

2015

The House of Our Ancestors: New Research on the Prehistory of Chaco Canyon, New Mexico, A.D. 800–1200

Carrie Heitman

University of Nebraska-Lincoln, cheitman2@unl.edu

Follow this and additional works at: <http://digitalcommons.unl.edu/anthropologyfacpub>



Part of the [Archaeological Anthropology Commons](#), [Indigenous Studies Commons](#), [Other Languages, Societies, and Cultures Commons](#), and the [Social and Cultural Anthropology Commons](#)

Heitman, Carrie, "The House of Our Ancestors: New Research on the Prehistory of Chaco Canyon, New Mexico, A.D. 800–1200" (2015). *Anthropology Faculty Publications*. 127.

<http://digitalcommons.unl.edu/anthropologyfacpub/127>

This Article is brought to you for free and open access by the Anthropology, Department of at DigitalCommons@University of Nebraska - Lincoln. It has been accepted for inclusion in Anthropology Faculty Publications by an authorized administrator of DigitalCommons@University of Nebraska - Lincoln.

The House of Our Ancestors: New Research on the Prehistory of Chaco Canyon, New Mexico, A.D. 800–1200

Carrie C. Heitman, University of Nebraska–Lincoln

In a paper honoring the career of archaeologist Gwinn Vivian presented at the Society for American Archaeology 70th annual meeting, Toll and others (2005) discussed the still often-overlooked role of small house sites in Chacoan prehistory. They pointed out that many of the attributes we reserve for the category of “great house” are in fact present at some small house sites and that both the diversity and overlapping characteristics across this dichotomy require greater attention if we are to understand “how Chaco worked.” In this chapter, I present contextual data from 12 house assemblages through a comparative theoretical and ethnographic reading of Lévi-Strauss’s house society model (1979, 1982, 1983, 1987, 1991; for cultural approaches see Carsten 1991, 1995; Errington 1987; Fox 1993; Fox, ed. 1993; Hugh-Jones 1995; McKinnon 1983, 1991, 1995, 2000, 2002; Reuter 2002; Waterson 1990, 1993, 1995, 2000; for archaeological applications see Beck 2007; Gillespie 2000, 2007; Joyce and Gillespie 2000; Kirch 2000; Monaghan 1996). The goal of this analysis, in part, is to help resituate small sites within our understanding of Chacoan social organization and to highlight commonalities as well as differences between great houses and small houses. This analysis offers new and ethnographically informed variables and processes with which to think more broadly about Chacoan structures and the importance of looking at lived spaces with a holistic, anthropological lens. Sebastian (2006:421) has encouraged scholars to “redouble our efforts to coax every bit of possible data out of the limited records and large collections from the early years of Chacoan archaeology” and to “strengthen our interpretive frameworks by adopting a broader cross-cultural view and examining the patterned material remains of a wider variety of non-state societies.” Coalescing a large body of published and legacy data

(<http://www.chacoarchive.org>), this chapter attempts to embrace both of these directives.

Our enduring reference to great and small houses is shorthand for the obvious hierarchy we see among the structures visible within the boundaries of the Chaco Culture National Historical Park. But social hierarchy emerges from somewhere and, anthropologically speaking, consists in complex ideas of what constitutes power and authority. Using archaeological and ethnographic data, my work examines the connection between symbolic investment in house construction and the construction of social hierarchies during the Chacoan florescence (A.D. 800–1200). In what follows, I first provide a brief summary of my analytical methods and approach to these issues, followed by a discussion of five synthetic data sets summarizing the distribution of ceremonial objects, offering contexts, post features, stratigraphic deposits, and wall resurfacing practices. I conclude with a series of interpretations framed around processes documented in house societies cross-culturally and identified among descendent Puebloan communities of the American Southwest. The difference between great house and small house inhabitants during the prehistoric heyday of Chaco Canyon are often glossed as the social equivalent of the “haves” and the “have nots.” This chapter aims to resuscitate a more nuanced approach to small houses in our broader understandings of this particular expression of social complexity by contextualizing the monumental (great houses such as Pueblo Bonito) with what have been described as “vernacular,” “everyday,” or “domestic” expressions of people’s lives. My goal here and in my broader analyses (Heitman 2011) is to advance our understanding of the monumental, not as something other but as an emergent phenomenon that magnified social inequalities over time and is best understood in relation to a broader social context.

Data for this study were generated as part of a larger examination of Chacoan ritual and social hierarchy, which included additional axes of variation and comparative ethnographic analyses (Heitman 2011). The aims of the larger study were to assess the utility of house society models for Chaco Canyon and to determine if the insights enabled by such models help us identify if and how social hierarchies were expressed or constructed through the idiom of the house. In an attempt to study the house as a holistic unit of analysis, my research proceeded in four stages of investigation. The first

involved an examination of the intellectual history of kinship theory in the American Southwest—as this intellectual history directly pertains to the normative process by which archaeologists map concepts of family and lineage onto built spaces (see also Whiteley, this volume). Using a broadly comparative approach, I then outlined a series of ethnographic patterns and practices based on both proximate and cross-cultural analogs. The goals of this second stage of research were to broaden our understanding of the potential sources of social inequality as evidenced through houses and to analyze the cultural practices inscribed therein. By triangulating between Puebloan ethnography and known archaeological patterns for Chaco, in the third stage I identified object forms and materials as well as dimensions of house construction, maintenance, and features for comparative analysis. Through the examination of 12 house structures and their associated artifact assemblages, this study provides a new body of data yielding insights both on what was shared among canyon inhabitants and what was truly, and hierarchically, different about the great house site of Pueblo Bonito.

The 12 sites selected for analysis include 2 great houses (Pueblo Bonito and Pueblo Alto) and 10 small houses. Seven of the study sites were excavated historically, and the data were made available via the Chaco Research Archive (hereafter referred to as CRA). These sites included Pueblo Bonito, Bc 50, Bc 51, Bc 53, Bc 57, Bc 58, and Bc 59. All of the Bc sites are located on the south side of the canyon, opposite of Pueblo Bonito in the Casa Rinconada cluster. The other 5 sites were excavated in the late 1970s and early 1980s by the Chaco Project and included Pueblo Alto, 29SJ627, 29SJ629, 29SJ633, and 29SJ1360. Sites 627, 629, and 633 are located in an area known as “Marcia’s Rincon” opposite the modern-day visitor center. Site 1360 is located at the base of Fajada Butte. In aggregate, occupations of these sites span from the A.D. mid-700s to the A.D. mid-1200s (Pueblo I to mid-Pueblo III).

Sample Size

When analyzing artifact assemblages for sites that were excavated with different methods during different eras, it is difficult to gauge their comparability. There are at least three potential sources of variation impacting this study: excavation methods, sampling, and extramural excavations.

First, structures at some sites were excavated nearly in their entirety (e.g., Pueblo Bonito, Bc 50, Bc 51, Bc 53, Bc 57, Bc 58, 29SJ627, and 29SJ629), and some were not (e.g., Pueblo Alto, 29SJ633, and 29SJ1360). Second, extramural areas were sampled at some sites (e.g., Bc 50, Pueblo Bonito, 29SJ629, 29SJ633, 29SJ1360, and Pueblo Alto) but not at others. Third, excavation and screening methods varied from site to site. Not all deposits were screened, and at some sites screening procedures changed from field season to field season.*

Given that houses are the focus of this study, ideally this analysis would only consider intramural excavations across the sample universe. The limited sample sizes available from within architectural units for CRA sites preclude such a limitation, though I retain focus on intramural contexts throughout the discussion. To give the reader a clearer sense of the respective assemblages, Table 1 lists the total artifact sample size (*n*) for each site included in this study as well as the extent of excavation and fill screening conducted at each site. In all but three of these cases (Bc 57, Bc 58, and Bc 59), the site artifact frequencies include material recovered from some extramural excavation.

Pueblo Bonito

If measured by number of rooms, Pueblo Bonito is considered the largest great house in Chaco Canyon, with over 350 ground-story rooms and approximately 650 total rooms. It was one of the three earliest great houses built in the canyon, and its tree-ring dates span a 270-year construction history. The structure evolved over that time period, expanding during numerous construction phases. Each construction stage was “planned” and executed as a unit—a characteristic that often differentiates great houses from small houses.

Pueblo Bonito is unique in a variety of respects, not least of which is the presence of two burial clusters (Figure 1). The northern cluster is comprised of four rooms and is located in the oldest section of the building (Lekson’s stage I, A.D. 920–935 [1984:Figure 4.20, 127–132]; Windes stage IE, A.D. 900s [2003:20]). Human remains were discovered in all

* Excavators at 29SJ627 did not screen the fill during the first field season (1975).

Table 1. Summary Table of Extent of Excavation, Extent of Screening, and Total Artifact Sample Size (n) for All Sites Included in Study.

Site	Extent of Excavation	Screening	<i>n</i>
Pueblo Alto	17 rooms, 2 kivas (trenched), midden and trenches	All through 1/4" mesh, floor features through 1/8" or 1/6" mesh	137,204
29SJ627	18 rooms, 7 pit structures, trenches	1974 – no 1975 – yes	100,205
Pueblo Bonito	351 excavation units, 32 kivas	Room 33 only	88,543
29SJ629	9 rooms, 3 pit structures, and trenches	"Most" through 1/4" mesh, floor features through 1/8" or 1/6" mesh	53,795
29SJ1360	13 rooms, 2 pit structures, trenches	None	18,920
29SJ633	1.5 rooms, 1 kiva (partial), trenches, surface sample	All through 1/4" mesh, floor contact material through 1/8" mesh	9,040
Bc 51	45 rooms, 7 kivas, midden and trenches	None	2,878
Bc 59	13 rooms, 3 kivas	None	2,428
Bc 50	26 rooms, 4 kivas, midden and trenches	None	1,698
Bc 53	21 rooms, 4 kivas, and trenches	None	1,224
Bc 57	9 rooms, 3 kivas	None	304
Bc 58	14 rooms, 3 kivas	None	153

four of these rooms, along with cached ceremonial items such as the staffs found in Room 32, ritual assemblages in adjacent rooms, and most notably, the cache of cylinder vessels found in Room 28. Room 33 contained two articulated adult males buried below a hewn plank floor. Pepper (1909) notes the presence of a circular hole cut into one of the wooden planks of the floor in Room 33, and he conjectured that this hole might have functioned similar to a kiva *sipapu* (hole symbolizing the point of emergence/

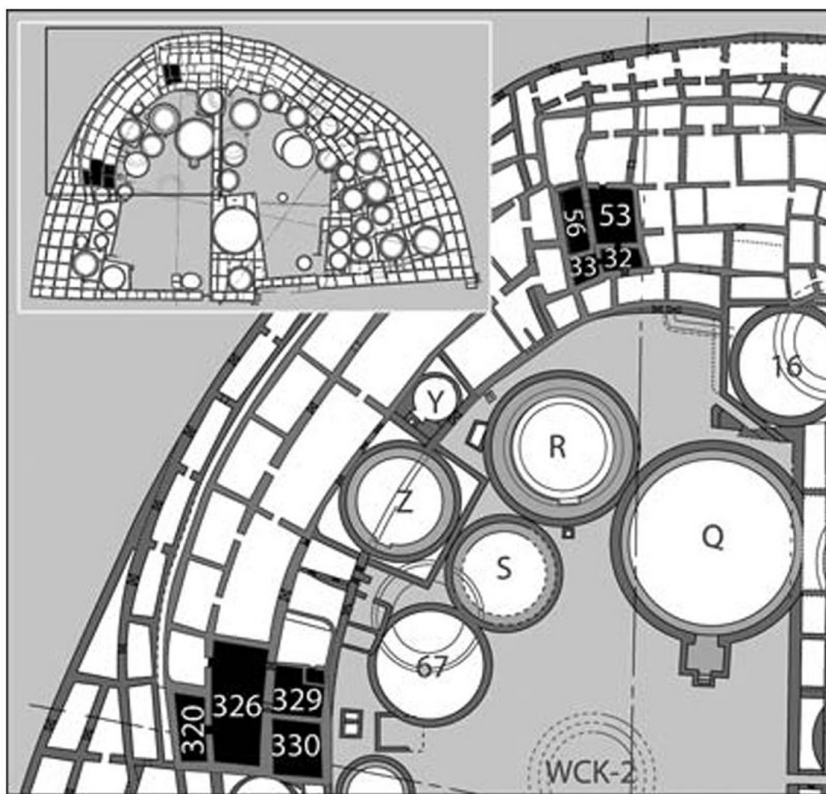


Figure 1. Plan view of Pueblo Bonito, highlighting the locations of the two major burial crypts. (Created by Edward Triplett).

communication with the underworld). Some of the turquoise deposited below the floor may have been introduced through this hole or deposited over time. These individuals were interred with the most elaborate assemblage of grave goods ever encountered in the American Southwest. The disarticulated or semi-articulated remains of at least 12 other individuals were discovered above the floor in this room (CRA, Pueblo Bonito, Room 33 Human Burial Sets 2011).

Some have argued that the disarticulation of the above-floor individuals was due to alluvial disturbance (Pepper 1909, 1920) or to vandals (Judd 1954). In light of some previously unknown archival documentation, Plog and I have argued (Heitman 2007; Heitman and Plog 2005; Plog and Heitman 2010) that the disarticulation of these individuals may

instead be attributed to more complex burial practices and the creation of a mortuary repository for ancestors (cf. Marden, this volume, for additional discussion).

The two subfloor males were described by Pepper as skeletons 13 and 14. Skeleton 13 was positioned above skeleton 14, and skeleton 14 showed signs of a violent death, with two holes and a gash in the frontal lobe. More than 30,000 objects were recorded and cataloged from this room, over 95 percent of which were beads, pendants, or other items made from minerals such as turquoise, jet, or shell. Other remarkable items included cylinder jars, ceremonial sticks, a shell trumpet, cylindrical baskets, and flutes. This room is very small—approximately 2 m × 2 m—and yet, enigmatically, it had five vertical support posts. The north-west post was the largest. Offerings were found around the posts both above and below the plank floor. The room had only one entrance—through the doorway in the east wall.

The two subfloor burials and their associated grave good assemblages—laden with over 25,000 pieces of turquoise—have long been interpreted as dating between A.D. 1020 and 1100 (Lekson 2006; Van Dyke 2007; Windes 2003). This interpretation seemed to fit a general evolutionary sense that such prominent individuals could only have come to power and commanded such resources later in the sequence of Chacoan development. Recent AMS radiocarbon dates by Coltrain et al. (2007) (samples numbers AA57715 and AA57713) and others by Plog and myself (2010) demonstrate that these individuals died earlier than researchers previously thought. Using OxCal's R_ combine measure to average paired samples for Burials 13 and 14, we found the following: the median for Burial 13 is A.D. 781, with a 2- range of 691–877; the median for Burial 14 is A.D. 774, with a 2- range of 690–873. Additional radiocarbon dates on skeletal elements from above the floor exhibit a temporal span of 300–400 years. Plog and I have used these radiocarbon dates, along with other contextual data, to argue that this room was used recurrently as a burial repository (Plog and Heitman 2010).

The western burial cluster is also composed of four rooms. These rooms are again located in the oldest section of the building (Lekson's stage I, A.D. 920–935 [1984:Figure 4.20, 127–132]; Windes stage IA, pre-860

[2003:20]). Room 330 had the highest number of individuals interred (approximately 25). As with the northern cluster, all four of these rooms contained human remains, many of which were disarticulated or semi-articulated. The grave goods encountered in this set of rooms were much less elaborate than that of the northern cluster.

Ceremonial Offerings

One of my units of analysis involved the distribution of ceremonial items. The selection of these specific artifact categories stems both from knowledge of Chacoan archaeological data and from comparative Puebloan ethnographic research (Heitman 2011:84–138). The following categories are generally accepted as having either a clear association with ritual practice or general ceremonial significance.

Bifurcate Forms: Bifurcated baskets and bifurcated ceramic vessel effigies.

Ceremonial Wood: All wooden objects of the following form: ceremonial staffs, game sticks, prayer sticks/pahos, headdress pieces, and any painted wooden objects.

Cylinder Vessels: Ceramic cylinder jars have a strong ritual association with great houses (Crown and Hurst 2009; Crown and Wills 2003; Toll 2001) and thus are considered here.

Effigies/Figurines: Effigies and figurines in the overall sample take many forms. They include large, carved, stone effigies as well as ceramic effigy vessels. They also include anthropomorphic forms (like the human figurines found in OP6 in Room 110 at Pueblo Alto). In short, all human and animal forms irrespective of material type are included in this category.

Parrots: Any occurrence of this imported Mesoamerican bird species (includes *Ara macao*, *Ara militaris*, *Rhynchopsitta pachyrhyncha*, and *Ara* sp.).

Musical Instruments: Includes flutes, whistles, rattles, trumpets, rasps, and bells.

Paint/Pigment: The raw materials used for paint and classified as such by the original excavator or analyst. Includes, for example, nodules of yellow ocher, hematite, “pellets” of paint, etc.

Miscellaneous Painted Objects: This category captures all remaining painted objects not included under other headings (excluding ceramic vessels).

Palettes: Objects specifically defined as such by the excavator. Also includes any object defined as a “paint slab.”

Pipes: Includes objects classified as pipes or cloud blowers.

Some of the forms analyzed here are relatively unique to Chaco Canyon (e.g., parrots [McKusick 2001] and cylinder vessels used for imbibing cacao [Crown and Hurst 2009]). Others, such as musical instruments (Brown 2005), bifurcated baskets (Jolie 2014; Judd 1954:306–320; Morris and Burgh 1941:54–59; Jolie and Webster, this volume), and pipes are broadly considered to have had a role in ritual practice in Southwestern prehistory and thus are also considered here. The remaining four object categories—effigies/figurines, ceremonial wood, paint/pigments, and palettes—were selected based on Puebloan ethnographic research (Heitman 2011:84–138). For each of the 12 sites, I calculated the frequency of items in these respective categories using published and unpublished (CRA) data sources.

I hasten to note that my analyses ignored other important artifact types that had ritual uses. While numerous other forms of ceramics, lithics, bone, and perishable items can have religious significance, other factors and functions are also likely to affect their frequencies.

In sum, the data presented in Table 2 show different spatial distributions: some broad, some more restricted, and others exclusive to the human burial contexts at Pueblo Bonito previously described. Additional context-specific descriptions are available elsewhere (Heitman 2011). Effigies and figurines, paint and pigments, palettes, and pipes were present across the sample universe. Wood paraphernalia, musical instruments, parrots, and cylinder jars were more restricted in their distribution. None of the categories of ceremonial objects were exclusive to great house sites, but some specific object forms were exclusively recovered from great houses. Bifurcate forms, flutes, shell trumpets, rasps, a cache of ceremonial staffs, and a cache of cylinder jars were only recovered from Pueblo Bonito. With the exception of rasps, all of the items exclusive to Pueblo Bonito were found in association with or adjacent to (Room 28) the two human mortuary contexts at that site.

Table 2. Frequencies of Selected Ceremonial Items from All 12 Sites in the Sample Universe.

Site	Bifurcate Form	Ceremonial Wood	Cylinder Vessel	Effigy/Figurine	Parrot	Musical Instrument	Paint/Pigment	Misc. Painted Object	Palette	Pipe	Total
Pueblo Alto			1 ¹	13 ²		3 ³	2,406 ⁴		31 ⁵	1	2,455
Pueblo Bonito	11	919	192 ⁶	175	31 ⁷	49	334	29	12	84	1,836
29SJ627				47 ⁸		2	957		22	1	1,029
29SJ629		1 ⁹		4 ¹⁰			554 ¹¹		6 ¹²	2	567
29SJ1360			1 ¹³	17 ¹⁴	4		177 ¹⁵		4		203
29SJ633			1 ¹⁶	4 ¹⁷		1	138		3		147
Bc 51				10			7	2	8		27
Bc 50		1 ¹⁸		6		1	1	6	10	1	26
Bc 53				3			1	2	11	2	19
Bc 58									7	1	8
Bc 57				2			1	1	1	2	7
Bc 59		3		1				1	1	1	7

Table sorted by total number of ceremonial items.

1. Data from Toll and McKenna (1987:213–216, Table 1.1.7).
2. Two human effigy vessels (ceramic), two duck pots (ceramic), and nine effigy/zoomorphs (ornaments).
3. Two copper bells (Mathien 1987:402); one whistle (Mathien 1987:418).
4. Data from Mathien (1987:418).
5. Data from Windes: one metate with pigment classified as a paint palette, five undifferentiated palettes, and 24 incidental palettes (1987b:367); one paint mortar (1987b:369).
6. Total from Toll and McKenna (1987:Table 1.53).
7. Number from Hargrave (1970).
8. Twenty-seven ceramic effigies and 14 duck pots (Toll and McKenna 1992); six zoomorphic ornaments (Toll and McKenna 1992:Table 4.3).
9. Wooden cylinder inset with turquoise flecks (Mathien 1993:230); according to Mathien's later analysis, the wooden cylinder had green paint on both ends, not turquoise (Mathien 1993:307).
10. Ceramics—one duck pot (unpolished mineral on white) and two effigies (Red Mesa). Two zoomorphic ornaments (Mathien 1993:Table 5.3).
11. Number from Mathien (1993:Table 5.8).
12. Five palettes and one mano with traces of red paint (Windes 1993).
13. One cylinder jar recovered; see Table 3.15 (McKenna 1984:176).
14. Five duck pots and eight effigy pots (McKenna 1984:Table 3.17). Table 5.3 lists four fetishes/anthropomorphs.
15. Paint/pigment total created from Mathien's raw data; using mineral types noted in other site monographs as soft minerals probably used for pigments.
16. One possible cylinder jar fragment (McKenna and Toll 1991:171, 175).
17. Four effigy/duck pots (McKenna and Toll 1991:156).
18. The published text describes a "tablita" recovered from Room 1, painted turquoise blue.

Ceremonial Caches and Offering Contexts

In an effort to reveal the formal variability of such contexts, Table 3 summarizes the presence/absence of data for the 13 identified forms of caches and offerings evident in the study sample. These typically included offerings (most often shell, turquoise, and jet) left on kiva benches, placed in ceilings/roofs, sealed in firepits, scattered across floor surfaces, put in formal caches or repositories placed in floors, sealed within niches, identified as paho or prayer stick features, placed in kiva radial beam pilasters, placed around posts, placed inside postholes, placed in kiva ventilators, and imured within walls.

Two important observations can be drawn from this inter-site comparison. First, diverse ritual contexts are present across both great house and small

Table 3. Ceremonial Cache and Offering Contexts for Sites in the Study Sample.

[illegible]

house site types, but the two great houses stand out with greater diversity of contexts represented (11 [possibly 12] at Pueblo Bonito and 7 at Pueblo Alto). Second, this table demonstrates just how different Pueblo Bonito is from the other sites in the study sample. We know more about Pueblo Bonito than we might ever know about any other great house given the extent of excavations at that site (over 95 percent). That said, the redundancy and elaboration of ritual contexts, the discrete clusters of human remains, and the extensive offerings specifically made in and around those burial contexts differentiate this house relative to the other 11 sites investigated.

While a few offering assemblages were recovered from small house kivas—such as the wall cache found in the kiva known as “Feature 5” at Bc 50 (a cache containing nine assorted smooth stones [Museum Catalog #:Bc 50 20/433a–i] and a chipped white stone pipe), the ceremonial deposits at Pueblo Bonito entail a far broader array of contexts, including pilaster offerings (Kivas 2B, 16, 162, B, C, D, F, G, H, I J, K, L, M, N, P, R, S, and T), subfloor repositories (Kivas 162, D, and N), offerings strewn across floors (e.g., floor of Kiva Q, CRA Descriptive Strata Level PBKQL01.04), offerings placed on benches (Kivas 16 and C), and offerings placed in ceilings (Kivas L and R).

Table 4 presents grouped frequency distributions for Pueblo Bonito kivas with ceremonial offering frequencies greater than 500. All 13 of the kivas shown here have radial log pilaster offerings. Notably, the kivas with the highest frequency of ceremonially deposited items are not the largest kivas. Kivas A and Q, for instance, are the two largest kivas at Pueblo Bonito (with the possible exception of the West Sub-Court kiva that was buried prehistorically). A variety of formation processes (such as looting, the prehistoric removal of ceremonial contents, etc.) play an important role in the differential preservation of such contexts in the archaeological record. That said, a few exceptional characteristics of Kiva R demand further scrutiny (see Figure 1 for kiva location).

Like the rooms in both of the human burial clusters at Pueblo Bonito, Kiva R was initially constructed around A.D. 860 (Windes 2003:20 [Stage 1A]), and it is the oldest, continuously utilized kiva at Pueblo Bonito. Its features include a bench, six radial log pilasters with intact offerings, a south bench recess, a north bench niche, a “floor repository” below the north niche,

Table 4. Pueblo Bonito Kivas with Ceremonial-Offering Frequencies >500 Listed in Descending Order of Frequency.

Frequency = 1,000–6,000	Frequency = 500–1,000	Frequency = 100–500
Kiva R / 32.72 m ²	Kiva T / 36.96 m ²	Kiva P / 49.27 m ²
Kiva L / 23.67 m ²	Kiva M / 21.73 m ²	Kiva Q / 116.71 m ²
Kiva B / 33.49 m ²		Kiva I / 18.32 m ²
		Kiva G / 33.49 m ²
		Kiva N / 23.24 m ²
		Kiva 16 / 30.68 m ²
		Kiva 2B / 38.05 m ²
		Kiva C / 39.48 m ²

Floor areas are included for each.

an above-floor ventilator, and a fireplace. Beads and the beak of a Redhead duck found among the decayed ceiling poles were interpreted as a possible ceiling offering. The initial Kiva R structure was partially razed by the pre-historic occupants of Pueblo Bonito, and subsequent reconstructions were built upon the foundations of the first. This process of reconstruction happened three times—resulting in four total iterations of Kiva R in the same location. The initial floor of Kiva R was laid upon 36 cm of intentionally deposited carbonaceous shale (Judd 1921–1927:106). Kiva R also has the highest frequency of ceremonial items for all the kivas at Pueblo Bonito and included 2,691 pieces of turquoise and 2,256 pieces of shell.

Posts

Though the Chacoan great house site of Chetro Ketl was not in the study, it is important to mention it here because it represents one extreme end of the Chacoan post-feature-investment spectrum. Vivian and Reiter (1960:Figure 16) describe how below the two northern vertical support posts in the Great Kiva at Chetro Ketl, four, 180- to 455-kg shaped sandstone disks were found. Below the disks under the northeast post were four alternating layers of lignite and adobe. Below the lowest layer of adobe, within sand fill, excavators found a sueded bag containing an ounce of turquoise dust. An archival document (Woods 1931) scanned by the Chaco Research Archive team shows a similar alternation of lignite layers between



Figure 2. Original image caption, “Coal layer under wall. Coal often used under floor or for packing, probably absorbed moisture.” (Courtesy of the Maxwell Museum of Anthropology, University of New Mexico, 88_43_161)

the fourth and fifth floors of the Chetro Ketl Great Kiva, as documented by Janet Woods.

Both historic and modern excavators have noted lignite packing as a common component of prehistoric Chacoan building practices. Take for instance the original caption for a photograph of an unidentified Chacoan small house site excavation (Figure 2): “Coal layer under wall. Coal often used under floor or for packing, probably absorbed moisture.”

At small house site 29SJ633, lignite packing was noted by Mathien as a feature common to postholes in excavated rooms (1991:47). In the Pueblo Alto report, Windes similarly notes: “Crushed lignite often partially filled the largest pits at Pueblo Alto. Almost all postholes in excavated canyon-bottom sites contained lignite” (1987a:276). In his publication on the *Architecture of Pueblo Bonito*, Neil Judd (Judd 1964:202) emphatically noted the ubiquity of these kinds of deposits in a range of contexts:

Shale, occurring with low-grade subbituminous coal that sometimes approaches lignite in quality, is a product of the Menefee formation which

underlies Chaco Canyon’s Cliff House sandstone. It was lavishly employed at Pueblo Bonito both as a wall packing about pilasters and elsewhere and as an under-floor spread but was never, to my knowledge, used as a fuel.

The post interment in the Great Kiva at Chetro Ketl is unique in its degree and complexity of elaboration (cf. Aztec Ruins Great Kiva, Lowry Pueblo, and the Village of the Great Kivas). My comparative research (Tables 8.5 and 8.6) shows, however, that it also shares aspects of practices described at Chacoan sites more broadly.

Packing lignite or low-grade coal around posts occurs in both great house and small house contexts and in rooms as well as kivas and pit structures. Sites in the study sample with recorded occurrences include small house sites Bc 50, 29SJ1360, 29SJ627, and 29SJ629 and both great house sites (Pueblo Bonito and Pueblo Alto).

Based on the elaborated post feature at Chetro Ketl, is it fair to assume that the practice of lignite packing was ritually or cosmologically significant? Perhaps this was a dimension of Chacoan geomancy? Minimally,

Table 5. Room Provenience and Frequency of Postholes with Lignite “Packing” or Lignite Shims.

Site	Room	Frequency
Bc 50	North Plaza	1
Bc 50	Substructure 6	1
Bc 50	East of Substructure 7	1
Bc 50	Feature 5	1
Pueblo Bonito	Kiva Q	4
Pueblo Bonito	Kiva A	2
Pueblo Bonito	(Pilasters) East Court Kiva	2
Pueblo Bonito	Room 108	1
Pueblo Bonito	Room 323*	6
Pueblo Bonito	Room 325*	5
Pueblo Bonito	Room 326*	6
Pueblo Bonito	Room 329*	4

Data for CRA sites in the study sample.

* = These rooms also had shale packed around the ceiling beams.

Table 6. Room Provenience and Frequency of Postholes with Lignite “Packing” or Lignite Shims.

Site	Room	Frequency
29SJ1360	House 1, Room 11	2
29SJ1360	Ramada	33
29SJ1360	Pithouse B	3
29SJ1360	Plaza—Area 1	2
29SJ1360	Room 4	1
29SJ1360	Plaza Surface 1	2
29SJ627	Room 10	2
29SJ627	Room 11, Ramada Area D1-B	1
29SJ627	Room 14	2
29SJ627	Room 23, Plaza-Facing Ramada Area	2
29SJ627	Room 3	3
29SJ627	Room 3, Ramada	2
29SJ627	Room 5, Ramada Area	6
29SJ627	Room 6, Ramada Area D-2 (overlying D-1)	1
29SJ627	Room 8	7
29SJ627	Pit Structure F	3
29SJ627	Pithouse C	3
29SJ629	Kiva (Pithouse 1)	2
29SJ629	Pithouse 2	4
29SJ629	Room 3	3
29SJ629	Room 4	2
29SJ629	Room 9	3
Pueblo Alto	Plaza 1, Grid 8	1
Pueblo Alto	Room 139	8

Data for Chaco Project sites in the study sample.

lignite packing served a functional purpose in securing posts. Its functional attributes do not, however, preclude additional symbolic or cosmological meanings entailed in these and other contexts. The Puebloan ethnographic data describing the importance of the color black, its association with the nadir, and the demonstrated importance of jet/lignite/carbonaceous shale objects help us better contextualize and interpret these prehistoric practices (Heitman 2011:Table 5.5).

Additional observations for the occurrence of lignite deposits only strengthen its spatial association with ritually significant contexts. The lining of a prayer stick or paho feature in Kiva N at Pueblo Bonito (CRA Floor Feature, Kiva N) further supports an association of lignite (chips, packing) with important house contexts, as does its occurrence packed around the radial log pilaster beams anchored in kiva walls as noted by Judd for one of the East Court kivas * at Pueblo Bonito (Judd 1964:67). Judd also notes that the posts of the Kiva Q deflector screen at Pueblo Bonito were packed in shale (1964:209). Given the extreme lengths canyon builders went to in order to procure beams from high elevations (English et al. 2001:11892; Windes and Ford 1996:303) and what we know ethnographically about the religious importance of trees and wood among Pueblo groups (Heitman 2011:Table 5.4), it is perhaps not surprising that these posts were interred with varying degrees of veneration. But this broadly shared practice of investment in post interments extends beyond large-diameter, labor-intensive, high-elevation tree species to include smaller-diameter, locally available species in public spaces such as ramadas (e.g., 29SJ1360 [McKenna 1984:87] and 29SJ627 [Truell 1992:Table 5.3]).

The data from both of these tables (8.5 and 8.6) demonstrate how the practice of packing lignite around posts is broadly distributed across sites, but the formality and degree of elaboration differs markedly. One of the postholes in western burial cluster Room 326 at Pueblo Bonito had an adobe collar as well as lignite packing. The formality of that feature is rather different from that shown in a posthole in Pithouse B at 29SJ1360 (McKenna 1984:Figure 2.58).

In aggregate, the data on posthole features from sites in the study sample exhibit a shared set of ideas about how to build. These practices included the broad use of lignite as a packing material executed in more (Pueblo Bonito, Room 326 [Judd 1954:Plate 93]) or less (29SJ1360, Pithouse B

* Also at the Great Kiva of Chetro Ketl. The only recorded cases I know of are at great house kivas—which is perhaps not surprising given the rare occurrence of radial log pilasters at small house sites. Such deposits have also been noted by national park stabilizations crews (Dabney Ford, personal communication, January 9, 2008).

[McKenna 1984:Figure 2.58]) formal ways, as well as elaborated lignite deposits layered beneath posts in more significant contexts—such as the Great Kiva at Chetro Ketl. The use of lignite as the material source for ritual elaboration is in keeping with the ethnographic data on the importance of black (perhaps referencing the nadir, as in the Zuni case [Tedlock 1979:499; see also Bunzel 1932:645n6; Parsons 1939:626, 630, 687]) and color-directional symbolism among the pueblos more broadly (Heitman 2011:84–138), as well as the artifactual data on the distribution of jet/lignite items as shown by Neitzel (2003b).

Lignite Layering

Given the associations of lignite documented above, we might conclude that special materials (wood posts/beams/prayer sticks) as well as special contexts require ritualized acts of dedication—such as lignite or offerings. Additional cultural deposits from the study sample support this interpretation. According to stratigraphic drawings done by Pepper for Room 32 in the northern burial complex (Pepper 1896), the Chacoans made a series of “closure” deposits above the floor prior to interring the remains of at least one individual. These stratigraphic layers bear some resemblance to those used in the Chetro Ketl Great Kiva seating pit. The layers alternated between sand and charcoal (Layer B) or “black soil” (Layer D). These deposits occur adjacent to Room 33 in the northern mortuary complex at Pueblo Bonito.

Cases of lignite layering within rooms (either below, between, or above floors) were recorded at five sites in the study sample (Table 7): Pueblo Bonito, 29SJ629, Bc 50, Bc 51, and Bc 59. Intentional stratigraphic deposits are predominantly associated with Pueblo Bonito, small house sites in the Casa Rinconada cluster, and an older pit structure from 29SJ629 (Pithouse 2, a ninth-century construction [McKenna 1986]). Minimally, we can conclude that this practice was not restricted to great house sites and that it appears to occur more commonly in kivas at the great house of Pueblo Bonito. Certainly not all rooms and kivas received this treatment, but its recorded presence at 4 of the 10 small house sites in the study sample further complicates our understanding of ritual investment in Chacoan houses. These observations also disrupt characterizations that define the monumental in opposition to the vernacular (see also Bustard 1997).

Table 7. Proveniences where Lignite Was Used as an Intentional Between-Floor Fill or Sub-floor Fill.

Site	Room
Pueblo Bonito	Kiva T
Pueblo Bonito	Kiva L
Pueblo Bonito	Kiva V
Pueblo Bonito	Kiva N
Pueblo Bonito	Kiva R
Pueblo Bonito	East Court Kiva
Pueblo Bonito	Room 336
Pueblo Bonito	Room 317
Pueblo Bonito	Room 32 (above floor)
29SJ629	Pithouse 2
Bc 50	Substructure 5
Bc 51	Room 3
Bc 59	Room 1
Bc 59	Room 12
Bc 59	Kivas 2 and 2A

Similar to the posthole deposits, the practice of layering lignite in structures spans both great house and small house contexts—indicating a shared set of ideas about how to build that includes a cosmological dimension. The layering of this substance in particular spaces suggests, at times, a process of ritual closure (as in the case Room 32, Pueblo Bonito), in others an iterative process of sanctification (e.g., between construction episodes at Kiva R, Pueblo Bonito), and further still, a mimetic recapitulation of a layered worldview. Pueblo Bonito stands out in this regard with more documented episodes of lignite layering for sites in the study sample.

Kiva Wall Surfacing

The last characteristic of Chacoan houses addressed here involves wall surfacing events. As with many of the characteristics of interest to my research, these data were not uniformly available and thus present some analytical challenges. While data on wall surfacing events are available or

many kivas and square rooms in the study sample, for present purposes I focus only on kivas because the data are more consistently available for those contexts.

Although we cannot know the precise meaning these practices held prehistorically, it is worth considering replastering events in light of empirical data from descendant communities. Based on my reading of the Puebloan ethnographic literature (e.g., Parsons 1939:358; Hopi: Stephen 1969 [1936]:238, Figures 143–146, Plates V–VII), archaeologically we should expect kiva walls of Ancestral Pueblo sites to have numerous layers of wall plaster. Such acts may have been part of rituals of renewal, as argued by Crown and Wills (2003), or acts performed as a prayer for rain.

There are a variety of rooms in the study sample that had evidence of kiva murals, created either with colored layers (Pithouse B, 29SJ1360 [McKenna 1984:57]), painted designs (Kivas 5, 6, and 7 at Bc 51 [Kluckhohn 1939:38–39]), incised designs (Kiva 3, Bc 50 [Brand et al. 1937:78–79, Plate X]), or alternating non-pigment colors (Kiva G, 29SJ627 [Truell 1992:89]). Beyond these notable elaborations, there are a number of kivas in the study sample that contained evidence of numerous wall plastering events (Table 8). Pueblo Bonito has at least seven kivas with nine or more plaster layers. All of the Pueblo Bonito contexts, however, are within the range of layer frequencies at other small house sites. Interestingly, four of the six sites in the Casa Rinconada cluster also have kivas with numerous plaster layers. Kiva 6 at Bc 51 had the highest frequency of plaster layers (31). This structure dates to the A.D. late 1000s to A.D. mid-1100s (Truell 1986:162). According to Truell (1986:189), the high number of replastering events in Kiva 6 may be indicative of “more assiduous upkeep” and special use of pit structures evident after the A.D. mid-1000s.

House Society Models

To conclude, the data presented above are interpreted through a modified house society model (Heitman 2011:60–83; see also Mills and Whiteley, this volume; cf. Hays-Gilpin and Ware, this volume). The three sets of concepts and processes I will be emphasizing include Precedence and Continuity, Ancestors and Heirlooms, and Animation and Performance.

Table 8. Kivas with Plaster Layers ≥ 5 .

Site	Room	Frequency of Plaster Layers
29SJ1360	Pithouse B	8, various colors
29SJ627	Kiva G	6, alternating colors
Bc 50	Kiva 2	14
Bc 50	Kiva 4	7
Bc 51	Kiva 6	31
Bc 51	Kiva 5	13
Bc 51	Kiva 2	5
Bc 53	Kiva B	6
Bc 57	Kiva A	12
Bc 57	Kiva C	6
Pueblo Bonito	Kiva G	21
Pueblo Bonito	East Sub-Court Kiva 3	19
Pueblo Bonito	Kiva D	19
Pueblo Bonito	Kiva R (sub-structure)	14+
Pueblo Bonito	Kiva 2A	10
Pueblo Bonito	Kiva E	10
Pueblo Bonito	Kiva 2E	9

Data for sites in the study sample.

Precedence and Continuity

The great houses of Chaco Canyon were massively engineered and built to last. One need only to visit Chaco today to see how these edifices endure. In this overt sense, these robust physical structures were meant to exude a form of physical permanence on the landscape. As the structural footprint of Pueblo Bonito evolved, Chacoan architects endeavored to preserve that original core of rooms (Neitzel 2003b). Through numerous planned construction stages, these rooms remained at the center of the final building. Instead of razing these early rooms (as was the practice in a variety of other contexts), these spaces were buttressed and enveloped, preserved as the central core of the great house. Room repositories for ritual sacra were also contained in this original arc.

These practices show an orientation toward precedence and continuity by referencing and maintaining that which came before. This orientation toward precedence also helps us contextualize the complex building sequences, long occupation histories, and multicomponent occupations evident at many small house sites. Long occupation sequences are yet another way Chacoan houses are unique relative to contemporaneous sites in the region and exhibit a cultural valuation for the precedence and continuity of house structures and house sites.

Ancestors and Heirlooms

Curated heirlooms and ritual sacra have the capacity to materialize connections to ancestral origins and thereby re-create those origin places. The new radiocarbon dates from the northern human burial cluster discussed earlier (Plog and Heitman 2010) make clear that the burial sequence contained in Room 33 began very early in the occupation of Pueblo Bonito and was seemingly added to over time. The evolution of Pueblo Bonito over its 300-year occupation history shows a concern for preserving the original core of the house (construction stage I), while constantly expanding and rebuilding. This process included the bodies of ancestors and associated heirlooms housed in that oldest section of the pueblo. The periodic addition of human remains after the initial interment of the two subfloor males also suggests a deliberate strategy of maintaining continuity with these proximate ancestors.

In addition to interring the two males (skeletons 13 and 14) below the plank floor of Room 33, a variety of other attributes are similar to those described in association with kivas (discussed below). The first burial placed in this room was interred on a layer of sand covered by a layer of wood ash. Individual 13 was then interred above skeleton 14, followed by the placement of a plank wood floor. A hole carved into the plank floor was interpreted by Pepper (1909) as a sipapu similar to those present in kivas. Offerings of shell, turquoise, malachite, and jet were interred with these individuals (maybe even deposited through the hole in the plank floor) and also placed around the vertical posts at various depths, both above and below the plank floor. Despite the small room size, measuring roughly 2 x 2 m square, there were five substantial vertical support posts (SW, NW, SE, and two in the

NE). The cosmological significance of these elements far exceeds any pressing functional reason for their placement, even if one existed.

The repeated placement of offerings around the wooden posts adds another layer of meaning and importance to this mortuary context at Pueblo Bonito and to the pueblo as a whole. Here we have the addition of the bodies of venerated ancestors, ensconced within wood, turquoise, shell, and jet, buried in the heart of the oldest portion of Pueblo Bonito, surrounded by heirlooms. Human remains as well as offerings continued to be added in Room 33 over the coming centuries, showing an iterative series of investments—as a place of origin, anchored with the physical remains of ancestors, containing unique forms of curated heirlooms (staves, flutes, a shell trumpet, cylinder jars, etc.), and heavily laden with cosmologically significant materials (e.g., turquoise and shell). These practices mapped connections between the bodies of proximate ancestors and materializations of cosmological, apical ancestors as sources of power, legitimacy, and authority.

Animation and Performance

The frequent, redundant, iterative, and ritualized investments in Pueblo Bonito yield insights into how this great house attained and maintained primacy relative to other sites in the canyon. The archaeological data presented here demonstrate that both seen and unseen dimensions of houses were broadly shared between great house and small house occupants and that, to some degree, all house occupants were endeavoring to layer their houses with meaning in accordance with a shared set of practices centered upon houses. These structures also show a mutual orientation toward cosmologically significant materials, objects, and attributes. These shared dimensions shed new light on the ritual fabric in which a variety of canyon occupants participated. These data also corroborate earlier observations regarding the continuum of architectural styles and features evident across great house and small house sites made by Chaco Project analysts McKenna (1986), Toll et al. (2005), and Truell (1979, 1986).

Kivas offer the clearest examples of the processes that animated houses and through which ancestral connections were achieved and maintained. Using the origin myth of Acoma as relayed by Parsons (1939:310–311),

there are at least six ways kivas are imagined to connect and replicate the conditions of emergence: First, the kiva itself represents the hole (*shipap*) through which the people emerged. Second, the round structure replicates the sky and thus the conditions into which “the people” emerged. Third, the beams used to create the kiva replicate the trees used to exit the underworld at the time of emergence and thus mediate between the two worlds. Fourth, the floor features of the kiva (e.g., the first altar created by Iyatiku) replicate the conditions of origin as experienced by their apical ancestor. Fifth, ancestors and other spirits are thought to be present in this liminal context and are communicated with via the *sipapu* of the kiva itself. And lastly, a pit representing a door (typically located on the north side of the kiva) is a conduit of connection to cosmologically significant topographic markers associated with the cardinal directions (cf. Ashmore 2007).

In this ethnographic example, a kiva replicates the place/moment of emergence, enacts the process of emergence, and is the product of emergence. By virtue of these features, the kiva also creates a liminal space in which to connect to those apical ancestors who brought “the people” into being.

The architectural and artifactual data presented in my research make clear that similar narratives of emergence were manifested through kivas during the Chacoan era. The classic, defining “Chaco-style” kivas included a formal suite of characteristics consisting of radial log pilasters (6, 8, or 10), pilaster offerings, cribbed roofs, subfloor vaults, a sipapu, a firepit, a fire screen, a bench, a shallow southern recess, and a subfloor ventilator. The ceremonial deposits placed in wooden elements are multifold: pilaster offerings at the convergence of the underlying support structure with the overlying cribbed roof elements, the use of lignite to root vertical support posts, and at times, offerings placed within the ceiling timbers. We see in these contexts a repetition of materials, of which turquoise, shell, and lignite are the most dominant. Based on Puebloan ethnographic data, the association of black with the underworld seems likely. The redundancy of these deposits used repetitively in specific kiva contexts strongly suggests that these materials were connected to a narrative of origin. As such, these deposits and practices provided what Helms has called “tangible forms of contact with the conditions of origins for house members” (Helms 1999:57). We can thus proceed with the knowledge that part of

what gave these materials, practices, places, and (by extension) people value was their connection to narratives of origin.

Pueblo Bonito kivas include a full range of these deposits. Very limited kiva excavations at Pueblo Alto tentatively suggest that similar deposits were made within kivas at that site (e.g., one exposed pilaster offering, Kiva 3). As described earlier, some similar practices were recorded in kivas and pithouses at small houses in the study sample. These include the layering of lignite below floors, lignite packing around posts, wall niche offerings, and offerings below posts. The small house sites analyzed for this study do not, however, have pilaster offerings nor do they have the same consistent suite of features or offering materials as described above or the same degree of masonry craftsmanship as that of great house kivas. Additionally, to the best of my knowledge, there are no known examples of pilaster offerings at any excavated small house sites in the canyon.

The data available demonstrate a continuum of shared practices evident within this synchronic comparison. Enabled by a house society model, this interpretation of kivas as contexts in which one's connections to a point/process of origin are exerted and made manifest allows us to make sense of those practices shared by great house and small house occupants. By contrast, great house occupants and affiliates—especially those of Pueblo Bonito—invested a tremendous amount of labor and resources into building kivas and layering them with such deposits. By my analysis, part of what allowed Pueblo Bonito to achieve prominence was the ability of house occupants/affiliates to mobilize and enact their connections to a point of origin through kivas and other means and to connect proximate ancestors (e.g., the burials in Room 33) to narratives of cosmological origin. The data show how such practices resonated and were enacted—albeit to lesser degrees—across a broader community of canyon residents. A shared religious valuation of particular materials (shell, turquoise, wood, birds, etc.) was clearly an integral part of the system of trade and exchange that tied communities together across the Chacoan sphere of influence.

This process of enactment by which Pueblo Bonito achieved prominence did not only include the aforementioned contexts and materials. Architectural evidence for massive and constant rebuilding efforts directed specifically toward kivas (Crown and Wills 2003) shows that the process of

enactment entailed partially (or completely) razing a finished kiva, only to build it again (as with the example of Kiva R discussed above). The cross-cultural ethnographic data on house societies in which houses are animated through precisely these kinds of acts—repeated over the life of a house in order to continually exert and maintain precedence—provide a theoretical context for how these processes contributed to the construction of hierarchical differences between house occupants/affiliates.

Conclusion

Comparative ethnographic data from descendant Pueblo communities in conjunction with house society models help us to create archaeological expectations and recognize how certain processes contributed to the creation of emergent social hierarchies. The artifact assemblages, artifact distributions, and stratigraphic contexts examined here show how a house-based hierarchy was defined by processes of house consecration and sanctification achieved through post offerings, cached heirlooms, and ritualized deposits, as well as human burials. These processes had the greatest longevity and achieved the highest form of elaboration at Pueblo Bonito. As described for kivas, such offerings created cosmological connections to sacred directions and to ancestral origins, and we see in Pueblo Bonito the most complete conception of the cosmic order. The nested series of offerings at Pueblo Bonito, Pueblo Alto, and various small house sites inscribed and located these structures within a cosmologically defined landscape—creating connections between local and supra-local places of power, authority, and spiritual assistance.

The results of this study contribute to a more holistic understanding of houses occupied during the Chacoan era in at least three ways: first, by identifying new materials, forms, contexts, and processes used to add value and meaning to structures during the Chacoan era, thus augmenting the available tools used to understand variability between houses and the emergence of social hierarchy in Chacoan prehistory; second, by demonstrating that many of these processes were shared amongst great houses and small house occupants; and third, by demonstrating how frequent, redundant, iterative, and ritualized investments in Pueblo Bonito were intended to demonstrate precedence and its status as an origin house.

As argued by Kroeber (1916), Ortiz (1969), Parsons (1939), and Whiteley (1998), “ritual” among many Pueblo groups is not a separate domain of cultural practice: it is the matrix of cultural practice. Thus, in my analysis, I have foregrounded ritual practices and deposits within houses in an effort to resituate such practices at the center of how we approach studies of Chacoan prehistory. Based on my analysis, ritual is not a curtain to be pulled back in order to glimpse what lay behind. Most likely, ritual was the fabric of lived experience into which all other dimensions (economy, subsistence, politics) were woven. The hierarchical differentiation between structures and, by extension, between people was thus defined not just by built spaces, but by spaces built right.

References Cited

- Ashmore, Wendy. 2007. Building Social History at Pueblo Bonito: Footnotes to a Biography of Place. In *The Architecture of Chaco Canyon, New Mexico*, edited by Stephen H. Lekson, pp. 179–198. University of Utah Press, Salt Lake City.
- Beck, Robin A. (editor). 2007. The Durable House: Architecture, Ancestors and Origins. Paper presented at the 22nd Annual Visiting Scholar Conference, Center for Archaeological Investigations, Southern Illinois University, Carbondale.
- Brand, Donald D., Florence M. Hawley, Frank C. Hibben, et al. 1937. *Tseh So, A Small House Ruin, Chaco Canyon, New Mexico* (preliminary report). University of New Mexico Bulletin No. 308, Anthropological Series 2(2). University of New Mexico, Albuquerque.
- Brown, Emily J. 2005. Instruments of Power: Musical Performance in Rituals of the Ancestral Pueblos of the American Southwest. Ph.D. dissertation, Department of Anthropology, Columbia University.
- Bunzel, Ruth. 1932. *Zuñi Ritual Poetry*. Forty-Seventh Annual Report of the Bureau of American Ethnology, 1929–1930. U.S. Government Printing Office, Washington, D.C.
- Bustard, Wendy. 1997. Space as Place: Small and Spatial Organization in Chaco Canyon, New Mexico, AD 1000–1150. Ph.D. dissertation, Department of Anthropology, University of New Mexico, Albuquerque.
- Carsten, Janet. 1991. Children in Between: Fostering and the Process of Kinship on Pulau Langkawi, Malaysia. *Man* 26:425–443.
- . 1995. Houses in Langkawi: Stable Structures or Mobile Homes? In *About the House: Lévi-Strauss and Beyond*, edited by Janet Carsten and Stephen Hugh-Jones, pp. 105–128. Cambridge University Press, Cambridge.

- Coltrain, Joan Brenner, Joel C. Janetski, and Shawn W. Carlyle. 2007. The Stable- and Radio-Isotope Chemistry of Western Basketmaker Burials: Implications for Early Puebloan Diets and Origins. *American Antiquity* 72(2):301–321.
- Crown, Patricia L., and W. Jeffrey Hurst. 2009. Evidence of Cacao Use in the Prehispanic American Southwest. *Proceedings of the National Academy of Sciences* 106:2110–2113.
- Crown, Patricia L., and Wirt H. Wills. 2003. Modifying Pottery and Kivas at Chaco: Pentimento, Restoration, or Renewal? *American Antiquity* 68:511–532.
- English, Nathan B., Julio L. Betancourt, Jeffrey S. Dean, and Jay Quade. 2001. Strontium Isotopes Reveal Distant Sources of Architectural Timber in Chaco Canyon, New Mexico. *Proceedings of the National Academy of Science* 98(21):11891–11896.
- Errington, Shelly. 1987. Incestuous Twins and the House Societies of Insular Southeast Asia. *Cultural Anthropology* 2(4):403–444.
- Fox, James L. 1993. Comparative Perspectives on Austronesian Houses: An Introductory Essay. In *Inside Austronesian Houses: Perspectives on Domestic Designs for Living*, edited by James J. Fox, pp. 1–28. Department of Anthropology in association with the Comparative Austronesian Project, Research School of Pacific Studies, Australian National University, Canberra.
- Fox, James J. 1993 (editor). *Inside Austronesian Houses: Perspectives on Domestic Designs for Living*. Department of Anthropology in association with the Comparative Austronesian Project, Research School of Pacific Studies, Australian National University, Canberra.
- Gillespie, Susan D. 2000. Beyond Kinship: An Introduction. In *Beyond Kinship: Social and Material Reproduction in House Societies*, edited by Rosemary A. Joyce and Susan D. Gillespie, pp. 1–21. University of Pennsylvania Press, Philadelphia.
- . 2007. When Is a House? In *The Durable House: House Society Models in Archaeology*, edited by Robin A. Beck, pp. 25–52. Southern Illinois University Occasional Paper 35. Southern Illinois University, Carbondale.
- Hargrave, Lyndon L. 1970. *Mexican Macaws: Comparative Osteology and Survey of Remains from the Southwest*. Anthropological Papers of the University of Arizona No. 20. University of Arizona Press, Tucson.
- Helms, Mary. 1999. Why Maya Lords Sat on Jaguar Thrones. In *Material Symbols: Culture and Economy in Prehistory*, edited by John E. Robb, pp. 56–69. Center for Archaeological Investigations, Southern Illinois University Series, Occasional Paper No. 26. Southern Illinois University, Carbondale.
- Heitman, Carrie C. 2007. “Houses Great and Small: Re-evaluating the Construction of Hierarchy in Chaco Canyon, NM, AD 860–1180.” In *The Durable House: Architecture, Ancestors and Origins*, edited by Robin A. Beck, pp. 248–272. 22nd Annual Visiting Scholar Conference, Center for Archaeological Investigations, Southern Illinois University, Carbondale.

- . 2011. *Architectures of Inequality: Evaluating Kinship and Cosmology in Chaco Canyon, New Mexico, AD 850–1180*. Ph.D. dissertation, Department of Anthropology, University of Virginia, Charlottesville.
- Heitman, Carolyn C., and Stephen Plog. 2005. Kinship and the Dynamics of the House: Rediscovering Dualism in the Pueblo Past. In *A Catalyst for Ideas: Anthropological Archaeology and the Legacy of Douglas W. Schwartz*, edited by Vernon Scarborough, pp. 69–100. School of American Research Press, Santa Fe.
- Hugh-Jones, Stephen. 1995. Inside-Out and Back-to-Front: The Androgynous House in Northwest Amazonia. In *About the House: Lévi-Strauss and Beyond*, edited by Janet Carsten and Stephen Hugh-Jones, pp. 226–252. Cambridge University Press, Cambridge.
- Jolie, Edward A. 2014. *Cultural and Social Diversity in the Prehispanic Southwest: Learning, Weaving and Identity in the Chaco Regional System, AD 850–1140*. Ph.D. dissertation, Department of Anthropology, University of New Mexico, Albuquerque.
- Joyce, Rosemary A., and Susan D. Gillespie (editors). 2000. *Beyond Kinship: Social and Material Reproduction in House Societies*. University of Pennsylvania Press, Philadelphia.
- Judd, Neil M. 1921–1927. Note Cards, Pueblo Bonito, Notes on Excavations. Papers of Neil M. Judd, Box 8, National Anthropological Archives, Smithsonian Institution, Washington, D.C. Electronic documents, http://www.chacoarchive.org/media/pdf/Pages_1_250_from000174complete.pdf and http://www.chacoarchive.org/media/pdf/Pages_251_500from000174complete.pdf (accessed September 1, 2010).
- . 1954. *The Material Culture of Pueblo Bonito*. Smithsonian Miscellaneous Collections No. 124. Smithsonian Institution, Washington, D.C.
- . 1964. *The Architecture of Pueblo Bonito*. Smithsonian Miscellaneous Collections No. 147. Smithsonian Institution, Washington, D.C.
- Kirch, Patrick V. 2000. Temples as “Holy Houses”: The Transformation of Ritual Architecture in Traditional Polynesian Societies. In *Beyond Kinship: Social and Material Reproduction in House Societies*, edited by Rosemary A. Joyce and Susan D. Gillespie, pp. 103–114. University of Pennsylvania Press, Philadelphia.
- Kluckhohn, Clyde. 1939. Discussion. In *Preliminary Report on the 1937 Excavations, Bc 50–51, Chaco Canyon, New Mexico*, edited by Clyde Kluckhohn and Paul Reiter, pp. 151–162. University of New Mexico Bulletin No. 345, Anthropological Series 3(2). University of New Mexico, Albuquerque.
- Kroeber, A. L. 1916. Thoughts on Zuñi Religion. In *Holmes Anniversary Volume*, edited by F.W. Hodge, pp. 269–277. J. W. Bryan Press, Washington, D.C.
- Lekson, Stephen H. 1984. *Great Pueblo Architecture of Chaco Canyon*. Publications in Archeology 18B, Chaco Canyon Series. National Park Service, Santa Fe.

- . 2006. Chaco Matters: An Introduction. In *The Archaeology of Chaco Canyon: An Eleventh-Century Pueblo Regional Center*, edited by Stephen H. Lekson, pp. 3–44. School of American Research Press, Santa Fe.
- Lévi-Strauss, Claude. 1979. *La voie des masques*. Plon, Paris.
- . 1982. *The Way of the Masks*. Translated by Sylvia Modelski. University of Washington Press, Seattle.
- . 1983. Histoire et ethnologie. *Annals: Économies, Sociétés, Civilisations* 38:1217–1231.
- . 1987. *Anthropology and Myth: Lectures 1951–1982*. Translated by Roy Willis. Blackwell, Oxford.
- . 1991. Maison. In *Dictionnaire de l'ethnologie et de l'anthropologie*, edited by Michel Izard, pp. 434–436. Presses Universitaires de France, Paris.
- Mathien, Frances Joan. 1987. Ornaments and Minerals from Pueblo Alto. In *Investigations at the Pueblo Alto Complex, Chaco Canyon, New Mexico, 1975–1979, Vol. III, Artifactual and Biological Analyses*, edited by Frances Joan Mathien and Thomas C. Windes, pp. 381–428. Publications in Archeology 18F, Chaco Canyon Studies. National Park Service, U.S. Department of the Interior, Santa Fe.
- . 1991 (ed.). *Excavations at 29SJ633: The Eleventh Hour Site, Chaco Canyon, New Mexico*. Reports of the Chaco Center No. 10. Division of Cultural Research, National Park Service, Albuquerque.
- . 1993. Ornaments and Minerals from 29SJ629. In *The Spadefoot Toad Site: Investigations at 29SJ629, Chaco Canyon, New Mexico, Vol. II, Artifactual and Biological Analyses*, edited by Thomas C. Windes, pp. 269–316. Reports of the Chaco Center No. 12. Division of Cultural Research, National Park Service, Santa Fe.
- Mathien, Frances Joan, and Thomas C. Windes (editors). 1987a. *Investigations at the Pueblo Alto Complex, Chaco Canyon, New Mexico: Tests and Excavations, 1975–1979, Vol. III, Artifactual and Biological Analyses*. Publications in Archeology 18F, Chaco Canyon Studies. National Park Service, U.S. Department of the Interior, Santa Fe.
- . 1987b. *Investigations at the Pueblo Alto Complex, Chaco Canyon, New Mexico, 1975–1979, Vol. IV*, microfiche. Publications in Archeology 18F, Chaco Canyon Studies. National Park Service, U.S. Department of the Interior, Santa Fe.
- McKenna, Peter J. 1984. *The Architecture and Material Culture of 29SJ1360, Chaco Canyon, New Mexico*. Reports of the Chaco Center No. 7. Division of Cultural Research, National Park Service, Albuquerque.
- . 1986. *A Summary of the Chaco Center's Small Site Excavations: 1973–1978*. Part I in *Small Site Architecture of Chaco Canyon, New Mexico*, by Peter J. McKenna and Marcia L. Truell, pp. 5–114. Publications in Archaeology 18D, Chaco Canyon Studies. National Park Service, U.S. Department of the Interior, Santa Fe.

- McKenna, Peter J., and H. Wolcott Toll. 1991. Ceramics from 29SJ633, The Eleventh Hour Site. In *Excavations at 29SJ633: The Eleventh Hour Site, Chaco Canyon, New Mexico*, edited by Frances Joan Mathien, pp. 139–205. Reports of the Chaco Center No. 10. Division of Cultural Research, National Park Service, Santa Fe.
- McKinnon, Susan. 1983. Hierarchy, Alliance, and Exchange in the Tanimbar Islands. Ph.D. dissertation, Department of Anthropology, University of Chicago.
- . 1991. *From a Shattered Sun: Hierarchy, Gender, and Alliance in the Tanimbar Islands*. University of Wisconsin Press, Madison.
- . 1995. Houses and Hierarchy: The View from a South Moluccan Society. In *About the House: Lévi-Strauss and Beyond*, edited by Janet Carsten and Stephen Hugh-Jones, pp. 170–188. Cambridge University Press, Cambridge.
- . 2000. The Tanimbarese Tavu: The Ideology of Growth and the Material Configurations of Houses and Hierarchy in an Indonesian Society. In *Beyond Kinship: Social and Material Reproduction in House Societies*, edited by Rosemary A. Joyce and Susan D. Gillespie, pp. 161–176. University of Pennsylvania Press, Philadelphia.
- . 2002. Kinship Studies in Socio-Cultural Anthropology and Archaeology. Paper presented at the 67th Annual Meeting of the Society for American Archaeology, Denver.
- McKusick, Charmion R. 2001. *Southwest Birds of Sacrifice*. Arizona Archaeological Society No. 31. Arizona Archaeological Society, Tucson.
- Mills, Barbara J. 2002. Recent Research on Chaco: Changing Views of Economy, Ritual, and Society. *Journal of Archaeological Research* 10:65–117.
- . 2008. Remembering while Forgetting: Depositional Practices and Social Memory at Chaco. In *Memory Work: Archaeologies of Material Practices*, edited by Barbara J. Mills and William H. Walker, pp. 81–108. School for Advanced Research Press, Santa Fe.
- Monaghan, John. 1996. Mesoamerican Community as a “Great House.” *Ethnology* 35(3):181–194.
- Morris, Earl Halstead, and Robert Frederic Burgh. 1941. *Anasazi Basketry, Basket Maker II through Pueblo III: A Study Based on Specimens from the San Juan River Country*. Carnegie Institution of Washington Publication No. 533. Carnegie Institution, Washington, D.C.
- Neitzel, Jill E. 2003a. (editor) *Pueblo Bonito: Center of the Chacoan World*. Smithsonian Books, Washington, D.C.
- . 2003b. Artifact Distributions at Pueblo Bonito. In *Pueblo Bonito: Center of the Chacoan World*, edited by Jill E. Neitzel, pp. 107–126. Smithsonian Books, Washington, D.C.

- Ortiz, Alfonso. 1969. *The Tewa World: Space, Time, Being, and Becoming in a Pueblo Society*. University of Chicago Press, Chicago.
- Parsons, Elsie Clews. 1939. *Pueblo Indian Religion*. 2 vols. University of Chicago Press, Chicago.
- Pepper, George H. 1896. Rooms #32 and 33, also measurements of Rooms Pueblo Bonito. American Museum of Natural History, Division of Anthropology. Electronic document, http://www.chacoarchive.org/media/pdf/000157_public.pdf (accessed September 1, 2010).
- . 1909. The Exploration of a Burial-Room in Pueblo Bonito, New Mexico. In *Putnam Anniversary Volume: Anthropological Essays Presented to Frederic Ward Putnam in Honor of His Seventieth Birthday, April 16, 1909, by His Friends and Associates*, edited by Franz Boas, Roland B. Dixon, Alfred L. Kroeber, Frederick W. Hodge, and H. I. Smith, pp. 196–252. G. E. Stechert & Co., New York.
- . 1920. *Pueblo Bonito*. Anthropological Papers of the American Museum of Natural History Vol. 27. Trustees of the American Museum of Natural History, New York.
- Plog, Stephen. 2003. Exploring the Ubiquitous through the Unusual: Color Symbolism in Pueblo Black-on-White Pottery. *American Antiquity* 68:665–695.
- Plog, Stephen, and Carrie C. Heitman. 2010. Hierarchy and Social Inequality in the American Southwest, AD 800–1200. *Proceedings of the National Academy of Science* 107(46):19619–19626.
- Reuter, Thomas. 2002. *The House of Our Ancestors: Precedence and Dualism in Highland Balinese Society*. KITLV Press, Leiden, Netherlands.
- Sebastian, Lynn. 2006. The Chaco Synthesis. In *Archaeology of Chaco Canyon: An Eleventh-Century Pueblo Regional Center*, edited by Stephen H. Lekson, pp. 393–422. School of American Research Press, Santa Fe.
- Stephen, Alexander. 1969 [1936]. *Hopi Journal of Alexander M. Stephen*, edited by Elsie Clews Parsons. 2 vols. Columbia University Press, New York.
- Tedlock, Dennis. 1979. Zuni Religion and World View. In *Southwest*, edited by Alfonso Ortiz, pp. 499–508. Handbook of North American Indians, Vol. 9, William C. Sturtevant, general editor. Smithsonian Institution, Washington, D.C.
- Toll, H. Wolcott. 2001. Making and Breaking Pots in the Chaco World. *American Antiquity* 66:56–78.
- Toll, H. Wolcott, and Peter J. McKenna. 1987. The Ceramography of Pueblo Alto. In *Investigations at the Pueblo Alto Complex, Chaco Canyon, New Mexico, 1975–1979, Vol. III, Artifactual and Biological Analyses*, edited by Frances Joan Mathien and Thomas C. Windes, pp. 19–230. Publications in Archeology 18F, Chaco Canyon Studies. National Park Service, U.S. Department of the Interior, Santa Fe.

- . 1992. *The Rhetoric and the Ceramics: Discussion of Types, Function, Distribution, and Sources of the Ceramics of 29SJ627*. In *Excavations at 29SJ627, Chaco Canyon, New Mexico, Vol. II, The Artifact Analyses*, edited by Frances Joan Mathien, pp. 37–248. Reports of the Chaco Center No. 11. Division of Cultural Research, National Park Service, Santa Fe.
- Toll, Wolcott, Marcia Newren, and Peter McKenna. 2005. Always There, Often Overlooked: The Roles and Significance of Small Houses in the Chaco World. Paper presented at the 70th Annual Meeting of the Society for American Archaeology, Salt Lake City.
- Truell, Marcia. 1979. Preliminary Report 29SJ627. Manuscript on file, Chaco Culture National Historical Park Museum Archive, University of New Mexico, Albuquerque.
- . 1986. A Summary of Small Site Architecture in Chaco Canyon, New Mexico. In *Small Site Architecture of Chaco Canyon*, by Peter McKenna and Marcia Truell, pp. 115–508. Publications in Archaeology 18D, Chaco Canyon Studies. National Park Service, U.S. Department of the Interior, Santa Fe.
- . 1992. *Excavations at 29SJ 627, Chaco Canyon, New Mexico. Volume I. The Architecture and Stratigraphy*. Reports of the Chaco Center No. 11. Division of Cultural Research, National Park Service, Albuquerque.
- Van Dyke, Ruth. 2007. Great Kivas in Time, Space, and Society. In *Architecture of Chaco Canyon, New Mexico*, edited by Stephen H. Lekson, 93–126. University of Utah Press, Salt Lake City.
- Vivian, R. Gordon, and Paul Reiter. 1960. *The Great Kivas of Chaco Canyon and Their Relationships*. Monograph No. 22. School of American Research, Santa Fe.
- Vivian, R. Gwinn. 1990. *The Chacoan Prehistory of the San Juan Basin*. Academic Press, New York.
- Waterson, Roxana. 1990. *The Living House: An Anthropology of Architecture in South-East Asia*. Oxford University Press, London.
- . 1993. Houses and the Built Environment in Island South-East Asia: Tracing Some Shared Themes in the Uses of Space. In *Inside Austronesian Houses: Perspectives on Domestic Designs for Living*, edited by James J. Fox, pp. 221–235. Department of Anthropology in association with the Comparative Austronesian Project, Research School of Pacific Studies, Australian National University, Canberra.
- . 1995. Houses and Hierarchies in Island Southeast Asia. In *About the House: Lévi-Strauss and Beyond*, edited by Janet Carsten and Stephen Hugh-Jones, pp. 47–68. Cambridge University Press, Cambridge.
- . 2000. House, Place and Memory in Tana Toraja (Indonesia). In *Beyond Kinship: Social and Material Reproduction in House Societies*, edited by Rosemary Joyce and Susan Gillespie, pp. 177–188. University of Pennsylvania Press, Philadelphia.

- Whiteley, Peter M. 1998. *Rethinking Hopi Ethnography*. Smithsonian Institution Press, Washington, D.C.
- Windes, Thomas. 1987a. *Investigations at the Pueblo Alto Complex, Chaco Canyon, New Mexico, 1975–1979. Volumes I and II*. Publications in Archeology 18F, Chaco Canyon Studies. National Park Service, U.S. Department of the Interior, Santa Fe.
- . 1987b. Some Ground Stone Tools and Hammerstones from Pueblo Alto. In *Investigations at the Pueblo Alto Complex, Chaco Canyon, New Mexico: Tests and Excavations, 1975–1979, Vol. III, Artifactual and Biological Analyses*, edited by Frances Joan Mathien and Thomas C. Windes, pp. 291–358. Publications in Archeology 18F, Chaco Canyon Studies. National Park Service, U.S. Department of the Interior, Santa Fe.
- . 1993. Ground Stone, Chopping, and Percussion Tools from 29SJ 629. In *The Spadefoot Toad Site: Investigations at 29SJ 629, Chaco Canyon, New Mexico, Vol. II, Artifactual and Biological Analyses*, edited by Thomas C. Windes, pp. 201–268. Reports of the Chaco Center No. 12. Division of Cultural Research, National Park Service, Albuquerque.
- . 2003. This Old House: Construction and Abandonment at Pueblo Bonito. In *Pueblo Bonito: Center of the Chacoan World*, edited by Jill E. Neitzel, pp. 94–106. Smithsonian Institution Press, Washington, D.C.
- Windes, Thomas. 1993 (editor). *The Spadefoot Toad Site: Investigations at 29SJ629, Chaco Canyon, New Mexico*. Reports of the Chaco Center, no. 12. Division of Cultural Research, National Park Service, Albuquerque.
- Windes, Thomas C., and Dabney Ford. 1996. The Chaco Wood Project: The Chronometric Reappraisal of Pueblo Bonito. *American Antiquity* 61:295–310.
- Woods, Janet. 1931. “Excavation Work, the Great Bowl, Chetro Ketl.” Chaco Culture National Historical Park, Museum Archives. Electronic document, http://www.chacoarchive.org/media/pdf/001869_public.pdf (accessed September 1, 2010).