Multiple Animal Offerings in an Early Kiva
Champagne Spring (Greenlee) Ruins, 5DL2333

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ABSTRACT
The Champagne Spring Ruins (5DL2333) lie in the Mesa Verde area of the Northern San Juan region, near Dove Creek, Colorado. During the A.D. 900-1100 period it was the site of a large pueblo community. Test excavations conducted in 2008 and 2011 on the North Hill investigated a group of six early kivas and late pit structures built on the north and west side of the community great kiva. This report focuses on Structure 34 where a group of animal burials were placed around the hearth and southwestern quarter of this early kiva. Notable structure features, construction data, and the animal burials are discussed. The relationship of the animal burials with the ritual abandonment and “closing” of the kiva is evaluated.

INTRODUCTION
In the Northern San Juan region during the A.D. 900-1030 period, population levels were low in comparison with other times of Puebloan occupation (Lipe et al. 1999:253). Most of the people who did not leave the area by the end of the ninth century were living in small settlements of one or two households and were relatively dispersed across the region. Only a few large communities have been identified. One of these, Champagne Spring Ruins (5DL2333), previously known as the Greenlee Ruin, is located near Dove Creek, Colorado. In 2003, with the aid of a grant from the Colorado State Historic Preservation Office (Donald Dove 2006: iv), a project to assess the site was undertaken.

Champagne Spring Ruins was built on two adjacent hills. Both the South and North Hills were probably occupied during the same period and both are densely covered by multiple room blocks, midden and kivas/pit structures, but they vary greatly in the footprint of the surface architecture and kiva/pit structure placement. The clear division of the site into two distinctive sections, separated by a few hundred meters of slightly less elevated land in between the two hills, begs the question of why did those who built this place not simply create one larger site. Archaeologists have long recognized that some prehistoric Pueblo villages in the Mesa Verde area appear to have clear demarcations that provide a division of the village into two parts; Mug House is an example (Rohn 1971). This division is usually more obvious in Pueblo III era settlements but can occasionally be discerned in sites from earlier periods. One potential explanation for the division of the Champagne site may be that at least two ethnically different groups resided at the community. The residents on the North Hill, where the great kiva and some of the structures discussed herein were built, may have controlled the most elaborate ceremonies and largest gatherings. Clear evidence of group eating events involving the roasting and
consumption of large mammals has been found in Structure 36. This structure is located immediately west of Structure 37 (Figure 1). It had burned completely at least three times. After the final conflagration had consumed it, a large stone-lined roasting pit was built into its upper structure fill. The remains of several large artiodactyls were found in the ashy contents of the pit along with numerous bone scrapers and bone awls that were likely used for hide processing. A high number of complete projectile points along with several complete and unusual artifacts were interspersed in the roasting pit fill, as was a large volume of organic remains including corn and beans.

This section of the North Hill was clearly the ceremonial center of the Champagne Community. In the plaza and subterranean rooms that are delimited by adjacent room blocks on three sides, large ceremonies and elaborate rituals could have accommodated many more participants and observers.

Remote sensing studies conducted in 2003 and 2004 indicate the sites include approximately 50 kivas or pit structures and 250 surface rooms including a great kiva and one 6-m, over-sized pit structure (see Figure 1). Tests of the North and South Hill room blocks indicate that a significant number of rooms or pit structures lie beneath later structures.

Several methods of remote sensing were employed during the 2003-2004 assessment of the sites (Hensen 2006:21-31). The magnetic cesium gradiometer was the most effective for detecting subterranean features and structures. Data generated from these scans proved to be substantially reliable and they helped guide subsequent excavations. The summer 2011 work on the North Hill was
designed to provide information on site formation, function, and chronology in this section of the site where the architectural footprint around the great kiva is notable. A group of six early kivas or late pit structures on the west and north side of the great kiva (Figure 2) have been the focus of recent testing. With the exception of Structure 34, all had burned. They are bounded on the west and south by large room blocks. Directly east of these pit structures/kivas lies a burned surface structure built on a northeast-to-southwest alignment, which varies from the typical architectural layout at Champagne Spring. In 2008, test excavations were made in five of these structures. Profiles developed from this work indicated that all were probably built within a 150-year period (A.D. 900-1050).

Figure 2. Some of the North Hill structures tested

This brief report focuses on Structure 34, which is located roughly 7 m west of the great kiva. It was an early form of kiva. The 2008 test exposed a portion of the structure’s hearth as well as a central floor vault that was constructed on the north-south axis across the center of the structure. On the south side of the vault and spread across the southern third of the excavation unit were the formally buried articulated remains of a turkey, two dogs, and a cottontail rabbit (Lyle 2012).

Additional testing of Structure 34 in the summer of 2011 suggests that the quantity and variety of buried animals represents the elaborated “closing” of one of the village’s ritually important structures. This kiva was built into a section of the site that appears to have functioned as a ceremonial center of the greater Champagne Spring Community.
Stix and Leaves Pueblo, located about 50 km southeast of the Champagne Springs Community, is one of the only well documented tenth-century sites in the region (Bradley 2011), and it provides a comparative context for the Champagne investigations.

**ANIMAL BURIALS AT OTHER PUEBLO SITES**

Animals were important to prehistoric Puebloans for multiple reasons. Turkeys could provide feathers, eggs, or a source of protein. Dogs could be used for hunting, defense, early warning, fur, companionship, and possibly, a meal (Emslie 1978:181; Lang and Harris 1984:88). Rabbits could provide food, fur, and a raw material source for tool making.

Up until the early PII period in the Mesa Verde area, turkey burials were not a rare occurrence but they apparently were also not common (Driver 2002:154). As artiodactyl populations were depleting toward the middle Pueblo II times, the turkey became a more important source of food and they were buried even less frequently (Driver 2002:156). Eric Reed’s work in Mancos Canyon in the 1950s convinced him that turkeys were kept for feathers until about A.D. 900 and were used as a food source thereafter (Reed 1958). Windes work in Pueblo Alto suggests they may not have become a food source there until the early A.D. 1100s (Windes 1987:687). Turkey bones with evidence of processing for consumption are present but rare in pit structure and kiva midden deposits at Champagne Spring. It appears they were eaten but were never a primary protein source.

Dog burials were more common than turkey burials in the Mesa Verde area and most occurrences appear to date to the A.D. 900-975 period (Emslie 1978:181). Dogs are believed to have been more important to early Puebloans and may have been treated with higher esteem early on when they were believed to be used for hunting (Akins 2012:74-75). Considered to be a valued food item in some societies even today, only limited evidence of canid consumption has been found at Champagne.

At the Aguila Caserio site LA 80422 in the southern Chuska Valley, several formally buried cottontails were found in an extramural pit that was apparently associated with a large Basketmaker III community pit structure (Harriman and McVickar 1996). They were articulated and intertwined with a golden eagle. Other instances of formally buried rabbits at Puebloan sites probably exist but are either very uncommon or have not previously been recognized as formal burials. Bones from rabbits are commonly found in Champagne Spring structure midden deposits suggesting their use as a food and this is also the case in other regions from Basketmaker through the Pueblo III era.

In Chaco Canyon, Windes (1993:230) describes a group of four turkey burials in a large bell-shaped pit in the plaza of the Spadefoot Toad Site. This site was occupied from the late A.D. 800s to the early A.D. 1100s. Hibben (1937:101) reported complete skeletons of turkeys found between the fire screen and vent in each of the four kivas at Bc 50. Recent tree-ring samples taken from some associated sites indicate these kivas probably date to the early A.D. 1100s (Tom Windes, personal communication 2012).
Akins (2012: 72-87) provides a background on the ceremonial use of animals and animal burials in north-central New Mexico and other Puebloan regions. She notes that animal burials, especially when found with other buried animals, items, or evidence, is an indication they were ritually deposited. At LA 835, located on Pojoaque Tribal lands near Santa Fe, Akins (2012:75) notes an instance where dogs were buried in contexts suggesting they were part of structure closing rituals. Articulated buried animals deposited on structure floors are almost certainly associated with ritualized closings if they are accompanied with other evidence that these represent one of the final events that took place inside the structure.

In the Northern San Juan area, other instances of structures containing animal burials are known. In several of these cases, special ritual floor features and sometimes human burials are present (Bradley 2011:226-233; Gillespie 1975:93; Structure 502 in Ryan 2004). At Stix and Leaves, the articulated remains of two headless turkeys were recovered from the vent shaft of a tenth-century square kiva (Bradley 2011:245). This structure was significantly larger than every other pitstructure or kiva that was studied there and it contained numerous floor features that are known to be associated with more elaborated ritual performances (Bradley 2011:248). Emslie (1978:167) noted 20 whole or partial dog burials from large-scale excavations on Ute Mountain Ute tribal lands during the 1970s. They occurred inside structures built in the A.D. 800-1150 period. Only 6 or 7 of these burials were directly associated with structure floors. The others were apparently buried in structure fill and kiva vent shafts. From the same area, Gillespie (1975) reported a tenth-century kiva at the Ute Canyon Site that contained at least 11 turkeys (3 mature and 8 immature) and 5 dog burials on the floor. Two other subterranean structures at the Ute Canyon Site also contained dog burials on or near the floor. Gillespie (1975:66) noted that in one of these, a wolf and mountain sheep skull had been placed just above the floor at the time of abandonment. Two of the three structures containing dog burials on or near the floor (Gillespie 1975:58-85) also contained ritual features. This may indicate a higher degree of ritual performance was carried out inside these buildings (Bradley 2011:248).

**NOTABLE FEATURES AND CONSTRUCTION HISTORY OF STRUCTURE 34**

As of this writing, test excavations in the structures discussed above have only been completed for Structure 34. Chronologically, Structures 35, 36, and 46 pre-date Structure 34 (Figure 2). Kiva 2, which produced an A.D. 1030 tree-ring cutting date from its burned roof, postdates Structure 34. Structure 37 also appears to date to around or slightly later than A.D. 1000. All four of the late pit structures incorporate a four post-in-floor roof support system, whereas the final form of Structure 34 used posts placed into an earthen bench (more on this below). Kiva 1, located 70 m to the east-southeast (Donald Dove 2006: 38-40), was abandoned around A.D. 950-1000 and is morphologically similar to Structure 34 in that it also incorporates an earthen post-in-bench roofing system. This later roofing style was an improvement to the four-post system as it served to add floor space and visibility without increasing material requirements and the overall space beneath the roof. The post-in-bench system was adopted
at Champagne Spring by around A.D. 950-975, around the time corrugated pottery appears to gain favor in the area. Ceramic evidence from on and just above the floor suggests an abandonment date of around A.D. 950-1000. Pottery from tree-ring dated tenth-century deposits at Stix and Leaves Pueblo contained a proportionally similar mix to those from the floor and floor-fill of Structure 34 with a few exceptions (Bradley 2011:119-124).

The Structure 34 primary roof supports were moved and/or replaced on at least three occasions. Originally, a four post-in-floor system was installed. It is not clear if the post holes that surround the floor were part of that system or part of the next roof, but they may have been used to bridge the distance between the four primary support beams and the exterior of the structure. In a subsequent remodel the bench and upright slabs at the base of the bench were added and the floor supports were removed. A third remodel or reroofing replaced the bench-based roof supports again and moved them 15-20 cm, but still within the bench (see Figure 3).

Structure 34 retained a sub-rectangular footprint although its shape was closer to round than the earlier previously mentioned four-post, sub-rectangular pit structures. This kiva was probably very important
to the community. It had a significantly longer use-life than most contemporary subterranean structures that do not incorporate masonry construction. It was re-roofed at least three times. Pit structures of the late Pueblo I and early Pueblo II period are believed to have an average life span of 20 years (Mahoney et al. 2000:70).

With the exception of Kiva 3, which was probably built around A.D. 1050-1100, four other tested early kivas or pit structures on the North Hill likely date in the A.D. 900-1025 range and all contain ash pits. Kiva 2 (A.D. 1030 cutting date from its burned roof) was remodeled at least twice. During the final hearth remodel, the ash pit was removed and a slab-lined square fire box was built in the same location. In this kiva the ash pit fell out of favor by around A.D. 1040.

No tested kiva or pit structure at Champagne Spring used an upright air-intake deflector stone. Instead, pit structures and early kivas used short and thin stones set upright and vertically into adobe. This feature provided the boundary between the ash pit and the hearth. To deflect the incoming air from the vent shaft, these stones may have supported a mobile rock slab, the base of which could have been held in place by the contents of the ash pit. Such a feature was incorporated into Structure 34 (see Feature G-2 on Figure 3).

Sipapus have a long history as Puebloan pit structure and kiva ritual features and can be found in these structures from the Basketmaker III through Pueblo III period throughout much of the Anasazi cultural area in the Southwest (Wilshusen 1989:98-99). Ethnographic accounts of features resembling the prehistoric sipapu describe them as a symbol of the Puebloan place of origin. Wilhusen (1989:100) identified three varieties of sipapus from the large-scale excavations of Pueblo I pit structures during the Dolores Archaeological Project (DAP). Simple and complex sipapus were common features in average-sized structures whereas central vault and lateral vault sipapus were primarily found in much larger structures averaging 34.2 square meters of floor space (Wilshusen 1989:102). In the Northern San Juan region, they were commonly built into large subterranean community structures from Basketmaker III through Pueblo III times (Dove and Dove 2009:18-19; Dove et al. 1997:124). Central and lateral vaults or roofed sipapus are occasionally found in smaller pit structures and kivas. A kiva in the D-shaped building at Sand Canyon Pueblo (Ortman and Bradley 2002:56) and Structures 108 and 150 at Albert Porter Pueblo (Ryan 2004:Fig. 6) are examples of floor vaults in average-size kivas.

Compared with other subterranean Champagne Spring structures, Structure 34 is an average-sized early kiva with approximately 18 square meters floor space. (See Bullard 1962:118-120 for compilation of structure data on other pitstructures in the northern Southwest prior to A.D. 900.) It is not clear if central and lateral vaults were generally found in larger structures because the rituals associated with them were ordinarily performed in front of large groups, but this association would seem to suggest as much. Rituals involving roofed sipapus may have only been performed when specific individuals were present. Wilshusen (1989:103) suggests that structures with central vaults represent community kivas, which were utilized by member groups living in the village. If Structure 34 represents a community kiva, its floor space would have restricted the number of people who could have been present during ceremonies. This may indicate that if Wilshusen’s suggestion is correct, Structure 34 was shared by members of the community meeting in small groups, or that these rituals involved specific individuals
and the presence of the community was not required to perform those ceremonies. Wilshusen (1989:103) notes ethnographic evidence that roofed sipapus or floor vaults were found inside the chief kiva of some historic pueblos. Mindeleff (1891:134) described the chief kiva at Tusayan as the largest in the village and the one where the most elaborate ceremonies were performed.

In the 1930s, White (1932:31, 41) described and illustrated a roofed sipapu in the head kiva at Acoma and remarked that this feature was exclusive to the chief’s kiva.

The vault of Structure 34 (Feature F-4 of Figure 4) was constructed into the middle of the north-south axis through the center of the structure, approximately 50 cm north of the hearth. A common feature of floor vaults are recessed insert moldings built into the adobe upper vault rim (Wilshusen 1986:245-254). This appears to be the place where wooden boards, a single plank of wood, or a wooden frame with stretched animal hide was seated into and over the top of the vault. It has been suggested that the sound created by stomping (Gumerman 1984: 80) or pounding on the wood or hide would have simulated the sound of thunder evoking a symbolic link to rain.

Just north of the northwest corner of the vault are three shallow holes designated Features F-1, F2, and F3 (Figure 3). They were filled with reddish fine sand. All averaged 8-10 cm in diameter and all were around 10 cm deep. These features may be loom anchor holes or altar anchor holes (Bradley 2012:101). There was no evidence of prayer stick impressions, which are often found in association with sipapus. They were used during many ceremonies and were planted in the ground near the sipapu (Wilshusen 1989:96).

**ANIMAL BURIALS AND THE STRUCTURE 34 KIVA CLOSING**

Structure 34 contained a diverse assortment of buried animals. A summary of the sequence of events that prepared the structure for “closing” follows.
Prior to the final structure abandonment, the floor vault and ash pit were filled with soil and capped by a dense layer of sandy red adobe. Not long after this final modification, the animals were laid out over the floor (Figure 5). In two cases, turkeys were placed on top of large flat stones. After the bodies were arranged, numerous flat stones were piled around them. In several cases, stone shims were used to level the surrounding stones. The buried animals were then covered with approximately 25 cm of soil.

Burned corn and beans were located on the floor near the burials. Several samples were collected for further analysis. These cultigens were not found on other areas of the structure floor and they may be an indication that these grains were used as part of the closing ritual.

The arrangement of the stones around the bodies was apparently intended to prevent the covering soil, stones, and roof beams from crushing the buried animals. In three instances, flat stones were carefully placed over the heads of two turkeys and one dog burial. Evidently the roof beams were removed and in the south half of the structure, they were reset in a position directly above the buried animal’s remains, effectively entombing them (see Structure 34 stratigraphic profile in Figure 6). Stones placed around the burials acted as supports for the beams. The excellent condition of the skeletal remains confirms that great effort was made to protect the crypt they had created. The exposed remains of the Dog 2 floor burial in Structure 34 is shown in Figure 7 and is a good illustration of the undisturbed and excellent condition of the bone. There was no evidence of carnivore damage or weathering on the buried animal remains. The clever use of stone and wooden beams acted as a shield from the weight of the overburden and performed as intended for over ten centuries.
The Structure 34 analysis is ongoing, but, to date, burials of 7 adult turkeys, 4 canids (species not yet identified), a cottontail rabbit, a beheaded rattlesnake, and the partial remains of 14 small juvenile turkeys have been recovered. All were apparently formally buried on or near the floor in the southwest quarter of the structure. There are at least two uncounted animal remains protruding out of the unexcavated eastern half of the kiva, immediately east of excavation grids G and H in Structure 34. The inclusion of turkey poults and numerous shell fragments indicate turkeys were being bred and raised at Champagne Spring.

DISCUSSION

The location of formalized animal burials on the floor of Structure 34 in conjunction with the placing of roof beams above the burials is an indication it was ritually “closed”; a term used to describe the way some pit structures and early kivas were abandoned after final use. The contents were clearly intended
to be sealed from further intrusions. It had a number of specialized floor features that have been associated with ritual functions (Bradley 2011:245; Wilshusen 1989:95). This and other documented cases of kiva closings throughout the Puebloan domain suggest there may be a relationship between ritually closed structures and these types of features.

The assortment of buried animals in Structure 34 includes turkey (both adult and juvenile), canids (probably dogs), cottontail, and a beheaded rattlesnake. I have found no other report of similar kiva closings that include this combination of species, although combinations of animals are more common in kiva closings than single specie animal interments.

There was little evidence on the floor of Structure 34 to suggest this kiva was used for domestic activities such as food processing. This supports the suggestion that at least some of the subterranean structures to the north and west of the great kiva were built to perform different functions than standard household kivas and pitstructures. For example, recent excavations in Structure 37, another early kiva in this group, similarly revealed a ritual kiva closing involving numerous animal burials on and
near its floor. These excavations are ongoing but it is already clear there are detectable differences and similarities in the elements and execution of the ritualized closing and treatment of the structure roofs at and after abandonment. In both cases, the floors of the south end of these structures were packed with large flat stones but in the case of Structure 37 they were not carefully positioned like they were in Structure 34 and the animals burials tended to be tucked into the spaces between the stones. Most of the Structure 34 animals were placed onto the floor before the stones were placed around them.

An interesting and possibly ritually motivated behavior was the placement of an animal skull in the structural fill in the southern end of several of these kivas and pit structures. Perhaps this has a relationship with the process of closing these structures.

Other reported kiva closings, as discussed above, involving formal animal burials occurred at other sites in the Northern San Juan region and in other parts of the Pueblo world during the A.D. 700-1200 period (see Akins 2012:72-87 for examples in the Eastern Pueblo region). Some of these involved the apparent dispatch and formal burial of animals, possibly meant as offerings. The structures containing evidence of kiva closings were often left unburned at abandonment or were burned only after the roofs were partially dismantled and salvaged. The animal burials at Champagne Spring are somewhat unusual compared to other known sites with documented cases of animal interments. While it is not unusual for kiva and pitstructure closings that contain animal burials to include more than one type of animal, the large number of burials and the diversity of species on the floor of Structure 34 are unusual.

Given the evidence in the archaeological record for elaborated kiva “closings,” the question remains; what does the final abandonment event in Structure 34 represent? With the possible exception of canids, the buried animals inside Structure 34 were used as sources of food and they were generally consumed rather than sacrificed and buried. To date, we have found only limited evidence that the residents of Champagne Spring (Greenlee) utilized dogs for food. The lower portion of a canid ulna was found in the middle fill, roughly a meter above the floor of Structure 34, but in lab analysis of faunal material excavated during the 2011 field season it showed no sign of butchering, pot polish, or carnivore scavenging (Larry Tradlener, personal communication 2012).

It is not clear when the residents of Champagne Spring starting using turkeys for food. All of the proveniences yielding turkey bones date in the tenth or early eleventh century. Rabbits and probably snakes were also food items and at least one of each was included in this closing. It is the author’s opinion that these sacrificed animals were held in high regard and may have been placed in specific locations on the kiva floor to simulate their emergence or return to the underworld through the central vault.

High quantities of projectile points and artiodactyl bones in the fill of these structures suggest that hunting was a primary focus of subsistence at Champagne Spring. The use of animal offerings may have a relation to the importance of hunting and could have been intended to bring good fortune to the hunting parties charged with securing meat.

Although the analysis of the Structure 34 materials have not yet been completed, my impression is that there were higher than average quantities of complete artifacts in the fill. Two specimens of volcanic
glass and several beads were found, as were several bone awls and complete projectile points. Residents continued to occupy the immediate area after the abandonment of this early kiva, and it is possible this collapsed structure with accumulating debris and sediments in its fill was remembered as having special significance and subsequent villagers acknowledged this with offerings of items that were still valuable to them.

The ceramics of Structure 34 are still being analyzed but preliminary information indicates that corrugated gray ware pottery is present in about equal proportion to Mancos Gray in floor and floor fill deposits but is represented by significantly smaller proportions in subsequent deposits with the exception of the uppermost fill. White ware was found at 119% of the frequency of red ware in the floor and floor fill and steadily decreases to 82% of red ware frequency in the uppermost fill. This is the opposite of what we expected. Redwares are dominated by Bluff Black-on-red with much lesser quantities of Deadmans Black-on-red. Cortez Black-on-white and what appears to be a local late variety of White Mesa Black-on-red (which I have referred to as Champagne Black-on-white), dominate the white wares.

Ceramics and architectural evidence indicates that less than 100 years passed from the abandonment of Structure 34 to the abandonment of the village and it probably took significantly less than 25 years of intensive use of the midden inside the collapsed structure to completely fill with debris and sediment. Even without the help of humans contributing to filling the depressions left by abandoned pit structures or kivas, these depressions can fill quickly from the effects of wind and weather-related events (David Dove 2006:76). The functions performed within Structure 34 may have subsequently shifted to another one of the six clustered kivas oriented around the great kiva, as all of these structures were probably not in use contemporaneously.

Further study of the information and materials recovered during the excavations of this unusual structure will provide a more complete picture of its function and the multiple burials. Future work will include a complete report of the excavations performed during the 2008, 2011, and 2012 seasons as well as a comprehensive analysis of the materials recovered during this period. With any luck, we will have the results of the many collected and submitted tree-ring samples, which would likely make a difference in our interpretations.

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REFERENCES CITED

Akins, Nancy J

Bradley, Bruce

Bullard, William R.

Dove, David M.

Dove, Donald E. (editor)
Dove, Donald E., and David M. Dove  

Dove, Donald, E., Linda Wheeler Smith, and David M. Dove  

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Gillespie, William B.  

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Harriman, R. G., and Janet L. McVickar  

Hensen, Harvey  

Hibben, Frank C.  
Lang, Richard W., and Arthur H. Harris

Lipe, William D., Mark D. Varian, and Richard H. Wilshusen

Lyle, Robin

Mahoney, Nancy M., Michael A. Adler, and James W. Kendrick

Mindeleff, Victor

Ortman, Scott G., and Bruce A. Bradley

Reed, Erik K.

Rohn, Arthur H.

Ryan, Susan C.

White, Leslie

Wilshusen, Richard H.

Windes, Thomas C.