SOUTHWESTERN LORE

Official Publication, The Colorado Archaeological Society

Vol. 76, No. 2, Summer 2010

ANALYSIS OF AND INVESTIGATIONS INTO THE BORMAN–PIKES PEAK WHOLE VESSEL (5EP3496), EL PASO COUNTY, COLORADO

Priscilla B. Ellwood

ABSTRACT

In 1999 a nearly complete plain ceramic vessel was found at an elevation of 9,400 feet below the summit of Pikes Peak. It was named the Borman–Pikes Peak whole vessel and assigned the Smithsonian number 5EP3496. The current study is a detailed description of the vessel. Accelerator mass spectrometry provides the radiocarbon age of 470 ± 40 B.P. or cal A.D. 1410–1470 at 2 sigma. Mineralogical analysis shows that the vessel was manufactured close to where it was found. The vessel is of paddle-and-anvil construction, and palynological analysis indicates that the vessel was primarily used for cooking maize. A comparison of attributes is made with the most similar known Colorado whole vessels, including the Dismal River, Dorr–Purgatoire River, and the Parsons–Lorencito Canyon whole vessels (Ellwood 2002). The cultural comparisons, manufacturing styles, and form comparisons indicate the vessel is of Plains technology of manufacture. The cultural group that produced this vessel may be associated with a pre-Dismal River group and with an earlier Athapaskan–Plains Apache group. It indicates the Athapaskan–Plains Apache people were utilizing the mountains at a much earlier time than originally documented. This evidence has a direct bearing on current debates regarding the material culture of the early Athapaskans and the timing of their entry into Colorado. Future occurrences of pottery exhibiting this morphology, construction, and dated to this time period, may warrant the definition of a previously unidentified Plains Apache pottery type.

INTRODUCTION

The Borman–Pikes Peak ceramic vessel was found in July of 1999 on the eastern side of Pikes Peak, Colorado, by Sheila Borman of Lockport, Illinois (Figures 1 and 2). Sheila was hiking with her father, Bruce Borman, and uncle,

Priscilla Ellwood ■ Curator Adjoint, University of Colorado Museum, CU-Boulder, 281 UCB, Boulder, CO 80309-0218

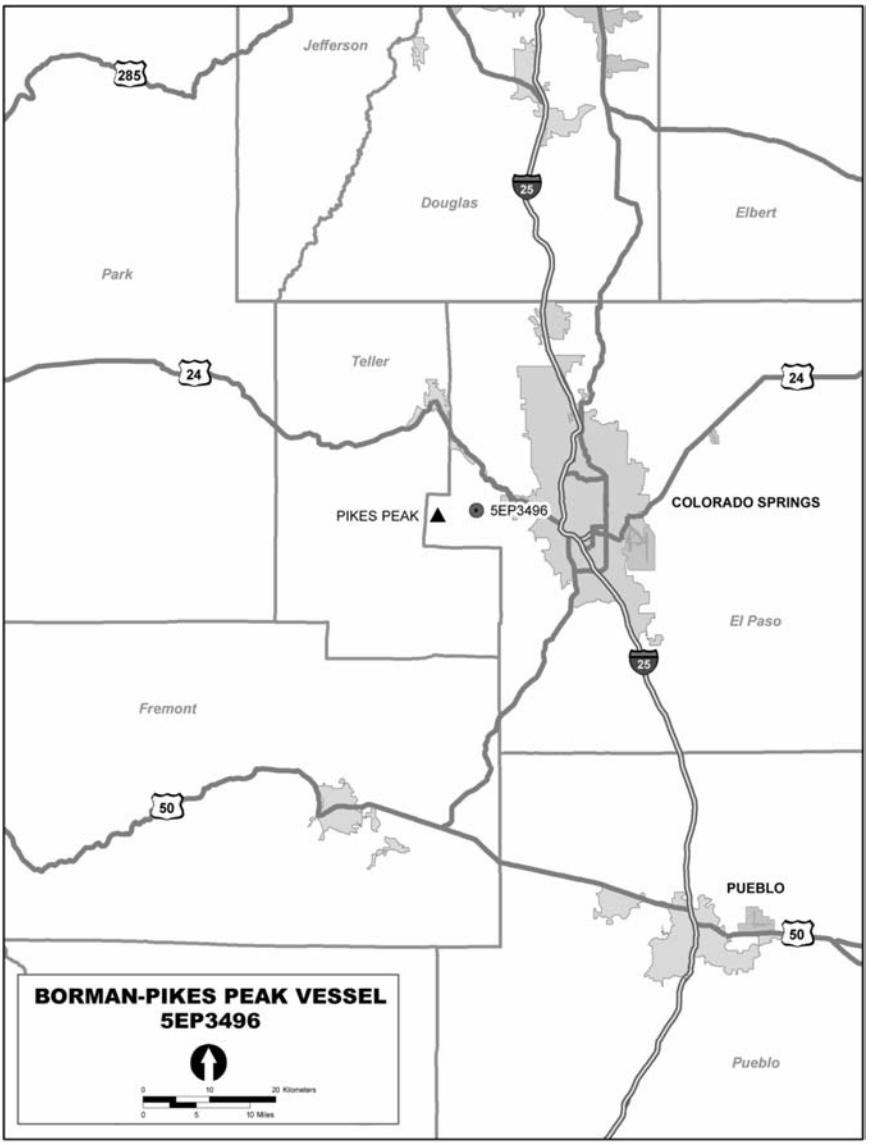


FIGURE 1. Location of Borman–Pikes Peak vessel, 5EP3496.

George Borman, of Manitou Springs, Colorado. They wandered off the Barr Trail west of Colorado Springs and up Pikes Peak. Sheila noticed the vessel lying on its side in a small crevice in a rock formation. It was well protected from the elements by the surrounding rock enclosures (Figure 3). Sheila, Bruce, and George Borman, rescued the vessel along with four tiny vessel fragments and a soil sample. George and his wife, Peggy Borman, then contacted the author at the University of Colorado Museum. It was determined that the pot was from Forest Service lands. As a result, the disposition release from

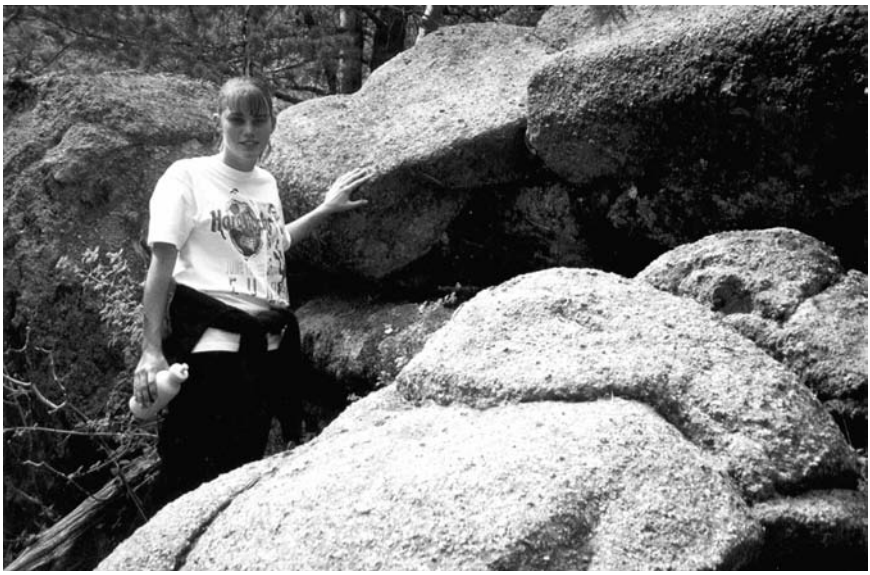


FIGURE 2. Sheila Borman standing near the rocky crevice where the vessel was found.

Allen E. Kane (1997), forest archaeologist for the Pike and San Isabel National Forests, encouraged Priscilla B. Ellwood, curator adjoint at the University of Colorado Museum, to analyze the vessel and report her findings. He thanked the Bormans for finding the vessel and reporting it to the museum, indicating that there is very little known about the prehistory of Pikes Peak and that rare items such as the vessel need to be preserved. Priscilla Ellwood, along with George Borman, Collette C. Chambellan, and Lillian E. Mee, returned to the location of the isolate on September 23, 1999, to record it as 5EP3496 and to investigate the possibility that missing rim sherds might be present. The limited soil that had been immediately under the find was hand sifted in an attempt to find any rim sherds, but the search was unsuccessful. The soil was ca. 3 cm thick with deteriorating pine needles and black humus, which lay on the boulder surface. They intensively surveyed the area within a 100-m radius from the isolate's location. A Colorado Cultural Resource Survey Isolated Find (IF) Record was completed documenting the artifact and its location, and photographs of the location of the find were taken.

Pikes Peak stands along the southern boundary of the Rocky Mountains. The vessel was found at approximately 9,400 ft (2,865 m) above sea level on the eastern side of the peak. A solitary find, it was located in a small, rocky crevice with an opening facing southeast to Cabin Creek Valley. This area is a steep, rocky slope and is moderately to heavily wooded. The natural setting is a mixed forest including ponderosa pine, Douglas fir, Engelmann or blue spruce, aspen, scrub oak, kinnikinnick, and grasses. Many of the aspen trees exhibit new growth.

The goal of this paper is to describe the vessel in detail and to place it in

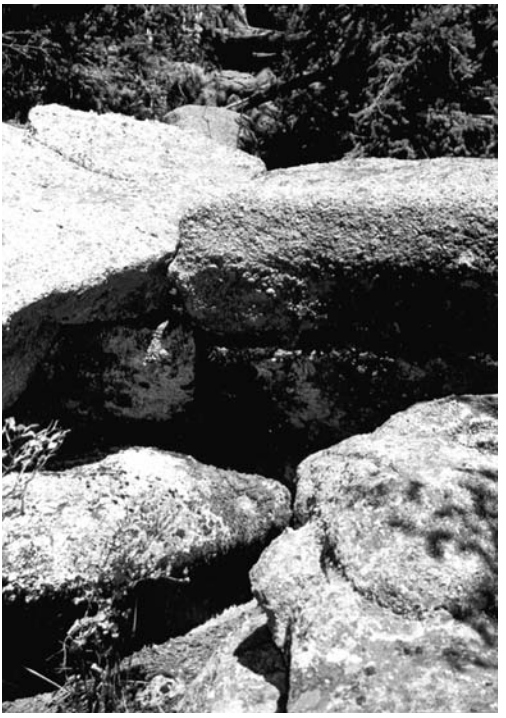


FIGURE 3. Boulders surrounding the crevice that contained the vessel.

a cultural context. To that end, the vessel was submitted to a number of tests or methods in order to determine whether it is related to a known culture or ceramic tradition and to identify its age. A classification of this sort would help to correlate archaeological findings in the area and to supply a framework for further developments in this field. The types of analyses employed included a literature search, petrographic, mineralogic, and palynologic, and accelerator mass spectrometry.

VESSEL DESCRIPTION

VESSEL NAME: Borman–Pikes Peak whole vessel

VESSEL LOCATION: The vessel was found on Pikes Peak near Colorado Springs, Colorado. The nearly complete vessel is currently located at the University of Colorado Museum, Ceramics Repository.

ISOLATE LOCATION: Isolated find found in the crevice of a rock formation on a terrace immediately above Cabin Creek.

FORM: The vessel is a large, heart-shaped olla with a wide orifice, tapered neck, and damaged rim. The lip is missing. The base is semi-conical to a degree that eliminates the vessel's standing alone. A hole is present in the base (Figures 4 and 5) with a large area of exfoliation. This damage to the vessel base is the result of having lain on its side for an extended period.

Wall Thickness: Wall thickness varies (7.0-9.0 mm). The vessel is thickest at the base and upper neck and thinnest at the midpoint. For further detailed measurements, see Figure 6.

Rim: The top of the neck is raggedly chipped and no rim sherds retain a portion of the lip (see Figures 4–6). The jagged edge provides evidence that the rim flared gently outward from a constricted neck.

FIGURE 4. View of one side of Borman–Pikes Peak vessel. Note damaged rim.

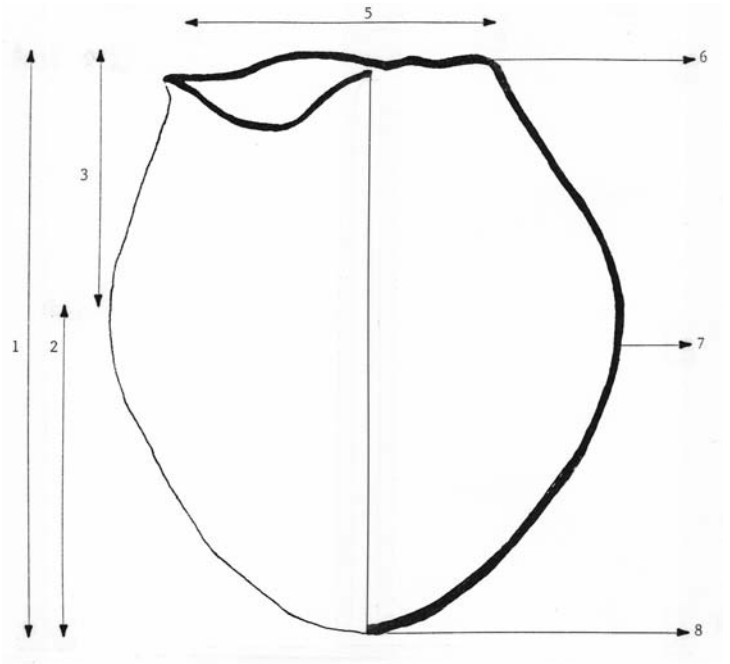
FIGURE 5. View of base of vessel. Base has exfoliated around the hole.

CONSTRUCTION METHOD: The potter used a combination of lump-molded base and accretion by large lumps to construct the pot. The junctures have been obliterated with paddle and anvil and then roughly smoothed, probably by scraping. On the interior of the Borman–Pikes Peak vessel, the slight indentation made by fingers molding the vessel during paddle-and-anvil construction can be felt. The remnants of the rim show no evidence of manufacture by the coiling method in that there are no obvious coil breaks.

FIRING METHOD: The vessel was fired in a non-oxidizing, low-temperature atmosphere.

PASTE:

Color: Exterior color is dark gray (7.5YR 4/1) to very dark gray (7.5YR 3/1). Where the vessel rested on its side, calcium carbonate formed an irregular ring; the color is light, whitish yellow (10YR 8/1-10YR 8/4). Below the ring of calcium carbonate, the vessel surface is dark gray (7.5YR 4/1) and below that, where exfoliation took place and no original surface remains, the color is dark brownish gray (10YR 5/2-10YR 4/4). Interior color is consistently very dark gray (7.5YR 3/1), even where heavy use by stirring erased the surface to reveal particles of temper.



1. Maximum height	30.2 cm	5. Diameter at orifice	15.7 cm
2. Height from base to shoulder	17.6 cm	6. Thickness at rim	0.8 mm
3. Height from shoulder to rim	12.6 cm	7. Thickness at midpoint	0.7 mm
4. Maximum diameter	25.6 cm	8. Thickness at base	0.9 mm

FIGURE 6. Sketch and dimensions of vessel.

Temper: The Borman–Pikes Peak vessel contains an abundance of heavily altered rock from a granitic source identified as Pikes Peak Granite, which comprises approximately 70 percent of the vessel walls. (Also see laboratory analysis on page 8.)

Texture: The texture is very rough and crude.

Carbon Streak: No carbon streak is evident.

Fracture: Fracture is very uneven, and the side where the vessel rested is roughly laminated.

SURFACE FINISH:

Exterior: The surface of the vessel is very roughly finished (Figures 7 and 8). Where the vessel rested on its side in the rocky crevice for many years, calcium carbonate encrustations obliterate the original surface on the lower half of the vessel. Figure 7 is a close up of the main portion of the vessel, while Figure 8 is of the exfoliated area. These photographs are informative because Figure 7 actually shows the temper on the surface and Figure 8 shows the temper on the inside of the vessel.

Interior: The interior surface is roughly smoothed. The lower third shows heavy usage where stirring has worn the interior surface to reveal the temper.

DECORATION: The vessel is undecorated and contains no handles.

COMMENTS: The underside of the vessel that shows calcium carbonate is partially missing by exfoliation (see Figure 5). The maximum area of exfoliation measures 14.7 x 14.0 cm. The missing part of the vessel measures a maximum

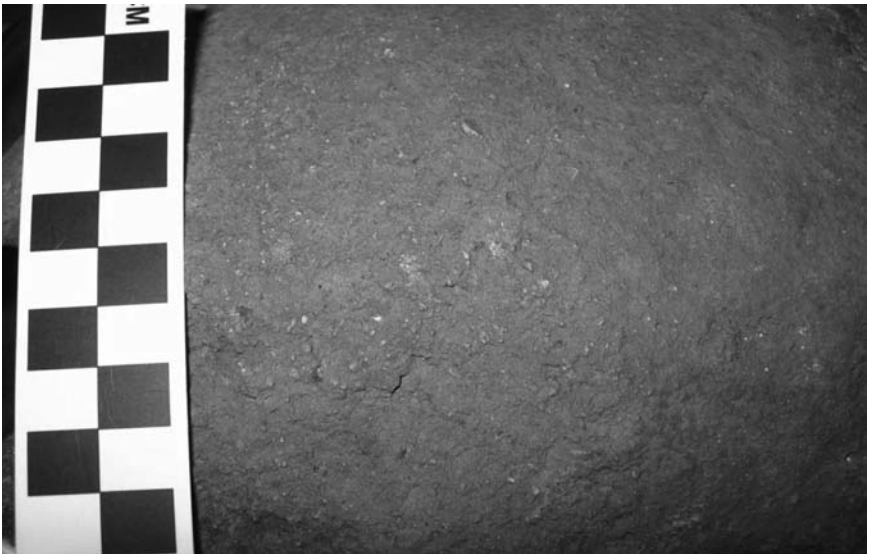


FIGURE 7. Close-up of Borman–Pikes Peak whole vessel.

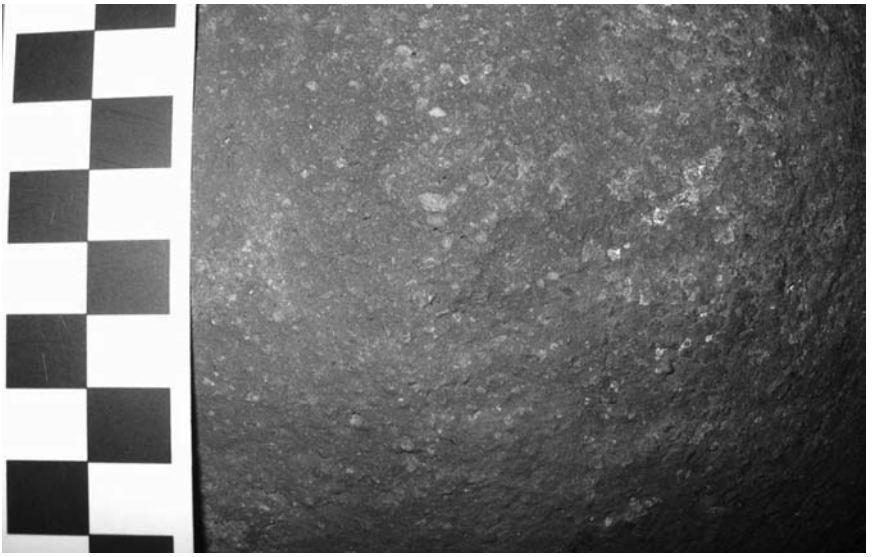


FIGURE 8. Close-up of exfoliated area of Borman–Pikes Peak whole vessel.

of 6.8 x 4.5 cm. The rim is completely chipped away. A search for any remaining fragments of the rim was unsuccessful.

No fragments of the rim edge remain on the vessel and none were recovered from the location of the find to indicate the shape at the lip. Comparisons with three whole vessels that most closely resemble the Borman–Pikes Peak vessel suggest a lip shape. These include the Dismal River, Dorr–Purgatoire River, and Parsons–Lorencito Canyon whole vessels (Ellwood 2002:58, 61, 64; and discussions below). All three types show gently out-flared rims with tapered rim edges. Therefore, it is likely that the rim edge was tapered. The temporal span for these vessels is A.D. mid-1500s to about 1750. In contrast, the lip for Benedict–Caribou Lake partial vessel of Uncompahgre-Ute origin (A.D. 1285) is square to rounded, and the Red Canyon Park whole vessel of Navajo origin (post-1700) has a lip that is rounded to semi-flattened (Benedict 1985a; Ellwood 2002:68, 89).

There may be a number of possible explanations for why the rim is incomplete. Since no fragments of the rim were located with the vessel, it is possible the rim was fragmented before it was placed at this location. It has been suggested by Frank Eddy (personal communication, 2002) who examined the vessel that after stirring the cooking contents the cook tapped the stirring rod against the rim to dislodge any particles of food that clung to it and in this manner eventually destroyed the finished rim surface.

LABORATORY ANALYSIS

Results of the technical laboratory analyses conducted on the Borman–Pikes Peak vessel provided definitive information on the construction methods used to make the vessel, on the place of manufacture, the age, and the use of the vessel.

Petrographic Analysis

The petrographic analysis of three thin-sectioned sherds was accomplished by Andrea J. Carpenter of Animas Ceramic Consulting, Inc., Farmington, New Mexico. Thin-Section-1 was taken from the Borman–Pikes Peak vessel (PP-1), Thin-Section-2 was taken from a Dismal River vessel (DR-2) from the Koshare Indian Museum in La Junta, Colorado, and Thin-Section-3 was taken from an Ocate Micaceous vessel (Ocate-3) temporarily housed at the University of Colorado Museum in Boulder. The point-counting petrographic analysis of the three samples was undertaken for comparison. Carpenter (2001) identified that "all three samples appear to be residual clays from weathering granitic rocks. DR-2 and Ocate-3 contain residual clays weathering from either a quartz-rich granitic source or a gneiss, whereas sample PP-1 contains a residual clay weathering from a granite source. Each sample contains slightly different mineralogies. Sample PP-1 contains a biotite granite, sample DR-2 contains a biotite-muscovite granitic/gneiss; and sample Ocate-3 contains a muscovite granitic/gneiss. Consequently the type of mica present in these samples may be an excellent indictor of source."

Carpenter's (2001) analysis identified that the Borman–Pikes Peak sample (PP-1) contained particles from a weathering biotite granite. It contained sand-sized grains of quartz, potassium feldspar (microcline), granitic lithic fragments, rare polyquartz, and altered and unaltered plagioclase. It also contained silt-sized grains of biotite microliths and their voids; the fineness modulus was 3.63. The purity of the minerals and the size and number of particles indicate it was either from a self-tempered residual clay from a biotite granite, or it was tempered with the granitic rock sand that was close to a clay source.

Dr. James Stoltman, retired director of the Laboratory of Archaeology and professor at the University of Wisconsin–Madison, reviewed the analysis and examined the thin sections and one taken from the top of the neck of the Borman–Pikes Peak vessel. He indicated that the ceramic fabric from the Borman–Pikes Peak vessel (5EP3496) contains a "super abundance of a heavily altered rock of granitic composition (a metagranite) that is dominated by heavily altered feldspars, including microcline and plagioclase. Quartz and mica are also present" (Stoltman 2003:2).

The petrographic analysis indicates that the Borman–Pikes Peak vessel either was made from self-tempered clay that contains an abundance of particles from a biotite granitic source or temper from the weathered granite was added to the clay.

Mineralogical Analysis

The mineralogical analysis was made by Dr. Theodore R. Walker (2006), professor emeritus of the Department of Geology, University of Colorado Boulder. Walker compared fresh thin section samples collected from Pikes Peak Granite bedrock exposed between the Broadmoor Hotel in Colorado Springs and Victor, Colorado, with the Borman–Pikes Peak vessel thin sections. He described the Pikes Peak Granite as having "many islands of potassi-

um feldspar (Ksp) that are surrounded by albite (Alb)." He also suggested that "One can easily imagine that if the albite phase is selectively removed from the **detrital grains** of perthite having any of these fabrics, the surviving potassium feldspar "islands" would become local concentrations of silt-sized particles." He indicated that these characteristic concentrations were seen in the Borman–Pikes Peak vessel thin section.

Walker's analysis determined that the temper grains in the Borman–Pikes Peak vessel compared with samples of the Pikes Peak Granite, which he collected from bedrock near Pikes Peak. The Pikes Peak mountain is made of the characteristic pink to brick-red granite that is also found in the surrounding area. The Pikes Peak batholith occurs at the Colorado Central Front Range extending roughly north to Mount Evans, west to South Park, and south to Cañon City (Chronic and Williams 2002: 48). This suggests that the vessel was manufactured close to where it was found. This granite is easily weathered and crumbles into the loose feldspar gravel (scree). Walker also indicated that weathering of the granite produces silt when the albite naturally weathers faster and the angular potassium feldspar particles become the predominant material in the resulting silt. The Pikes Peak Granite in the Borman–Pikes Peak vessel could have been collected as silt from the weathered granite to add as tempering material, or could result from residual clays from the weathering granitic rocks. Further research would be needed to identify if such clay sources exist in the area.

X-Radiography

X-radiographs were taken by Anita Griffin, a radiology technician at Wardenburg Health Center at the University of Colorado Boulder. X-rays are a nondestructive method used to clarify manufacturing techniques and size and distribution of mineral inclusions (Ellwood 2002). The results showed the arrangement of the largest tempering particles to be randomly spread (Figure 9), indicating a slab and accretion base, with large lumps smoothed by paddle and anvil followed by scraping.

Accelerator Mass Spectrometry (AMS)

To obtain an age estimate, a tiny charcoal sample scraped from the exterior of the vessel by Dr. James Benedict was submitted to Beta Analytic, Inc. for AMS dating. Carbon from the exterior of the Borman–Pikes Peak vessel yielded a conventional radiocarbon age of 470 ± 40 years B.P. (Beta-155784, charred food residue, C13/C12= -23.4: lab.mult=1). Beta Analytic, Inc., calibrated this to cal A.D. 1410–1470 at 2 sigma (cal 540–480 B.P.) (p = 95 percent) and cal A.D. 1420 to 1450 at 1 sigma (cal B.P. 530–500) (p = 68 percent). The intercept of radiocarbon age is cal A.D. 1430 (cal B.P. 250).

Palynological Analysis

Dr. Linda Scott Cummings (2002) of Paleo Research Institute, Golden, Colorado, accomplished the palynological analysis. Three samples came from charred materials that occurred near the exterior rim of the vessel as well as

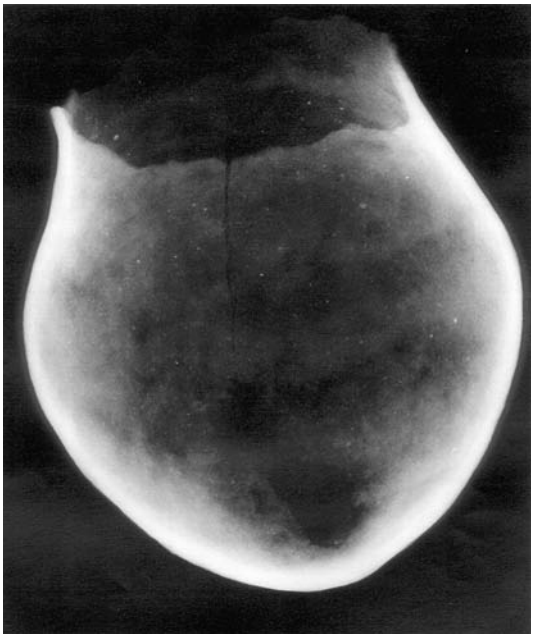


FIGURE 9. X-radiograph of the Borman–Pikes Peak whole vessel.

from the interior of the vessel, and a wash from the interior of the vessel. The samples from the Borman–Pikes Peak vessel were tested for pollen and phytoliths to determine what foods might have been cooked in this vessel. Pollens types observed in the samples include sagebrush (*Atemisia*), Chemo-am (which included amaranth and pigweed family), Roceaceae (the rose family), and *Zea mays* (maize or corn). Phytoliths of local grasses and corn were identified. The analysis also revealed that corn had been cooked in the vessel, as presented by Cummings:

> Microscopic analysis of charred residue removed from the interior and exterior of this vessel, as well as a wash sample removed from the vessel interior, provides evidence that corn (maize) was cooked in this vessel. Further, sampling the charred residue on the exterior of the vessel indicates that food "boiled over" the rim of the vessel, depositing residue on the exterior that charred during the cooking process. This type of accident preserves records of food processing. This analysis has identified the fact that *Zea mays* (corn, maize) was cooked in this vessel and that it was cooked in liquid because it "boiled over" the rim, depositing food residue on the exterior of the vessel. This food residue contained phytoliths typical of those produced by *Zea mays* (corn, maize) cobs and glumes. These phytoliths are expected to be present with shelled corn and also with ground corn. Therefore, either could have been cooked. Recovery of a sponge spicule in the residue sample scraped from the interior of the vessel is consistent with the interpretation that liquids were used in the cooking process because microscopic sponge spicules are present in many sources of fresh water [Cummings 2002:4].

CULTURAL COMPARISONS

Comparisons with Similar Whole Vessels

The Borman-Pike's Peak whole vessel is most similar in form to three known whole vessels from Colorado. These include the Dismal River, Dorr–Purgatoire River, and Parsons–Lorencito Canyon whole vessels (Ellwood 2002). Figure 10 provides comparison of selected whole vessel forms considered in comparison with the Borman–Pikes Peak vessel, which is shown as number 10. Table 1 provides identification of the vessels. Figure 11 additionally shows the forms that most closely resemble the Borman–Pikes Peak vessel. Descriptions of the Dismal River, Dorr–Purgatoire River, and the Parsons–Lorencito Canyon vessels are presented and comparisons to the Borman–Pikes Peak vessel are discussed.

Dismal River Comparisons

The Dismal River whole vessel is from southeast Colorado near La Junta (Ellwood 2002: 58–60) (Figure 10, no. 18). Additional comparisons are made with Dismal River Complex vessels from farther east. These comparisons reveal both close similarities and important differences.

The Dismal River whole vessel is similar in form to the Borman–Pikes Peak vessel but has distinctive differences in construction. The vessel description is "a globular jar with a constricted neck, outcurving rim, and a more conical than rounded base" (Ellwood 2002: 58). This is closer in form to the Borman–Pikes Peak vessel when compared to the eastern Dismal River more globular forms shown in Brunswig (1995: Figures 4 and 5). It is also undecorated and lacks handles. The firing method used by both vessels is similar; both were fired in a low-temperature, non-oxidizing atmosphere. Like the Borman–Pikes Peak vessel, which contains temper from a granitic source, the temper is finely crushed granitic rock with clay that contained some micaceous matter. In contrast to the Borman–Pikes Peak vessel, the construction method of the vessel is coiled and, as suggested by the external striations on the vessel, was probably smoothed by scraping with a corncob (Ellwood 2002:59). The vessel has a cruder appearance and the walls are thicker than the Ocate Micaeous vessels (Ellwood 2002: 59), but thinner than the Borman–Pikes Peak vessel.

The Dismal River Gray Ware vessels (Lovitt Plain and Lovitt Simple Stamped) from farther east in Nebraska and Kansas, and parts of eastern Colorado (Baugh and Eddy 1987; Brunswig 1995), are similar in construction method to the Borman–Pikes Peak vessel. These vessels are roughed into form by hand forming, thinned by the use of the paddle and anvil, and then surface smoothed (Brunswig 1995; Ellwood 2002; Wedel 1986:144). Brunswig (1995:183) indicates this is the common construction method, although there are possible rare cases of reported coiling construction. The thinning paddle may be roughened by carving or wrapped with a fine cord that would leave marks on the surface, but surface scraping usually obliterated these marks (Brunswig 1995: 183). The lack of handles on the vessels is similar to the Borman–Pikes Peak vessel.

In contrast, the vessel form for the eastern Dismal River ceramics is similar but overall is not as close a comparison as the Dismal River whole vessel. Brunswig (1995:184) notes that the Dismal River whole vessel is the only complete Dismal River vessel known from Colorado, and he identifies it as "western" Dismal River, a variant from the "eastern" Dismal River vessels. The vessel form for the eastern Dismal River ceramics is "globular in shape with gradual to abrupt body/neck junctures" and rounded bases, although this can vary from wide to nearly pointed (Brunswig 1995:184). The size varies from tall to short (10–40 cm), generally with a wide mouth whose width may equal the height but is not less than half the height, and the rims vary from turned out to nearly vertical (Brunswig 1995: 184–185). Unlike the eastern Dismal River vessels, the Borman–Pikes Peak vessel is more of a heart shape, with an out-turned rim, and a semi-conical base. It also has a more elongate form with the mouth to height ratio of less than half (even using the height with the broken rim). Decoration from stamped paddle marks or patterns on a flat lip are known in eastern Dismal River ceramics, but not seen in the "western" area that includes southeast Colorado (Brunswig 1995:186–187). The Dismal River ceramics are fired in a reducing atmosphere, and they have coarse to medium paste with the angular to rounded sand and grit temper, which is moderately friable (Brunswig 1995: 183).

Brunswig (1995:177) indicates that dates for the Dismal River culture span the period of about A.D. 1525–1725, but with a "more probable ceramic-using phase of ca. A.D. 1625–1725 (Brugge 1982; Gunnerson 1968:167; O'Brien 1984:75)." The date for the Dismal River whole vessel is indicated as ca. A.D. 1675–1725 by Ellwood (2002:60) based on Wedel's (1986:140) age estimate for Dismal River sites that are east of the 102nd Meridian. The similarities of the paddle and anvil construction methods and form to the eastern Dismal River ceramics but earlier age at ca. 1440 suggests that the Borman–Pikes Peak vessel may be associated with the later eastern Dismal River ceramics that share the same ceramic construction technology.

The Dismal River whole vessel from southeast Colorado appears to reflect a technology shift by ca. A.D. 1625–1725 to the use of coiling construction, since it is different from the construction method of hand forming followed by use of paddle and anvil for thinning used in the earlier eastern Dismal River ceramics and the earlier Borman–Pikes Peak vessel. This suggests that the use of the hand forming with paddle and anvil thinning was the earlier construction method. The use of coiling construction in the Dismal River whole vessel could have been influenced by the proximity of the Pueblo people known to be living in the area of southeast Colorado. Such influence is suggested for the Jicarilla Apache vessels from the area as early as about A.D. 1550 (Baugh and Eddy 1987: 797; Ellis and Brody 1964: 318; Ellwood 2002:61, 64). However, the Dismal River whole vessel has a greater similarity in vessel shape to the Borman–Pikes Peak vessel than the more eastern Dismal River vessels suggesting a possibility of a precursor relationship in the vessel form represented by the Borman–Pike Peak vessel.

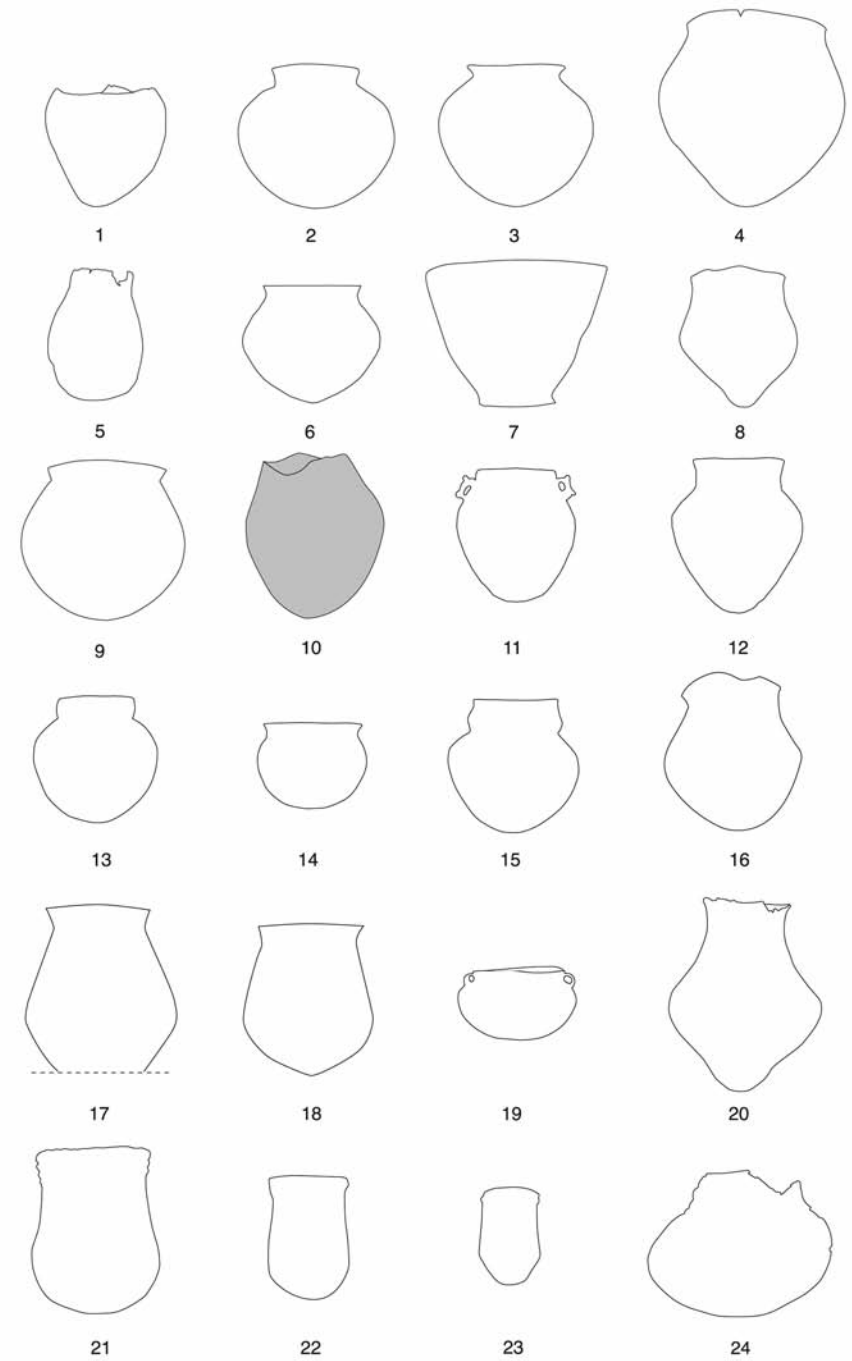


FIGURE 10. Comparative outlines of selected ceramic vessels (vessels are not to relative scale).

TABLE 1. Comparative Outlines of Selected Ceramic Vessels Shown in Figure 10.

No.	Vessel Name/Type	Cultural/Temporal Affiliation	Date Range (A.D.)	Reference
1	Mee–Parker	Plains Woodland tradition	ca. 600	Ellwood (2002:10–14)
2	Great Osis	Prairie tradition	950–1100	Wedel (1961:Plate V, middle left); Tiffany and Alex (2001:60–64)
3	Carlson–Chimney Canyon	Early Plains tradition	900–1450	Ellwood (2002:34–36)
4	Wallace–Ireland–Pueblo Reservoir	Plains Woodland–Upper Republican	1000–1100	Ellwood (2002:27–28)
5	Hudson–Trinchera	Upper Purgatoire complex–Sopris phase	1000–1300	Ellwood (2002:51–53)
6	Munsell–Apishapa River Valley	Panhandle aspect	ca. 1200–1300s	Ellwood (2002:45–46)
7	Graeber Cave	Intermountain–Shoshone	ca. 1245–1395	Ellwood (2002:66–68)
9	Branson–Joe Davis Mesa	Anasazi–Pueblo Glaze III–Glaze IV	1300–1500	Ellwood (2002:83–84)
10	Borman–Pikes Peak	Athapaskan–Plains Apache	1410–1470	Ellwood (this report)
11	Geneseo Plain	Great Bend aspect, Little River focus, Cowley County	1525–1650	Wedel (1959:233–236)
12	Geneseo Plain	Great Bend aspect, Little River focus, Rice County	1525–1650	Wedel (1959:174), Wedel (1959:571–591, Plate 27)
13	Lower Loup	Central Plains–Lower Loup focus	1500–1700	Grange (1968:11, 19–27, 43–47, 215); Wedel (1961:108–111, Plate V, upper right)
14	Tierra Blanca Plain	Tierra Blanca complex	1540–1602	Habicht-Mauche (1988:iii, iv, 23, 69, 223b, 395–446, 458)
15	Pawnee	Great Plains province, Historic Pawnee focus	1540–1775	Grange (1968:19–27, 43–47, 201); Wedel (1936:24, 33)
16	Dorr–Purgatoire River	Ocate Micaceous	1550–1750	Ellwood (2002:61–64)
17	Parsons–Lorencito Canyon	Ocate Micaceous	Mid-1500s–1750	Ellwood (2002:64–65)
18	Dismal River	Dismal River complex	1600–1700	Ellwood (2002:58–60)
19	Oneota	Prairie Plains tradition	1650–1700	Wedel (1959:600-604, 614, 615); Wedel (1961:Plate V, middle right)
20	Dinetah Gray	Navajo series	1700–1800	Hartman and Musial (1987:28–30); Brugge (1981:4)
21	Navajo Gray	Navajo series	1750–1800	Hartman and Musial (1987:33–35); Brugge (1982:281); Tschopik (1941:9)
22	Navajo Gray	UMC Navajo Collection 36616	??	Collector Omer Stewart, Southwest?? New Mexico Collector
23	Navajo Gray	UMC Navajo Collection 34708	??	Collector Bell and Bastion?? (1974:54–118)
24	Wichita	Wichita culture, Oklahoma phase	1750–1800	Bell and Bastian (1974:Figure 46) in Bell et al. (1974:54–118)

Comparison with the Dorr–Pugatorie River and Parsons–Lorencito Canyon Whole Vessels

The Dorr–Pugatoire River (Figure 10, No.16; Figure 11) and Parsons–Lorencito Canyon (Figure 10, No. 17; Figure 11) whole vessels also compare more closely with the Borman–Pikes Peak vessel in overall shape than the other vessels seen in Figure 10. These two vessels are from southeastern Colorado and are identified as Ocate Micaceous; they were manufactured by the Jicarilla Apache (Ellwood 2002: 60–5).

The Dorr–Purgatoire River vessel is the most similar in form to the Borman–Pikes Peak vessel. Both vessels are heart-shaped and have semiconical bases. Both vessels have neck rims that turn slightly outward. Neither has decoration or handles. They are also similar in that neither vessel has a carbon streak. The method of construction differs: the Borman–Pikes Peak vessel was made by paddle and anvil method, while the Ocate Micaeous vessel was made by coiling construction. Their firing conditions differ. The Borman–Pikes Peak vessel was fired in a low-temperature, non-oxidizing atmosphere that leaves the color of the vessel a dark gray. The Dorr–Purgatoire River vessel

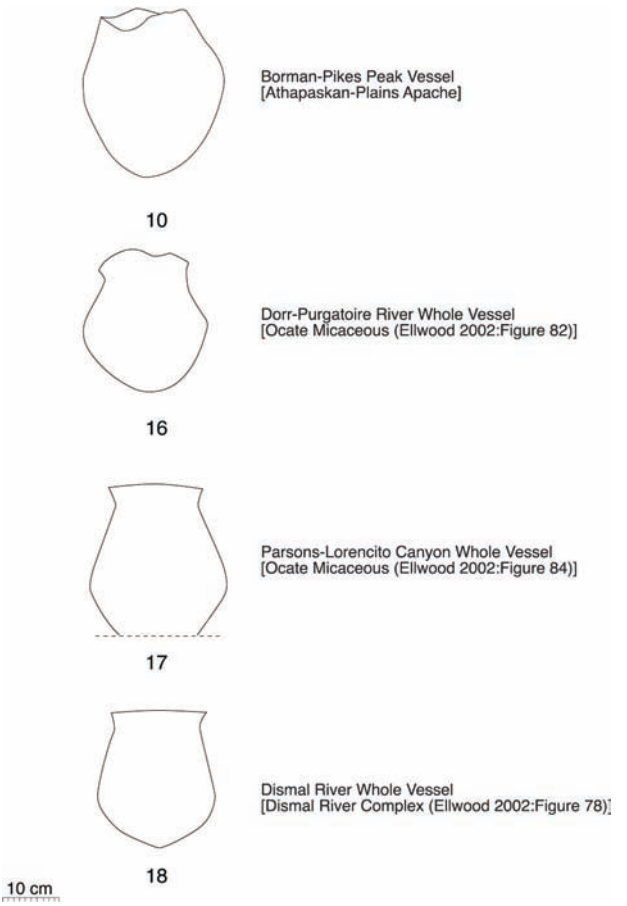


FIGURE 11. Depiction of the Borman–Pikes Peak vessel and whole vessels of comparable form. Vessel numbers relate to their placement in Figure 10.

was fired in a low temperature: this oxidation firing left its color a dark brown to a reddish gray. Paste texture of the Borman–Pikes Peak vessel is rough and crude, while that of the Dorr–Purgatoire River vessel is fine. The two vessels are similar in using large amounts of "temper"; the difference in temper is mainly due to the availability of the mineral used (although these may be mineral inclusions in the clay selected for pottery making). In the Borman–Pikes Peak vessel the temper contains large quantities of quartz and granitic particles from a granitic source, while the Dorr–Purgatoire River vessel temper is composed of large quantities of mica that result from micaceous clays from a granitic source. The vessel walls are much thinner in the Dorr–Purgatorie River vessel, varying from 4 to 5 mm compared to 7 to 9 mm for the Borman–Pikes Peak vessel.

The Parsons–Lorencito Canyon vessel lacks clear identification of some attributes since it was in a permanent display case and could not be handled. Overall it is very similar to the Dorr–Purgatorie River vessel with elongated jar form, micaceous paste, striated surface finish, and thinness of walls, and is also identified as Ocate Micaceous (Ellwood 2002:64-65). Unlike the Borman–Pikes Peak vessel, it was made by coiling construction using by large coils, and it has fine surface striations, possibly from smoothing with a corncob. The Parsons–Lorencito Canyon vessel is similar to the Borman–Pikes Peak vessel in form and in the absence of decoration or handles. Both have neck rims that turn slightly outward. The heart shape of the Borman–Pikes Peak vessel compares more closely with the heart shape of the Dorr–Purgatoire River vessel, and while the Parsons–Lorencito Canyon vessel is very similar in overall shape, it has lower shoulders, a longer neck, and the shape of the base was not visible in the display case. The firing method for the Borman–Pikes Peak vessel consisted of low temperatures, while the Parsons–Lorencito Canyon vessel was fired in a combination of oxidizing and non-oxidizing atmospheres. The surface color of the Borman–Pikes Peak vessel is dark gray in color, while the Parsons–Lorencito Canyon is a warm dark brown. The temper for both vessels is from a granitic source. Micaeous particles were visible on the surface of the Parson-Lorencito Canyon vessel. The origin of the mica is probably the micaceous clays from a granitic source, as is known for the Ocate Micaceous (Ellwood 2002: 665; Gunnerson 1969).

The Borman–Pikes Peak vessel, with an age in the 1400s, is earlier than Ocate Micaceous of the Jicarilla Apache, which date as early as ca. mid-1550s to about 1750 (Gunnerson 1979:164). The Dorr–Purgatorie River vessel was identified with the assistance of James Gunnerson as Ocate Micaceous of the Jicarilla Apache, with a suggested manufacture date for this vessel between 1650 and 1750 (Ellwood 2002:64). The Borman–Pikes Peak vessel resembles both the Dorr–Purgatoire River and Parsons–Lorencito Canyon vessels in form although it differs in construction technique. The similarity in their vessel shapes, especially with the Dorr–Purgatoire River vessel, suggests a relationship to the earlier ceramic tradition represented by the Borman–Pikes Peak vessel.

The use of coiling construction in Pueblo tradition ceramics could have

influenced the ceramic technology of the Apache by their association with people from Taos and Picuris Pueblos living in southeast Colorado (Baugh and Eddy 1987: 797; Ellis and Brody 1964: 318; Ellwood 2002:61,64; Gunnerson 1979:167). Historic evidence indicates Apache were living in pueblo towns in southeast Colorado and northeast New Mexico as early as 1599 (Hammond and Rey 1953: 484, cited in Brunswig 1995: 176). This also suggests that the paddle and anvil construction method of the Borman–Pikes Peak vessel represents the earlier construction method.

Athapaskan Ceramic Comparisons

In a study of the origins of the Southern Athapaskan or Apachean ceramics, David M. Bugge (1982:279) proposed the name Apachean Gray Ware for the entire range of the Apachean utility types. These included known series, among others, for the Jicarilla, Lovitt, Navajo, and Western Apache. He identified that the early utility types were "moderately large jars, usually a dark gray in color but with considerable variation, thin walls, and limited decorative treatment" (Brugge 1982:279). Although Brugge (1982:282–283) indicates that "the Apachean pottery is a highly distinctive ware on the Plains and not easily confused with any other (Gunnerson 1960)," he states the Apachean ceramic complexes share traits with those of the Pueblos such as coiling construction, probably learned from their association with the Pueblo people. He also indicates that there is evidence in the utility wares of a set of Plains-derived traits including the paddle and anvil technology, but which he suggests are more common in the series more distant from the Pueblo country (Brugge 1982:287). His assessment of age for the range of Apachean Gray Ware was that most of the tribes were making pottery by 1700 (Brugge 1982:285), and he suggests that the Apachean ceramics developed late, with perhaps multiple origins (Brugge 1982:282, 293).

The distribution map of Apachean Gray Ware shows the Western Apache series in mid-Arizona (Brugge 1982:281). Brugge (1982: 290) indicated that the Western Apache ceramics, while poorly known archeologically at that time, were either thin-walled, grey jars, that he said seem closer in form to Plains shapes than to Navajo, or thick-walled gray jars. The Apache Plain type of the Western Apache in Arizona are conical or pointed bottomed jars, with high shoulders, flaring rim, and rounded lip, made of coiled construction, and then finished by either scraping or by paddle and anvil. This pottery type is dated to A.D. 1700–1850 or possibly occurring through prehistory (A.D. 1300–1500 to 1900) (NAU 2001).

The Navajo ceramic construction varies from the Borman–Pikes Peak vessel in having coiled construction. The temper is also different: "Vessels walls are usually relatively thin and sometimes crumbly as a result of the abundant sand temper" (Hartman and Musial 1987:30). The Dinetah Gray is the earliest dated Navajo ceramic type. Like the Borman–Pikes Peak vessel, the Dinetah Gray jars have a more conical shape than the more spherical utility ware jars of the Pueblos (Hill 1995: 101); however, the Borman–Pikes Peak vessel varies from the Dinetah Grey in size and in the length of the neck (Figure 10, no. 20).

The early Navajo pottery, with a wide midsection and elongated neck, graduated to the smaller, thicker version with the finishing braided neck coil, is called Navajo Gray (Figure 10, nos. 21–23).

Two different opinions have been expressed as to the dates of manufacture of Dinetah Gray, the earliest Navajo ceramic type. Brugge (1982:285) and Hartman and Musial (1987:30) indicate a range from the 1690s to 1800; however, according to Brugge (1982:285), the Navajo most heavily produced pottery by 1700, and Hartman and Musial (1987:30) indicate the Dinetah Gray type of pottery was produced primarily between 1700 and 1800. Brugge (1982:285) suggested "if the Navajos were making pottery at an earlier date, it was probably distinguishably different from Dinetah Gray." This temporal period for Dinetah Gray would make it later than the Borman–Pikes Peak vessel. This varies with Hill (1995:101) who states "the type is thought to have been manufactured from around A.D. 1450 to 1500" and he gives the estimated period of production for Dinetah Gray as "ca. A.D. 1450 to 1800" (Hill 1995: 112).

The Borman–Pikes Peak vessel compares taxonomically with Brugge's (1982) Apachean Grey Ware, indicating a Southern Athapaskan–Apachean association, but its geographic location and the differences compared to the Navajo and Western Apache suggests it represents an Athapaskan–Plains Apache association. Since the earliest known Navajo and Western Apache ceramics from farther to the southwest are documented by about A.D. 1700, although they have some suggestions of earlier dates, the Borman–Pikes Peak vessel appears to be earlier in date.

Other Ceramic Comparisons

Groups known to have occupied eastern Colorado longer than most of the native people include the Jicarilla Apache, from at least A.D. 1525 to 1850, and the Intermountain Shoshone and the Ute, who have a long temporal span in the Colorado mountains. The early date of the charred material on the Borman–Pikes Peak vessel negates an association with many groups who entered the area much later. These groups include the Kiowa, Comanche, Cheyenne, Arapaho, Sioux, Osage, and Wichita.

Figure 10 shows examples of vessels compared with the Borman–Pikes Peak vessel. Groups who were making pottery and could have been in a similar time range but whose pottery was distinctly different from the Borman–Pikes Peak vessel include the Ute and Shoshone. Whole vessels of each of these types have been identified in the Front Range mountains of Colorado and north of Pikes Peak, each with ages dating as early as about A.D. 1300 (Benedict 1989; Ellwood 2002: 65–78; Nelson and Graeber 1966). The Shoshone made flat-bottomed vessels shaped like a flower pot or truncated cone (Eighmy 1995:162; Ellwood 2002:66–78; Nelson and Graeber 1966) (Figure 10, no. 7). The Ute Uncompaghre Brown Ware is either partially or wholly fingernail indented or fingertip impressed, with some sherds showing stick impressions (Reed 1995:124) (Figure 10, no. 8).

Other groups who were making pottery but whose pottery was distinctly

different from the Borman–Pikes Peak vessel and are later in time include the Pawnee, whose pottery bears collared or braced rims with incised decorations (Grange 1968:118) (Figure 10, no. 15). The pumpkin-like globular shape of vessels of Tierra Blanca Plain (ca. A.D. 1556–1700) type differs decidedly from the heart shape of the Borman–Pikes Peak vessel (Figure 10, no. 14), as does the Wichita vessel excavated at the Longest site in Oklahoma, a squat globular jar with a flat base (Bell and Bastian 1974:119) (Figure 10, no. 24). Tierra Blanca Plain is made by the Southwestern method of coiling as opposed to the Plains-derived, paddle-and-anvil technique (Habicht-Mauche 1988:285).

Cultural Association

The Borman–Pikes Peak vessel is not of Navajo or Pueblo affiliation. The size of the nearly complete pot, especially the length of the neck, precludes a Navajo affiliation. It would show coiling if it were influenced by the Pueblos, as would the Western Apache. The cultural group that produced this vessel may be associated with a pre-Dismal River group and with an earlier Athapaskan–Plains Apache group. The vessel is definitely of Plains technology of manufacture. Comparative type references include Brunswig (1995), Gunnerson (1960, 1968), Wedel (1959, 1961), and Zier and Kalasz (1999).

DISCUSSION OF DATING

It is unknown exactly when the Plains Apache learned to make pottery. Brugge (1982:285, 286) suggested that they learned pottery making from the Pueblo Indians. Gunnerson (1969) thinks that the Apache brought pottery with them and may have learned the paddle-and-anvil method from Plains tribes as they migrated southward (Brugge 1982:286). Gunnerson (1979:164) identified that beginning around A.D. 1550 Ocate Micaceous was made by the Apache when they arrived in the Southern Plains; however, they learned to make vessels by the coiling method from their close association with Taos Pueblo people. With a date of A.D. 1400s for the Borman–Pikes Peak vessel, it appears that the Plains Apache produced pottery long before they are credited. The earlier Borman–Pikes Peak vessel used the paddle and anvil technology more representative of a Plains technology, compared to the later dated Western Apache, Navajo, and Jicarilla Apache vessels, which all appear to have been influenced by the Pueblo contact.

The presence of the Late Prehistoric Athapaskans has been marked along a migration route of more than 2,000 miles and has spanned 2,000 years (Wilcox 1981). Brunswig (1995:172) evaluated the southward movement of the migratory Athapaskan bands and states that "over the years, an increasingly complete picture of prehistoric migrations of Canadian Athapaskan groups southward into the Rocky Mountains, Great Plains . . . has emerged." Wilcox (1981:220–223) associates migrating Athapaskan bands with Avonlea complex populations who drifted into the western Dakotas and Wyoming by A.D. 1000. Drass (1998:447) states "the migration of groups such as the Apache into the Southern Plains—along with droughts, increasing population, and other factors—appears to have resulted in major changes and/or movements of groups

around A.D. 1500." Brunswig (1995: 174–175) discusses other evidence and climatic factors could have attracted the proto-Apachean people into the Colorado after A.D. 1450–1500. Brunswig (1995:175) also indicates "there is *very limited and largely circumstantial evidence* of a late prehistoric, ca. A.D. 1300–1550, aceramic and ceramic Apachean presence in Colorado's Eastern Plains and foothills." The Borman–Pikes Peak isolated vessel (5EP3496) yields radiocarbon information supportive of the Athapaskan presence in the mountains of southeast Colorado at an age of cal A.D. 1410–1470 (at 2 sigma). This provides new information relating to the migration route and timing of Athapaskan entry into the region.

TRADE

The Borman–Pikes Peak vessel was used to boil maize, although the Athapaskan identification of the Borman–Pikes Peak vessel indicates association with a nomadic group that was not growing maize. Zier and Kalasz (1999:251) consider the Protohistoric Athapaskans as predecessors of the Plains Apache. They also state that the "Athapaskans are speculated to have entered the context area during the Late Prehistoric stage as aceramic, nomadic bands that used dog travois and whose subsistence centered on foraging and bison hunting" (Zier and Kalasz 1999:251). The Plains Apache were known for their wandering status as migratory hunters (Wedel 1961:112). They traveled extensively and were not early horticulturalists raising corn. Maize had to have been obtained through raiding or, later, trading from a group that practiced horticulture.

A lively pattern of trade was established between the Plains and the Southwest long before the Spaniards entered the scene. "Trade items include materials representative of intra-Plains as well as Southwestern exchange. Plains items include catlinite pipes, implements made of Niobrara jasper, and cordmarked ceramic vessels with collared rims" (Baugh 1994:279). Other trade items include Alibates agatized dolomite from Texas and Southwestern pottery, and Olivella shell in burial contexts (Hoffman 1984:299; Schlesier 1994:356). Trade was an integral part of each prehistoric period, and an activity practiced by the natives of the early fifteenth century.

This trade included native Querechos or Teyas who in winter traveled either to the Pueblos where they traded hides, robes, and buffalo meat for corn (Wedel 1961:103). Wedel (1986:137) later states that the nomads, whom the Spanish named Querechos, traded bison meat, fat, and hides to village dwellers in exchange for maize, cotton textiles, and turquoise from the Pueblos. The Apache were known to trade buffalo hides and meat with the Pueblo Indians. Later, they traveled with entire rancherias consisting of wives and children, and tents made of buffalo hides loaded on pack trains of dogs. They bartered for cotton cloth and other things they needed (Gunnerson and Gunnerson 1988:3). Intertribal trade for maize included obsidian for tools and catlinate for pipes (Wedel 1961:106). Habicht-Mauche (1988:68) indicates that bison meat, hides, and robes, as well as fat and salts, were items that the Plains nomads exchanged.

LOCATION ON PIKES PEAK

Consideration of Mountain Location

The Borman–Pikes Peak vessel was found in a mountain location on Pikes Peak. This mountain with an over 14,000-ft peak is located at the foothills/mountains transition. A trail along the northwestern base of Pikes Peak provided access or a migration route from the Plains to the hunting grounds of South Park (now U.S. Highway 24). The Ute Pass Trail is an old trail known to have been used by the Ute for centuries before it became a main route traveled by miners and trappers to carry fur pelts between South Park and Bent's Fort to the east on the Arkansas River (McConnell 1963:14).

The vessel was also made in the nearby area, and was cached for future retrieval; this indicates at least seasonal and repeated use of the mountains. An archaeological model of mountain use and a prehistoric Mountain Tradition have been identified for the mountains region in Colorado. Benedict (1992) proposed a model of seasonal use of the mountains based from winter camps in the eastern foothills in his investigation of high-altitude game drives for the area north of Pikes Peak. The Mountain Tradition supports the idea of year-round occupation at a high altitude (Metcalf and Black 1988). Black (1991:4) submits that "the Mountain Tradition is seen as a separate ecological adaptation to upland terrain, over an extended length of time and covering a broad geographical area."

More recently, Broadhead (2003:20–42) enumerated high-altitude ceramic sites in Colorado from Gunnison, Hinsdale, and Saguache counties. These were all sherd finds, with no complete vessels discovered. The sites do not represent a long montane adaptational continuity in the Pikes Peak area, nor do the sites provide proof of an intermountain Athapaskan migration route, but "they may be proof that groups other than the Utes made incursions into the Gunnison Basin and surrounding Colorado mountains for trade, hunting, or warfare" (Broadhead 2003:38). This additionally shows that ceramic sites occur in the high country more often than had once been believed (Broadhead 2003:38). Broadhead (2003:36) suggests that "ceramics should be an expected part of hunter-gatherer material culture in the central Colorado mountains." McDonald (1995, cited in Broadhead 2003:36) has proposed new angles of analysis and discussion to understand mountain plain ware pottery. "McDonald also discusses the relations of ceramics to mobility, stating that ceramics could be quite useful to mountain groups, and not necessarily carried, but cached, in predictable locations and reused annually" (Broadhead 2003:36).

The mountain location of the Borman–Pikes Peak vessel and the date it yielded suggests that Athapaskan–Plains Apache peoples were utilizing the mountains at a much earlier time than originally documented. Prehistoric use of the mountains might have been seasonal for hunting and gathering, but its manufacture in the nearby area could indicate year-round occupation. Its occurrence at Pikes Peak is near a documented prehistoric trail that follows the natural corridor from the mountains into the Plains providing access in obtaining corn.

Consideration of Sacred Use

Pikes Peak is a sacred mountain (Deloria and Stoffle 1998) to modern native peoples including the United Tribes of Colorado and the Southern Ute Tribe (Lennon and Mehls 1998). This prominent over 14,000-ft peak, which can be seen for more than 65 miles distance from the Plains, is located in the mountains/foothills transition of the central Colorado Mountains at a point separating the drainage divides of two Front Range rivers. The historic literature has indicated that the Fountain Valley and Ute Pass Trail near Pikes Peak were transit corridors for native peoples and that Manitou Springs located near Pikes Peak was a sacred area (Zier 1987).

There are many kinds of sacred sites in the Native American religious experiences and traditions, such as a creation story location, a Universal Center Location, or a vision quest site (Deloria and Stoffle 1998:12). "Anthropologist Deward Walker wrote that 'sacred sites are places of communication with the spirits, portals where people enter the sacred . . . where spiritual power can be accessed and even attained'" (Gulliford 2000:68). A few examples of sacred sites that consist of mountains are known in Colorado such as a butte, a granite knob, or a whole mountain, including one where pottery or steatite vessels and other artifacts were thought to have been left on the mountain as offerings (Benedict 1985b). A vision quest site is one of the most common forms of sacred site (Gulliford 2000: 81). These are frequently built by Native Americans on high precipices with panoramic, 360-degree views and are often composed of rocks piled 18 to 24 inches high in a horseshoe or circular shape (Gulliford 2000:81).

This author considers it unlikely the Borman–Pikes Peak vessel was stashed in the rocky crevice by a Native American seeking a vision quest near this location. The isolate does not appear to meet the definition and description of sacred locations for a vision quest site as outlined by Deloria and Stoffle (1998:12). Such sites are based upon location, for example, as one ideally providing a dramatic view. The isolate is not situated on a high precipice with an awe-inspiring view in any direction; the locality provides a limited view down into a small valley (Figure 12). The vessel is in a small crevice but no flattened area or buildup of rocks is present as a place for a person to kneel or fast, as in a vision quest site. It is possible that the Borman–Pikes Peak vessel may have been part of a sacred rite, rather than strictly utilitarian in function. The site could represent a sacred offering. If it was, however, this was a solitary gift as compared to another known sacred mountain site where many offerings were placed (Benedict 1985b:18). There the numerous gifts included lithic artifacts and ceramic sherds and represent many visits by individuals to leave offerings.

In summary, Pikes Peak may have been considered a sacred mountain by prehistoric peoples and if so, any site on the mountain may represent or have been in association with sacred activity on the mountain. The physical location of the Borman–Pikes Peak vessel in a sheltered crevice suggests the vessel was placed there for later retrieval, although the vessel placement could have been a sacred offering. The storage of the vessel in the sheltered spot would allow less encumbered travel to other parts of the mountain or to the over 14,000 ft

FIGURE 12. View to the southeast from 5EP3496.

peak of the mountain. The travel could have been for many purposes such as hunting, vegetal gathering, accessing the visual perspective from other parts of the mountain, as well as possible sacred activity performed nearby or at another place on the mountain.

SUMMARY AND CONCLUSIONS

It may never be known for certain who placed the Borman–Pikes Peak vessel in the rocky crevice, but this author submits an explanation based on archaeological evidence and analysis of the vessel. The petrographic analysis indicates that the vessel was manufactured close to where it was found. The X-radiographic analysis indicates that it was manufactured by paddle-and-anvil: a method of construction that was used on the Plains but not in the Pueblos. The radiocarbon date on charred residue on the vessel is 470 ± 40 B.P. (cal A.D. 1410–1470 at 2 sigma). Maize was cooked frequently in this vessel. It was not carried with its owners but stashed in the rocky cavern on the side of the mountain.

Cultural identification of the Borman–Pikes Peak vessel rested on the date and the attributes of the vessel. The literature search indicates that various native peoples used the mountains and the region, but the occupation dates of many groups suggests that they were in the area too recently to be connected with the Borman–Pikes Peak vessel, or the vessel form was too different. These groups include the Taos, Picuris, and other northern Pueblos, Kiowa, Kiowa–Apache, Comanche, Cheyenne, Arapaho, Sioux, Osage, Pawnee, Wichita, Eastern Shoshone, Jicarilla Apache, and Ute.

An Athapaskan cultural association was indicated by the initial taxonom-

ic identification of the Borman–Pikes Peak vessel as Apachean Gray Ware. This ware was named by Brugge (1982:279) for Southern Athapaskan/Apachean utility wares. Further identification of an Athapaskan–Plains Apache association was indicated by taxonomic differences between the Apache and the Navajo and Western Apache. This conclusion can be reached by studying the comparative forms, and importantly, the Plains Apache technique of manufacture of smoothing by the paddle-and-anvil method differed from the Navajo and Western Apache coiling technique of manufacture. The Athapaskan–Plains Apache has been identified in the Arkansas River Basin (Zier and Kalasz 1999). Athapaskan ceramic identification is best approached when cultural-temporal affiliations are identified but at the location of the vessel there was no evidence of housing or other cultural information. Ceramic traits that could be identified as Athapaskan–Plains Apache are limited. Central Plains tradition ceramics and northern Rio Grande utility wares were the two primary sources initially considered as probable prototypes for Plains Apache pottery (Baugh and Eddy 1987:7; Ellwood 2002:61). Three similar specimens were identified (Figure 11). The comparisons with Plains Apache vessels of the Dismal River culture and the Jicarilla Apache vessels support the identification of the vessel as Athapaskan and indicate that this vessel may be associated with a pre-Dismal River group and with an earlier Athapaskan–Plains Apache group.

Taxonomic considerations indicate that the Borman–Pikes Peak vessel falls within the Apachean Gray Ware classification proposed by Brugge (1982). The vessel differs taxonomically from the Navajo and Western Apache. This conclusion can be reached by studying the comparative forms, and importantly, the Plains Apache technique of manufacture of smoothing by the paddle-and-anvil method differed from the Navajo and Western Apache coiling technique of manufacture. The vessel has similarities to the later Plains Apache vessels of Dismal River and Jicarilla Apache vessels that occur in Colorado and the Plains. Brugge (1982) had identified these as Lovitt and the Jicarilla series in his classification of Apachean Gray Ware. The Borman–Pikes Peak vessel is earlier and unlike either of these. This suggests that it represents a different, not previously identified, Plains Apache association within the Apachean Gray Ware classification identified by Brugge (1982) for the Southern Athapaskan–Apachean utility wares. Whole vessels are rarely found, but they provide the basis for ceramic identification. This vessel is not only nearly complete but contains charred material that provided a radiocarbon date. Comparisons to the known vessels in the region and other Athapaskan vessels has provided new information and identified its differences from other known vessels. It is proposed that a new type could be identified with further research of ceramics in the region in a search for similar vessels that would provide a distinct taxonomic grouping.

The Borman–Pikes Peak whole vessel also represents local manufacture with its distinct temper of Pikes Peak Granite, which has a limited spatial occurrence. The future identification of similar ceramics with this temper in the area or region could help define the distinct cultural traits of a possible mountain occupation during this period. Naming a type based on one vessel

should be resisted, but should further archaeological investigations provide evidence of pottery with a similar date, form, and construction technique, which includes the Pikes Peak Granite as temper, it may be possible to define a localized mountain variant. If further samples are located and documented, the type name Pikes Peak Granite is proposed. Further research to validate such a type would include the identification and radiocarbon dating of similar ceramics, as well as more information about the use of high-elevation locations by native peoples. It is likely that other caches of artifacts, too heavy or fragile to carry, may be found.

The location of the vessel on Pike Peak raises the question of the prehistoric use of the mountains and of the Pikes Peak locale. The evidence that the Borman–Pikes Peak vessel had been made in the area near where it was found indicates the Late Prehistoric Athapaskan peoples were utilizing the mountains at a much earlier time than previously documented. The placement of this vessel in the protected crevice suggests it was cached for later retrieval in their travel on the mountain. The evidence of corn in the Borman–Pikes Peak vessel may indicate these Late Prehistoric Athapaskan people, also considered to be nomadic bands with subsistence focused on foraging and bison, obtained it by raiding or by trade. Suppositional evidence indicates that location of the Borman–Pikes Peak vessel was not a vision quest site. The entire mountain in general is a sacred place to tribes today and may also have been in prehistoric times. The vessel placement may reflect a sacred offering or travel to sacred activity located elsewhere on the mountain.

In conclusion, a possible scenario is that the Borman–Pikes Peak vessel was manufactured and cached by a Late Prehistoric, pre-Dismal River, Athapaskan/Apachean people, who may have been living near this mountain location and raiding small, unprotected farm sites, more than likely the Apishapa in southeastern Colorado, for maize. Their appetite for this food grew until it became a practice of trade. In their vast travels in this occupation, they did not want to carry the fragile, heavy vessel with them, so they carefully stashed it in the protective rocky cavern until they returned to use it again.

The migration route and timing for Athapaskan immigration into the region remains a controversial issue that can only be clarified through new information. Their Protohistoric entry into the eastern Plains of Colorado is documented historically and archaeologically by at least the mid-1550s. Little definitive evidence is known before that period. The Borman–Pikes Peak vessel is a nearly complete whole ceramic vessel of Plains tradition manufacture and dating to A.D. 1410–1470. Its location in central Colorado in the mountains at the plains/foothills transition provides new information regarding Athapaskan entry into the region. It also yields data about the Athapaskan and Plains Apache ceramics of the period. Moreover, its mountain location on Pikes Peak, known to be a significant sacred location by many modern Native American tribes, generates additional questions about the use of the mountains and this vessel during this time period.

ACKNOWLEDGMENTS

The following people helped with the preparation of this paper by providing information and suggestions: William R. Arbogast, Cleo S. Barnes, James B. Benedict, Kevin D. Black, George W. Borman, Wade M. Broadhead, Andrea J. Carpenter, Collette C. Chambellan, Andrea M. Greenaker, James H. Gunnerson, Judith A. Habicht-Mauche, Judith A. Halasi, Christopher R. Lintz, William A. Lucius, Todd C. McMahon, Lillian E. Mee, Mark D. Mitchell, William L. Moats, Donna C. Roper, James B. Stoltman, David M. Underwood, Theodore R. Walker, Richard H. Wilshusen, and Leta M. Yazzie. The reviewers' suggestions greatly increased the strength of the paper.

REFERENCES CITED

Alexander, Robert K., and John D. Hartley
1980 A Settlement Survey of the Fort Carson Military Reservation. 13 vols. Grand River Consultants, Inc., Grand Junction, Colorado.

Baugh, Timothy G.
1994 Holocene Adaptations in the Southern High Plains. In *Plains Indians, A.D. 500–1500: The Archaeological Past of Historic Groups*, edited by K. H. Schlesier, pp. 264–289. University of Oklahoma Press, Norman.

Baugh, Timothy G., and Frank W. Eddy
1987 Rethinking Apachean Ceramics: The 1985 Southern Athapaskan Ceramics Conference. *American Antiquity* 52(4):793–798.

Bell, Robert E., and Tyler Bastian
1974 Preliminary Report Upon Excavations at the Longest Site, Oklahoma. In *Wichita Indian Archaeology and Ethnohistory: A Pilot Study*, assembled by R. E. Bell, E. B. Jelks, and W. W. Newcomb, pp. 80–142. Garland Publishing, New York.

Benedict, James B.
1985a Arapaho Pass: Glacial Geology and Archeology at the Crest of the Colorado Front Range. Research Report No. 3. Center for Mountain Archeology, Ward, Colorado. D&K Printing, Boulder, Colorado.
1985b Old Man Mountain: A Vision Quest Site in the Colorado High Country. Research Report No. 4. Center for Mountain Archeology, Ward, Colorado. D&K Printing, Boulder, Colorado.
1989 Age of Punctate Pottery from the Caribou Lake Site: Comparison of Three Physical Dating Methods. *Southwestern Lore* 55(2):1–10.
1992 Footprints in the Snow: High Altitude Cultural Ecology of the Colorado Front Range, USA. *Arctic and Alpine Research* 24(1):1–16.

Black, Kevin D.
1991 Archaic Continuity in the Colorado Rockies: The Mountain Tradition. *Plains Anthropologist* 36(133):1–29.

Blakeslee, Donald J., and Marlin Hawley
2006 Great Bend Aspect. In *Handbook of Kansas Archaeology*, edited by Robert Hoard and Will Banks, pp. 165–179. University of Press of Kansas, Lawrence.

Broadhead, Wade
2003 Variation at High Elevation: Reporting New Ceramic Sites from the Southern Colorado Rockies. *Southwestern Lore* 69(2):20–42.

Brugge, David M.
1981 *Navajo Pottery and Ethnohistory*. Navajo Nation Papers in Anthropology No. 4. Window Rock, Arizona.
1982 Apache and Navajo Ceramics. In *Southwestern Ceramics, A Comparative Review*, edited by A. H. Schroeder. Arizona Archaeological Society, Phoenix. *Arizona Archaeologist* 15:279–298.

Brunswig, Robert H., Jr.
1995 Apachean Ceramics East of Colorado's Continental Divide: Current Data and New Directions. In *Archaeological Pottery of Colorado: Ceramic Clues to the Prehistoric and Protohistoric Lives of the State's Native Peoples*, edited by R. H. Brunswig, Jr., B. Bradley, and S. M. Chandler, pp. 172–202. CCPA Occasional Papers No. 2. Colorado Council of Professional Archaeologists, Denver.
Carr, Christopher
1990 Advances in Ceramic Radiography and Analysis: Application and Potentials. *Journal of Archaeological Science* 17:13–34.
Charles, Mona, Randy Nathan, Philip Duke, Nikki Salazar, and Sean Larmore
1998 Results of the 1997 Cultural Resource Reevaluation Project for the Fort Carson Military Reservation: El Paso, Fremont, and Pueblo Counties, Colorado. Department of Anthropology, Fort Lewis College, Durango, Colorado.
Chronic, Halka, and Felicie Williams
2002 *Roadside Geology of Colorado*. Mountain Press Publishing Company, Missoula, Montana.
Cummings, Linda Scott
2002 Microscopic Analysis of Residue from a Ceramic Vessel, Pikes Peak, Colorado. Paleo Research Institute, Golden, Colorado.
Deloria, Vine, Jr.
1998 Kinds of Sacred Sites. In *Native American Sacred Sites and the Department of Defense*, edited by V. Deloria, Jr., and R. W. Stoffle, pp. 8–21. Report sponsored by the Legacy Resource Management Program and the Department of Defense, with the assistance of Archaeology and Ethnography Program, National Park Service, Washington, D.C. Electronic document, http://osiris.cso.uiuc.edu/denix/Public/ES-Programs/Conservation/Legacy/Sacred/section1.html, accessed August 20, 2001.
Deloria, Vine, Jr., and Richard W. Stoffle (editors)
1998 *Native American Sacred Sites and the Department of Defense*. Report sponsored by the Legacy Resource Management Program and the Department of Defense, with the assistance of Archaeology and Ethnography Program, National Park Service, Washington, D.C. Electronic document,http://osiris.cso.uiuc.edu/-denix/Public/ES-Programs/Conservation/Legacy/Sacred/toc.html, accessed September 24, 2001.
Department of the Army
2002 7th Infantry Division and Fort Carson Integrated Cultural Resources Management Plan: 2002–2006. Department of the Army, Fort Carson, Colorado.
Drass, Richard R.
1998 The Southern Plains Villagers. In *Archaeology on the Great Plains*, edited by W. R. Wood, pp. 415–455. University Press of Kansas, Lawrence.
Eighmy, Jeffrey L.
1995 Intermountain Pottery in Colorado. In *Archaeological Pottery of Colorado: Ceramic Clues to the Prehistoric and Protohistoric Lives of the State's Native Peoples*, edited by R. H. Brunswig, Jr., B. Bradley, and S. M. Chandler, pp. 162–171. CCPA Occasional Papers No. 2. Colorado Council of Professional Archaeologists, Denver.
Ellwood, Priscilla B.
1987 Bayou Gulch (5DA265) Ceramics. *Plains Anthropologist* 32(116):113–139.
2002 *Native American Ceramics of Eastern Colorado*. Natural History Inventory of Colorado No. 21. University of Colorado Museum, Boulder.
Grange, Roger T., Jr.
1968 *Pawnee and Lower Loup Pottery*. Publications in Anthropology No. 3. Nebraska State Historical Society, Lincoln.
Gulliford, Andrew
2000 *Sacred Objects and Sacred Places: Preserving Tribal Traditions*. University Press of Colorado, Boulder.

Gunnerson, James H.
1960 *An Introduction to Plains Apache Archaeology: The Dismal River Aspect*. Bureau of American Ethnology, Bulletin No. 17. Anthropological Papers No. 58. Washington, D.C.
1968 Plains Apache Archaeology: A Review. *Plains Anthropologist* 13(41):179.
1969 Apache Archaeology in Northeastern New Mexico. *American Antiquity* 34(1):23–29.
1979 Southern Athapascan Archaeology. In *Southwest* (9), edited by Alfonso Ortiz, Smithsonian Institution, Washington.
1987 *Archaeology of the High Plains*. Cultural Resource Series No. 19. Bureau of Land Management, Denver, Colorado.
Gunnerson, James H., and Dolores A. Gunnerson
1988 *Ethnohistory of the High Plains*. Cultural Resource Series No. 26. Bureau of Land Management, Denver, Colorado.
Habicht-Mauche, Judith
1988 *An Analysis of Southwestern Style Utility Ware in the Context of Protohistoric Plains–Pueblo Interaction*. Ph.D. dissertation, Harvard University, Cambridge. University Microfilms International, Ann Arbor, Michigan.
Hammond, George P., and Agapito Rey (translators and editors)
1953 *Don Juan de Oñate, Colonizer of New Mexico, 1595–1628*. University of New Mexico Press, Albuquerque.
Hartman, Russell P., and Jan Musial
1987 *Navajo Pottery: Traditions and Innovations*. Northland Press, Flagstaff, Arizona.
Hill, David V.
1995 A Brief Overview of the Navajo Presence in the Upper San Juan Drainage and in Southwestern Colorado and Their Ceramics. In *Archaeological Pottery of Colorado: Ceramic Clues to the Prehistoric and Protohistoric Lives of the State's Native Peoples*, edited by R. H. Brunswig, Jr., B. Bradley, and S. M. Chandler, pp. 98–119. CCPA Occasional Papers No. 2. Colorado Council of Professional Archaeologists, Denver.
Hoffman, Jack L.
1984 The Plains Villagers: The Custer Phase. In *Prehistory of Oklahoma*, edited by R. E. Bell, pp. 287–304. Academic Press, New York.
Jepson, Daniel A., Christian J. Zier, Stephen M. Kalasz, and Andrea M. Barnes
1992 *Archaeological Survey of High Priority Parcels and Other Miscellaneous Areas on the Fort Carson Military Reservation, El Paso, Pueblo, and Fremont Counties, Colorado*. Centennial Archaeology, Inc., Fort Collins, Colorado.
Jones, Donald G., Martha Williams, Kathy Stemmler, Michael H. McGrath, and Elizabeth C. Winstead
1998 *Ethnohistoric and Ethnographic Information Related to the Fort Carson Military Reservation and Pinon Canyon Maneuver Site in Colorado*. Prepared for Department of the Army, Corps of Engineers by Christopher Goodwin and Associates, Inc., Frederick, Maryland.
Kalasz, Stephen M., Daniel A. Jepson, Christian Zier, and Margaret A. Van Ness
1993 *Test Excavation of Seven Prehistoric Sites on the Fort Carson Military Reservation*. Centennial Archaeology, Inc., Fort Collins, Colorado.
Kane, Allen E.
1997 Letter to George Borman dated November 6, 1997. Unpublished letter on file with the Pike and San Isabel National Forests, Pueblo.
Lennon, Thomas J., and Steven F. Mehls
1998 *A Class III Inventory of the Summit of Pikes Peak, El Paso County, Colorado*. Prepared for the USDA Forest Service, Clifford Taylor Architects, and the City of Colorado Springs. Unpublished manuscript on file with the Colorado Office of Archaeology and Historic Preservation, Denver.

McConnell, Virginia
1963 *Ute Pass*. Sage Books, Denver.
McDonald, Kae
1995 Late Prehistoric Ceramics of the Northern Colorado Rockies and Northwestern Colorado. Paper presented at the 2nd Biennial Rocky Mountain Anthropological Conference, Steamboat Springs, Colorado.
Metcalf, M. D., and K. D. Black
1988 The Yarmony Site, Eagle County, Colorado: A Preliminary Summary. *Southwestern Lore* 54(1):10–28.
Nelson, Charles E. and Jesse M. Graeber
1966 Excavation of Graeber Cave, North Turkey Creek. *Southwestern Lore* 32(2):47–54.
Newcomb, William W., Jr.
2001 Wichita. In *Plains*, edited by Raymond J. DeMallie, pp. 548–563. Handbook of North American Indians, vol. 13, William C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.
Northern Arizona University (NAU)
2001 Apache Plain. *Ceramic Manual 2001.* Electronic Document, http://www2.nau.edu/~sw-ptry/Western%20Apache-Yavapai/ApachePlainTypePage.htm, accessed June 30, 2010.
O'Brien, Patricia J.
1984 *Archeology in Kansas*. Museum of Natural History, Public Education Series 9. University of Kansas Publications, Lawrence.
Reed, Alan D.
1995 Ute Ceramics. In *Archaeological Pottery of Colorado: Ceramic Clues to the Prehistoric and Protohistoric Lives of the State's Native Peoples*, edited by R. Brunswig, Jr., B. Bradley, and S. M. Chandler, pp. 120–128. CCPA Occasional Papers No. 2. Colorado Council of Professional Archaeologists, Denver.
Rice, Prudence M.
1987 *Pottery Analysis: A Sourcebook*. University of Chicago Press, Chicago.
Roper, Donna C., editor
2008 Archaeological Investigations on a Portion of 14RC410, Rice County, Kansas: The Little River Archaeology Project. Report to: City of Little River, Little River, Kansas 67457. Coronado-Quivira Museum, Lyons, Kansas, September 2008. (draft report)
Schlesier, Karl H.
1994 Commentary: A History of Ethnic Groups in the Great Plains, A.D. 150–1550. In *Plains Indians, A.D. 500–1500: The Archaeological Past of Historic Groups*, edited by K. H. Schlesier, pp. 308–381. University of Oklahoma Press, Norman.
Stoltman, James
2003 Letter to Priscilla Ellwood dated January 29, 2003. Retired Director of the Laboratory of Archaeology, University of Wisconsin, Madison, Wisconsin.
Tiffany, Joseph A., and Lynn M. Alex
2001 Great Oasis Archaeology: New Perspectives from the DeCamp and West Des Moines Burial Sites in Central Iowa. *Plains Anthropologist* Memoir 33, 46(178):1–104.
Tschopik, Harry, Jr.
1941 *Navaho Pottery Making*. Papers of the Peabody Museum of American Archaeology and Ethnology. Harvard University, Cambridge, Massachusetts.
Walker, Theodore R.
2006 Nature of Perthite in *Pike's Peak Granite*. Professor Emeritus, Department of Geology, University of Colorado, Boulder.
Wedel, W. R.
1959 An Introduction to Kansas Archaeology. *Bulletin* 174. Bureau of American Ethnology, Washington, D.C.

1961 *Prehistoric Man on the Great Plains*. University of Oklahoma Press, Norman.
1968 After Coronado in Quivera. *Kansas Historical Quarterly* 34(4):369–385.
1986 *Central Plains Prehistory*. University of Nebraska Press, Lincoln.

Wilcox, D. R.
1981 *The Entry of Athapaskans into the American Southwest: The Problem Today*, edited by D. R. Wilcox and W. B. Masse, pp. 378–409. Anthropological Research Papers No. 24. Arizona State University, Tempe.

Wilson, Dean
2000 Appendix A: Ceramic Data and Interpretation for Anasazi Sites. In *Frances Mesa Alternative Treatment Project*, vol. 1, compiled by R. H. Wilshusen, T. D. Hovezak, and L. M. Sesler, pp. 349–380. La Plata Archaeological Consultants Research Paper No. 3. Dolores, Colorado.

Wood, J. J.
1967 *Archaeological Investigations in Northeastern Colorado*. Ph.D. Dissertation, Department of Anthropology, University of Colorado.

Wood, W. Raymond (editor)
1998 *Archaeology on the Great Plains*. University Press of Kansas, Lawrence.

Zier, Christian (editor)
1987 Historic Preservation Plan for Fort Carson Military Reservation. Prepared by Centennial Archaeology, Fort Collins, Cultural Research and Management, Inc., Bismarck, and Statistical Research, Tucson, for National Park Service, Rocky Mountain Regional Office, Denver, Colorado, and U.S. Army, Environment, Energy, and Natural Resources Office, Fort Carson Military Reservation, Colorado. Contract CX-1200-5-A006.

Zier, Christian J., and Stephen M. Kalasz
1999 *Colorado Prehistory: A Context for the Arkansas River Basin*. Colorado Council of Professional Archaeologists, Denver.

Zier, Christian J., Stephen M. Kalasz, Daniel A. Jepson, Stephen A. Brown, Mary W. Painter, and Kathryn Puseman
1996 *Archaeological Survey, Site Documentation, and Test Excavation Conducted during the 1991 and 1993 Field Seasons on the Fort Carson Military Reservation, El Paso, Pueblo, and Fremont Counties, Colorado*. Prepared for the National Park Service and U.S. Army by Centennial Archaeology, Inc., Fort Collins, Colorado.