,000 years and sits on land that has been privately owned since the 19th century. After initial investigations were performed by archaeologists in the early 20th century, the land was sold to landowners who established a “pay-to-dig” venue, where collectors could pay a small fee to dig

anywhere on the property and keep everything they found.

The first recognition of early art at the site came in 1990 when a collector recovered four small, incised limestone tablets that were associated with Clovis artifacts, a specific designation given to stone tools originally identified at sites near Clovis, New Mexico, that date back approximately 11,000 years. The collector brought them to archaeologists at the University of Texas in Austin, who subsequently conducted test excavations in the area where the artifacts were discovered. They uncovered more incised stones and flakes (the debris of stone tool production), and after publishing their results were contacted by other collectors who had found similar objects but had not recognized them as being incised.

The art artifacts discussed in the 2015 paper consist only of those recovered from systematic excavations—“nine incised stones and one engraved bone from Paleoindian-aged contexts.” However, the authors report that a special protocol has been created and distributed to any excavator working at the site that instructs them on how to fully inspect each artifact for potential engraving. They write that while “some incised patterns are obvious when the artifact is excavated others are more difficult to discern and are sent to the laboratory for microscopic inspection.”

In the laboratory, the artifacts are photographed using Polynomial Texture Mapping (PTM), which helps in the detection of incised patterns that can be difficult to detect even microscopically. PTM captures digital images of the artifacts using multiple lighting angles in order to obtain a more “representative” image. Up to 64 different high-resolution digital images are captured under a dome that has strobing lights positioned in an upward spiral. The data is then collected in what are

called “texels” (texture pixels), which can then be manipulated to draw out the different lighting conditions. Researchers can then enhance and examine a multitude of patterns on the stone artifacts.

The engraved artifacts found at Gault help us to better understand the artistic expression of humans living in the Paleoindian period. The authors of the 2015 paper report that the “Gault stones and bone display geometric, intentional, and patterned engraving behavior that may be decorative, ownership marks, or other symbols, which we have classified here as art.”

They write that there are likely other specimens from other sites that have fallen into “miscellaneous” categories that also feature similar incised patterns: “There are many other examples of art dating to the Paleoindian period in North America, including petroglyphs of extinct Pleistocene fauna, one case of painted bones, and other engraved bones, ivory, and lithics [stones].”

They provide a table listing artifacts that feature early art in North and Central America, including objects found in sites in Arizona, California, Colorado, Florida, Illinois, Massachusetts, Montana, Nevada, New Mexico, New York, North Dakota, Oregon, Pennsylvania, Texas, Utah, Vermont, Washington, Wyoming, British Columbia and Tequixquiac in Mexico. All of them have been dated by various archaeologists to between approximately 8,000 and 12,000 years ago.

In addition to the incisions made on such objects, the authors also describe the use of ochre (a red pigment) during the Paleoindian period. This is significant because ochre has been found used on both artifacts and landscapes altered by humans all around the world, both in the archaeological record and in use by modern societies today. “While the use of ochre is not a diagnostic Paleoindian trait,” they write, “it is found fairly consistently from a wide variety of contexts throughout the period including burials, on animal bones, in caches, and numerous domestic contexts.” They also report that there is even an instance of ochre being mined by Paleoindian peoples in Wyoming.

The importance of these discoveries is in the information we obtain about hunter-gatherer societies that existed in prehistoric North America. According to the authors, this information includes how they exchanged information, their social mobility, how they

transmitted culture, and how they signaled each other. It also helps dispel myths of primitive savagery that are still sometimes wrongly associated with prehistoric societies in general. Art in prehistoric North America may still be rare in comparison with art found in other parts of the world, but it appears that this has been primarily due to its invisibility.

Now that such discoveries can be made using new advances in technology, researchers can place these artifacts into a larger inventory of art that includes artifacts dating back as far as 100,000 years ago. The authors of the 2015 paper suggest that those interested in this history can have “more detailed discussions of the creation, maintenance, and use of engraved art across the globe” and can “[enhance] our understanding of shared patterns of symbolic behavior over vast amounts of time and space.”

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