

CULTURAL AFFILIATION OF KACHINA BRIDGE RUIN

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Kachina Bridge Ruin, a storage site in southeastern Utah, has been called a San Rafael Fremont site based on the presence of adobe turtleback structures and triangular anthropomorphs painted on the inside wall of one of the turtleback structures. Based on new radiocarbon dates, the construction of the adobe structures at the site and the painting of the triangular anthropomorphs are now known to have occurred on or after A.D. 600-655, a time when upper White Canyon was occupied by Mesa Verde Anasazi, not Fremont. A literature review of turtleback structures and triangular anthropomorphs indicates that these traits cannot be considered diagnostic of the Fremont, and that Kachina Bridge Ruin is a typical Anasazi site for the region.

Kachina Bridge Ruin, also known as 42SA6801 or V:8:27, is in upper White Canyon, on the edge of the Red Rock Plateau archaeological district defined by Lipe (1970) for southeastern Utah. The archeology of the Red Rock Plateau, the area north of the San Juan River, east of the Colorado River, and south of Dark Canyon and the Abajo Mountains, is well known (Hobler and Hobler 1978; Lipe 1970; Matson, et al. 1988; Matson 1991; McVickar 2000) with one of its claims to fame being a long tree-ring chronology. This chronology (Ahlstrom 1985; Berry 1982) documents the intermittent presence of small horticultural-based households and communities in the area from about A.D. 200 through A.D. 1270. These Formative period sites are assigned to one or another archaeological culture or tradition based primarily on the relative percentages of ceramic wares and types that are present and secondarily on other material culture traits (cf., Geib 1996:98; Sharrock et al. 1961:14). Changes in ceramic assemblages across the Red Rock Plateau reflect variable and shifting interaction with areas to the east and south, or

between the Mesa Verde (northern San Juan) Anasazi and Kayenta Anasazi traditions.

Two sites in the Red Rock Plateau district, Horsecollar Ruin and Kachina Bridge Ruin, have been assigned Fremont cultural affiliation rather than Anasazi, based not on ceramics, but on other traits. Horsecollar Ruin and Kachina Bridge Ruin are both structural sites located in upper White Canyon. These two sites were first recorded in the early part of the twentieth century. Marie Wormington (1955) suggested these sites might be Fremont because of their adobe architecture, but Hobler and Hobler (1978) effectively dismissed the notion that Horsecollar Ruin was Fremont when they noted that despite its architecture being "Fremont-like," the site lacked any other evidence for a Fremont occupation. Neither ceramics, portable artifacts such as figurines, rock art, textiles, nor other Fremont material culture diagnostic traits were present in Horsecollar Ruin. Today, archaeologists generally agree that Horsecollar Ruin is an Anasazi site, leaving Kachina Bridge Ruin a classificatory anomaly.

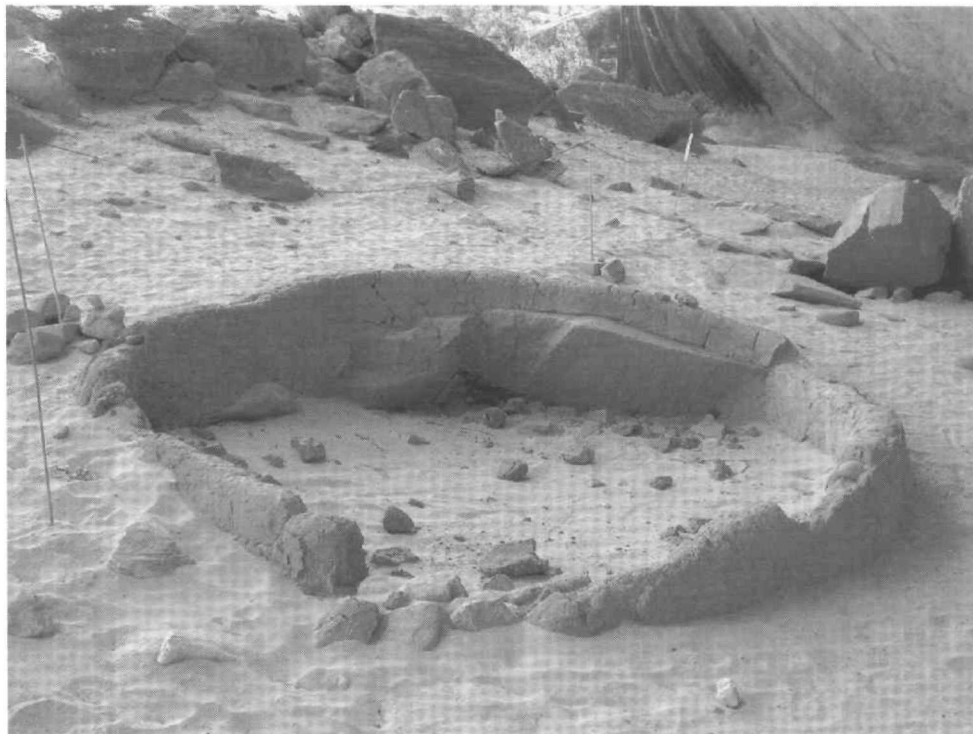


Figure 1. The large, low walls of Feature 1, looking south over broken turtleback structures.

Because Kachina Bridge Ruin had two putatively Fremont diagnostic traits, adobe turtleback architecture and Fremont pictographs, the Hoblers did not dismiss the possible Fremont classification. Phillip Hobler and Audrey Hobler (1978) summarized the adobe architecture and “Fremont” images in Kachina Bridge Ruin as follows:

“One style of storage structure, possibly a survival from Basketmaker III-Pueblo I times, is made up of mud walls based on thick vertical slabs. The mud is built up in coils. Each coil contains small river cobbles or pieces of angular rock enclosed within it in such a way that they are not visible on the exposed surfaces of the wall. Sometimes the mud is also reinforced with grass or shredded juniper bark. This construction technique is a little like that adobe turtle-back technique used at some Fremont sites.”

Wormington mentioned the mud and boulder structures at 42SA6819 (V:8:45) (Horsecollar Ruin) in reviewing evidence for Fremont-like architecture in southeastern Utah (1955). In this context it is interesting to note the presence of six white-painted Fremont fig-

urines on the interior wall of the mud and boulder structure at site 42SA6801 (V:8:27). [Hobler and Hobler 1978:21-22].

With all the evidence that the Red Rock Plateau was part of the Anasazi culture area, how did Kachina Bridge Ruin become identified as a site whose Anasazi occupants borrowed Fremont design motifs or whose occupants were Fremont in an area otherwise occupied by Anasazi? This question is answered here in conjunction with reporting four new radiocarbon dates from Kachina Bridge Ruin.

THE SITE

Surveyor Earl Douglas first described Kachina Bridge Ruin in 1908. Since then it has been mapped and recorded several times. Kramer’s (1987) feature designations are used here as a basis for further description and discussion of the site.



Figure 2. The high walls of Feature 2 are painted with six white triangular anthropomorphs.

Feature 1

Based on diameter, Feature 1 (Figure 1) is the largest adobe turtleback structure in Kachina Bridge Ruin. It is roughly circular in plan view and its maximum interior diameter measures 2.4 m. It incorporates a large boulder into its wall. The wall is made of one to two courses of adobe turtlebacks reaching a maximum height of 30 cm. The width of the turtleback's wall is 25 cm.

Feature 2

Feature 2 (Figure 2) is the highest adobe structure at the site. The topmost turtleback is currently 90 cm high from the interior ground surface, but when Douglas first described the feature in 1908 it was almost completely covered by sand. Looters have dug around the structure since Douglas's visit. Feature 2 is circular in plan view and its interior diameter is 2.3 m. As described by Hobler and Hobler in the quotation above,

the walls are built up of concentric rings of adobe turtlebacks, plastered over with a smooth mud coating on both inside and outside surfaces.

Six white triangular anthropomorphs are painted on the inside plastered wall of Feature 2. Schaafsma (1978:69) called them "Fremont ghost figures" because they resembled triangular anthropomorphs in her southern San Rafael Fremont rock art zone. With Schaafsma's classification of the anthropomorphs as Fremont and Wormington's (1955) listing of adobe turtlebacks as a trait shared by Fremont and Anasazi, Kachina Bridge Ruin became known as a Fremont site located within an Anasazi culture area.

Other Features and Rock Art

Feature 3 of Kachina Bridge Ruin is described by Hobler and Hobler (1978:21) as a typical Basketmaker bell- or beehive-shaped cist (Figure 3). It is an above

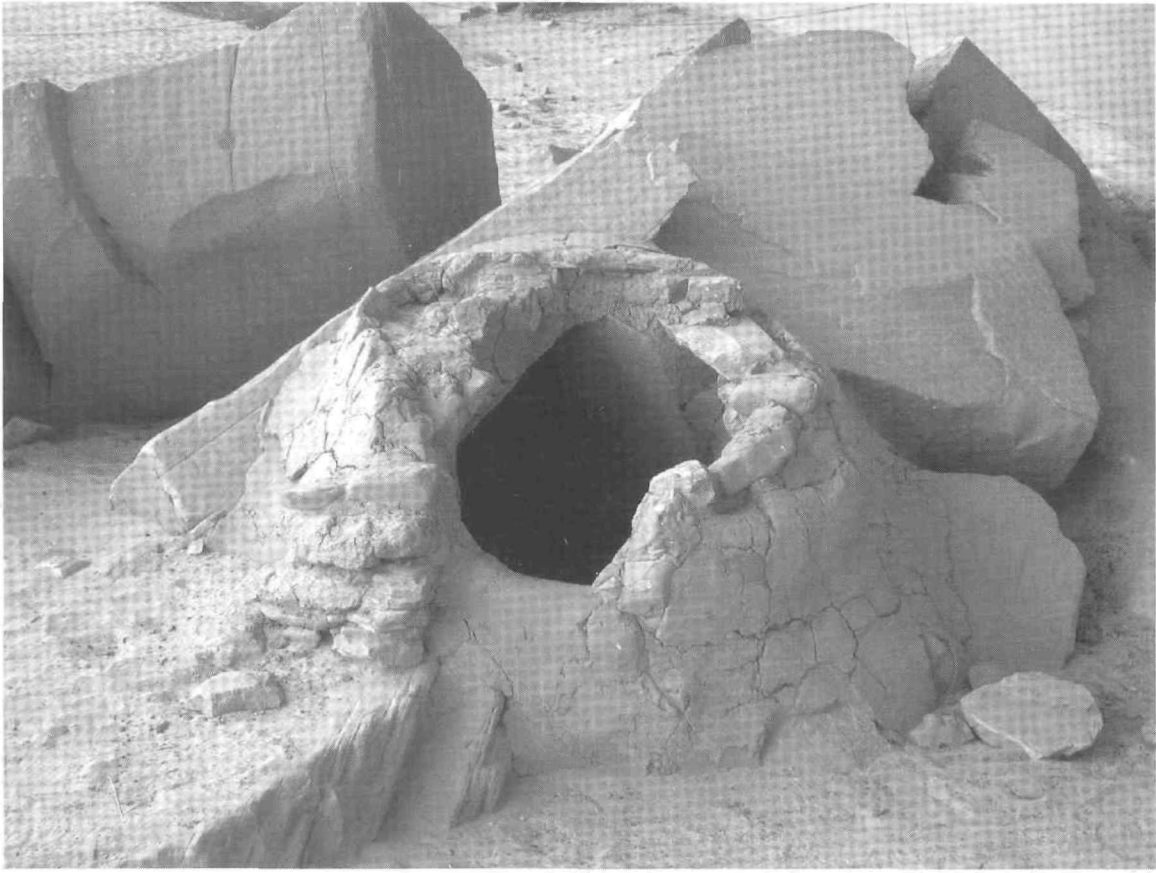


Figure 3. Feature 3, a bell-shaped cist.

ground storage structure built with adobe and sealed with a coating of mud plaster. It is located between Features 1 and 2.

Feature 4 is an arc of adobe clinging to the cliff wall at the south end of the site. The arc undoubtedly represents the presence of a former bell-shaped cist (cf., Guemsey and Kidder 1921:Plate 9e) that was dismantled prehistorically.

In addition to the six white anthropomorphs already described inside Feature 2, the cliff wall and boulders at Kachina Bridge Ruin are covered by hundreds of rock art elements, including mud daubs, handprints, anthropomorphs, zoomorphs, and geometric designs (Castleton 1987:206). Notable rock art elements include several greenish-white figures in San Juan Anthropomorphic Style, stylized handprints typical of Pueblo II-III Mesa Verde Anasazi (cf., Tipps and Hewitt 1989),

spirals representative of Puebloan clan migration symbols, and red and white butterflies (Figure 4).

Rock art elements classified as Glen Canyon Style 4 are also found on the cliff walls and boulders in the site. While Glen Canyon Style 4 is highly variable (Turner 1963:6-7), it is associated with Pueblo II-III pottery in both the Kayenta and Mesa Verde Anasazi traditions. Glen Canyon Style 4 motifs at Kachina Bridge Ruin include geometric designs, lizards, snakes, and watchspring scrolls. Triangular anthropomorphs are also diagnostic of Glen Canyon Style 4 and anthropomorphs that Turner depicted as representative of Style 4 fall within the range of variation of the six triangular anthropomorphs painted inside the wall of Feature 2 in Kachina Bridge Ruin. Of course, the solid triangular figures in Kachina Bridge Ruin also resemble anthropomorphs found on Basketmaker III sites such



Figure 4. Solid and stylized handprints typical of Pueblo II-III Anasazi, and two butterfly motifs possibly representing a Puebloan clan symbol.

as those illustrated by Guernsey and Kidder (1921:Plate 13 c, d).

Ceramics

The Hoblers collected 20 sherds from Kachina Bridge Ruin including 16 Basketmaker gray ware sherds, 3 Pueblo II-III corrugated sherds, and 1 Basketmaker white ware sherd. Hurst (1989) reexamined these and other sherds collected from Natural Bridges National Monument and concluded that the Basketmaker III ceramic assemblage consisted almost entirely of imported Chapin Black-on-white manufactured with typical Mesa Verde andesite porphyry temper along with a generic sand tempered Lino-style gray ware. The sand tempered sherds might represent Kayenta Anasazi potters or they might reflect local production by potters who otherwise followed the Mesa Verde ceramic tradition. The latter seems to be the most reasonable explanation for the sand tempered gray wares in light of current understanding of local ceramic production processes (cf., Geib

1996:98-113).

While the gray wares from Kachina Bridge Ruin and other sites on the Red Rock Plateau reflect local production, imported white, red, and orange wares coupled with other material culture traits document intermittent, alternating occupations by northern San Juan Anasazi and Kayenta Anasazi; at no time in prehistory does the ceramic evidence from Kachina Bridge Ruin or any other Red Rock Plateau site indicate a Fremont occupation.

RADIOCARBON RESULTS

While working for the National Park Service, I had the opportunity to radiocarbon date four organic samples from Kachina Bridge Ruin. Table 1 and the following discussion present the dates in chronological order beginning with the most recent.

Table 1. Radiocarbon Results from Kachina Bridge Ruin.

Sample Number	Material	¹⁴ C Age	¹³ C/ ¹² C ratio	Calibrated 2 Sigma Range	Calibrated 1 Sigma Range
Beta-71960	yucca sandal	1,030±70	-25.0	A.D. 880-1170	A.D. 970-1040
Beta-81036	juniper berry	1,440±50	-23.5	A.D. 550-675	A.D. 600-655
Beta-81035	deer bone collagen	1,450±40	-19.8	A.D. 555-665	A.D. 600-650
Beta-75860	grass	1,630±60	-9.7	A.D. 265-575	A.D. 390-530

Beta-71960

Few artifacts remain at Kachina Bridge Ruin, but occasionally corncobs, yucca knots, cordage, sherds, and chipped stone artifacts rise through the sand to the surface. Several years ago, a patrolling park ranger collected a six by nine cm fragment of a twined cord sandal from the surface of the sand near Feature 1. The edge of the sandal was made of three-ply yucca fiber in an *S*-twist cord. Sixteen wefts were made of two-ply yucca in *S*-twist cordage. The sandal resembled one cataloged as No. 740 by Kankainen and Casjens (1995:124). It was completely destroyed during standard radiocarbon dating. The resulting one-sigma tree-ring calibrated date was A.D. 970-1040 (Beta-71960). This date falls within the A.D. 900-1100 time span traditionally assigned to Pueblo II.

Beta-81036

Broken turtlebacks from Feature 2 (Figure 2) lie around the high-walled circular structure. Comparison of Figure 2 here with Figure 13 in Hobler and Hobler (1978:22) shows that turtlebacks have fallen out of the wall of the adobe structure over the last 20 years. Two adobe turtlebacks lying between the structure and the cliff were broken open and searched for datable organic material. A single juniper berry was picked out of one and AMS radiocarbon dated. The resulting tree-ring calibrated one-sigma date was A.D. 600-655 (Beta-81036), a period that Geib (1996:117) calls the Early Formative.

Archaeologists traditionally date Basketmaker III

to A.D. 500-700 (cf. Reed 2000:7), although Berry (1982) favors a more restricted time range of A.D. 600 to 700, and Matson, Lipe and Haase (1988) split the Basketmaker III occupation of the Red Rock Plateau into early and late periods with the dividing line at A.D. 650. Hurt's (2001:99) cross-dating of the ceramic assemblage from Natural Bridges National Monument led her to place the dividing line between early and late Basketmaker III at A.D. 600. Whatever temporal correlation of the Pecos stage classification is used, A.D. 600-655 falls within the Basketmaker III period/stage, but whether we call it early or late Basketmaker III depends on whose chronology is used.

Beta-81035

Adobe turtlebacks have also fallen from the north side of Feature 1 (Figure 1). Examination of a fresh break in a newly fallen turtleback revealed a protruding fragment of an artiodactyl hoof. The hoof fragment was pulled out of the mortar and submitted for a standard radiocarbon date. The resulting one sigma tree-ring calibrated date was A.D. 600-650 (Beta-81035). This date range falls within the traditional Basketmaker III time period or within Matson, Lipe, and Haase's (1988) early Basketmaker III, or Hurt's (2001:99) late Basketmaker III for Natural Bridges National Monument.

Beta-75860

A second fallen turtleback from the high walled structure with the white ghost figures (Feature 2, Figure 2) was broken open to reveal pine needles, grass

stems, charcoal flecks, and juniper bark mixed into the adobe. Several of the grass stems were extracted and radiocarbon dated. The resulting one sigma tree-ring calibrated date was AD 390-530 (Beta-75860), a date range classified as Basketmaker II.

Evaluating the Adobe Turtleback Dates

Three radiocarbon dates were obtained from organic matter inside three adobe turtlebacks from two structures at Kachina Bridge Ruin. The earliest date of A.D. 390-530 (Table 1) came from grass inside Feature 2. Radiocarbon results are statistical estimates so this date means there is a 68 percent chance the grasses died sometime between A.D. 390 and A.D. 530, or Basketmaker II. A juniper berry from inside another turtleback from the same structure, Feature 2, dated to A.D. 600-655. The hoof inside Feature 1 returned the same date as the juniper berry in Feature 2: A.D. 600-650, a time span classified as Basketmaker III.

The Basketmaker II date in Feature 2 may represent a phenomenon rarely discussed in the archaeological literature: old grass. There are seemingly endless discussions about old wood and how charcoal dates must be interpreted cautiously because people pick up and use wood that has been lying around for hundreds of years. Archaeologists are cautioned to only date annuals or short-lived organic matter to increase the quality of their radiocarbon results. But the grass date from Kachina Bridge Ruin indicates that grass, like wood, may be available for human use or reuse hundreds of years after the death of the organism. Given evidence for the dismantling of the Feature 4 adobe structure in the site, it is possible that Basketmaker III masons reused an earlier Basketmaker II turtleback from this dismantled feature. The Basketmaker II date could also reflect old grass present on the surface of the site or in the deposits used to mix the adobe during Basketmaker III times. Thus, the grass date does not provide a date for construction of the adobe structure, but it does provide a *terminus post quem* date.

Stratigraphers often apply the principle of *terminus post quem*, meaning that objects in a stratigraphic sequence provide dates on or after which the stratum containing them were deposited. Application of this prin-

ciple to the grass date from Kachina Bridge Ruin establishes that this turtleback was made sometime on or after A.D. 390-530 (Table 1). If we only had this date available, we would conclude the structure was built during the Basketmaker II period. The availability of two more recent Basketmaker III dates of A.D. 600-655 demonstrate that construction of both structures and the painting of the white triangular anthropomorphs in Feature 2 occurred on or after these dates.

Evaluating the Sandal Date

The A.D. 970-1040 radiocarbon date on the twined cord sandal falls within the Pueblo II period. This might help date some of the rock art elements in the site such as the butterfly motifs or handprints, or it could merely represent when someone passed through White Canyon and lost a sandal. The archaeological record for the Red Rock Plateau indicates an occupational hiatus from A.D. 890-1029, but the Anasazi occupation of the area increased from A.D. 1030-1109 (Ahlstrom 1985).

CULTURAL CLASSIFICATION OF KACHINA BRIDGE RUIN

Some archaeologists classified Kachina Bridge Ruin as Fremont because of its adobe turtleback architecture and because six of the hundreds of rock art motifs in the site resembled Fremont ghost figures. In the following sections, I show that this classification is erroneous because neither adobe turtleback construction nor triangular anthropomorphs are diagnostic of the Fremont. This necessitates a brief review of some archaeological history.

Turtlebacks Are Not Culturally Diagnostic

Not long after Douglas (1908) documented Kachina Bridge Ruin, Judd (1919) described adobe turtleback structures at Paragonah in southwestern Utah, an area eventually designated as Fremont. Kidder and Guernsey (1919) described adobe turtleback structures in Fluteplayer House near Kayenta, Arizona, well within the Anasazi culture area. Kidder and Guernsey (1919:45) concluded that the adobe turtleback structures were used, partly filled with rubbish, and aban-

Table 2. Measurements of Six White Anthropomorphs, Feature 2, Kachina Bridge Ruin (in cm).

Figure No. (South to North)	Shoulder width	Torso length	Head length	Comment
1	22	24	6	—
2	17	23	7	—
3	14.5	22	—	Head eroded
4	—	—	—	Too eroded
5	18	22	5	—
6	—	—	—	Too eroded

done before the erection of masonry-built rooms by the Puebloan people who made Kayenta (Tusayan) pottery. By 1921 enough stratigraphic work had been done in northern Arizona that adobe cists and granaries became diagnostic traits of the Basketmaker (Guernsey and Kidder 1921).

In 1931, Noel Morss described an adobe turtleback granary in Site 3 on Little Tantalus Creek in the Fremont River drainage (Morss 1931:4, 34) in south-central Utah. He pointed out that this Fremont adobe structure bore a closer resemblance to some of the adobe turtleback structures described by Judd than to the Puebloan wattle-and-daub construction of the Kayenta Anasazi. By including this one adobe turtleback granary in his type descriptions of Fremont sites, Morss was the first to associate adobe turtleback construction with the Fremont.

In 1948, Burgh and Scoggin (1948:34, 82-83) reported that while adobe turtleback structures were found in Basketmaker sites described by Kidder and Guernsey in the Kayenta area, they were also present in Big Bin Cave in Yampa Canyon. Although they could not directly date these structures, ceramic cross-dating led them to suggest a date of A.D. 650 (Burgh and Scoggin 1948:35). By 1955, the presence of an adobe wall appended to a masonry structure at the Turner-Look site in east-central Utah led Wormington (1955:178) to list construction with adobe turtlebacks as one of the traits shared by Anasazi and Fremont.

This brief history shows that although adobe turtleback construction might be temporally diagnostic, it is not a culturally diagnostic trait. Burgh, Scoggin, and Wormington recognized this, but with the post-1950s emphasis on defining regional variants of the Fremont (e.g., Lohse 1980), some Utah archaeologists have treated adobe turtleback construction as a Fremont diagnostic trait and ignored its presence in Anasazi sites.

Triangular Anthropomorphs May Be Culturally Diagnostic

Castleton and Madsen (1981) argued that triangular anthropomorphs are nondiagnostic traits because they are widely distributed in both Fremont and Anasazi culture areas. Obviously triangular anthropomorphs are found virtually everywhere. Even a cursory review demonstrates that triangular-bodied anthropomorphs are depicted in Basketmaker caves (Kidder and Guernsey 1921:Plate 13), in Glen Canyon Style 4 rock art panels (Turner 1963), in Chinle Representational Style, and in Fremont rock art. In refuting the argument for a Fremont presence in Canyonlands, however, Sharrock (1966:66-67) depicted the typical Fremont ghost figure as having a triangular body with pointed shoulders and a square or trapezoidal-shaped head. The shoulders and heads of the figures in Kachina Bridge Ruin are rounded, leading to the conclusion that the triangular anthropomorphs present in Kachina Bridge Ruin are not Fremont ghost figures.

I propose that if detailed morphometric analyses were made of the full range of triangular anthropomorphs found throughout the Southwest, styles with chronological, regional, and possible sociocultural significance could be statistically identified (cf., Geib 1996:109-111). To encourage rock art researchers to statistically assess stylistic variability, Table 2 provides measurements of the relative shoulder width, torso length, and head length of the six anthropomorphs inside Feature 2 of Kachina Bridge Ruin (only some of the figures could be measured because the pigment is too deteriorated to provide accurate measurements for all).

In providing these measurements, I hypothesize that the ratio of the shoulders to the torsos of these figures, coupled with their rounded heads and shoulders, falls within the statistical range of Mesa Verde Anasazi triangular anthropomorphs dating to the seventh to eighth centuries A.D. Furthermore, I hypothesize that if measurements were made of the heads and shoulders of rock art figures located west of the Colorado River in areas unequivocally classified as Fremont, these would fall outside the range of Anasazi figures such as those at Kachina Bridge Ruin.

I suspect that morphometrics have simply not been compiled to enable statistical differentiation of regional rock art styles within Southwestern archaeological culture units. But, even without metrics, the rounded heads and shoulders of the anthropomorphs in Kachina Bridge Ruin are apparently outside the range of the square or bucket-headed anthropomorphs with sharply pointed shoulders that seem to occur on ghost figures in the Fremont area.

CONCLUSIONS

This paper began by posing the question that if the Red Rock Plateau was part of the Anasazi culture area, how did Kachina Bridge Ruin become identified as a Fremont site? The site was called Fremont because of the presence of triangular anthropomorphs in an adobe turtleback structure. Comparison of the Kachina Bridge anthropomorphs with Fremont ghost figures (e.g.

Sharrock 1966:66-67) demonstrates that the heads and shoulders of the Kachina Bridge figures are too rounded to meet the definition of a Fremont ghost figure. Even if we ignored the details of head and shoulder shape and only look at the torsos, however, the figures would still not be Fremont diagnostics because triangular torsos are found in both Fremont and Anasazi rock art (Castleton and Madsen 1981). Triangular torsos in and of themselves are nondiagnostic.

The other trait that led to the identification of the site as Fremont was adobe architecture. Although adobe turtlebacks are found in Fremont sites, they are also found in Anasazi sites, and in fact, throughout the Southwest. Like triangular anthropomorphs, adobe turtleback construction is not a culturally diagnostic trait, although it might be a temporal marker. Radiocarbon dates on organic matter within turtlebacks from Kachina Bridge Ruin document that these structures were built no earlier than A.D. 600-655. Before radiocarbon dates were available, Kidder, Burgh, Scoggin, and other Southwestern archaeologists hypothesized that adobe turtleback construction might serve as a temporal marker for the early Formative or Basketmaker periods/stages. The availability of these new radiocarbon dates confirms the Hoblers' assignment of the site to Basketmaker III, when horticultural populations expanded across the Red Rock Plateau coincident with increased annual precipitation, increased summer rainfall, and above-average temperatures. Most archaeologists attribute this population to actual migration of northern San Juan Anasazi from the Mesa Verde district, or at least migration of Mesa Verde women (Lipe 1970). Evidence for this migration comes from a low population density in previous periods and the presence of artifact types such as Chapin Black-on-white and Abajo Red-on-orange pottery, Style A arrow points, and two-rod-and-bundle basketry.

Under a paradigm of culture history, Southwestern archaeologists used artifact types such as these, along with architecture and settlement patterns, to divide and classify the continuums of space and time into the Anasazi, Fremont, Mogollon, or Hohokam archaeological cultures or traditions. Under newer paradigms, different research interests have led some archaeologists

to question the utility, validity, or distinctiveness of these classificatory units (cf., Madsen 1982; Speth 1988; Tainter and Plog 1994; Dongoske et al. 1997; Madsen and Simms 1998). Obviously, this paper was written to correct what I perceive as a minor classificatory error in southern Utah culture history; namely, Kachina Bridge Ruin is a Basketmaker III Anasazi site, not Fremont. Until we refine the basics of space-time systematics, we cannot begin to work on the larger, more interesting problems of Utah archaeology.

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