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Reports

An Early Paleoindian Bead from the Mockingbird Gap Site, New Mexico

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Beads are the only direct indicator of body adornment from Upper Paleolithic and Paleoindian contexts, although not common. Geoarchaeological coring at the Mockingbird Gap (Clovis) site, New Mexico, resulted in the recovery of a small tubular bead of Paleoindian age. The bead was found in alluvial sand 9.20 m below the surface of Chupadera Draw, an intermittent drainage that borders the site. The ornament is made of calcium carbonate and is the only known Paleoindian bead of this material in North America. All known tubular beads of this age are bone. Other beads are made of shell or teeth. The bead probably was made by using a rotary drill to modify a segment of a rhizolith, which is a cemented calcium carbonate cylinder representing root molds. Beads could easily be made from these cylinders although they would be relatively fragile, likely accounting for their rarity. The bead has a minimum age of ~10,550 ¹⁴C years BP. This suggests a Folsom association. Scattered Folsom sites are known within 1 km of the site. The Clovis occupation is more extensive and intensive, however, and within 120 m of the findspot.

Beads have long attracted the attention of archaeologists because they are clearly used for body adornment and are frequent components of human burials, representing a direct personal link to people in the past. In the archaeological record of hunters and gatherers, they provide insights into technologies (e.g., drilling and boring, carving, fine scoring) not apparent in the much more common stone and bone tool record from archaeological sites, as well as additional clues to raw material procurement and possible trade.

A hallmark of the archaeological record left by fully modern humans in the late Pleistocene is the evidence of body adornment. “The first appearance of beads and similar decorative objects in the Pleistocene archaeological record is widely con-

sidered to mark a significant milestone in human behavioral and cognitive evolution” (Kuhn and Stiner 2007:45). The earliest beads in the archaeological record are from the late Middle Paleolithic and early Upper Paleolithic of Africa and Southwest Asia (Vanhaeren et al. 2006). These early ornamental artifacts have drawn attention in terms of technology and social significance (White 1993) and as an interpersonal communication media (Kuhn and Stiner 2007); “among the first documentable forms of information technology” (Kuhn et al. 2001:7, 641) and “part of a shared system of communication” (Kuhn et al. 2001:7, 645).

In the American Paleoindian record, however, evidence of art and body adornment is relatively sparse because so little is documented. Potter (2005) lists 10 Paleoindian sites in North America that yielded carved stone, bone, or shell that were likely beads or a similar form of personal ornamentation (that list is updated here; table 1). Further, Fitzgerald, Jones, and Schroth (2005) list and discuss shell beads >8,500 ¹⁴C years BP from six sites in the western United States that provide evidence for long-distance trade. In this article we report the fortuitous discovery of a stone bead of Folsom or Clovis age from the Mockingbird Gap site in central New Mexico. The raw material and the possible Clovis association are unusual and allow some elaboration on the technology and raw material of a nonutilitarian aspect of an early Paleoindian assemblage.

Background

The Mockingbird Gap site, ~40 km southeast of Socorro, New Mexico (fig. 1), is one of the largest Clovis sites in the western United States (Weber and Agogino 1997; Holliday et al. 2009). It was tested 1966–1968 by George Agogino (Eastern New Mexico University). Robert Weber (New Mexico Bureau of Geology) was project geologist. Surface collecting and mapping of the site revealed a dense accumulation of Clovis lithic debris on old, stable uplands adjacent to and stretching for ~800 m along Chupadera Draw, which drains into the Jornada del Muerto basin (fig. 1). Additional archaeological testing plus geoarchaeological coring was carried out 2004–2008 to assess the stratigraphic integrity of the site and to gain clues to the paleoenvironmental conditions during the Clovis occupation. An intact Clovis occupation was found embedded in the upper few centimeters of a well-developed buried Bt horizon formed in late Pleistocene eolian sand and representing the regional Clovis landscape. Coring in Chupadera Draw revealed ~11 m of fill spanning the past ~11,000 ¹⁴C years. The stratified deposits provide evidence of flowing and standing water on the floor of the draw during Clovis times, a likely inducement to settlement.

The 2008 fieldwork was undertaken to recover a sediment core (08-1). A Giddings soil-coring rig was used to collect 6-cm-diameter cores in 120-cm sections. Core 08-1 was recovered ~2 m from core 07-9, which was the deepest core from the

Table 1. Paleoindian beads (modified from table 1 of Potter 2005)

Site	Quantity/material	Shape	Technocomplex/dating, ¹⁴ C yrs BP	References
Arch Lake, NM	19 soapstone beads	Disc	10,020 ± 50	Owsley et al. 2010 (fig. 19); Jodry 2010
Beacon Island, ND	3 bone beads	Disc	Agate basin 10,326 ± 28	Mitchell 2012 (fig. 11.1)
Charlie Lake Cave, BC	1 schist bead	Disc	Fluted point 10,770 ± 120 to 10,450 ± 150	Fladmark et al. 1988 (fig. 5.3)
Clovis, NM (Blackwater Draw Loc 1)	1 bone bead	Tube	Clovis ~10,990?	Hester 1972 (p. 166; fig. 103c; app. I; app. II, table IV)
Gordon Creek, CO	1 elk incisor ^a	Tooth	Late Paleoindian 9,620 ± 45	Breternitz, Swedlund, and Anderson 1971; Muniz 2004
Hell Gap, WY ^b	1 bone bead	Tube	Frederick 8,690 ± 380	Kornfeld and Larson 2009 (fig. 1.4g); Haynes 2009
	1 calcite bead	Disc	Agate basin > 10,240 ± 300	Kornfeld and Larson 2009 (fig. 1.4h); Haynes 2009
	1 hematite bead	Tube/disc	Agate basin >10,240 ± 300	Kornfeld and Larson 2009 (fig. 1.4i); Haynes 2009
Hiscock, NY	1 "granular rock" ^c (sandstone?)	Disc	"Gainey"? ~11,300 to ~10,000?	Laub 1995 (fig. 1B-1E); Ellis et al. 2003
Horn Shelter 2, TX	84 shell beads ^c 4 perforated canine tooth pendants	Shell and teeth	San Patrice "Brazos fishtail" ~10,310 to ~9,500	Watt 1978; Redder 1985 (fig. 4A, 4C, 4E-4G); Redder and Fox 1988; Jodry 2010
Lindenmeier, CO	4? bone beads ^d	Tube	Folsom ~10,660	Roberts 1939 (pl. 10); Roberts 1940 (fig. 97); Wilmsen and Roberts 1978 (fig. 129); Haynes et al. 1992; Holliday 2000
Lubbock Lake, TX	1 bird bone bead	Tube	Firstview 8,655 ± 90	Johnson and Holliday 1987 (fig. 9.7b); Johnson and Holliday 1981
Marmes Rockshelter, WA	3 marine shell beads ^e	Shell	10,750 ± 270 to 11,025 ± 90	Hicks 2004 (table 2.1)
Mesa, AK	1 circular stone ^f (pendant?)	Disc	?	Fitzgerald et al. 2005 (table 1)
Mockingbird Gap, NM	1 stone bead	Tube	Clovis	Kunz et al. 2003 (fig. 24)
North Creek Shelter, UT	2 bone beads or tubes ^g	Tube	Late Paleoindian ~9,730	This paper
Powers II, WY	1 bird (?) bone bead, 2 marine shell beads	Tube shell	?	Janetski et al. 2012; J. Janetski, personal communication, July 2012
				Stafford et al. 2003 (figs. 9A, 9B, 9D)

Rodgers Ridge, CA	1 marine shell bead ^h	Shell	10,495 ± 85	Fitzgerald et al. 2005 (table 2)
Ryan/Hartley, FL	1 stone "seed" bead ⁱ	Disc	Suwannee ^j	Glowacki 2012
Shifting Sands, TX	1 bone bead	Disc ^k	Folsom	Hofman et al. 2000; Rose 2011
Sugarloaf, MA	1 stone bead	Disc	Late Clovis?	Gramly 1996, 1998
Wakulla Springs Lodge, FL	1 stone "seed" bead ⁱ	Disc	Late Pleistocene?	Glowacki 2012
Wilson-Leonard, TX ^l	Shark's tooth (pendant?)	Shark's tooth	Wilson ~10,000 to ~9,750	Bousman et al. 2002
	1 shell artifact	Shell	Late Paleoindian ~9,500 to ~8,400	Bousman 1998 (figs. 8–20); Shaw 1998 (figs. 21–23f)

^a Three broken but unperforated elk incisors also found; all four teeth were in slump adjacent to burial exposure.

^b Beads were recovered from the Cody level (Knudson 2009:28), but no other information is available.

^c Marine shells, one olive shell (*Olivina sayana*) pendant, 83 *Olive nerite* shell beads.

^d No inventory of beads from Lindenmeier has been prepared. Roberts (1939: pl. 10, bottom row, far left) shows a tubular bead with incised lines running roughly parallel to the length of the bead (also illustrated by fig. 129 of Wilmsen and Roberts 1978). Roberts (1939: pl. 10, second row, far left) shows a broken bone "tube" that could be a broken bead. Roberts (1940, fig. 97) shows "two forms of beads." One is long and narrow with lines incised perpendicular to the long axis, and the other bead is wider and shorter, possibly the same bead illustrated by Roberts (1939: pl. 10, bottom row, far left) and Wilmsen and Roberts (1978, fig. 129), but incising is not apparent.

^e Marine shells, *Margaritifera falcaite*.

^f Artifact is a disc-shaped stone with a hole in the center found among an assemblage of microblades. The stone, however, "shows little evidence of human alteration" (Kunz, Bever, and Adkins 2003:24).

^g Two broken bone tubes, perhaps bead blanks or preforms; both are "decorated with scored incisions placed at regular intervals at right angles to the long axis," and both are similar in diameter (table 2) but could not be refitted (Janetski et al. 2012:136).

^h Marine shells, *Olivella biplicata*.

ⁱ "Seed beads" are defined as "small spheroid or discoid beads ranging in size from under a millimeter to several millimeters in diameter" (Glowacki 2012:47).

^j The occupation zone contains Suwannee artifacts (~10,900 to ~10,500 ¹⁴C years BP), but, based on "Clovis-like traits," it is considered early Suwannee (Balsillie, Means, and Dunbar 2006).

^k This isolated, small (1.84-mm-diameter, 0.61-mm-thick, 0.38-mm-diameter hole) disc was discovered inadvertently, adhering to sand grains that in turn were stuck to flakes collected from this large surface site exposed in a dune blowout. Shifting Sands is ~12 km east of Winkler 1, NM, which yielded a small-eyed bone needle (13.34 mm long, 1.72 mm wide, 0.75-mm eye diameter), similar in scale to the Shifting Sands' bead (Blaine and Wendorf 1972).

^l No obvious shaped beads (Guy 1998; Bousman et al. 2002). *Margimella (Prunum aptina)*, a marine shell, possibly mixed in by rodent disturbance from younger deposits (Shaw 1998:730). The artifact was found in stratum II in association with Late Paleoindian occupations. Discrete features could not be separated out, but artifact styles include Golondrina-Barber, St. Mary's Hall, Angostura, and San Patrice (Bousman 1998:209; Bousman et al. 2002).

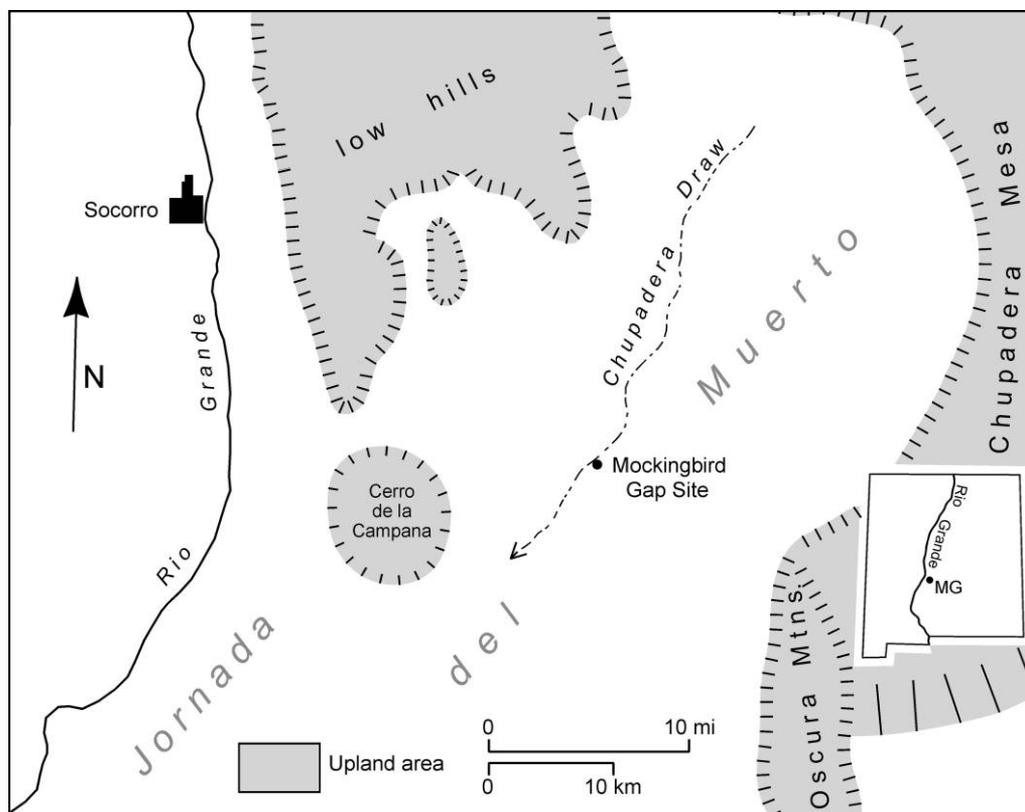


Figure 1. Location of the Mockingbird Gap site on the Jornada del Muerto of southern New Mexico (based on fig. 2 of Holliday et al. 2009). Inset shows the location of the field area in New Mexico.

site (11.20 m) and yielded the oldest radiocarbon dates (Holliday et al. 2009). Core 08-1 was collected as an archive pending funding for paleoenvironmental analyses. The core was stored in plastic sleeves on the University of Arizona campus. In the fall of 2010 funding for paleoenvironmental research at Mockingbird Gap became available, so core 08-1 was opened and sampled. Only fine-grained organic-rich (gray to dark gray) sediments were collected. Alluvial sands were discarded but not before sampling for particle-size analysis. During this sampling a stone bead was found in fine sand between 910 and 920 cm depth. The item was immediately recognized as something unusual because it is tube-shaped and ~15 mm long among well-sorted fine sand. Further inspection revealed rounded ends and a symmetrical, circular hole or “bore” through the tube. Dates from core 07-9, available when the tube was found, indicated an age of >11,000 ^{14}C years BP (i.e., Clovis age) at this depth (fig. 2). The tube clearly warranted further study.

Description

The bead is an irregular tube or cylinder (fig. 3). In longitudinal section the artifact is a rounded rectangle (figs. 3A, 4), 14.88-mm maximum length. In cross section it is an irregular circle (fig. 3B) of 5.78-mm maximum diameter. The

bore through the middle of the tube is a near-perfect circle (figs. 3B, 4A), 2.28 mm in diameter. The exterior surface of the bead is generally irregular (figs. 3A, 4A, 4B). The two ends are rounded (figs. 3, 4). This rounding is regular and symmetrical, suggesting that it was purposely done. The length of the exterior is generally smooth, but the overall shape is irregular, and pits are common, including an elongate “channel” along the side. The bore is perfectly straight and well centered. Regularly spaced spiral striations on the wall of the bore (fig. 3B) were either produced or enlarged by rotary drilling (Semenov 1964:80). The edges of the bore at both ends are slightly rounded. This could be the result of the drilling process or wear from abrasion produced by a cord.

The bead is made of calcium carbonate, as determined by Raman microscopy. Examination of the exterior of the bead under a binocular microscope also showed rounded grains of quartz floating in the matrix of calcium carbonate (CaCO_3). The bimodal character of the stone suggests that the CaCO_3 is a secondary deposit, engulfing sandy, quartzose sediment. Secondary calcium carbonate, known as calcic horizons, or, in the case of massive carbonate accumulation, calcretes (colloquially called “caliche”), is common in the soils and sediments of the semiarid to arid southern United States.

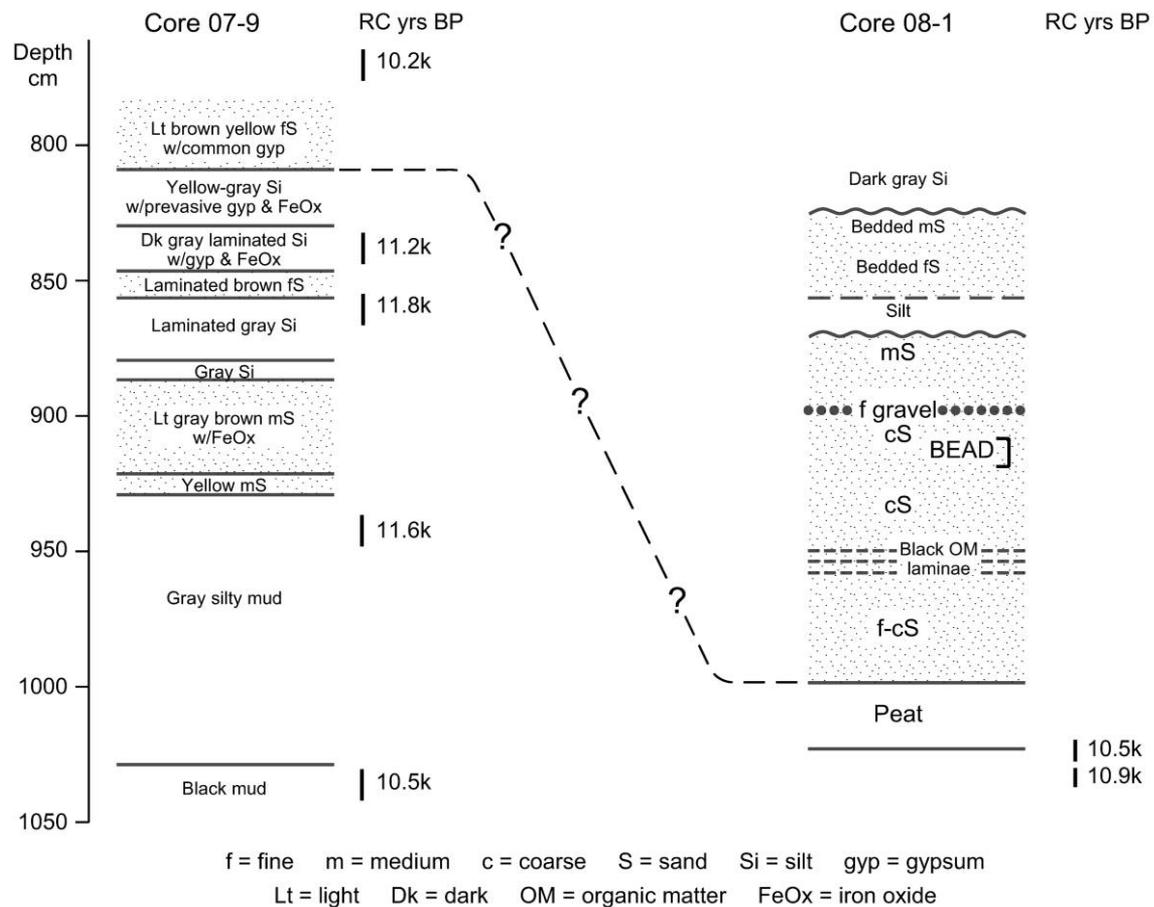


Figure 2. Stratigraphy and chronology (dates are rounded means in radiocarbon years before present [RC yrs BP]; see table 1) of cores 07-9 and 08-1, 800–1,050 cm below surface. Stratigraphic location of bead is shown in core 08-1 at ~920 cm below surface.

Manufacture

Tube-shaped beads, all made of bone, are known from Clovis through late Paleoindian time in the United States (table 1). They are found in the Paleolithic of Europe, though not especially common, and are made of a range of materials (White 1993). The Mockingbird Gap bead is also in the same size range as the other tubular beads from Paleoindian sites (table 2). A late Pleistocene tradition of making tubular beads therefore seems likely. Similar forms are reported from post-Paleoindian contexts across North America (e.g., Sassaman 2010:121). Patterning or standardization are common components of body adornment (Kuhn and Stiner 2007). The shape of the bead seems to be a “standard,” but the raw material clearly is not. Records of beads made of soil carbonate are rare. In part, this may be because soil carbonate is readily soluble in many buried contexts and because such beads are also fragile. Easily workable materials such as bone are also readily available

in or near a camp, are more durable, and are already shaped and hollowed out.

The two most likely explanations for the production of the stone bead from Mockingbird Gap are (1) it was carved entirely from a piece of calcium carbonate, or (2) it was a piece of calcium carbonate that was already tubular but was modified by drilling and carving. Carving is clearly a possibility. Freshly exposed soil carbonate, even a massive calccrete, can be soft and probably carvable, but it also tends to be friable. Natural tube-shaped carbonate is also a possibility and would require less effort and less risk. Carbonate molds of plant roots or cicada burrows are common in calcareous soils (fig. 5A). These carbonate bodies are referred to as “rhizoliths” or “rhizoconcretions” (Klappa 1980) or “cylindroids” (Monger and Gile, forthcoming) among other terms (see Klappa 1980). They include “tubular voids which mark the positions of now decayed roots; (2) . . . sediment- and/or cement-filled root moulds; (3) . . . cemented cylinders around root moulds; (4) rhizo-

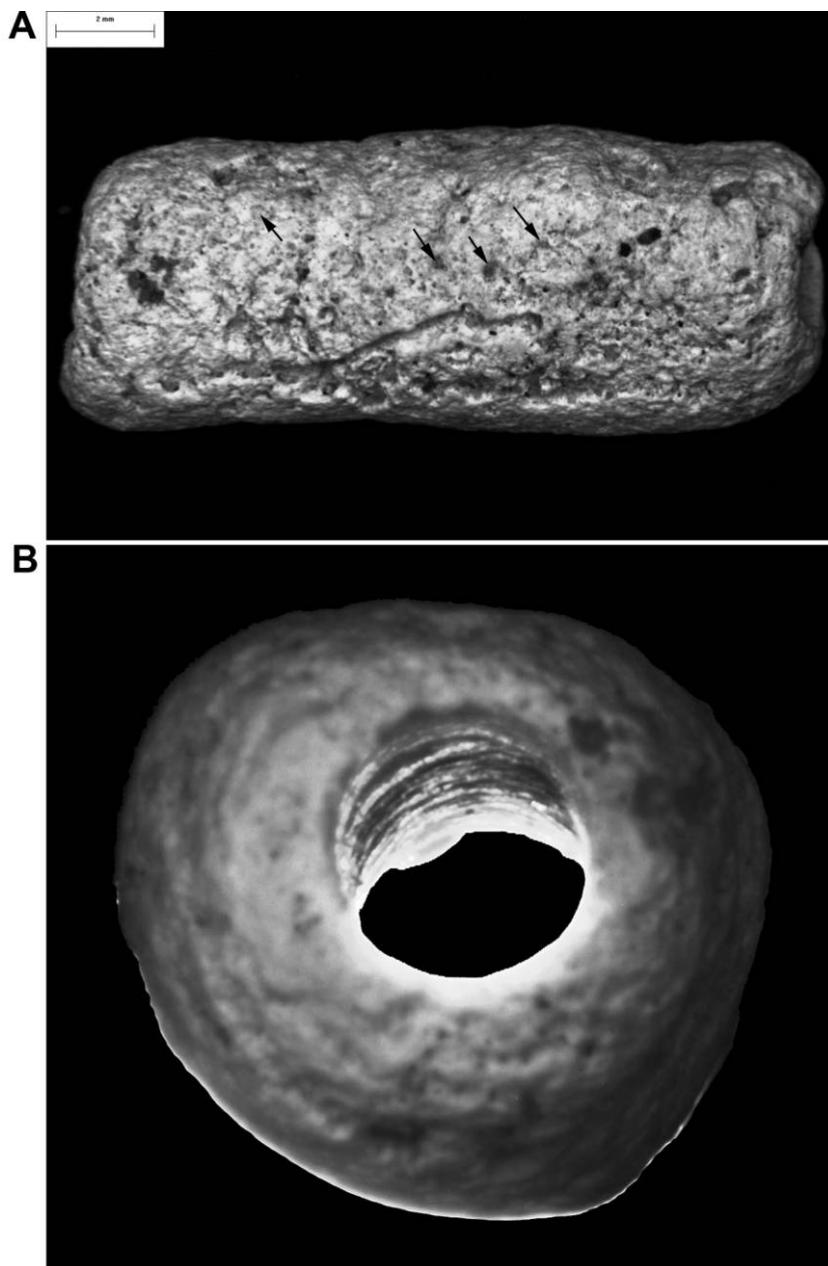


Figure 3. *A*, Side view of the bead highlighting the pitted, irregular surface, quartz grains in the carbonate matrix (arrows), and the round edges of the ends of the bead. *B*, View down the bore of the bead, highlighting the regular, evenly spaced striations on the interior.

cretions . . . pedodiagenetic mineral accumulations (here low magnesian calcite) around plant roots” (Klappa 1980: 615). The “cemented cylinders” are the likely origin of the bead from Mockingbird Gap. They are tube-shaped bodies of carbonate “commonly circular in cross-section and cylindrical in shape . . . Lengths of rhizoliths vary from a few centimeters. The diameters of rhizoliths range from 0.1 mm to about 20 cm” (Klappa 1980:615; see fig. 5).

Dating

Organic-rich sediments in core 07-9 (2 m from 08-1) at and below 830 cm below surface clearly indicated that the deposits were Clovis age or older, despite the apparent reversals (table 3). Recovery of the bead at 920 cm in core 08-1 raised the likely possibility that the bead is a Clovis artifact given the dating and presence of an extensive Clovis site ~100 m to



Figure 4. A, Oblique photograph of the same side of the bead as shown in fig. 3A. B, Oblique drawing showing the opposite side of the bead as shown in figs. 3A and 4A (drawing by Fumie Izuka).

the east. To better define the age of the bead, samples of organic-rich sediment were collected from just below the sand that contained the artifact. The resulting ages ($\sim 10,550$ ^{14}C years BP at 1,020 cm and $\sim 10,980$ ^{14}C years BP at 1,028–1,030 cm; table 3) are younger than expected, based on core 07-9, but the stratigraphy in the two cores provides some clues that help resolve the apparent inconsistency in dating. The samples from 07-9 above and below the level of the bead are largely muds, whereas above and below the bead where it was found in 08-1 was bedded alluvial sand with some fine gravel. Assuming that the radiocarbon dating provides reasonable approximations for the ages of the strata, then the sand with the bead probably was in a channel cut into the older mud. The sand with the bead was 40–50 cm below the top of a 130-cm-thick layer of sand. No disconformities were noted between the bead zone and the radiocarbon sampling zone. The sand likely aggraded via alluviation essentially in-

stantly. The radiocarbon age of $\sim 10,550$ ^{14}C years BP therefore is probably a good age estimate for deposition of the bead. This would suggest that the bead is more likely a Folsom artifact, given the age range of Folsom ($\sim 10,900$ to $\sim 10,200$ ^{14}C years BP; Haynes et al. 1992; Holliday 2000) and presence of scattered Folsom occupation debris along Chupadera Draw (Holliday et al. 2009).

The artifact may still be of Clovis age, however. The Clovis occupation of Mockingbird Gap is significantly more dense than the Folsom occupation, and the Clovis site is closer to the findspot (~ 100 m) than any of the Folsom sites ($>1,000$ m). Moreover, the assemblage of Clovis projectile points from the Mockingbird Gap site has been suggested to be a younger Clovis assemblage on the basis of the presence of numerous small (“Folsom-sized”) Clovis points (e.g., Hamilton et al. forthcoming).

Table 2. Tubular beads from Paleoindian sites

Site	Bead length/thickness, mm	Bead width/diameter, mm	Internal diameter “bore,” mm
Clovis ^a	~ 15	$\sim 5\text{--}7$	~ 3
Hell Gap, ^b fig. 1.4g	12.1	11.7–12.4	8.4–8.0
Fig. 1.4i	8.4	10.0–10.6	<2.5
Lindenmeier ^c	?	~ 10	~ 25
Lubbock Lake ^d	17.19	6.27	4.1
Mockingbird Gap	14.88	5.78	2.28
North Creek Shelter ^c	66.4	7.0–7.5	6.3
	39.9	6.7–6.9	~ 5.8
Powars II ^a	14.36	$\sim 6^a$?

^a Measured from photos (fig. 103c from Hester 1972; fig. 9D from Stafford et al. 2003).

^b Measurements supplied by M. Kornfeld; fig. 1.4h in Kornfeld and Larson (2009) is a disk and not included here.

^c Measured from oblique photo (fig. 129 from Wilmsen and Roberts 1978), so length could not be determined—probably 2–3 cm.

^d Bead broken laterally; outer and inner diameter are smaller than maximum of complete artifact.

^e Measurements supplied by J. Janetski; the longer tube is illustrated by Janetski et al. (2012, fig. 5). Internal diameters of both artifacts are unmodified interior of bird bone.

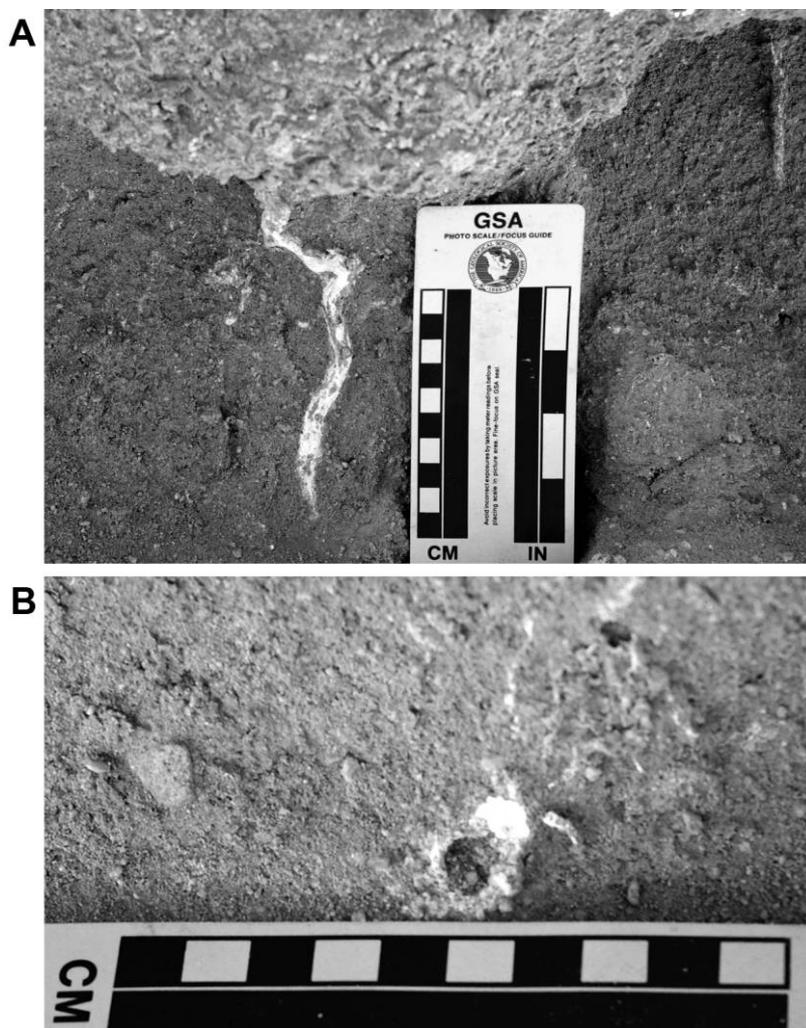


Figure 5. *A*, Vertical rhizoconcretion (just left of scale) in a late Pleistocene soil from northern Sonora, Mexico. *B*, Cross section of a rhizoconcretion (not the one shown in fig. 5*A*) in a late Pleistocene soil in northern Sonora, Mexico.

Paleoindian Beads

Beads are relatively rare in the Paleoindian archaeological record. Potter (2005) tabulates beads and pendants from 10 sites (table 1). An updated list, with Mockingbird Gap, includes 21 sites (table 1). Few of the beads and pendants are well dated, and fewer still are Clovis, Clovis-related, Folsom, or >10,000 ^{14}C years BP. At the Clovis-type site along Blackwater Draw, New Mexico, E. H. Sellards recovered a tubular bone bead from the “gray sand” (table 1). Little additional provenience information is available. The “gray sand” is a complex of sandy deposits that includes both Clovis-age and older deposits (Haynes 1995; Haynes and Warnica 2012). The bead apparently came from excavations of a Clovis bison bone bed at the top of the gray sand and just below the “diatomite” layer (Hester 1972:46–47). As such, it is the only bead directly from a Clovis context. The upper gray sand with Clovis artifacts (and just below the diatomite) is dated to ~10,920 ^{14}C years

BP in the area of the “North Bank” (Haynes and Warnica 2012). Unfortunately, there is no way to correlate the microstratigraphy of the bead find (locality 7A in fig. 15 of Hester 1972) to the North Bank, ~230 m away.

Stone disc beads >10,000 ^{14}C years BP are reported from two sites in the northeast: Hiscock in New York and Sugarloaf in Massachusetts (table 1). The stone disc bead from the Hiscock site came from a bone accumulation that yielded a wide range of ages on bone, ivory, and plant remains. Twigs believed to be mastodon gut material provided radiocarbon dates ranging from ~10,945 to ~9,150 ^{14}C years BP (Laub 1995). The bone yielded ages ranging from ~11,390 to ~10,515 ^{14}C years BP (Laub 2003, app. A). Two possible bone artifacts were dated ~10,810 and ~10,990 ^{14}C years BP, but there is also a suggestion that bones and other artifacts were redeposited (Ellis, Tomenchuk, and Holland 2003; Storck and Holland 2003). All that can be said about the age of the bead

Table 3. Radiocarbon ages from the Mockingbird Gap Site, cores 07-9 and 08-1

Core	Lab no.	Depth, cm	Fraction	Date	D ¹³ C
MG 07-9	A 14713	745–765	Decalcified sediment	10,285 + 115/–110	–19.1
	A 14714	830–845	Decalcified sediment	11,245 ± 180	–22.1
	A 14790	857–876	Decalcified sediment	11,870 + 230/–225	–22.3
	A 14791	930–950	Decalcified sediment	11,665 ± 135	–23.5
	A 14715	1,030–1,052	Decalcified sediment	10,855 + 90/–85	–25.9
MG 08-1	AA95350	1,020	Decalcified sediment	10,549 ± 60	–25.8
	AA95351	1,028–1,030	Decalcified sediment	10,984 ± 56	–24.8

is that it is likely Paleoindian and associated with a fluted point assemblage. The small disc from Sugarloaf was found during screening of sediment from the same level as a “Vail-style” Clovis point (i.e., with a distinct v-shaped concave base) and an artifact cache that included possible Clovis preforms (Gramly 1998). Artifact collectors found broken Folsom-like artifacts at about the same level in nearby exposures. No numerical age control is available, but the similarities to Vail (~10,900 to ~10,500 ¹⁴C years BP; Gramly 2009) and the Folsom-like artifacts suggest that the artifact is very late Clovis.

Folsom-age beads are known from two sites. Tubular bone beads were recovered during excavations at the Lindenmeier Folsom site in the 1930s (table 1; Wilmsen and Roberts 1978). The occupation zones that produced the beads are not directly dated. The date of ~10,660 ¹⁴C years BP (table 1) is an average of dates determined on charcoal collected from the large arroyo that cuts through the site. How the charcoal relates to occupation zones some tens of meters distant is unknown. A stone bead at Charlie Lake Cave in British Columbia was associated with a small, nondiagnostic fluted point and radiocarbon ages of ~10,770 to ~10,450 ¹⁴C years BP (Fladmark, Driver, and Alexander 1988).

In the far West, shell beads >10,000 ¹⁴C years BP were recovered and dated from Marmes Rockshelter and Rodgers Ridge (table 1; Fitzgerald et al. 2005, tables 1, 2). These specimens (and other early Holocene beads from the region) are significant because the shell is marine and the sites are far inland (Marmes is 400 km; Rodgers is 250 km), providing solid evidence for a high degree of mobility in the terminal Pleistocene, regardless of whether these finds are classified as “Paleoindian” or “Paleoarchaic” (see Graf and Schmitt [2007] for in-depth discussion of this terminology issue).

Discussion and Conclusions

The tubular artifact found ~920 cm below the surface at the Mockingbird Gap site is clearly an artifact—a bead. It is made of calcium carbonate, possibly by relatively simple modification of a carbonate rhizolith. The bore was probably enlarged by rotary drilling rather than drilled through a solid body. There is no evidence of the material used for the drill head, but carbonate is soft, so a small flake of any silicate mineral (such as quartz) or a fine-grained rock (such as chert,

obsidian, or basalt) would have sufficed. Given that the bore is nearly 15 mm long and perfectly straight, the drill tip, which was only 2.3 mm across, must have been mounted on a shaft of some kind. The raw material is unusual for an archaeological ornament, but it is also relatively fragile. Calcium carbonate could have been popular as a medium for body adornment and perhaps art but probably does not preserve well.

The artifact is at least ~10,500 ¹⁴C years old, but whether it was associated with the nearby Mockingbird Gap Clovis site or the somewhat more distant and more diffuse Folsom occupations is not known. Natural transport from any site to the findspot would likely be by alluvial processes, but the artifact seems too fragile to survive transport over any substantial distance. Given this circumstance, the bead most likely entered the alluvial system near its findspot, and then it was almost immediately buried in aggrading sand. The Clovis- and Folsom-age landscape in Chupadera Draw is buried by as much as 11 m of sediment and exposed only in cores. The alluvial and palustrine conditions in the draw in the latest Pleistocene likely attracted Clovis and Folsom groups to the area. Human activities (hunting, plant gathering) on the floor of the draw therefore seem likely. Consequently, loss of artifacts on the floor of the draw is equally plausible.

The size and shape is generally similar to tubular beads reported from other Clovis and Folsom Paleoindian contexts. Most of those other beads are made from segments of long bones, however, which provided easily made tubular beads. Such widely used beads (through both space and time) would provide a template for shaping beads of other materials, especially if other tube-shaped media were available. Carbonate rhizoliths provide just such ready-made tubes.

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