EARLY ART IN NORTH AMERICA: CLOVIS AND LATER PALEOINDIAN INCISED ARTIFACTS FROM THE GAULT SITE, TEXAS (41BL323)

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Engraved and carved bone and stone artifacts capture our imaginations and are known worldwide from archaeological contexts, but they are seemingly rare and oftentimes difficult to recognize. While preservation issues play a role in the limited recovery of early art objects, research on incised stones and bone from the Gault site in Texas demonstrates that an expectation to find such artifacts plays a key role in their identification and recovery. The presence of incised stones found by collectors at Gault alerted archaeologists to the potential for finding early art in systematic excavations. To date, 11 incised stones and one engraved bone of Paleoindian age (13,000–9,000 calibrated years before present) have been recovered and of these, the Clovis artifacts are among the earliest portable art objects from secure context in North America. The presence of incised stone and bone at Gault led to the development of an examination protocol for identifying and analyzing engraved and incised artifacts that can be applied to a wide variety of archaeological contexts.

Hueso grabado y tallado tanto como artefactos de piedra capturan nuestra imaginación y son conocidos desde contextos arqueológicos por todo el mundo, pero son aparentemente raro o escaso y muchas veces difícil a identificar. Mientras que los problemas de preservación desempeñan un papel en la recuperación limitada de objetos de arte temprano, la investigación sobre piedras y huesos grabados del sitio Gault, Texas demuestra que la expectativa de encontrar tales artefactos juega un papel clave en su identificación y recuperación. La presencia de piedras grabadas encontradas por los coleccionistas en Gault llamó la atención a los arqueólogos a la posibilidad de encontrar arte de los principios con excavaciones sistemáticas. Hasta la fecha, once piedras grabadas y un hueso grabado de la época Paleoindio (13,000–9,000 años cal BP) han sido recuperados y de éstos, los artefactos Clovis son los primeros objetos portátiles de arte de contexto seguro en América del Norte. La presencia de piedras y huesos grabados en Gault resulta en el desarrollo de una sistema para identificar y analizar los artefactos grabados que se pueden aplicar a una amplio surtido de contextos arqueológicos.

Art in the form of engraved, carved, and painted objects has been recovered from archaeological sites on every continent except Antarctica (e.g., Bednarik 1994; Conard 2009; d'Errico and Hensilwood 2007; d'Errico et al. 2003; Dikov 1996; Gao et al. 2004; Hensilwood et al. 2002; Hensilwood et al. 2009; Outes 1916; Plonka 2003; Takayama 1968; Thomas 1983) and despite variability in form, manufacture, and meaning, art artifacts represent a long human tradition of symbolic expression.

Early art in North America dating to the Paleoindian period has traditionally been considered to be very rare, particularly when compared to Paleolithic archaeological records from the Old World (Haynes 2002; Meltzer 1993, 2009:247; Tankersley 2002). However, Paleoindian art in North America may not be as rare as traditionally thought as many objects may not be identified, creating a problem of recognition and underreporting. While site formation processes and preservation issues certainly play a role in the limited recovery of early art objects, research on incised stones from the Gault site demonstrates that an expectation to find such artifacts plays a principle role in their identification. Incised stones

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American Antiquity 80(1), 2015, pp. 113–133

DOI: 10.7183/0002-7316.79.4.113

from uncertain provenience at Gault informed archaeologists of the potential for finding engraved artifacts during excavations. The combination of the expectation to find such objects and the development of an excavation and analysis protocol has allowed for the systematic identification of more than 100 stones with incised lines as well as engraved bone.

These artifacts come from Clovis to Early Archaic contexts, though many of the unprovenienced incised stones came from mixed context and may also represent Middle Archaic to Late Prehistoric time periods. While several stones excavated by collectors are widely known and are believed to be Clovis in age, only those objects recovered from systematic excavations are reported here, including eleven incised stones and one engraved bone from Paleoindian-aged contexts. Nine incised stones and one bone fragment are from Clovis contexts, and two incised stones are from later Folsom and Dalton occupations. These Paleoindian aged engraved artifacts (13,000–9,000 calibrated years before present) are among the earliest art objects from secure context in North America. While these objects are important in and of themselves as examples of a little known portable art tradition in Paleoindian North America, the examination protocol that led to their discovery is just as significant since it can be applied to a wide variety of archaeological contexts.

Background: First Encounters

The Gault site is located in central Texas and has occupations spanning older than Clovis to Late Prehistoric periods. The site is large, approximately 16 hectares in size, with up to 3 meters of cultural deposits in some areas. Situated on an ecotone between two distinct habitats—the Black Prairie region of the Gulf Coastal Plain and the Edwards Plateau—Gault is in the valley of a small stream fed by natural springs near an outcrop of high-quality Edwards chert. These factors have made it attractive to humans throughout the last 14,000 years (Collins 2002, 2007).

Gault is named after one of the early landowners, Henry Gault. In 1929, J. E. Pearce, the first of chair of the Department of Anthropology at the University of Texas came to investigate a large burnt rock midden on Gault's farm and conducted the first archaeological excavations at the site. Before professional archaeologists gained access again and could continue systematic research, Gault sold the property and new landowners long condoned plundering and eventually operated it as a pay-to-dig venue, where collectors could pay the landowner a small fee to dig wherever they wanted and keep everything they found. After many decades of pay-to-dig collecting, in 1990 a collector named David Olmstead excavated four small, incised limestone tablets associated with Clovis artifacts, including a Clovis projectile point made of Alibates chert that was reported to be sandwiched between two of the engraved stones.[1] The unique nature of these objects led Olmstead via Peter A. Bostrom of the Lithic Casting Laboratory to bring them to the attention of Drs. Thomas Hester and Michael Collins at the University of Texas at Austin. These two conducted a test excavation in the area Olmstead had worked to confirm the presence of engraved stones with Clovis artifacts. These test units encountered Clovis diagnostic tools and incised stones and flakes (Collins et al. 1991). After these finds, a careful search of the original Pearce collection from his 1929 investigations found one additional faintly incised stone that had been collected during excavations but evidently not recognized as such.

After the initial publication of engraved objects from Gault (Collins et al. 1991) many avocational archaeologists in Texas began to recognize incised stones in their collections and brought them to the attention of Gault analysts. These first engraved stone artifacts brought the presence of early art to the attention of a larger community, alerted archaeologists to the possibility of recovering more art objects from *in situ* contexts, and led to the development of a research protocol.

Recovery and Analytical Methods

The research concerning incised stone and bone from Gault has led to the development of a protocol for recovering and analyzing engraved objects during systematic excavations. Potential incised or engraved artifacts (i.e. all bone fragments, limestone tablets, cobbles, and chert flakes with cortex, which appear to have incised or engraved

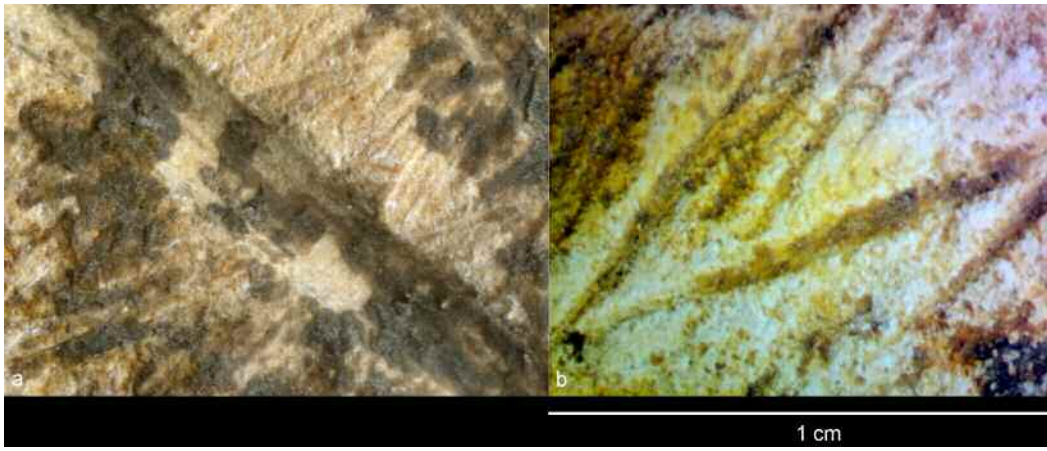

Figure 1. A comparison of lines made on an abrader tool and incised lines on a portable art artifact: (a) a close up SLR photograph of deep grooves on an abrader from Area 15 (Specimen No. 5869-26); (b) a microscopic (7x) photograph of incised lines on an incised stone of unknown age from Area 8 (Specimen No. UM6559-13); multiple striations within the deep groove on the abrader are caused by back and forth grinding motions, and are not considered intentional artistic engravings compared to the incised stones.

lines or patterns) go through a multi-tiered examination, beginning with the expectation to find such objects during excavation.

Knowing that incised stones have been recovered from Clovis strata at the site, excavators are instructed to fully inspect each artifact for potential engraving. All artifacts are therefore minimally handled and all sides are carefully inspected. Potential engraved artifacts are piece-plotted in three dimensions, bagged individually, left unwashed, and are transported for further inspection and analysis under controlled laboratory settings. 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 to confirm the presence of anthropogenic modifications. In addition to careful excavation procedures, other recovery methods and context play a large role in recognizing engraved objects, particularly given their small size. For example, six of the incised stones from Gault were recovered during sieving (100 percent water-screening with 1/4'' mesh) (see Gingerich 2009 for a discussion of sediment type and incised stone recovery).

Once in the laboratory, incised objects are microscopically analyzed with both low and high magnification (up to 500x). Taphonomic processes which may result in similar lines on stone or bone objects are ruled out by microscopic analysis; engraved lines are examined for pattern, direction, morphology, and the existence of small, embedded fragments of the engraving tool. Definite patterns were easy to discern on many stones and perpendicular and parallel lines as well as the characteristics of the lines themselves, including v-shaped cross sections, were used to establish them as intentional and culturally modified as opposed to natural marks that are often u-shaped or square in cross section (e.g., Bednarik 1998; d'Errico & Villa 1997; Greenfield 2006; Nowell and d'Errico 2007; Shipman and Rose 1984). Abraders, which are used to dull the edges of artifacts and grind platforms during flintknapping are also found at the Gault site. The deep grooves made from abrasion on these tools are carefully examined and compared to incised lines. Figure 1 compares images of lines on an abrader and an incised stone from Gault. Multiple striations are visible within the channel of a deep groove with a u-shaped cross-section on the abrader, caused by the back and forth motion of grinding. The incised stones do not have these characteristics and the incisions are instead narrow, shallow, with v-shaped cross-sections, and seem to be caused by applied force in one direction. Additional lines found on the abrader are random and multi-directional and these are also hypothesized to be the result of abrading or grinding (see also Waters et al. 2011 Figure 25a).

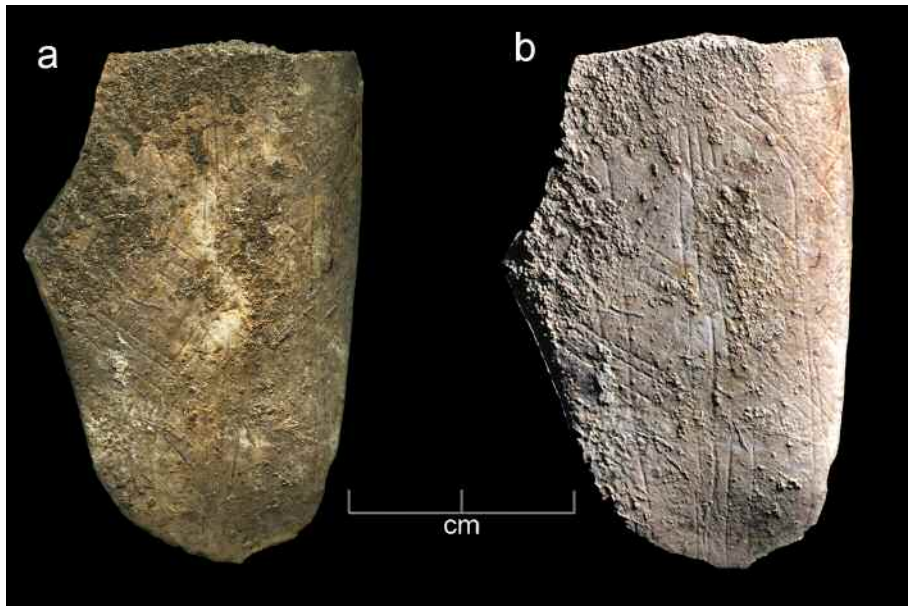

Figure 2. Analyzing incised lines with the use of Polynomial Texture Mapping (PTM): (a) Gault engraved stone (Specimen No. 1211-1) from excavation context lacking diagnostic artifacts, age unknown, photographed with an SLR digital camera; (b) a PTM image of the same engraved stone.

Associations with other artifacts also help to confirm that these objects are culturally modified as opposed to the result of undiscriminating taphonomic processes. The engraved objects are anomalies associated with many other chert flakes, bones, and limestone fragments that show no signs of engraving. For example, the engraved bone is the only Clovis specimen that is engraved with perpendicular fine incisions. Very few Clovis bones have cutmarks ($n = 46/4461$ or 1.0 percent), which are wider, shallower, and average only 2.07 cuts per bone, and are only on the cortical surface of bone fragments compared to the 27 lines on both sides of the small engraved specimen. Other types of surface modifications that may mimic engraving such as root etching or gnawing are even more rare, and cannot account for the engraved pattern. Similarly for incised stones, taphonomic processes cannot account for the incised lines, and engraving is not ubiquitous. Out of the very large Paleoindian lithic assemblage (e.g., approximately 650,000 Clovis lithic specimens), a small number of artifacts displayed possible engraved lines during excavation. Of these, approximately 10 percent have been confirmed to be incised art artifacts, with the others being classified as abraders or objects that may have looked incised in the field but no incised lines were confirmed during microscopic inspection.

Once the artifacts are confirmed to be engraved, they are photographed using Polynomial Texture Mapping (PTM). The use of PTM has been extremely helpful for documenting incised patterns that can be difficult to detect even microscopically. PTM captures digital images of an object surface under different lighting conditions to obtain the most representative image possible (Malzbender et al. 2001). Sixty-four high-resolution digital images are taken under the light of strobes embedded in an upward spiral on a dome over the object. As each picture is taken a single strobe flashes, and when all the imagery is complete, the software combines these images into a composite. The PTM is not strictly a photographic composite; instead it stores all the information from all the images under the varying light conditions in texels (texture pixels). This means that the final product can be manipulated to change or combine lighting conditions. Each compiled PTM is used to examine and enhance various aspects of the patterns. Figure 2 contrasts an incised stone recovered from excavation contexts that had no diagnostic artifacts at Gault, and is of unknown age, photographed with a traditional digital camera

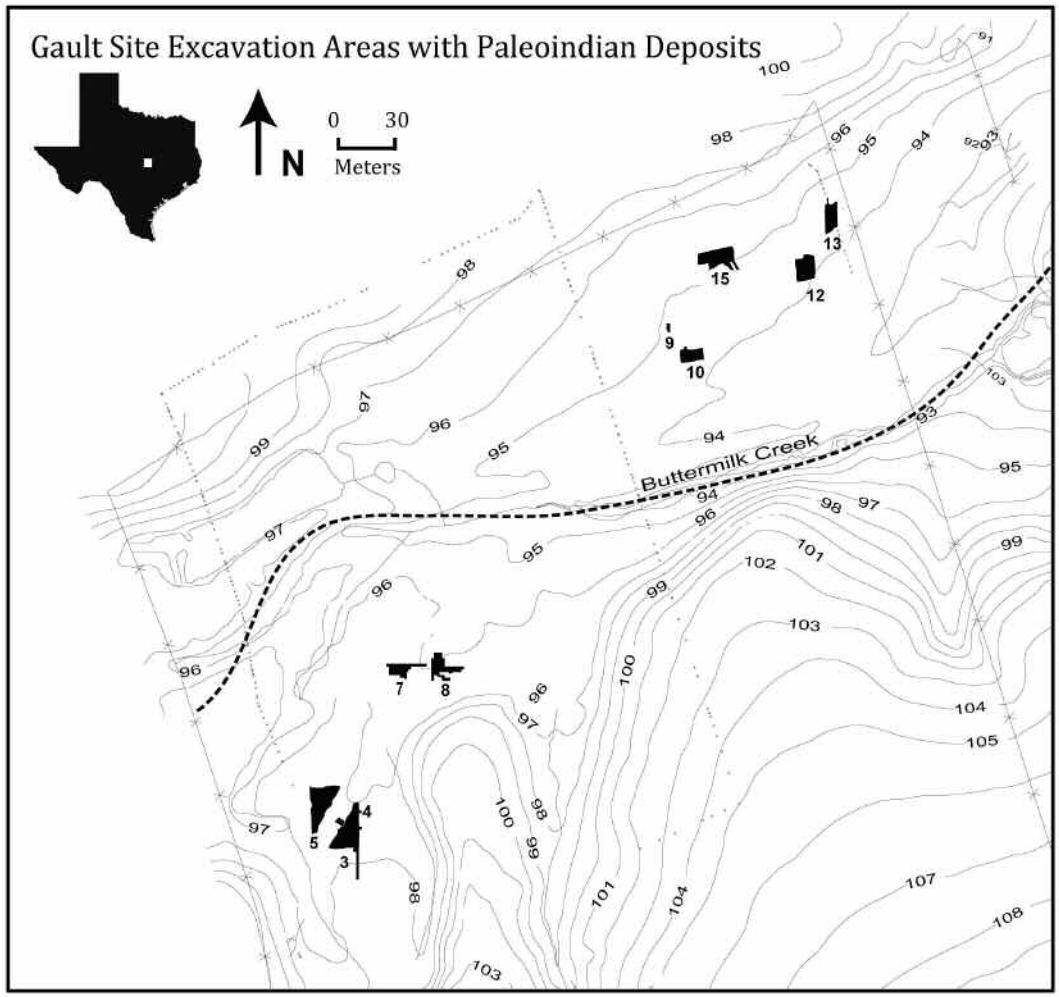

Figure 3. Map of the Gault site with primary Paleoindian excavation areas indicated; official Gault site excavation area designations are used. The incised stones reported here were excavated from areas 3, 4, 8, 10, and 15.

on the left with a PTM image of the same incised stone on the right (Wernecke et al. 2006).

Incised Stones from Systematic Excavations

Systematic excavations at Gault (1991, 1998–2002, 2007–2014) have targeted 15 areas, 10 of which encountered intact Paleoindian deposits. Investigations in Area 15 have focused on largely intact Archaic, Paleoindian, and older layers and produced an extensive and diverse array of lithic artifacts, faunal remains, and features. Elsewhere at the site most of the Archaic deposits were destroyed by the decades of looting, although Paleoindian layers remain intact and have also been systematically tested (Areas 3–5, 7–10, 12–13). The earliest art objects at Gault from systematic excavation include 11 stones and one engraved bone from Paleoindian contexts from five areas of the site (Figure 3).

The majority of these incised stones, six Clovis and the Folsom specimen, are from the 64 square meters of Areas 3 and 4 near the southwest edge of the site (Table 1 a–c, f–h, and j). An infrared stimulated luminescence (IRSL) sample dates the Clovis occupation in Area 4 to 12,990 ± 830 B.P. Clovis specimens c, g, and h were all recovered from the same 1x1 meter unit within a 10 centimeter level, which also had two diagnostic Clovis blades. One Clovis stone and the incised bone

Table 1. Paleoindian Incised Stones from the Gault Site, Texas.

Specimen	Spec. No.	Material	Context	Area	N	E	Elevation (mbd)	Level	Assoc. Diagnostic Artifacts and Absolute Dates	Max. Length (cm)	Max. Width (cm)	Max. Thickness (cm)	Weight (g)
a	NH1313-19	Chert	Clovis	4	962.57	953.9	96.78	4	Overshot flakes (2), Blades (2), Channel flake[a] 12,990 ± 830 B.P. IRSL Date (N964, E 955, Z 96.76)	7.6	5.8	1	37
b	BB2107-1	Chert	Clovis	4	962.5	952.39	96.83	3	Blades (n=3), Blade core preparation flake, Overshot flake[b] 12,990 ± 830 B.P. IRSL Date (N964, E 955, Z 96.76)	4	3.7	.9	9
c	*2844-2*	Chert	Clovis	3	941	954	96.84–96.74	14	Blades (n=2), Incised stones (n=2)[b]	5	3.3	1	12
d	*BY160-12*	Chert	Clovis	10	1134	1077	93.47–93.34	9	Blade[b]	5.39	4.3	.81	10
e	*1181-4*	Chert	Clovis	8	1018	985	95.05–95.00	10	Graver, Endscraper, Blades (n=2)[a]	6.7	5	1	28
f	*2816-7*	Limestone	Clovis	3	941	954	96.94–96.84	13	Blade[b]	1.7	1.4	.3	1
g	*2844-3*	Limestone	Clovis	3	941	954	96.84–96.74	14	Blades (n=2), Incised stones (n=2)[b]	1.6	1	.5	1
h	*2844-1*	Chert	Clovis	3	941	954	96.84–96.74	14	Blades (n=2), Incised stones (n=2)[b]	5.2	4.8	1.8	37
i	6157	Chert	Clovis	15	1160.41	1080.8	92.69	37	Blade[a]	4.54	3.25	1.13	12.9
j	4102-16	Chert	Folsom	4	944.37	954.85	97.26	5	Folsom projectile point midsection[a]	9.1	6.4	1.7	47
k	5574-5	Chert	Dalton	15	1161.83	1082.7	93.20–93.17	18	Dalton projectile point[b]	7.57	6.04	.95	71.9

Note: Italics indicate incised stones that were recovered during water screening.

[a]Within 5 centimeters of the incised stone.

[b]Within 10 centimeters of the incised stone.

are from Area 8 (Table 1e), a 63-meter square in the site's center,[2] with associated IRSL dates of the Clovis occupation between 13,220 ± 740 and 12,920 ± 700 B.P. Another (Table 1d) is from Area 10 also in the site's center, and two, one Clovis and the Dalton incised stone, (Table 1 i and k) are from Area 15 in the northern portion of the site. Five specimens (Table 1 a–b, and i–k) are point-provenienced, and the others were recovered during screening. All were located in strata that were temporally designated using associated infrared stimulated luminescence dates, diagnostic materials, super-positioning and/or combinations of those methods.

Archaeological deposits at Gault vary widely by excavation area in regard to geologic context and ground water saturation. For example, in the colluvial setting of Area 8, Clovis deposits are only slightly above the water table and the impact on bone and chemical degradation of engraved stone surfaces has been severe. In the alluvial fan setting of Areas 3 and 4 Clovis-age deposits are well above the water table and impact has been minimal, which may partially account for the larger number of incised stones recovered from these areas. Clovis-aged deposits in fluvial settings of Areas 10 and 15 are higher than in Area 8, but not as high as in Areas 3 and 4 so the impact of ground water has been moderate. These differences are reflected in the degree of solution damage to engraved stones and overall bone preservation. Additional contextual information, including the associated artifacts with each incised stone is listed in Table 1. Detailed stratigraphic profiles and further descriptions of geological contexts for excavation areas at Gault can be found in these additional sources (Collins 2007; Gilmer 2013; Hildebrand et al. 2007; Lassen 2013:73–85; Waters et al. 2011).

Incising of geometric parallel and perpendicular lines is found on limestone tablets, chert flakes and cobbles, and bone representing clearly intentional and patterned engraving behavior. The incised stones are small, with average length, width, thickness, and weight of 5.31 cm, 4.09 cm, 1.01 cm, and 24.25 grams respectively. Incised stones are not found in any consistent context or features across periods, but all the Clovis incised stones and the engraved bone were closely associated (within 5–10 centimeters) of one or more blades (Table 1). One of these blades is modified with a graver (Specimen No. 1181-14) and may have been the tool used to incise the stone. Additional unique spatial associations occur with the reported incised stones sandwiching a Clovis point and the three incised stones, which were recovered from the same 10 cm level in Area 1. From Clovis contexts, two of the incised stones are on limestone tablets (Table 1 f–g). The other seven Clovis specimens have engravings on the cortex portion of chert flakes. All of these incised stones have paired parallel lines with the exception of one, which has a single long line intersecting a triangle (Table 1c). While eight of the Clovis incised stones are easily recognizable (Figures 4–6), the ninth specimen (Table 1i) is severely weathered. The stone was excavated most recently and is therefore not pictured since a PTM image is not yet available. An engraved bone recovered as three fragments, two of which refit, from Clovis context in Area 8 displays several parallel and perpendicular lines on both sides (Figure 7). This bone specimen is mammalian and the cortical surface is preserved due to high temperature burning. Due to diagenesis, bone collagen from this specimen for dating is unavailable.

The engraved stone from Folsom context is also a chert flake with lines incised on the cortex (Figure 8; Table 1j). The engraved stone associated with Dalton strata is the most patterned of all the Paleoindian engraved artifacts, with paired parallel lines crossing each other perpendicularly and diagonally in a "herringbone" pattern (Figure 9; Table 1k). This engraving is also on the cortex side of a chert flake.

Discussion

As Rare as We Thought?

Formation processes and preservation certainly play a role in the recovery of engraved objects. Poor faunal preservation, particularly of the cortical surface of bones, can obliterate or obscure engraved patterns. Likewise, engraving on soft cortex, limestone, and sandstone may not survive due to exposure to adverse conditions. Faint lines on chert cortex and small stones may be overlooked particularly when complicated by the presence of a pedogenic calcium carbonate such as that on many objects at the Gault site, (e.g., on

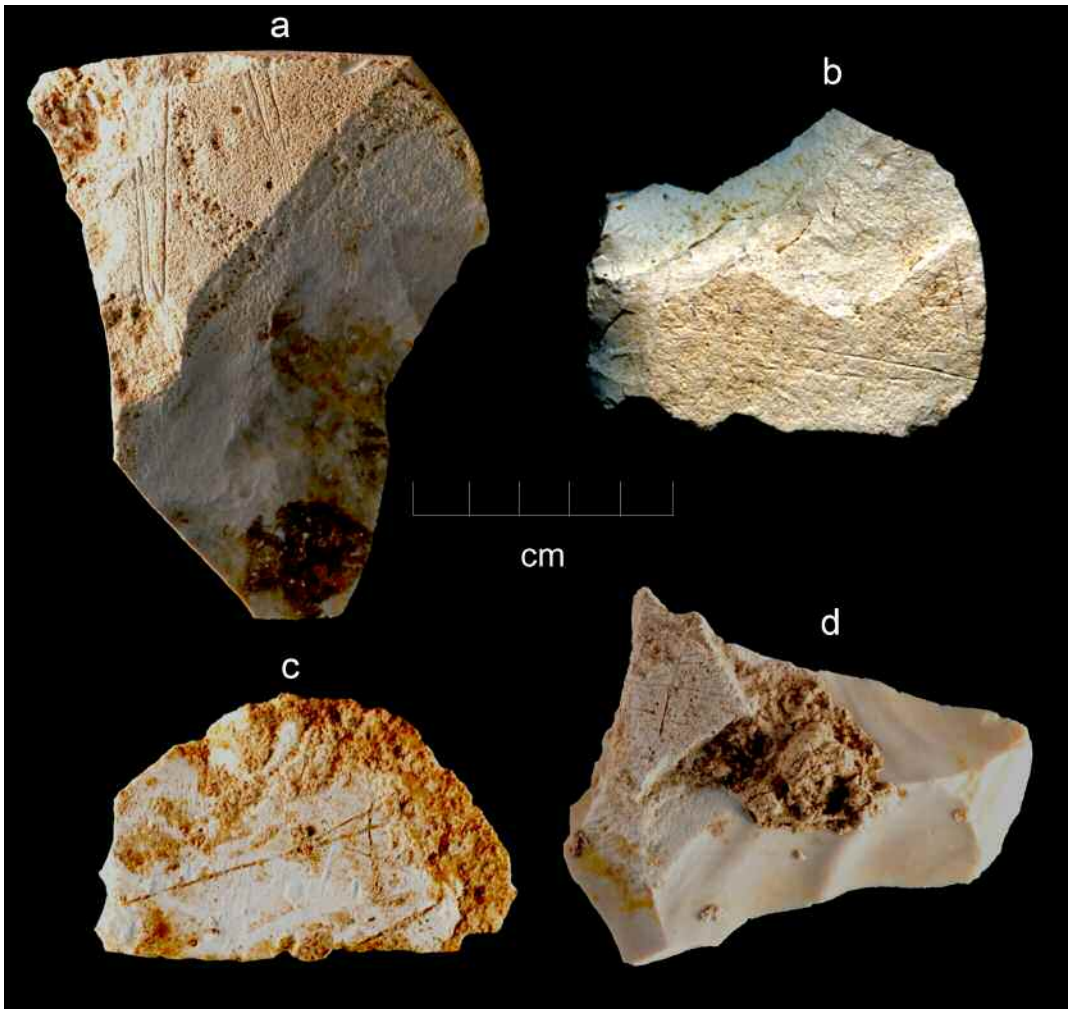

Figure 4. Incised stones from Clovis contexts, Table 1a–d.

the Dalton incised stone, Figure 9). Despite these preservation issues, work at Gault demonstrates that an expectation to find such objects, and the careful excavation and analytical methods outlined above, are absolutely essential for their recovery. The expectation to do so is perhaps the most critical aspect of this protocol.

The Gault engraved artifacts can help clarify how we describe Paleoindian "art" and revise our expectations for what may be found in early archaeological contexts in North America. The Gault stones and bone display geometric, intentional, and patterned engraving behavior that may be decorative, ownership marks, or other symbols (Haynes 2002:115), which we have classified here as art. We define art broadly to include all forms of symbolic expression, including intentional engraving and carving behaviors. Such objects demonstrate a requirement for archaeologists to walk a fine line between imagining we see what is not there just because we expect to find it, and being open to recognizing objects that may fall outside our usual frame of reference.

It may very well be that Early Paleoindian art objects, particularly incised stones and engraved bones, are not as rare as traditionally thought. When viewed from a single site, incised stones are rare, especially when compared in counts and percentages to other artifacts that show no signs of engraving such as at Gault. When placed in the larger context of the Paleoindian period and other forms of art, however, it is clear that these artifacts

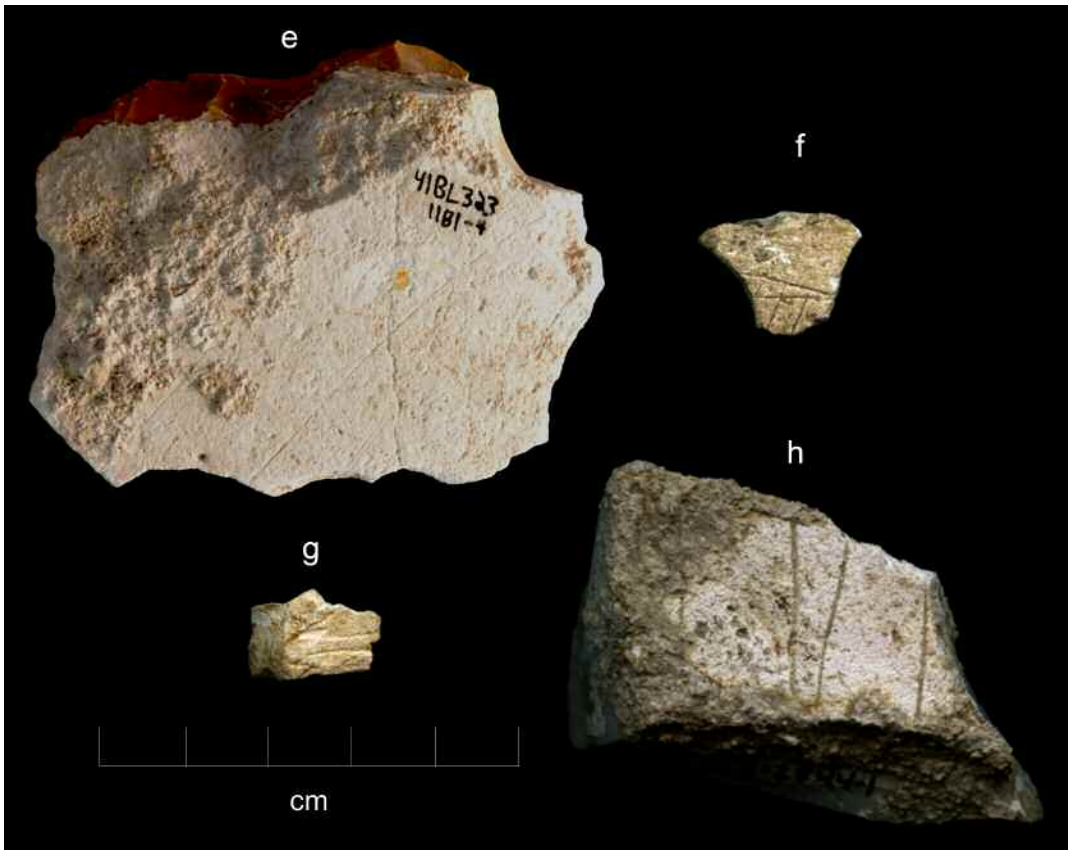

Figure 5. Incised stones from Clovis contexts, Table 1e–h.

are not as rare as often assumed. Reporting has sometimes been lacking, as when individual finds are relegated to the "misc. artifacts" section of a monograph, or set aside for later analysis. For example, one of the stones from Folsom levels at Blackwater Draw has been called an edge grinder or abrader but has evenly spaced parallel and perpendicular lines on it (Hester et al. 1972:103, Figure 93g) similar to the Gault specimens. In addition to this, 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 (the painted skull at the Cooper Bison Folsom site [Bement 1999]), numerous items of personal adornment such as pendants and beads, and other engraved bones, ivory, and lithics. Examples from each of these categories are discussed below and an extensive list of Paleoindian art is itemized in Table 2.

Table 2 builds on previous inventories of Paleoindian art objects (e.g., Gingerich 2009; Holliday and Killick 2013; Potter 2005) and is meant to be an inclusive list of all potential art artifacts from the Paleoindian time period in North and Central America, using the broad definition of art provided at the beginning of this discussion. While we, among others, may question the validity of individual objects and several entries may not be universally accepted, (e.g., petroglyphs due to a lack of accurate absolute dating methods, but see Benson et al. 2013), discredited cases such as the Holly Oak Pendant (Griffin et al. 1988) and the Barnes site incised "tusk," which was found to be travertine from Late Archaic context (Todd Surovell, personal communication 2014), have not been included.

Petroglyphs and Pictographs

Petroglyphs include depictions of extinct fauna such as Columbian mammoths and bison at the Upper Sand Island rock art site in Utah (Malotki and Wallace 2011), others of extinct pro-

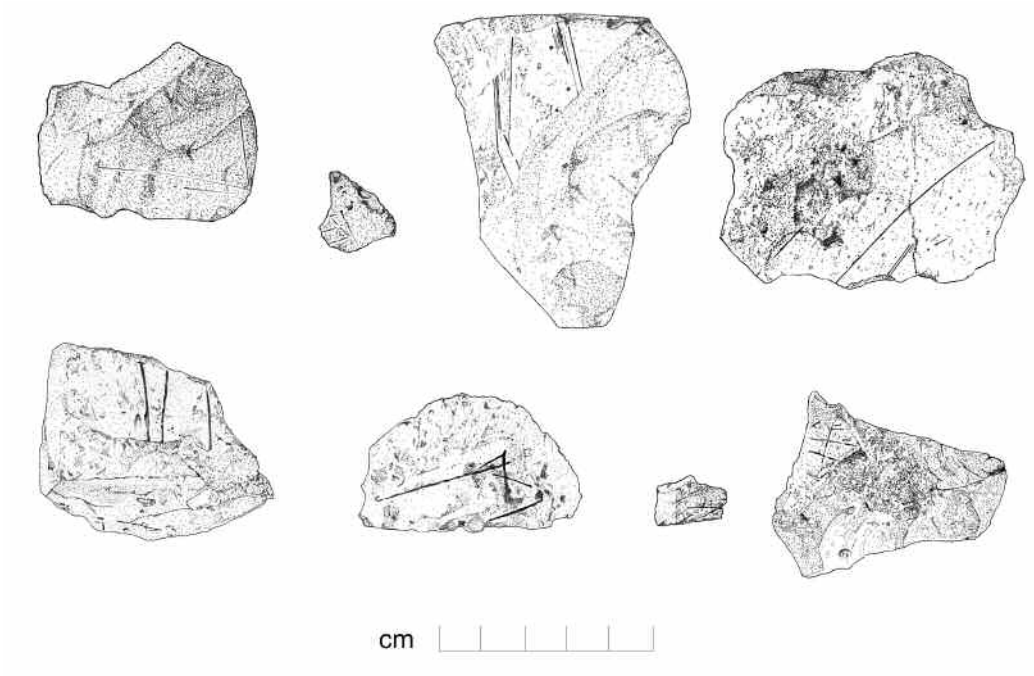

Figure 6. Illustrations of the incised stones from Clovis contexts, Table 1a–h.

boscideans known from the Colorado Plateau (Agenbroad and Hesse 2004), geometric designs in the Winnemucca basin in Nevada (Benson et al. 2013), and carved abstracts in the Northern Great Basin (Middleton et al. 2014). While reliable absolute dating methods are lacking for pecked petroglyphs, archaeological sites with mammoth remains, as well as mammoth dung in the area near rock art sites in Utah, have radiocarbon assays from the Early Paleoindian period (Agenbroad and Mead 1989; Malotki and Wallace 2011:150). Benson et al. (2013) report absolute assays and ancient lake levels to date the creation of the Winnemucca petroglyphs to between

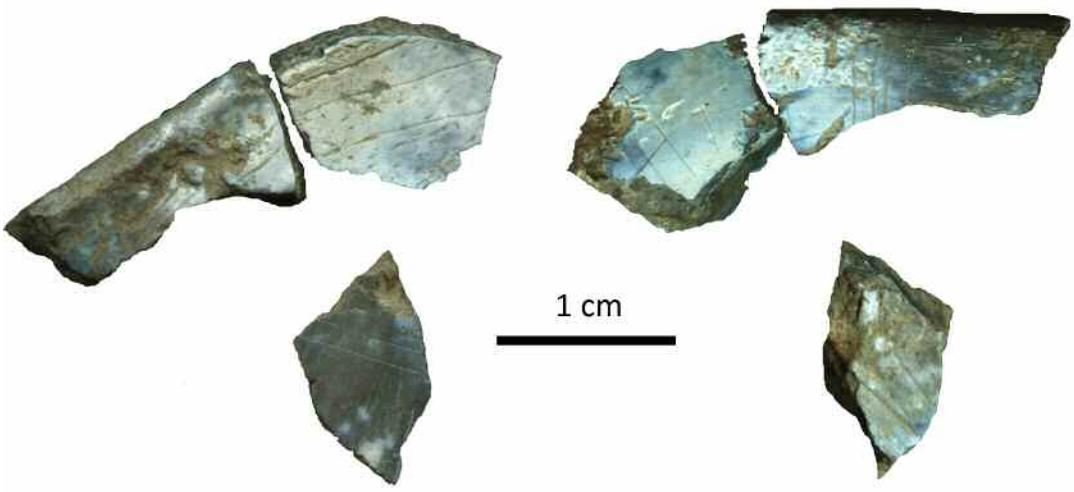

Figure 7. Engraved bone from Clovis context; Specimen No. 2520 (N1021, E985, Level 5, Z 95.19–95.09) recovered during water-screening with 1/4" mesh, from the same 10 cm arbitrary level as an endscraper, notched blade, and three temporally diagnostic Clovis blades.

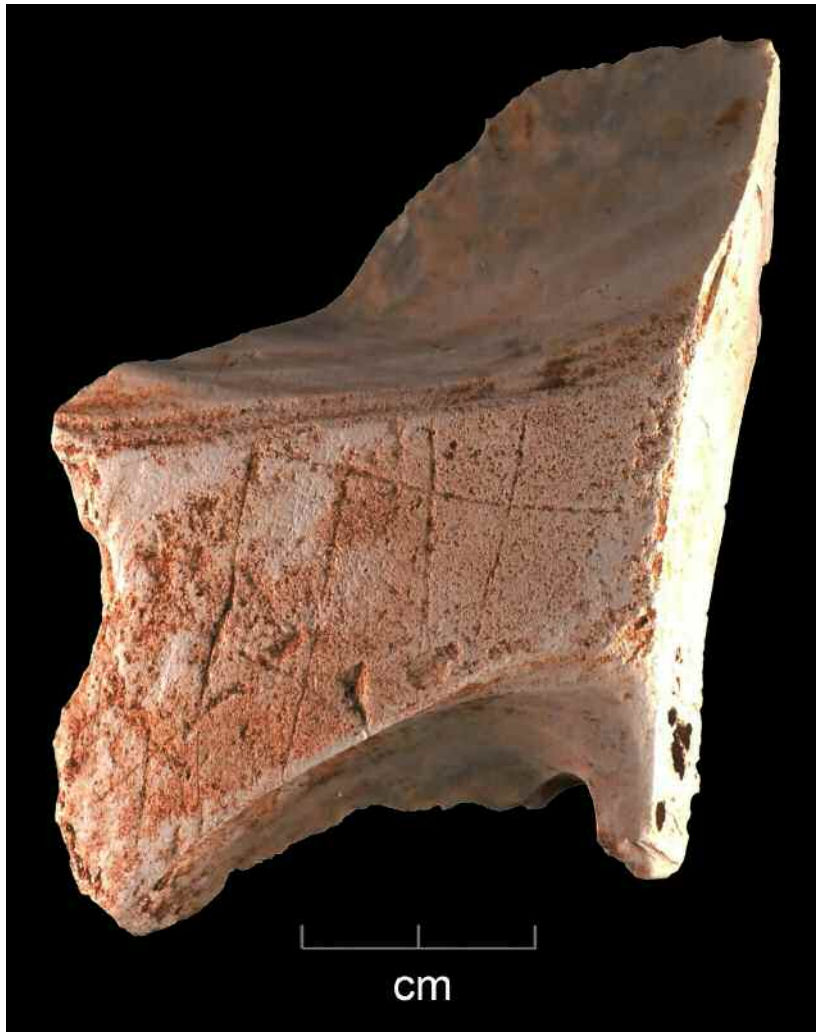

Figure 8. Incised stone from Folsom context, Table 1j.

14,800 ± 200 and 10,300 ± 100 radiocarbon years before present (herefater B.P.).

Ornamentation

Over one hundred items of personal adornment, including pendants and beads have been recovered from Paleoindian contexts (see Table 1 in Holliday and Killick 2013; Table 1 in Potter 2005). These objects are made from a variety of materials including shell, bone, stone, hematite, and calcium carbonate, and come from many well-known Clovis and Folsom sites such as Blackwater Draw, Lindenmeier, Mockingbird Gap, and Wilson-Leonard (Bousman et al. 2002; Hester et al. 1972:166; Holliday and Killick 2013; Roberts 1940: Figure 97; Wilmsen and Roberts 1979:133). In addition to beads and pendants this category also includes several bone discs such as those with periphery incisions in Folsom contexts at Blackwater Draw (Hester et al. 1972:135, Figure 99), and others from Lindenmeier (Wilmsen and Roberts 1979:132, Figure 128), the Agate Basin Site (Frison and Standford 1982:172), and the Bulter site (Bradley et al. 2010:133, Figure 5.6).

Incised Stones

In addition to the Gault specimens outlined here and the possible Folsom incised stone at Black-

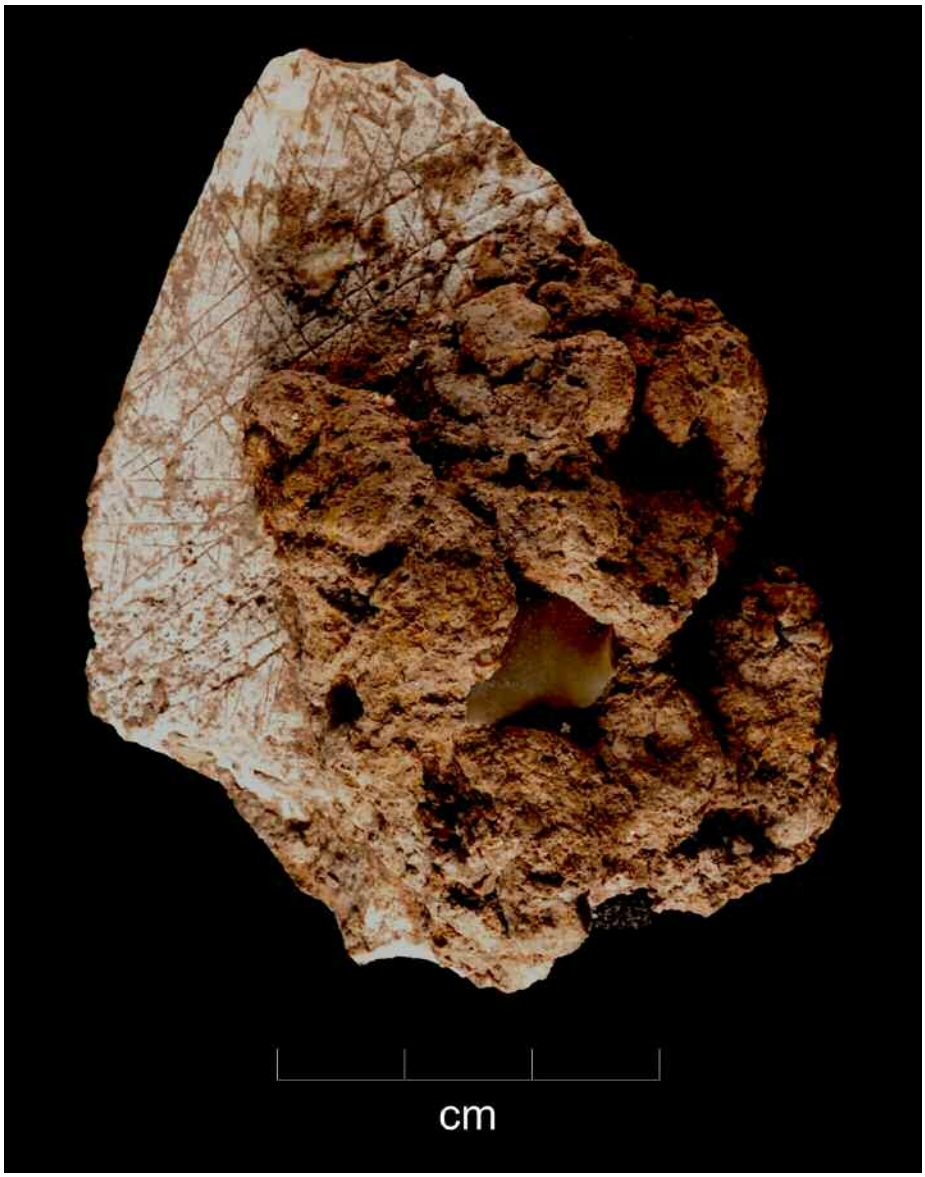

Figure 9. Incised stone from Dalton context, Table 1k.

water Draw, other Paleoindian incised stone artifacts include a chert flake with incised cortex from Wilson-Leonard (Collins 1998), incised stones from Barton Gulch (Davis et al. 2009), a greenstone cobble with engraved lines from the Sugarloaf site (Gramly 1998:62, Figure 18), a cobble with a ladder-like design from the West Athens Hill site (Ritchie and Funk 1973:27–30; see also Funk 2004:52–53 for discussion of authenticity), and a Clovis engraved quartzite pebble from Shawnee-Minisink (Gingerich 2009).

All of these incised stones have geometric patterns, usually including groups of lines either next to each other or overlapping. In terms of manufacture, many of the chert incised stones from Gault appear to have been engraved and then subsequently knapped which helps account for their small size and fragmented designs. This behavior is also found elsewhere outside of North America (e.g., Mesolithic Sweden, Althin 1950; Neolithic South India, Brumm et al. 2006; and Mesolithic Europe, Plonka 2003). These exam-

ples stand in contrast to the Paleoarchaic (9410 ± 140 through 9340 ± 120 B.P.) incised stones from Barton Gulch, Montana, where engraved lines overlap flake scars indicating that the tablets were first shaped with marginal percussion flaking before the designs were incised (Davis et al. 2009:43). The manufacturing process of these incised stones remains to be studied in detail including which implements were used to make the incisions. Experiments by Gingerich (2009) to replicate the type of marks on the Shawnee-Minisink incised cobble suggest that they were not the result of hammerstone strikes or other flintknapping behavior and are instead intentionally made lines using flakes.

Engraved/Carved Bone or Ivory

Engraved and carved bone and ivory is also found from several sites dating to the Paleoindian period. Examples include many decorated bone pieces, such as the engraved Folsom bone beads and discs from Lindenmeier (Wilmsen and Roberts 1979:132–133), an incised turtle carapace and incised bird bone bead from Lubbock Lake dating to 8600 B.P. (Holliday 1987:23; Johnson 1987:110), and one case of a Pleistocene-aged incised mammoth tusk (Mandryk et al. 2005). Along with petroglyphs, engraved ivory is the only other art category where representational depictions are reportedly found. Examples include the carving of a mammoth on a mineralized mammoth bone from Vero Beach (Purdy 2010; Purdy et al. 2011), although it is highly likely that the engraving may be a forgery (Purdy et al. 2011:2912).

Other artifacts, including the bone shaft wrench from the Murray Springs Clovis site and some beveled bone or ivory points known from other Early Paleoindian assemblages, are listed in Table 2. These artifacts are the best example of objects that are hard to categorize as strictly "utilitarian" or "artistic" and were mostly likely both. While many of the ivory rods are crisscrossed with grooves—presumably to roughen the surface to increase friction with the adjoining, opposing bevel to strengthen the tool and make it more effective (Haynes 1982:390)— other engravings are distinctive patterns such as the zigzag design on both sides of an ivory rod from the Aucilla River in Florida (Haynes 1982:390, Figure 10), or the zipper-like designs on the ivory rods from the Clovis East Wenatchee cache (Gramly 1993).

Use of Red Ochre

In addition to engraved bone where some modifications may be more "utilitarian" as opposed to "artistic" the same holds true for the use of ochre in the Paleoindian period (see discussion in Speth et al. 2013:116–117). There are diverse uses of ochre present in worldwide ethnographic and archaeological accounts, including engravings, pigments, use as hide tanner, adhesive ingredient/mastic, medicine, lubricant, and as a vegetable and wood preservative (Audouin and Plisson 1982; Flood 1995; Henshilwood et al. 2002; Kamwendo 2009; Lombard 2007; Roper 1991; Velo 1984; Watts 2002)

While the use of ochre is not a diagnostic Paleoindian trait, it is found fairly consistently from a wide variety of contexts throughout the period including burials (e.g., Anzick, Gordon Creek, Browns Valley, Upward Sun River Site, and Horn Shelter), on animals bones (e.g., Sheaman), in caches (e.g., Fenn and Simon), and numerous domestic contexts (Bulter 1963:23; Frison 1989:28, 1990:102; Frison and Stanford 1982:144–145; Lahren and Bonnichsen 1974:148; Potter et al. 2011; Roper 1991:294, Table 1; Stanford and Jodry 1988:22). There is also at least one incidence of ochre being actively mined by Paleoindian peoples in Wyoming (Frison 1988:95; Stafford et al. 2003).

While a utilitarian function for Paleoindian use of ochre on bone and stone points as grease or mastic has been proposed to make hunting weapons more durable and effective (Bradley et al. 2010:119–120; Tankersley 2002; see also Zipkin and Brooks 2011 for similar experimental results), ochre also occurs on grinding stones, perhaps indicating pigment processing for more artistic endeavors (Roper 1991:295). Since there are no Paleoindian examples of engraved ochre (such as the well-known Middle Stone Age examples from Blombos Cave [d'Errico et al. 2012; Hensilwood et al. 2009]) no use of ochre is listed in Table 2, but this is a potentially fruitful area of inquiry.

This inventory of Paleoindian art demonstrates that portable art objects, pictographs, and items of personal adornment may be much more common than traditionally assumed in the Paleoindian

Table 2. Early Art in North and Central America.

Type	Site	Assoc. Diagnostic Artifacts and Absolute Dates ^{14}C years B.P.	Reference(s)
Petroglyphs	Colorado Plateau, CO, UT, AZ, NM	Late Pleistocene	Agenbroad and Hesse 2004
	Great Basin Carved Abstract (GBCA), OR, CA, NV	~12,500–8000 B.P.	Middleton et al. 2014
	Upper Sand Island, UT	Late Pleistocene, 13,000– 11,000 B.P.	Malotki and Wallace 2011
	Winnemucca Lake, NV	10,300 ± 100–14,800 ± 200 B.P.	Benson et al. 2013
Painted bone	Cooper Bison, OK	Folsom	Bement 1999:37–39
Incised stones	Blackwater Draw, NM	Folsom	Hester et al. 1972
	Shawnee-Minisink, PA	Clovis	Gingerich 2009
	Sugarloaf, MA	Gainey/Bull Brook	Gramley 1998:62, Figure 18
	West Athens Hill, NY	Early Paleoindian	Funk 2004:52–53;Ritchie and Funk 1973:27–30
	Wilson-Leonard, TX	Folsom	Collins 1998; Collins et al. 1991; Collins et al. 1992
	Gault, TX	Clovis, Folsom, Dalton	This paper; Collins et al. 1991; Collins et al. 1992
	41WM989, TX	Late Paleoindian	Karbula et al. 2007
	Barton Gulch, MT	Paleoarchic, 9410 ± 140– 9340 ± 120 B.P.	Davis et al. 2009
Engraved bone or ivory	Anzick, MT	Clovis	Lahren and Bonnichsen 1974; Rasmuseen et al. 2014:Figure 1e
	Blackwater Draw, NM	Clovis	Hester et al. 1972:116, Figures 102a and 104a; Saunders and Daeschler 1994:21
	Gault, TX	Clovis	This paper
	East Wenatchee, WA	Clovis	Gramly 1993
	Lindenmeier, CO	Folsom	Martin et al. 2009:25; Wilmsen and Roberts 1979
	Murray Springs, AZ	Clovis	Haynes and Hemmings 1968
	Powerline, FL	Late Pleistocene	Hemmings 2004:147; Webb and Hemmings 2002
	Aucilla River, FL	Late Pleistocene	Bradley et al. 2010:124–125, Figures 5.7–5.8; Haynes 1982; Webb and Hemmings 2002
	Sheaman, WY	Clovis	Walker et al. 2012:Figure 12A
	TMM43059, TX	Late Pleistocene	Mandryk et al. 2005
	Tequixquiac, Mexico	Late Pleistocene	Aveleyra 1965
	Vero Beach, FL	Late Pleistocene	Purdy 2010; Purdy et al. 2011
	Hell Gap, WY	Frederick, 8690 ± 380 B.P.	Aveleyra 1965:Figure 9
	Lubbock Lake, TX	8600 B.P.	Johnson and Holliday 1981, 1987
Ornamentation	Agate Basin, WY	Folsom	Frison and Stanford 1982:172
	Arch Lake, NM	10,020 ± 50 B.P.	Jodry 2010; Owsley et al. 2010

Beacon Island, ND	Agate Basin, 10,326 ± 28 B.P.	Mitchell 2012
Butler, FL	Clovis	Bradley et al. 2010:133, Figure 5.16
Blackwater Draw, NM	Clovis	Hester et al. 1972:115–116, 135, Figures 99b and 103c
Charlie Lake Cave, BC	Fluted Point, 10,770 ± 120–10,450 ± 150 B.P.	Fladmark et al. 1988:337
Hiscock, NY	Gainey, ~11,300–~10,000 B.P.	Laub 1995, 2002:114
Horn Shelter, TX	Folsom/Plainview, San Patrice ~10,310–~9500 B.P.	Jodry 2010; Redder 1985; Redder and Fox 1988; Watt 1978
Lindenmeier, CO	Folsom, ~10,660 B.P.	Wilmsen and Roberts 1978:132-133, Figure 128–129; Haynes et al. 1992; Holliday 2000
Marmes Rockshelter, WA	10,750 ± 270–11,025 ± 90 B.P.	Fitzgerald et al. 2005; Hicks 2004
Mill Iron, MT	Goshen/Plainview	Bradley and Frison 1996:67–68
Mockingbird Gap, NM	Clovis	Holliday and Killick 2013
Powers II, WY	Clovis - Hell Gap	Stafford et al. 2003
Rogers Ridge, CA	10,495 ± 85 B.P.	Fitzgerald et al. 2005
Ryan/Harley, FL	Suwanee	Glowacki 2012
Shifting Sands, TX	Folsom	Hofman et al. 2000; Rose 2011
Sloth Hole, FL	Clovis	Bradley et al. 2010:134, Figure 5.17; Hemmings 2004:221
Sugarloaf, MA	Clovis	Gramley 1998
Reagan, VT	Holcombe	Haynes 2002:155
Hell Gap, WY	Agate Basin, 10,240 ± 300, B.P.; Frederick 8690 ± 380 B.P.	Kornfeld and Larson 2009; Haynes 2009
Wakulla Springs Lodge, FL	Late Pleistocene	Glowacki 2012
Wilson-Leonard, TX	Wilson ~10,000–9750 B.P.; Late Paleoindian ~9500–8400 B.P.	Bousman 1998, Figures 8–20; Bousman et al. 2002; Shaw 1998, Figures 21–23f
Gordon Creek, CO	Late Paleoindian, 9620 ± 45 B.P.	Breternitz et al. 1971; Muniz 2004
Lubbock Lake, TX	Firstview 8655 ± 90 B.P.	Johnson and Holliday 1981, 1987
North Creek Shelter, UT	Late Paleoindian,~ 9730 B.P.	Janetski et al. 2012

Note: Gray shading indicates art older than 10,000 years B.P.

Americas,[3] especially in early periods such as Clovis and Folsom. Importantly, examples of all of these categories of objects occur before 10,000 B.P. (Table 2). Even with early clues, such as those reported by Jackson (1938) and Hester et al. (1972), the idea of incised portable art in the Americas has not been widely embraced. The Gault incised stones and engraved bone and other objects from systematic excavations demonstrate the importance of recovering these objects *in situ* since associations between art objects, diagnostic artifacts, absolute dates, and other lines of evidence provide the best data for understanding the antiquity and all aspects of artistic behavior. Early art in the Americas should not be surprising, as we are unequivocally dealing with modern humans and complex cultures. These artifacts are useful for understanding the more socially salient aspects of hunter-gatherer lifeways including the exchange of information, social mobility, cultural transmission, and signaling (e.g., Stiner et al. 2013; Whallon 2006), all of which are important avenues for future research in the Paleoindian Americas.

Conclusion

While well-known from other parts of the world, early art can still be considered rare in North America if viewed as counts and percentages in comparison to other lithic and faunal materials, but is not as rare as traditionally thought in the larger context. These objects constitute additional classes of material culture in the Paleoindian period often presumed not to exist, and we believe this is partly due to the careful excavation, handling, and expectations necessary to find these objects. The Gault engraved stones and bone are a few examples among a growing inventory of portable art and personal adornment items in the Americas, and their discovery can be placed in the global context of engraved artifacts dating back as far as 100,000 years ago (d'Errico et al. 2012). The documentation of these objects allows for more detailed discussions of the creation, maintenance, and use of engraved art across the globe and enhances our understanding of shared patterns of symbolic behavior over vast amounts of time and space.

Acknowledgments. All the Paleoindian artifacts reported here were recovered in excavated contexts from the Gault Site and are presently housed in the Prehistory Research Laboratory at Texas State University, San Marcos. Investigations in Area 15 were funded in part by the National Science Foundation Grant No. 0920549. The overall Gault Project has been supported by numerous individual donors, regional foundations, and scholars and we acknowledge their support. We would like to expressly thank Sergio Ayala for the technical drawings used in this report, James Adovasio for the use of the Mercyhurst Archaeological Institute's PTM, and Joyce Marcus for her Spanish translation of the abstract. Our deep appreciation also goes to Vance T. Holliday, Bonnie Pitblado, Todd Surovell, Robert Lassen and six anonymous reviewers for their insightful and detailed comments on a previous draft of this paper.

Data Availability Statement. All the Paleoindian artifacts discussed here were recovered in excavated contexts from the Gault Site and are presently housed in the Prehistory Research Project Laboratory at Texas State University, San Marcos. Specimens recovered since February 2007 are permanently curated by the Center for Archaeological Studies at Texas State University (this includes those from Area 15). Those recovered in 2006 and before are permanently curated at the Texas Archaeological Research Laboratory at the University of Texas at Austin and are on temporary loan to the Gault Project at Texas State University.

References Cited

Agenbroad, Larry D., and India S. Hesse
2004 Megafauna, Paleoindians, Petroglyphs, and Pictographs of the Colorado Plateau. In *The Settlement of the American Continents: A Multidisciplinary Approach to Human Biogeography*, edited by C. Michael Barton, Geoffrey A. Clark, David R. Yesner, and Georges A. Pearson, pp. 189–195. University of Arizona Press, Tucson.

Agenbroad, Larry D., and Jim I. Mead
1989 Quaternary Geochronology and Distribution of *Mammuthus* on the Colorado Plateau. *Geology* 17:861–864.

Althin, Carl-Axel
1950 New Finds of Mesolithic Art in Scania (Sweden). *Acta Archaeologica* 21:253–260.

Audouin, Frédérique, and Hugues Plisson
1982 Les ocres et leurs témoins au Paléolithique en France: enquête et expériences sur leur validité archéologique. *Cahiers du Centre de Recherche Préhistoriques de Paris I* 8:33–80.

Aveleyra, Luis Arroyo de Anda
1965 The Pleistocene Carved Bone from Tequixquiac, Mexico: A Reappraisal. *American Antiquity* 30:261–277.

Bednarik, Robert G.
1994 The Pleistocene Art of Asia. *Journal of World Prehistory* 8:351–375.
1998 Microscopic Analysis of "Engraved Plaques" and other objects from Devil's Lair. *Journal of the Royal Society of Western Australia* 1:165–175.

Bement, Leland C.
1999 *Bison Hunting at the Cooper Site: Where Lightning Bolts Drew Thundering Herds*. University of Oklahoma Press, Norman.

Benson, L. V., E. M. Hattori, J. Southon, and B. Aleck
2013 Dating North America's Oldest Petroglyphs, Winnemucca Lake Subbasin, Nevada. *Journal of Archaeological Science* 40:4466–4476.

Bousman, C. Britt
1998 Late Paleoindian Archeology. In *Wilson-Leonard: An 11,000-year Archaeological Record of Hunter-Gatherers in Central Texas*, edited by Michael B. Collins, pp. 161–210. Studies in Archaeology No. 31. Texas Archeological Research Laboratory, University of Texas at Austin and Archeology Studies Program, Report 10, Texas Department of Transportation, Environmental Affairs Division, Austin

Bousman, C. Britt, Michael B. Collins, Paul Goldberg, Thomas Stafford, Jan Guy, Barry W. Baker, and D. Gentry Steele, Marvin Kay, Anne Kerr, Gled Fredlund, Phil Dering, Vance Holliday, Diana Wilson, Wulf Gose, Susan Dial, Paul Takac, Robin Balinsky, Marilyn Masson, and Joseph F. Powell
2002 The Palaeoindian-Archaic Transition in North America: New Evidence from Texas. *Antiquity* 76:980–990.

Bradley, Bruce, and George C. Frison
1996 Flaked Stone and Worked Bone Artifacts. In *The Mill Iron Site*, edited by George C. Frison, pp. 43–69. University of New Mexico Press, Albuquerque.

Bradley, Bruce, Michael B. Collins, and C. Andrew Hemmings
2010 *Clovis Technology*. International Monographs in Prehistory, Ann Arbor, Michigan.

Breternitz, David A., Alan C. Swedlund, and Duane C. Anderson
1971 An Early Burial from Gordon Creek, Colorado. *American Antiquity* 76:980–990.

Brumm, Adam, Nicole Boivon, and Richard Fullagar
2006 Signs of Life: Engraved Stone Artefacts from Neolithic South India. *Cambridge Archaeological Journal* 16:165–190.

Bulter, B. Robert
1963 An Early Man Site at Big Camas Prairie, South-Central Idaho. *Tebiwa* 6:22–23.

Collins, Michael B. (editor)
1998 *Wilson Leonard: An 11,000-year Archaeological Record of Hunters-Gatherers in Central Texas*. Studies in Archaeology No. 31. Texas Archaeological Research Laboratory, The University of Texas at Austin, and Archeology Studies Program, Report 10, Texas Department of Transportation, Environmental Affairs Division, Austin.

Collins, Michael B.
2002 The Gault Site, Texas and Clovis Research. *Athena Review* 3(2):24–36.
2007 Discerning Clovis Subsistence from Stone Artifacts and Site Distributions on the Southern Plains Periphery. In *Foragers of the Terminal Pleistocene in North America*, edited by Renee B. Walker and Boyce N. Driskell, pp. 59–87. University of Nebraska Press, Lincoln.

Collins, Michael B., Thomas R. Hester, and Pamela J. Headrick
1992 Engraved Cobbles from the Gault Site, Central Texas. *Current Research in the Pleistocene* 9:3–4.

Collins, Michael B., Thomas R. Hester, David Olmstead, and P. J. Headrick
1991 Engraved Cobbles from Early Archeological Contexts in Central Texas. *Current Research in the Pleistocene* 8:13–15.

Conard, Nicholas J.
2009 A Female Figurine from the Basal Aurignacian of Hohle Fels Cave in Southwestern Germany. *Nature* 459:248–252.

Davis, Leslie B., Matthew J. Root, Stephen A. Aaberg, and William P. Eckerle
2009 Paleoarchaic Incised Stones from Barton Gulch, Southwest Montana. *Current Research in the Pleistocene* 26:42–44.

d'Errico, Francesco, and Christopher S. Henshilwood
2007 Additional Evidence for Bone Technology in the Southern African Middle Stone Age. *Journal of Human Evolution* 52:142–163.

d'Errico Francesco, Christopher Henshilwood, Graeme Lawson, Marian Vanhaeren, Anne-Marie Tillier, MarieSoressi, , Frédérique Bresson, Bruno Maureille, April Nowell, Joseba Lakarra, Lucinda Backwell, and Michèle Julien
2003 The Search for the Origin of Symbolism, Music, and Language: A Multidisciplinary Endeavour. *Journal of World Prehistory* 17:1–70.

d'Errico, Francesco, Renata G. Moreno, and Riann F. Rifkin
2012 Technological, Elemental, and Colorimetric Analysis of an Engraved Ochre Fragment from the Middle Stone Age Levels of Klasies River Cave 1, South Africa. *Journal of Archaeological Science* 39:942–952.

d'Errico, Francesco, and Paola Villa
1997 Holes and Grooves: The Contribution of Microscopy and Taphonomy to the Problem of Art Origins. *Journal of Human Evolution* 33:1–31.

Dikov, Nikolai N.
1996 The Ushki Site, Kamchatka Peninsula. In *American Beginnings: The Prehistory and Palaeoecology of Beringia*, edited by Frederick H. West, pp. 244–250. University of Chicago Press, Chicago.

Fitzgerald, Robert T., Terry L. Jones, and Adella Schroth
2005 Ancient Long-Distance Trade in Western North America: New AMS Radiocarbon Dates from Southern California. *Journal of Archaeological Science* 32:423–434.

Fladmark, Knut R., Jonathan C. Driver, and Diana Alexander
1988 The Paleoindian Component at Charlie Lake Cave (HbRf39), British Columbia. *American Antiquity* 53:371–384.

Flood, Josephine
1995 *Archaeology of the Dreamtime: Story of Prehistoric Australia and Her People*. Angus and Robertson, Sydney.

Frison, George C.
1988 Paleoindian Subsistence and Settlement during Post-Clovis Times on the Northwestern Plains, the Adjacent Mountain Ranges, and Intermontane Basins. In *Americans Before Columbus: Ice-Age Origins*, edited by Ronald C. Carlisle, pp.83–106. Ethnology Monographs No. 12. Department of Anthropology, University of Pittsburgh, Pittsburgh, Pennsylvania.
1989 Fenn Clovis Cache. In *The First World Summit Conference on the Peopling of the Americas*, edited by J. Tomenchuck and Robson Bonnichsen, pp. 28. Center for the Study of the First Americans, University of Manie, Orono.
1990 Clovis, Goshen, and Folsom: Lifeways and Cultural Relationships. In *Megafauna and Man: Discovery of America's Heartland*, edited by Larry D. Agenbroad, Jim I. Mead, and Lisa W. Nelson, pp. 100–108. Scientific Papers Vol. 1. The Mammoth Site of Hot Springs, South Dakota, Inc. Hot Springs.

Frison, George C., and Dennis Stanford
1982 The Folsom Components. In *The Agate Basin Site: A Record of the Paleoindian Occupation of the Northwestern High Plains*, edited by George C. Frison and Dennis Stanford, pp. 37–75. Academic Press, New York.

Funk, Robert E.
2004 *An Ice Age Quarry Workshop: The West Athens Hill Site Revisited*. New York State Museum Bulletin No. 504. The New York State Education Department, Albany.

Gao, Xing, Wanbo Huang, Ziqiang Xu, Zhibang Ma, and John W. Olsen
2004 120–150 ka Human Tooth and Ivory Engravings from Xinglongdong Cave, Three Gorges Region, South China. *Chinese Science Bulletin* 49: 175–180.

Gilmer, Anastasia
2013 Geoarchaeological Investigations of Site Formation Processes in Area 15 at the Gault Site, Bell County, Texas. Unpublished Master's thesis, Department of Anthropology, Texas State University, San Marcos, Texas.

Gingerich, Joseph A. M.
2009 An Engraved Paleoindian Artifact from Northeast Pennsylvania. *North American Archaeologist* 30:377–391.

Glowacki, Mary
2012 The First Florida "Bling": Paleolithic Beads. *Florida Anthropologist* 65:47–50.

Gramly, Richard M.
1993 *The Richey Clovis Cache*. Persimmon Press, Buffalo, New York.
1998 *The Sugarloaf Site: Palaeo-Americans on the Connecticut River*. Persimmon Press, Buffalo, New York.

Greenfield, Haskel J.
2006 Slicing Cut Marks on Animal Bones: Diagnostics for Identifying Stone Tool Type and Raw Material. *Journal of Field Archaeology* 31:147–163.

Griffin, James. B., David J. Meltzer, Bruce D. Smith, and William C. Sturtevant
1988 A Mammoth Fraud in Science. *American Antiquity* 53:578–582.

Haynes, C. Vance, and E. Thomas Hemmings
1968 Mammoth Bone Shaft Wrench from Murray Springs, Arizona. *Science* 159:186–187.

Haynes, C. Vance
1982 Were Clovis Progenitors in Beringia? In *Paleoecology of Beringia*, edited by David M. Hopkins, John V. Matthews, Jr., Charles E. Schweger, and Steven B. Young, pp. 383–398. Academic Press, New York.
2009 Geochronology. In *Hell Gap: A Stratified Paleoindian Campsite at the Edge of the Rockies*, edited by Mary Lou Larson, Marcel Kornfeld, and George C. Frison, pp. 3–13. University of Utah Press, Salt Lake City.

Haynes, C. Vance, Jr., Roelf P. Beukens, A. J. T. Jull, and Owen K. Davis
1992 New Radiocarbon Dates for Some Old Folsom Sites: Accelerator Technology. In *Ice Age Hunters of the Rockies*, edited by Dennis J. Stanford and J. S. Day, pp. 83–100. Denver Museum of Natural History and University Press of Colorado, Denver.

Haynes, Gary
2002 *The Early Settlement of North America: The Clovis Era*. Cambridge University Press, Cambridge.

Hemmings, C. Andrew
2004 *The Organic Clovis: A Single Continent-wide Adaptation*. Ph.D. Dissertation, Department of Anthropology, University of Florida, Gainesville.

Henshilwood, Chistopher S., Francesco d'Errico, and Ian Watts
2009 Engraved Ochres from the Middle Stone Age Levels at Blombos Cave, South Africa. *Journal of Human Evolution* 57:27–47.

Henshilwood, Christopher S., Francesco d'Errico, Royden Yates, Zenobia Jacobs, Chantal Tribolo, Geoff A.T. Duller, Norbert Mercier, Judith C. Sealy, Helene Valladas, Ian Watts, and Ann G. Wintle
2002 Emergence of Modern Human Behavior: Middle Stone Age Engravings from South Africa. *Science* 295:1278–1280.

Hester, James J., Ernest L. Lundelius, Jr., and Roald Fryxell
1972 *Blackwater Locality No. 1: A Stratified, Early Man Site in Eastern New Mexico*. Fort Burgwin Research Center, Ranchero de Taos, New Mexico.

Hicks, Brent A. (editor)
2004 *Marmes Rockshelter: A Final Report on 11,000 Years of Cultural Use*. Washington State University Press, Pullman.

Hildebrand, John A., Sean M. Wiggins, Jeana L. Driver, and Michael R. Waters
2007 Rapid Seismic Reflection Imaging at the Clovis period Gault site in Central Texas. *Archaeological Prospection* 14:245–260.

Holliday, Vance T.
1987 Cultural Chronology. In *Lubbock Lake: Late Quaternary Studies on the Southern High Plains*, edited by Eileen Johnson, pp. 22–25. Texas A&M University Press, College Station.
2000 The Evolution of Paleoindian Geochronology and Typology on the Great Plains. *Geoarchaeology* 15:227–290.

Holliday, Vance T., and David Killick
2013 An Early Paleoindian Bead from the Mockingbird Gap Site, New Mexico. *Current Anthropology* 54:85–95.

Hofman, Jack L., Richard O. Rose, Larry D. Martin, and Daniel S. Amick
2000 Folsom Adornment and Bone Technology. *Current Research in the Pleistocene* 17:42–45.

Jackson, A. T.
1938 *Picture Writing of the Texas Indians*. University of Texas Press, Austin.

Janetski, Joel C., Mark L. Bodily, Bradley A. Newbold, and David T. Yoder
2012 The Paleoarchaic to Early Archaic Transition on the Colorado Plateau: The Archaeology of North Creek Shelter. *American Antiquity* 77:125–159.

Johnson, Eileen (editor)
1987 *Lubbock Lake: Late Quaternary Studies on the Southern High Plains*. Texas A&M University Press, College Station.

Johnson, Eileen, and Vance T. Holliday
1981 Late Paleoindian Activity at the Lubbock Lake site. *Plains Anthropologist* 26:173–193.
1987 Lubbock Lake Artifact Assemblages. In *Lubbock Lake: Late Quaternary Studies on the Southern High Plains*, edited by Eileen Johnson, pp. 10–119. Texas A&M University Press, College Station.

Jodry, Margaret A.
2010 Walking in Beauty: 11,000-Year-Old Beads and Ornaments from North America. *Bead Forum* (Autumn)1:6–9.

Karbula, James W., Mason D. Miller, Jonathan Jarvis, Bradford Jones, S. Christophere Caran, Phil Dering, and Bruce M. Albert
2007 *Results of Testing and Data Recovery Investigations at Site 41WM989 for the Proposed State Highway 45 Project*. Texas Department of Transportation, Hicks & Company Archeology Series 161, Austin.

Kamwendo, Lennie A.
2009 Childbirth Experiences in Malawi. In *Childbirth across Cultures: Ideas and Practices of Pregnancy, Childbirth, and the Postpartum*, edited by Helaine Selin, pp. 235–244. Springer, New York.

Kornfeld, Marcel, and Mary Lou Larson
2009 Reinvestigation in Context: Paleoindian Prehistory at the Edge of the Rockies. In *Hell Gap: A Stratified Paleoindian Campsite at the Edge of the Rockies*, edited by

Mary Lou Larson, Marcel Kornfeld, and George C. Frison, pp. 3–13. University of Utah Press, Salt Lake City.

Lahren, Lawrence, and Robson Bonnichsen
1974 Bone Foreshafts from a Clovis Burial in Southwestern Montana. *Science* 186:147–149.

Lassen, Robert D.
2013 *A Flute Runs Through It, Sometimes…Understanding Folsom-Era Stone Tool Variation*. Ph.D. Dissertation, Department of Anthropology, University of Tennessee, Knoxville.

Laub, Richard S.
1995 The Hiscock Site (western New York): Recent Developments in the Study of the Late-Pleistocene Component. *Current Research in the Pleistocene* 12:26–29.
2002 The Paleoindian Presence in the Northeast: A View from the Hiscock Site. In *Ice Age People of Pennsylvania*, edited by Kurt W. Carr and James M. Adovasio, pp. 105–122. Pennsylvania Historical and Museum Commission, Harrisburg.

Lombard, Marlize
2007 The Gripping Nature of Ochre: The Association of Ochre with Howiesons Poort Adhesives and Later Stone Age Mastics from South Africa. *Journal of Human Evolution* 53:406–419.

Malzbender, Tom, Dan Gelb, and Hans Wolters
2001 Polynomial Texture Maps. In *Proceedings of the 28th annual Conference on Computer Graphics and Interactive Techniques (SIGGRAPH),* edited by Lynn Pocock, pp. 519–528. ACM Press, New York.

Malotki, Ekkehart, and Henry D. Wallace
2011 Columbian Mammoth Petroglyphs from the San Juan River near Bluff, Utah, United States. *Rock Art Research* 28:143–152.

Mandryk, Carole S., Jon A. Baskin, Emily O. Mathews, and Ronny G. Thomas
2005 Possible Human-Modified Mammoth Tusk and Bone from the Pleistocene of South Texas. *Bulletin of the Florida Museum of Natural History* 45:531–539.

Martin, Brenda, Kate Bowell, Treloar Tredennick Bower, and Terry Burton
2009 *The Excavation of Lindenmeier: A Folsom Site Uncovered 1934–1940*. Fort Collins Museum and Discover Science Center, Fort Collins, Colorado.

Meltzer, David J.
1993 *Search for the First Americans*. St. Remy Press, Montreal, Québec.
2009 *First Peoples in a New World: Colonizing Ice Age America*. University of California Press, Berkeley.

Middleton, Emily S., Geoffrey M. Smith, William J. Cannon, and Mary F. Ricks
2014 Paleoindian Rock Art: Establishing the Antiquity of Great Basin Carved Abstract Petroglyphs in the Northern Great Basin. *Journal of Archaeological Science* 43:21–30.

Mitchell, Mark D.
2012 *Agate Basin Archaeology at Beacon Island, North Dakota*. Research Contribution No. 86. Paleocultural Research Group, Arvada, Colorado, Submitted to the State Historical Society of North Dakota, Bismarck and the U.S. Department of the Interior, National Park Service, Washington D.C.

Montero, E. A. C., and M. M. Fernandez
1996 Paleoindian Bedrock Petrogliphs at Epullán Grand Cave, Northern Patagonia, Argentina. *Rock Art Research* 13:124–128.

Muniz, Mark P.
2004 Exploring Technological Organization and Burial Practices at the Paleoindian Gordon Creek Site (5LR99), Colorado. *Plains Anthropologist* 191:253–280.

Neves, Walter A., Astolfo G. M. Araujo, Danilo V. Bernardo, Renato Kipnis, and James K. Feathers
2012 Rock Art at the Pleistocene/Holocene Boundary in Eastern South America. *PLoS ONE* 7(2):e32228.

Nowell, April, and Francesco d'Errico
2007 The Art of Taphonomy and the Taphonomy of Art: Layer IV, Molodova I, Ukraine. *Journal of Archaeological Method and Theory* 14:1–26.

Outes, Felix Faustino
1916 Las placas grabadas de Patagonia: examen crítico del material conocido y descripción de nuevos ejemplares. *Revista de la Universidad de Buenos Aires* 1:611–624.

Owsley, Douglas W., Margaret A. Jodry, Thomas W. Stafford, Jr., C. Vance Haynes, Jr., and Dennis J. Stanford
2010 *Arch Lake Woman: Physical Anthropology and Geoarchaeology*. Texas A&M University Press, College Station.

Plonka, Tomasz
2003 *The Portable Art of Mesolithic Europe*. University of Wroclaw, Wroclaw. Poland.

Potter, Ben A., Joel D. Irish, Joshua D. Reuther, Carol Gelvin-Reymiller, and Vance T. Holliday
2011 A Terminal Pleistocene Child Cremation and Residential Structure from Eastern Beringia. *Science* 331:1058–1062.

Potter, Vanessa
2005 An Inventory of Paleoindian Ornamentation. *Current Research in the Pleistocene* 22:94–96.

Purdy, Barbara A.
2010 *Earliest Art in the Americas: Incised Image of a Mammoth on a Mineralized Extinct Animal Bone from the Old Vero Site (8-IR-9), Florida*. Paper presented at the IFRAO Pleistocene Art of the World Congress, Tarascon-sur-Ariège, France.

Purdy, Barbara A., Kevin S. Jones, John J. Mecholsky, Gerald Bourne, Richard C. Hulbert, Jr., Bruce J. MacFadden, Krista L. Church, Michael W. Warren, Thomas F. Jorstad, Dennis J. Stanford, Melvin J. Wachowiak, and Robert J. Speakman
2011 Earliest Art in the Americas: Incised Image of a Proboscidean on a Mineralized Extinct Animal Bone from Vero Beach, Florida. *Journal of Archaeological Science* 38:2908–2913.

Rasmussen, Morten, Sarah L. Anzick, Michael R. Waters, Pontus Skoglund, Michael DeGiorgio, Thomas W. Stafford Jr., Simon Rasmussen, Ida Moltke, Anders Albrechtsen, Shane M. Doyle, G. David Poznik, Valborg Gudmundsdottir, Rachita Yadav, Anna-Sapfo Malaspinas, Samuel Stockton White V, Morten E. Allentoft, Omar E. Cornejo, Kristiina Tambets, Anders Eriksson, Peter D. Heintzman, Monika Karmin, Thorfinn Sand Korneliuseen, David J. Meltzer, Tracy L. Pierre, Jesper Stenderup, Lauri Saag, Vera M. Warmuth, Margarida C. Lopes, Ripan S. Malhi, Søren Brunak, Thomas Sicheritz-Ponten, Ian Barnes, Matthew Collins, Ludovic Orlando, Francois Balloux, Andrea Manica, Ramneek Gupta, Mait Metspalu, Carlos D. Bustamante, Mattias Jakobsson, Rasmus Nielsen, and Eske Willerslve
2014 The Genome of a Late Pleistocene Human from a Clovis Burial Site in Western Montana. *Nature* 506:225–229.

Redder, Albert J.
1985 Horn Shelter No. 2: The South End. *Central Texas Archaeologist* 10:37–65.

Redder, Albert J., and John W. Fox
1988 Excavation and Positioning of the Horn Shelter's Burial and Grave Goods. *Central Texas Archaeologist* 11:1–12.

Ritchie, William, and Robert E. Funk
1973 *Aboriginal Settlement Patterns in the Northeast*. New York State Museum and Science Service Memoir 20. New York State Museum, Albany, New York.

Roberts, Frank H. H.
1940 Excavations at the Lindenmeier Site Contribute New Information on the Folsom Complex. In *Explorations and Field-work of the Smithsonian Institution in 1939*, pp. 87–92. Smithsonian Institution, Washington, D.C.

Roper, Donna C.
1991 A Comparison of Contexts of Red Ochre Use in Paleoindian and Upper Paleolithic Sites. *North American Archaeologist* 12:289–301.

Rose, Richard
2011 The Shifting Sands Site: A Southern Plains Folsom-Midland Assemblage. *Bulletin of the Texas Archaeological Society* 82:299–324.

Saunders, Jeffrey J., and Edward B. Daeschler
1994 Descriptive Analyses and Taphonomical Observations of Culturally-Modified Mammoths Excavated at "The Gravel Pit," Near Clovis, New Mexico in 1936. *Proceedings of the Academy of Natural Sciences* 145:1–28. Philadelphia.

Shaw, Leslie C.
1998 Modified Bone and Shell. In *Wilson-Leonard: An 11,000-year Archaeological Record of Hunter-Gatherers in Central Texas*, edited by Michael B. Collins, pp. 161–210. Studies in Archaeology No. 31. Texas Archeological Research Laboratory, The University of Texas at Austin, and Archeology Studies Program, Report 10, Texas Department of Transportation, Environmental Affairs Division, Austin.

Shipman, Pat, and J. J. Rose
1984 Cutmark Mimics on Modern and Fossil Bovid Bones. *Current Anthropology* 25:116–117.

Stafford, Michael D., George C. Frison, Dennis J. Stanford, and George Zeimans
2003 Digging for the Color of Life: Paleoindian Red Ochre Mining at the Powers II Site, Platter County, Wyoming. *Geoarchaeology* 18:71–90.

Stanford, Dennis J., and Margaret A. Jodry
1988 The Drake Clove Cache. *Current Research in the Pleistocene* 5:21–22.

Speth, John D., Khori Newlander, Andrew A. White, Ashley K. Lemke, and Lars E. Anderson
2013 Early Paleoindian Big-Game Hunting in North America: Provisioning or Politics? *Quaternary International* 285:111–139

Stiner, Mary C., Steven L. Kuhn, and Erksin Güleç
2013 Early Upper Paleolithic Shell Beads at Üçagili Cave 1 (Turkey): Technology and the Socioeconomic Context of Ornament Life-Histories. *Journal of Human Evolution* 64:380–398.

Takayama, Jun
1968 Incised Human Figures from Mesolithic Japan. *Arctic Anthropology* 1:68–71.

Tankersley, Kenneth B.
2002 *In Search of Ice Age Americans*. Gribbs Smith, Salt Lake City, Utah.

Thomas, Trudy
1983 Material Culture of Gatecliff Shelter: Incised Stones. In *The Archaeology of Monitor Valley; 2. Gatecliff Shelter*, edited by David Hurst Thomas, pp. 310–139. Anthropological Papers of the American Museum of Natural History Vol.59, Part 1. American Museum of Natural History, New York.

Velo, Joseph
1984 Ochre as Medicine: A Suggestion for the Interpretation of the Archaeological Record. *Current Anthropology* 25:674.

Walker, Danny N., Michael T. Bies, Todd Surovell, George C. Frison, and Mark E. Miller
2012 *Paleoindian Portable Art from Wyoming, USA*. In L'art Pléistocène dans la monde / Pleistocene art of the world / Arte pleistoceno en el mundo, Actes du Congrès IFRAO, Clottes, J. (Eds.) Tarascon-sur-Ariège, France, September 2010, pp. 697-709.

Waters, Michael R., Charlotte D. Penvy, and David L. Carlson
2011 *Clovis Lithic Technology: Investigation of a Stratified Workshop at the Gault Site, Texas*. Texas A&M University Press, College Station.

Watt, Frank H.
1978 Radiocarbon Chronology of the Sites in the Central Brazos Valley. *Bulletin of the Texas Archeological Society* 49:111–138.

Watts, Ian
2002 Ochre in the Middle Stone Age of Southern Africa: Ritualised Display or Hide Preservative? *South African Archaeological Bulletin* 57:1–4.

Webb, S. David, and C. Andrew Hemmings
2002 Ivory and Bone Tools from Late Pleistocene Deposits in the Aucilla and Wacissa River, North-Central Florida. In *Enduring Records: The Environmental and Cultural Heritage of Wetlands*, edited by Barbara Purdy, pp. 1–9. Oxbow Books, Oxford, U.K.

Wernecke, D. Clark, Michael B. Collins, James M. Adovasio, and Sam Gardner
2006 *A Tradition Set in Stone: Engraved Stone Objects from the Gault Site, Bell County, Texas*. Poster presented at the 71st Annual Meeting of the Society of American Archaeology, San Juan.

Whallon, Robert
2006 Social Networks and Information: Non-"Utilitarian" Mobility among Hunter-Gatherers. *Journal of Anthropological Archaeology* 25:259–270.

Wilmsen, Edwin N., and Frank H.H. Roberts, Jr.
1979 *Lindenmeier, 1934–1974 Concluding Report on Investigations*. Smithsonian Contributions to Anthropology No. 24. Smithsonian Institution Press, Washington, D.C.

Yacobaccio, H. D., M. Paz Catá, P. Solá, and M. S. Alonso
2008 Estudio arqueológico fisicoquimico de pintura rupestres em Hornilllos 2 (Puna de Jujuy). *Estudios Atacameños* 36:5–28.

Zipkin, Andrew M., and Alison S. Brooks
2011 *Experimental Evaluation of Ochre-containing Mastic in the Hafting of Hunting Armatures*. Poster presented at the Annual Meeting of Paleoanthropology Society, Minneapolis.

Notes

1. These engraved stones are two limestone tablets, the larger stone found underneath a Clovis point is incised with a checkerboard-like pattern with pairs of vertical lines down the entire surface of the artifact, which are crossed by shorter pairs of horizontal lines; it is 14.2 cm long and 3.8 cm wide. The Clovis projectile point is made of Alibates Chert from Texas, was heavily resharpened, and is 5.7 cm long and was laying on top of the larger incised stone. Another incised stone was reportedly found on top of the Clovis point, making a "sandwich" around the projectile. This smaller incised stone has geometric patterns of intersecting lines on both sides and is 10.1 cm long and 3.1 cm wide. All three of these artifacts are currently held in a private collection.

2. See also Waters et al. 2011 Figure 25 for two additional artifacts recovered from Area 8. Artifact 25a is a Clovis blade core that appears to have functioned as an abrader, and 25b is a potential incised cortical flake.

3. While South America is beyond the geographic scope of this paper, examples of early artwork are known and should be added to broader inventories in the future (e.g., Montero and Fernandez 1996; Neves et al. 2012; Yacobaccio et al. 2008).

Submitted May 12, 2014; Revised September 11, 2014; Accepted September 24, 2014.