

1-1-2003

## Abalone Shell Buffalo People: Navajo Narrated Routes and Pre-Columbian Archaeological Sites

Klara Kelley

Harris Francis

Follow this and additional works at: <https://digitalrepository.unm.edu/nmhr>

---

### Recommended Citation

Kelley, Klara and Harris Francis. "Abalone Shell Buffalo People: Navajo Narrated Routes and Pre-Columbian Archaeological Sites." *New Mexico Historical Review* 78, 1 (2003).  
<https://digitalrepository.unm.edu/nmhr/vol78/iss1/3>

This Article is brought to you for free and open access by UNM Digital Repository. It has been accepted for inclusion in New Mexico Historical Review by an authorized editor of UNM Digital Repository. For more information, please contact [disc@unm.edu](mailto:disc@unm.edu).

# Abalone Shell Buffalo People

NAVAJO NARRATED ROUTES AND PRE-COLUMBIAN  
ARCHAEOLOGICAL SITES

*Klara Kelley and Harris Francis*

In pre-Columbian times, the Colorado River and its tributaries drained a major frontier zone between southwestern farmers and hunter-gatherers of the Great Basin, Rockies, and western Great Plains. Within this vast zone the Chinle Wash (Navajo Nation, Arizona) heads in Canyon de Chelly and the high grasslands southwest of the canyon (Map 1). The wash drains north into the San Juan River, a major tributary of the Colorado River. South over the Chinle watershed divide, the Pueblo Colorado Wash drains toward the Little Colorado River, another Colorado tributary. Across the watersheds of the Chinle and Pueblo Colorado Washes, according to Navajo ceremonial narratives, ancestral Navajo hunters traded deer and antelope skins with Anasazi farmers at such major ceremonial centers as Chaco, Aztec, and Antelope Mesa.

This paper offers evidence that the Chinle and Pueblo Colorado drainages of the Colorado were a regional contact zone in pre-Columbian long-distance trade. We suggest that pre-Columbian people converged on this

---

Klara Kelley received a Ph.D. in Anthropology from the University of New Mexico in 1977. She has lived and worked in the Navajoland for twenty-five years and is currently a self-employed cultural resources consultant. Harris Francis is a self-employed American Indian cultural rights consultant with fifteen years of experience as a cultural resources professional and a lifetime of experience as a Navajo. He is Táchii'nii clan born for Tábaqha clan. Kelley and Francis are coauthors of *Navajo Sacred Places* (Indiana University Press, 1994).



A PRE-COLUMBIAN CEREMONIAL SITE (RUBBLE IN LEFT MIDDLEGROUND) WITH A SEGMENT OF BUFFALO-BEAD CORRIDOR BEHIND IT (VALLEY) AND VIEW OF DISTANT POINT ON ROUTE (GAP IN HORIZON RIGHT OF CENTER).

A Navajo trail shrine still in use lies across the valley near the tree-line on left side of frame.

*(Photograph by Klara Kelley)*

zone for twenty-five hundred years before Spanish contact. These indigenous groups brought together marine shell from the southwest and big game from the north. This trade stimulated subsidiary trade loops in other goods, such as cultivated crops (perhaps encouraging hunters and farmers to specialize), and later turquoise, copper bells, pottery, textiles, and exotic medicinal plants. For a short time (900s–1200s C.E.), Chaco diverted the trade eastward into the San Juan Basin by circulating turquoise through the zone. This hypothesis fits the re-emerging archaeological notion that the pre-Columbians in the southwestern United States took part in various larger geographical networks (Hegmon 2000). The idea challenges the cultural-ecological paradigm that many archaeologists still use to explain the region's pre-Columbian archaeological patterns, a paradigm whose small geographical scale is at odds with the large scale of indigenous oral tradition.

## Sources

Both archaeology and Navajo oral tradition offer information about the region's pre-Columbian history. (The oral traditions of other southwestern Indian groups not covered by our fieldwork provide similar insight.) Among the many kinds of stories that Navajo oral tradition includes are histories of the origins and development of dozens of Navajo ceremonies. These and other stories also tell of the origin and histories of various Navajo clans (named exogamous matrilineal descent groups). Generations of ceremonial practitioners have taught specialized versions of these stories to their students by word of mouth, have told more general versions to people attending ceremonies, and since the 1880s have even told stories to non-Indian scholars to write down.

The Navajo ceremonial narratives have many purposes, which include the transmission of information on correct ceremonial procedure, philosophy, cosmology, and ecology. Whether the narratives also retain historical information is a point of disagreement among Euro-American academics and indigenous thinkers with different assumptions about how one can know about the past. The idea that indigenous oral tradition contains history threatens the privileged status of nonindigenous versions of history and therefore is hotly contested in current discussions about public policy that affects indigenous peoples. We follow the indigenous idea that Navajo oral tradition contains history, but our interpretations are definitely bicultural. Our analyses combine the Navajo author's traditional understanding with the non-Navajo author's academic methodology.

Navajo ceremonial origin stories are set in a time predating domesticated animals, wheeled vehicles, guns, and non-Indians—the pre-Columbian era. Perhaps the parts of these stories that one can most straightforwardly identify with specific times and places are the routes that the story people traveled. The travelers in many Navajo stories are immortals who carry, are named for, or take the form of buffalo, antelope, deer, bighorn sheep, turquoise, marine shell, corn, textiles, ceramics, exotic plants, feathers, obsidian, or salt. Their stopping places include archaeologically dated pre-Columbian buildings. This paper focuses on some of those stories, in particular those in which travelers cross the Chinle and Pueblo Colorado watersheds.

We have worked on several cultural-resource management (CRM) projects in the Chinle and Pueblo Colorado watersheds and surrounding uplands, hereafter called the study region. The CRM projects have allowed us to follow our own independent research into Navajo oral tradition and the connections between stories and archaeological items or documents. We have compiled all place names mentioned in most documented Navajo ceremonial and clan origin stories, most of which were recorded between the 1880s and 1950. We have consulted Navajo ceremonialists and other knowledgeable Navajos to locate these places on the ground, to confirm associations between stories and places, and to compile additional ceremonial stories. We have built upon the fieldwork of others who have studied Navajo place names and sacred places, and our archaeological information, mainly based on CRM work, has been compiled by others.

## Analysis

### Oral Tradition

In the origin story of the Navajo Flintway a young man and his family flee from Thunder, whose home is in the La Plata Mountains north of the San Juan River (Haile 1943, 179–217). Thunder embodies the power of storms and war and the harm these forces can inflict; in Navajo and Puebloan ceremonies, this power is represented by the *chamahia* war club (Frisbie 1971). The family is looking for the Buffalo People, whose power (possibly represented by the Navajo ceremonial shield [Reichard 1977, 630]) defends against Thunder. From the San Juan Valley, the family flees west through Marsh Pass, southwest of Navajo Mountain, to the San Francisco Peaks and the lakes to the south. There, they find the Buffalo People led by Abalone Shell Buffalo Person. The young man follows them straight northeast across southeastern

Black Mesa, the middle Chinle valley, the northern Chuska Mountains, the San Juan River around present-day Farmington, and the Chama River to the Great Plains (see Map 1).

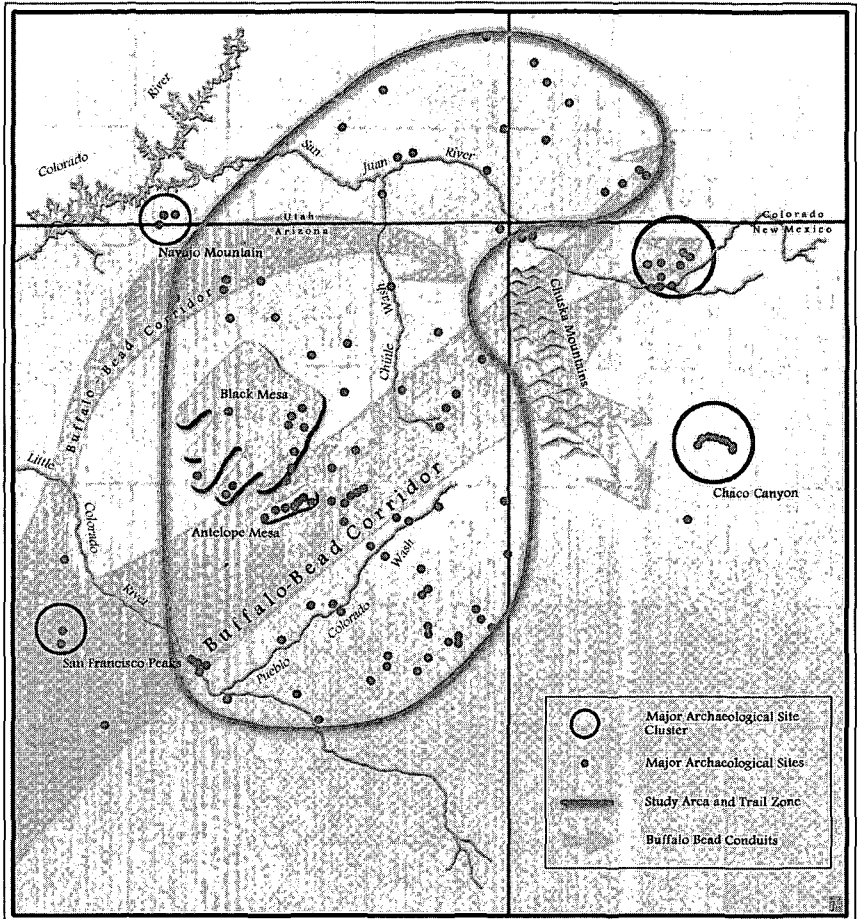
We have found twenty-five Navajo ceremonial narratives that describe similarly mappable routes of beings who carry or embody buffalo, antelope, deer, plant medicine, shell beads, bighorn sheep, turquoise, and other miscellaneous trade items.<sup>1</sup> Plotting each route on a 1:200,000-scale map shows that these routes form two broad corridors, each connected by detours and loops. The two broad corridors correspond to the two Flintway routes running from southwest to northeast (northern and southern buffalo-bead corridors hereafter). The variant routes within each broad corridor carry buffalo, shell beads, or medicinal plants (Map 1; specific routes are omitted to keep active ceremonial knowledge confidential). Detours and loops in the Chinle valley carry the same items and also deer. An antelope corridor runs from north to south through the length of the Chinle and Pueblo Colorado valleys. Other loops carry turquoise and items exchanged for it from Chaco north to the country north of San Juan River and west across Black Mesa, south to Antelope Mesa (Awatobi), and east again.<sup>2</sup>

### Documentation

Documented post-Columbian trails approximate long segments of the Flintway and other ceremonial routes. Approximating the north buffalo-bead corridor are the return route of the Domínguez-Escalante expedition of 1776 (Chavez 1976, 121) and the Armijo cutoff for the Old Spanish Trail in 1829 (Hafen and Hafen 1954). Much of the south corridor follows the Palatkwapi Trail of 1582 (Colton 1964, trail 3; Byrkit 1988; Bartlett 1942). The north-south antelope corridor approximates a route shown on the Miera y Pacheco ([1778] 1970) map. Vizcarra's military expedition of 1823 (Brugge 1964) followed the southern part of one of the alternative routes for turquoise and miscellaneous items. Of course, one would not expect these more recent trails to correspond perfectly to pre-Columbian networks, for the settlement patterns had changed.

### Archaeology in the Study Region

The routes in the twenty-five Navajo stories mapped here also coincide with the distribution of pre-Columbian archaeological sites containing major architectural structures (great houses, great kivas, and compounds). We have compiled a list of such sites and site clusters from several overlapping sources (Fowler and Stein 1991; Fowler and Stein 2001; Stein 1995; Adler and Johnson



MAP 1: BUFFALO-BEAD CORRIDORS

(Map by James W. Martin)

1996; Gilpin 1989; Gilpin n.d.). These sites date between 900 and 1300 C.E. (Map 1). Except for major site clusters at Navajo Mountain and the San Francisco Peaks, respectively to the northwest and southwest of the study region, the study region encompasses virtually all such sites west and north of the San Juan Valley and New Mexico's San Juan Basin, the Chacoan heartland.

In the area from the Chuska Mountains west across Black Mesa and from the San Juan River drainage system south to the Río Puerco of the West are 61 such sites and clusters. Of these 61, 16 are north of the northern corridor or southeast of the southern corridor and network of interconnecting loops (see Map 1). Of the 45 remaining, 32 (73 percent) are near landmarks that the Navajo stories name to delineate the routes. Many places named in the stories are the structures themselves.<sup>3</sup> The three turquoise and miscellaneous-item stories taken together name the highest proportion of such sites: 15 of the 25 named places that have big architectural sites are names of the sites themselves. Outside the study region, most of the twenty-five stories name other large architectural sites and corresponding landmarks. The routes tend to begin and end at the big site clusters of the San Juan River, San Francisco Peaks, and Chaco.

Some of these big buildings have "roads" (constructed corridors) that lead into them (Marshall 1997; Roney 1992). We suggest that these corridors might have served to guide immortal and human travelers along the unconstructed travel routes to large structures.

The correspondence between the route network and the distribution of big architectural sites dating from 900 to 1300 C.E. suggests that such sites were involved in trade for ceremonial items. This hypothesis would be rendered false if a significant portion of the sites lack archaeological evidence of the nonperishable items in question. The lack of excavation in most of these sites prevents testing the hypothesis in this way.

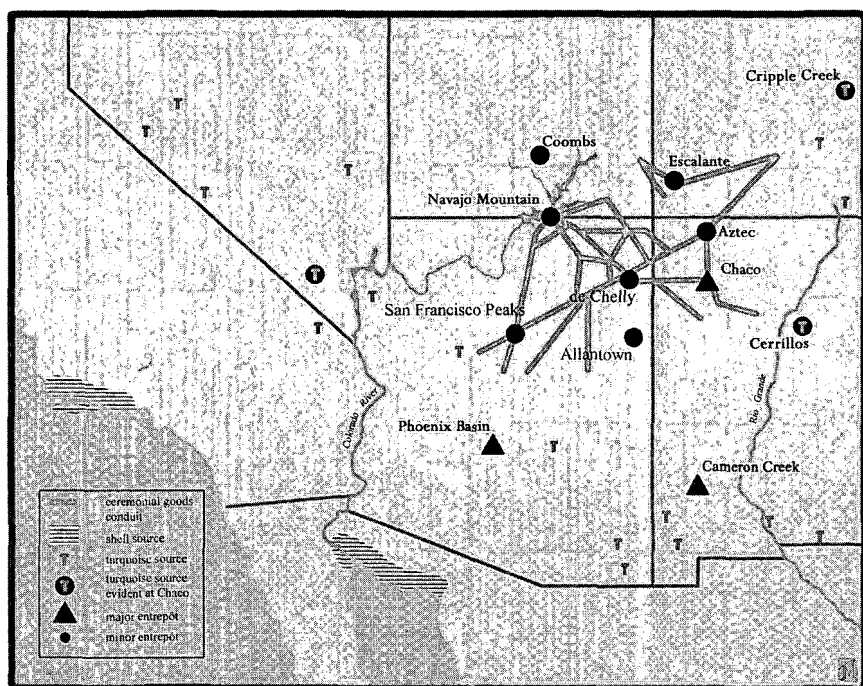
### Archaeology beyond the Study Region

Another way to invalidate our hypothesis would be to determine whether the routes fail to connect with source areas and other major archaeological concentrations of these trade items both inside and outside the region. Published information on distributions of shell, turquoise, big game, and other items in archaeological sites is fragmentary and unsystematized. We have found one comprehensive compilation of the distribution of turquoise, shell, bells, and macaws, dating from 900–1500 C.E., in excavated sites of the southwestern United States (Hudson 1978). More recent compilations for shell (Bradley



1996), copper bells (Vargas 1995), and ornaments (Mathien 1997) use more restricted samples but include up-to-date and detailed information. These works and others identify possible sources of the items.

The four sources listed above disagree on the quantities of items at some sites but support each other in more general space-time distribution patterns. These patterns emerge from the following data sorting. We listed the sites with the ten largest quantities of each item and all the sites in the study region. The quantities of items at the sites on each list tend to form discontinuous clusters and therefore suggest major and minor entrepôts (bulking-redistribution sites) for each item. Map 2 and figure 1 show these locations (more detailed tables are available in a longer manuscript version of this paper Kelley and Francis 2000b). Big game, a major presence in the theme of this paper, is unfortunately absent from all compilations. We interpret the data from the compilations in the following paragraphs.



MAP 2: TRADE-ITEM SOURCE AREAS AND MAJOR AND MINOR ENTREPÔTS.  
(Map by James W. Martin)

**Figure 1. Souces, minor entrepôts, and major entrepôts for exotic items**

Item	Source/ Production Site	Minor Entrepôt	Major Entrepôt
A.D. 900S–1200S			
Shell	Gulf of California/ Phoenix Basin	Coombs, Utah Winona/Ridge Ruin (San Francisco Peaks) <b>Mummy Cave (CdeC)</b> Lost City Nevada	Chaco Cameron Creek/ Suartz (Mimbres)
	Gulf/Pacific? Gulf of California Spondylus only		<b>Allantown</b>
Turquoise	Cerillos/Chaco Zuni Mtn. ?/Andrews Cripple Creek Southern Nevada/ Kingman Chino Valley/ NA 10748–52	<b>Escalante</b> Salmon/Aztec  Coombs RB 568 (Navajo Mtn.) Winona/Ridge Ruin San Francisco Peaks	Chaco
Bell	West Coast of Mexico	Chaco Winona/Wupatiki	Gatlin (Phoenix)
Macaw	?	Wupatki	Chaco?
A.D. 1200S–1400S			
Shell	Gulf of California Phoenix Basin	Chavez Pass (PIV) Kinnikinick? <b>Awatobi?</b>	Casas Grandes/ Chihuahua Gila Pueblo (Globe) Grasshopper (Mimbres)
	Santa Barbara	Chavez Pass (PIV) Kinnikinick? <b>Awatobi?</b>	Higgins (Mimbres) Pecos (1400s)
Turquoise	Cerrillos/Guadalupe Silver City/ W. Baker?	Aztec? Babocomari? <b>Awatobi?</b>	Aztec? Pecos? Lower Rio Grande
Bells	Tarascan Mexico	Gila Pueblo (Globe)	Casas Grandes
Macaw	Casas Grandes	Point of Pines (Mimbres)	Casas Grandes

Sites in bold are in study region.

Between 900 and 1200 C.E., the heyday of Chaco and its ceremonial successor Aztec (Stein and Fowler 1996), the major entrepôts for various items were Chaco (Gulf of California shell, and turquoise from various sources), the Mimbres area (Gulf of California shell), and the Phoenix basin (copper bells, also the major production area for Gulf of California shell ornaments). More data may show that the cluster of sites around the San Francisco Peaks was a major entrepôt.

After about 1200 C.E., the distribution of entrepôts shifted south and east. The major ones were Casas Grandes (Gulf of California shell, bells from the Tarascan area of Mexico; macaws from Casas Grandes itself), the upper Salt River–Mimbres region (Gulf and Pacific Coast shell), and Pecos after 1400–1450 (Pacific Coast shell).

Minor entrepôts could have fed these items from their sources to Chaco through the route network described here. Of special interest is the San Francisco Peaks cluster, which better data might show as a major entrepôt and which continued this role until about 1400 (Pilles 1987). The San Francisco Peaks vicinity, which also includes guardian-like citadels (Pilles 1987), is where, according to Navajo stories, the shell-bearing Water People move east from the ocean and meet the Arrow People (Wyman 1970, 453; Klah 1942, 114–22; Fishler 1953, 91–102; Luckert 1977, 58–60). In the stories, the Water People fight the Arrow People (possibly in ritual fashion), whom they find in an enclosure hung with weapons. Then, the Water People enter their promised homeland and start to establish clan links with groups already in the area, relationships hinting at trading partnerships. We discuss more details on the entrepôts in the following descriptions of each trade item.

*Shell* Gulf of California shell and Pacific shell, or abalone (*Haliotis*), could have come into the route network through the San Francisco Peaks entrepôt sites or perhaps through another possible entrepôt in southern Nevada (Gumerman and Dean 1989, 118). Mummy Cave in the study region at Canyon de Chelly is another possible minor entrepôt. One would expect an entrepôt here in the zone where turquoise, antelope, and deer circuits interconnected the north and south trade corridors. Canyon de Chelly is so central that one wonders why sites there lack more exotic items. Another major entrepôt is Allantown, which lies southeast of the route network and is an entrepôt that mysteriously specialized in spondylus, or red-shell “coral”.<sup>4</sup>

*Big game* The ultimate source of buffalo would have been the Great Plains, although the western and southern extent of their range varied. Between 900 and 1300 C.E., for example, buffalo may have ranged into northern Utah (Haines 1995, 32–33). After the 1200s, the buffalo range shifted far southward onto the southern plains of present-day Texas (Anderson 1999, 17). Before their near-extinction in the late 1800s and early 1900s, bighorn sheep nearest the study region route network lived in the San Juan–Colorado River canyon system along the northern route corridor and the Rocky Mountains to the northeast as well as east along the Continental Divide in New Mexico and through much of Arizona to the west and south (Manville 1980). The loop formed by the northern and southern route corridors through the entrepôt of the San Francisco Peaks could have connected with buffalo and bighorn source areas. The turquoise loop north of the San Juan Valley and perhaps Chaco itself could have also connected buffalo and bighorn source areas. At the Domínguez-Escalante site, a minor entrepôt for turquoise, exchange with bighorn hunters in the nearby Rockies would have been possible (see also turquoise below). Hunters might have brought the turquoise to the site.

Archaeological evidence of big game, especially species other than deer, is sparsely reported and uncompiled, but available data fit surprisingly well with the locations of the suggested entrepôts. Archaeological sites of the 900–1200 C.E. period with unusually large quantities of bighorn remains are located north of the San Juan River (Fremont and southern Utah Anasazi), namely the minor turquoise-shell entrepôt at the Coombs Site and sites in Glen Canyon (Jennings 1978, 233). These sites are accessible to the northern corridor in the study region trail network. Another contemporaneous concentration of bighorn remains is located in the Phoenix Basin major shell production/entrepôt area (the Palo Verde Ruin near Peoria [Hackbarth 1999]). In a personal communication with the senior author on 3 January 2001, Thomas Windes of the National Park Service revealed that bighorn bones appear in late deposits at Chaco itself.

After 1200 C.E., southeast of the study region near Pie Town, New Mexico, the Newton site (1200–1325) and upper strata of Bat Cave contained many buffalo bones (Frisbie 1971, 69 and personal communication; Dick 1965). Between 1250 and 1350, however, farmers of the middle Pecos Valley on the western edge of the Plains became buffalo hunters and, after 1400, left sites with shell and turquoise (Hickerson 1994, 224; Snow 1970, 44). These sites may signal the shift in trade networks to the east and south, a change that also may have led to depopulation in the study region.

Deer and antelope were and still are native to the study region. The route network could have circulated these locally hunted animals.<sup>5</sup> Archaeological evidence of specialist hunters in the study region is not recognized but may include sites that archaeologists assume are “special activity loci” of the Anasazi farmers whose sites are so plentiful. The big architectural sites throughout the study region and beyond, which map closely onto the Navajo narrative route network, may have been the ceremonial meeting places of long distance traders passing among major and minor entrepôts, local deer and antelope hunters, and herbalists, potters, and farmers.<sup>6</sup>

*Plant medicine* The single story that constructs the route mapped in this article lacks any mention of what kind of plant moved along it. The Buffalo People, who used a variant of this route, caused certain psychoactive and other plant medicines to flourish where they camped. The segment from the San Francisco Peaks to Awatobi and on to eastern Black Mesa and Canyon de Chelly is also a migration route of the Tobacco branch of the Navajo Táchii'nii clan (Nát'oh Dine'é Táchii'nii Clan People n.d.; Preston 1954), a hint that tobacco likely traveled along the route. In any case, archaeological evidence of medicinal plants in and near the study region, like evidence of big game, is sparsely reported and uncompiled.

The Kaibab Plateau west of the study region is a traditional Navajo source area for tobacco (Kelley and Francis 2000b, sec. kf9510). The San Francisco Peaks entrepôt linked the southern corridor to the Navajo Mountain and the Colorado River region including the Kaibab Plateau. When Sunset Crater erupted between the 1060s and late 1200s C.E. (Pilles 1987) and spread ash over the Flagstaff area, tobacco may have been one of the first plants in the revegetation succession, for it grows in disturbed ground. Tobacco from volcanic craters seems to have special ceremonial power (Wyman 1952, 88). Another psychoactive plant, *datura*, grows in the region around the southern corridor.

*Turquoise* The pre-Columbian turquoise source areas nearest the study region are Cerrillos near Santa Fe, Kingman and southern Nevada, the San Luis Valley and Cripple Creek in south-central Colorado, the Chino Valley west of the San Francisco Peaks, and southeastern Arizona (Bennett 1966, 8–9; Snow 1970; Wiegand 2001). Turquoise from Cerrillos, Cripple Creek, and southern Nevada appears in Chaco, where Cerrillos turquoise may be the most common (Mathien 1996). Given that turquoise sources are hard to identify,

Chaco turquoise is likely to include other sources also. Southern Arizona (Hohokam) sites had relatively little turquoise before 1150 C.E. (Doyel 1991, 233). The turquoise loop offshoot from Antelope Mesa south could have accessed turquoise from southern Arizona. Chaco was a production center for turquoise ornaments (Toll 1991; Mathien 1997). Awatobi, including "Smaller Awatobi" at Antelope Mesa, might have been another minor entrepôt due to its plentiful but uncounted turquoise and shell beads (Fewkes 1898, 628).

The Cerrillos turquoise may have come directly from the mines to Chaco, perhaps along the east end of the loop for turquoise and related items. In Navajo stories the east loop (Kluckhohn [1944] 1967; Haile 1978, para. 1-3) extends to Jemez possibly by way of the Guadalupe site (compare Judge 1989, 236-37). Mathien's data suggest that Guadalupe produced turquoise jewelry in the 1200s (Mathien 1997, 1185-1190). In early Chacoan times (950-1050 C.E.) similar production seems to have occurred south of Chaco at the Andrews site, which may have been established to work turquoise from the nearby Zuni Mountains, where oral tradition hints at a turquoise source now exhausted (Kelley and Francis 2000, sec. kf9803).

Turquoise from southern Nevada could have come into the route network from a southern Nevada production center/entrepôt (Gumerman and Dean 1989, 118) through entrepôts at Navajo Mountain (northern corridor) or San Francisco Peaks vicinity (southern corridor). As a minor entrepôt, the Domínguez-Escalante site might have received turquoise from Cripple Creek and the San Juan Luis Valley as well as from southern Nevada—perhaps from hunters—through the northeastern extension of the turquoise loop and then transferred it (as well as bighorn and buffalo products) down to Chaco.

*Miscellaneous items: ceramics* The Navajo stories suggest that exchanges of turquoise for miscellaneous items were commonplace. Sticks, stones, and water thrown at travelers on eastern Black Mesa probably encode ceremonial procedures of bathing and making offerings, but might also punningly encode ceramics. We note this possibility because the Chinle and Pueblo Colorado Wash study region evidently did not produce ceramics between 900 and 1300 C.E. (Toll 1991, 91; Stein and Fowler 1996, 124). Cultural-resource management archaeological reports for the Chinle Valley record ceramics from production zones in all directions. Traders following the turquoise loop could have picked up and carried ceramics from all these different zones, exchanging them at major architectural sites along the way for turquoise, skins, textiles, obsidian, and various other items hinted at in the stories.

In the big site clusters that we propose as major and minor entrepôts, some exotic items came from storage space and possible workshops, but most (especially shell and turquoise) came from “high-status” graves. Therefore, one may object that the archaeological distribution of these items does not reflect trade. The end of this paper addresses this issue.

### Implications and Future Research

We suggest that trade between hunters and farmers in the pre-Columbian southwestern United States, including its northern edge around the San Juan and Colorado Rivers, could have worked much as described by the first Spanish contacts in the 1500s (Castañeda [1933] 1990, 56–57, 60; Hammond and Rey 1953, 400; Snow 1970; Wilcox 1986, 137–38). The frontier between hunters and farmers that the Spanish observed was along the Río Grande. The northern part of this frontier was settled by bands of Plains Apache buffalo-hunter families, linguistic relatives of Navajos. The Plains Apaches settled around Pecos, Taos, and other big Puebloan centers during the winter to trade the meat and hides they had hunted earlier in the year on the plains to the east, and in exchange they got corn, textiles, pottery, and turquoise. In the 1500s–1600s Apacheans, forebears of Navajo and Apache speech communities, also settled around Antelope Mesa and the Hopi Mesas (Montgomery, Smith, and Brew 1949, 9; Hammond and Rey 1966, 189; Brugge 1983, 490–91; Snow 1970). Apacheans moved constantly and were great traders. Evidently they specialized in hunting to build up a tradeable surplus at all times (Haines 1995; Castañeda [1933] 1990, 60, 113; Anderson 1999). Farther south were the Jumanos, whose “trade brigades” moved through strings of communities between the south Texas Plains and northwest Mexico, even to the San Francisco Peaks (Hickerson 1994; Anderson 1999).

In pre-Columbian times, Chaco and other entrepôt centers could have articulated with similar down-the-line networks. The entrepôts may also have been destinations for Mesoamerican specialist long-distance traders (Frisbie 1998; Kelley 1986; Wiegand 2001).<sup>7</sup>

Trade is evident in the Chinle watershed in the form of marine shell by 1000 B.C.E. (Gilpin 1994). In the ensuing pre-Columbian millennia, trade along the corridors that cross the middle Chinle Valley must have waxed and waned in response to forces such as changes in trade along the Pacific coast and Gulf of California, including boat travel; Mesoamerican urbanization, political upheavals, and trade; climatic changes that affected supplies of shells

and big game; the condition of precious mineral deposits; and climate and the regional erosion cycle that affected farming.

Long-distance exchange of shell and big-game products might explain why some of the earliest recorded sites with corn in the Southwest are in the San Juan watershed and many others are in the Río Grande watershed, where buffalo appeared around the same time (Gilpin 1994; Woodbury and Zubrow 1979; Galinat and Gunnerson 1969; Gumerman and Dean 1989, 111; Wills 1988, 54, 149–50). Especially noteworthy is a site with marine shell and corn dating to 1000 B.C.E. on the route of the Buffalo People in the Flintway origin story (Gilpin 1994). After at least one thousand years of plant domestication in the greater Southwest, sedentary farming became widespread (Woodbury and Zubrow 1979), including the irrigation that accompanied shell ornament production at Snaketown about 300 B.C.E. (Gumerman and Haury 1979, 77–80). More productive varieties of corn appeared in the United States Southwest around 500 B.C.E. (teosinte hybrid) and again between 1 and the 300s C.E. (maíz de ocho). Archaeological evidence of the new corn seems clustered in the middle Río Grande drainage and the same general areas, the Gila uplands and the San Juan–Colorado River zone, as earlier new corn types. Perhaps local farmers traded corn for big game while they waited for the shell traders to show up.

Hunter-farmer specialization and symbiosis (the cultural marking of which scholars often interpret as an “ethnic” difference) has been common in non-industrial societies throughout the western hemisphere and even worldwide (Barth 1998; Brotherston 1994, 141; Upham 2000). Icons of this symbiosis in Navajo narratives include the Buffalo People and the plant medicines that spring up in their wake, as well as Bighorn Sheep, Turkey, and Deer People with medicinal and domesticated plants in their bodies and pelts (see Navajo narratives other than the twenty-five discussed above, for example, Matthews [1897] 1994, 160–94)). These icons may even encode a knowledge of plant-animal mutualism that led to the origins of agriculture (Kuznar 2001, 29–30).

Trade routes might also explain why, in the northern Southwest, early Basketmaker (1500/1000 B.C.E.–500 C.E.) hunter-farmer material, including burials and other deposits with early pottery, shell, bighorn sheep parts, and even a little turquoise, seems concentrated in the zone of northern Black Mesa and along the San Juan River, Colorado River, and the tributary Chinle Wash. By late Basketmaker times (600s–700s C.E.) big sites with central ceremonial structures (“great kivas”) and dozens of storage pits were distributed — although more thinly — around the region like the later big architectural sites



(Gilpin 1994, 207; Mathien 1997, 1139–47; Robins and Hays-Gilpin 2000, 233–39; Damp and Kotyk 2000, 102, 112; Reed et al. 2000, 212; Gilpin and Benallie 2000, 161–62; Altschul and Huber 2000, 146–47). These patterns suggest that the trade corridor network mapped in this paper developed between 1000 B.C.E. and 500 C.E. Trade seems to have been more active in the study region than in the San Juan Basin until as late as 900 C.E. (Mathien 1997, 1151).

Such trade may be why the comparable hunter-farmer Fremont material culture complex flourished north of the river between 1 and 1350 C.E. (Jennings 1978, 155–233; Upham 2000; Talbot 2000). Fremont hunters took bison and bighorn as well as deer and other big game. Their surviving iconography features heavily beaded humanlike figures in petroglyphs and clay figurines. Simpler clay figurines, punctated to render necklaces, appeared in Basket-maker caves south of the San Juan river on the buffalo-bead routes near Kayenta and Cove and are contemporaries of the early Fremont (Guernsey 1931, 86; Morris 1980; Amsden 1949, 135).

Chaco, in its heyday, seems to have drawn the earlier shell trade corridors (northern and southern) into a network with itself as the central node, perhaps through controlling and redistributing turquoise. During this period, Lost City near Las Vegas, Nevada, flourished as a major bead and turquoise trade center (Gumerman and Dean 1989, 118; Amsden 1949, 130–31), and western Anasazi population seems to have reached both its maximum density and its northwesternmost location (Gumerman and Dean 1989; Jennings 1966, 34–35). The Fremont and southern Utah Anasazi sites of 900–1200 C.E. with unusually plentiful remains of buffalo and mountain sheep (Jennings 1978, 233) seem to cluster along shell trade corridors north of the San Juan (Hughes and Bennyhoff 1986, 239). The apogee of Chaco is also the time of northern (Kayenta) Anasazi evidence both farther north in the Fremont country (Jennings 1966, 35) and at Point of Pines south of the Mogollon Rim (Gumerman and Dean 1989, 126).

The florescences in the southwestern United States sketched here coincide with trade shifts along the West Coast of Mexico (Gulf of California), especially the florescence of Amapa between 900 and 1200 C.E. and its link to Guasave, a major coastal trade center farther north (Adams 1991, 322–25; Kelley 1986; Bradley 2000; Douglas 2000). Mathien (1997, 1162) notes similar turquoise jewelry in Guasave and Chaco, 920–1020 C.E. The turquoise workshops that flourished in Chalchihuites near the north Mexican Continental Divide between 400 and 900 C.E. were the largest in North America

or Mesoamerica and may have “opened up” the southwestern United States as a source of turquoise (Wiegand 2001, Nelson 2000). Chaco, and later Aztec, may have been the northern end of a route from north Mexican centers straight up the Continental Divide through the also flourishing Mimbres “culture area” (Kelley 1986; Lekson 2000), which was earlier the scene of the first cultivation of corn in the southwestern United States. The corridor is presumed to be a longstanding route of cultural and biological diffusion between Mesoamerica and the southwestern United States (Smith et al. 2000, 569; Kelley 1986; for shared Mesoamerican-southwestern United States ceremonial iconography see Brotherston 1994). Shifts in west Mexican trade inland to Casas Grandes on the north Mexican Continental Divide after 1200 (Vargas 1995; Bradley 2000) may have helped move trade from the lower San Juan–Colorado Rivers across the Continental Divide into the Río Grande Valley.

Climate change may have been involved in this trade shift. According to various historical reconstructions of world climate (LeBlanc 1999, 33–39; Knight 1982, 51–54), between 1000 and 1200 the climate of the Northern Hemisphere was warmer and wetter than it had been previously. The climate reversed after 1200. Changes in ocean currents and winds must have affected marine shells and the coastal trade. (Hudson’s [1978] data suggest that marine shell from the Pacific Coast became more common after 1200.) Cold and drought returned to the Southwest. Moisture may have increased again after 1400, but the climate evidently remained cold with a shorter growing season until the 1600s.

A hypothesis worth investigating is that climatic pulsations drew hunters toward the Southwest from the Great Basin, Rockies, and Plains along the far-flung extensions of the buffalo-bead and related networks, as suggested by the shared story motifs, iconography, and exotic items in archaeological sites of the surrounding regions (Thompson [1929] 1966, 97–100, 104, 150–73; Turner 1971, 33–37; Upham 2000). During cold phases the hunters followed the game southward, and during warm phases some of them became farmers. These hunters would have included Athabaskan-speaking ancestors of Navajos and members of other language groups at different times (Sutton 2000). One corollary hypothesis, supported by biological evidence, is that in-migrants and earlier residents intermarried (Lorenz and Smith 1996; Smith et al. 1999; Kaestle and Smith 2001). A second hypothesis, supported by linguistic studies, is that, without a politically dominant group, the language of the group most favored by a particular environmental change might have become the region’s common language for a time (Nichols 1997, 372–74, 379–80).

LeBlanc (1999, 33–39, 118) suggests that climate changes after 1200 undermined agriculture in climatically marginal zones like the San Juan–Colorado River zone and contributed to depopulation and violence. Discussing in detail the evidence for violence in the study region is beyond our scope here; on the San Juan–Colorado River zone (north end of the study region) evidence such as burned settlements and mutilated bodies may be most widespread in the periods 1–500 C.E., 850–900, and the 1200s (LeBlanc 1999, 127, 132, 136, 149, 190). The trade route network delineated here could have encouraged violence when farmer communities competed for favored positions on trade frontiers or when hunters raided their erstwhile farmer trading partners. Violence might have resulted from either trade growth (1–500 C.E.) or deterioration in farming conditions (1200s C.E.).

Erosion also could have undermined agriculture and population density. Dean and others (1985) have found evidence of cyclically rising and falling water tables on Black Mesa accompanied by arroyo cutting and filling. Dean and his collaborators have generalized these cycles to the Colorado Plateau. Water tables fell dramatically around 750 C.E., rose in the 900s, and fell again in 1300 causing arroyos to deepen. The upper Pueblo Colorado Wash, Canyon de Chelly, and the middle Chinle Valley, however, were relatively populous in earlier times when water tables were low (700s–800s). The post-1300 depopulation evident in these places, therefore, may have resulted from factors other than erosion.

The same climatic shifts also drove buffalo onto the southern plains of Texas (Anderson 1998, 17). Perhaps, the spreading buffalo caused the major hunter-farmer long-distance trade frontiers to shift far southward and eastward, where the Spanish found them in the 1500s.

Our study region, the Chinle and Pueblo Colorado drainages and bordering uplands, then, seems to have formed a pre-Columbian trade zone where resident deer and antelope hunters and farmers accessed long-distance trade routes for shell, buffalo and bighorn sheep, turquoise, and other products. Chaco, usually considered the eight-hundred-pound gorilla of the regional system, is only a temporary result of long-term and long-distance exchanges between coastal shell producers and inland big-game hunters, whose exchanges farmers eventually mediated.

How, if at all, the shell and big-game exchange gave rise to Chaco is a question for future research. Friedman offers a potentially useful model. He suggests that, as urban “centers of civilization” developed, they stimulated the growth of “peripheral” systems. Some peripheral systems were politically and

economically “dependent” on the urban centers. Other systems were politically and economically “independent,” but were nevertheless affected by the urban centers and other peripheral systems. Some of these independent peripheral systems were predatory and “expansionist”—they captured—or extorted—rare goods flowing to and from the urban centers, and those goods fueled their expansion. Others were “primitive” systems that had lost land and resources to expansionist systems, which had squeezed them into poor marginal lands or even enslaved them (Friedman 1999, 34ff.).

Information in this paper suggests that Mesoamerican urban “centers of civilization” were linked with long-standing big-game and shell-exchange networks to the north and also sought turquoise sources there. Chaco, originally one of many nodes on the network, could have become a peripheral, independent, predatory system. (Hohokam centered in the Phoenix Basin might be another such system; other examples of both independent and dependent systems would be in northern Mexico.) In the interstices of Chaco and the other expansionist systems, “primitive” systems may have existed, but others on the outskirts, like the western Anasazi of our study region and the nearby Fremont and Sinagua, seem to have flourished.

Finally, in Friedman’s model, trade route entrepôts were likely to have the kind of “status burials” similar to those found at Anasazi archaeological sites with high concentrations of exotic items. Expansionist predatory systems developed kin group ranking. Kin groups located to capture trade also attained the highest status, and exalted their ancestors above those of lower-ranked kin groups. Status burials reflect this exaltation, and thereby also reflect control of long-distance trade.

## Afterword

With very few exceptions, archaeologists seem to have been blind to the possibility that maps [including “oral maps”] made within traditional societies during the historical period might reveal sites, trails, even boundaries in ancestral prehistoric societies. (Woodward and Lewis 1998, 15)

Archaeologists are blind partly because they doubt oral tradition is stable enough to retain verifiable information. Here, the question is how oral tradition could preserve information about an area for seven hundred years after its depopulation, especially when the oral tradition has come down among

Navajos, whom many archaeologists assume were not in the southwestern United States until five to six hundred years ago.

There are several pieces of evidence that contribute to the archaeological validity of Navajo narratives. First, one example of an oral tradition that endured, as did the Navajo narratives, until it was finally preserved in writing is Homer's *Iliad*, which relates events that occurred several hundred years before the development of the first alphabetic writing (Havelock 1986). Second, according to Navajo clan histories, Navajo clans originated among many different ethnic and speech communities before coalescing into the Navajo people. Some of these clans have roots, both pre-Columbian and post-Columbian, in common with Puebloan clans (Lorenz and Smith 1996; Smith et al. 1999; Smith et al. 2000); most anthropologists assume that the Puebloans are descendants of the Chacoans and their contemporaries to the west and south. Third, although many anthropologists still believe that the Apachean (Southern Athabaskan) languages spread into the southwestern United States around 1500, dating language spread through material culture is notoriously risky either alone or as a control for glottochronology, which is itself inexact (Campbell 1997, 112; Young 1983, 393; Trager 1967, 339–40; Kelley and Francis 1998). Finally, regardless of when Apachean languages spread into the southwestern United States, languages spread not by migration alone but also by stationary populations eventually adopting in-migrants' languages (Nichols 1997, 372; Trager 1967, 347–48).

The processes that help oral tradition preserve information about the past for hundreds of years involve need, mechanism, and medium. Although the region covered by the stories in this paper was depopulated, people traveled across it and therefore needed some kind of mental cartography. The Navajo narratives contain oral maps in the form of strings of named topographical reference points on straight lines of travel. Whatever routes they used on the ground, travelers knew they were on the right line when they were at a particular place mentioned in the story's string of names. The mechanism of transmission was ceremonialism. Navajo oral tradition was and still is passed down through organized ceremonialism; practitioners teach their students and perform the stories and songs before gatherings at ceremonies. Elderly Navajos have told us that leaders of long-distance trips were men who knew the relevant songs, stories, and rituals, which they systematically taught to younger men before and during trips. Furthermore, although Navajo ceremonies and their stories are not the property of particular clans, members of certain clans seem to have comprised the majority of practitioners of certain ceremonies and to

have clustered in the landscapes covered by the stories of those ceremonies (see, for example, Wyman 1965; information about ceremonialists associated with the stories used for this paper is insufficient to make such a statement about the associated routes). Finally, as a medium, oral tradition has certain features (song or meter, rhyme, formulaic phrases, events, figures, iconography, and so forth) that stabilize it during teaching and learning. The Navajo stories and songs that lay out the routes discussed in this paper are tied to ceremonies and therefore possess these characteristics.

We believe that Navajo ancestors of Athabaskan and other speech communities lived and traveled around the Southwest and neighboring western Plains, northern Mexico, Great Basin, and southern Rockies during pre-Columbian times. We believe that they helped circulate ceremonial items and their associated practices, songs, prayers, and stories. Modern Navajo ethnic identity, like the identities of other American Indian groups, may have been forged during post-Columbian times of turmoil. Nevertheless, constituents of today's Navajo society—clans and ceremonialists who share a particular type of practice—have much earlier roots in the groups interlinked by the networks that spanned the Southwest.

## Notes

1. For *buffalo* (three narratives) see Wheelwright 1958, 23; Reichard [1939] 1977, 68–71; Haile 1943, 178–217. *Antelope* (one narrative): Van Valkenburgh 1974, 97. For *deer* (one narrative): Luckert 1975, 32–72; Luckert 1978. *Plant medicine* (one narrative): Kelley and Francis 2000, section 0000 and the buffalo stories cited above. *Shell beads* (fifteen narratives): Kelley and Francis 2000: section 9701; Wyman 1970, 447–59 (cf. Mitchell 1978, 180ff.); Wyman 1970, 327–33; Clinton 1990, 16–17; Luckert and Cooke 1979, para. 2–6, 16–17 (cf. Wheelwright 1956); Reichard [1939] 1977, 26; Haile 1981, 162–75; Fishler 1953, 91–102; Klah 1942, 114–22; Luckert 1977, 58–60; O'Bryan 1956, 166–75 (cf. Goddard 1933, 168–79); Matthews 1897, 135–59; Preston 1954, 23–27, 98–102. *Bighorn sheep* (two bead people narratives): O'Bryan 1956, 166–75; and Luckert 1977, 58–60 (other narratives that do not cross the study region place bighorn in the Grand Canyon to the west and along the Continental Divide to the east). *Turquoise and miscellaneous items exchanged for it* (three narratives): Kluckhohn 1967, 158–60, 165–167; O'Bryan 1956, 144, 155–57; Haile 1978, para. 4–10, 127–58; O'Bryan 1956, 47–48, 121 (cf. Goddard 1933, 127–28).
2. The routes we discuss in this paper are specifically for beings who embody shell, big game, plant medicine, turquoise, and related items. Other Navajo ceremonial stories delineate alternative routes for different types of beings outside the routes traced here. For example, Salt Woman, an immortal who controls salt, traveled from the

mouth of the Little Colorado River southeast ultimately to Zuni Salt Lake or from the Emergence Place in southwestern Colorado south down the Black Creek Valley to Zuni and Zuni Salt Lake (Fishler 1953, 85–91; Wheelwright 1956, 53–54; Hill 1940, 7–8; Stephen 1930, 104). Parts of her routes are inside the study area but south of the trail zone discussed here (see Map 1). The greater part of Salt Woman's routes, however, lie outside the study area and have been documented in connection with different ceremonies than are the stories covered by this paper. In any case, pre-Columbian sites with monumental architecture are at most of her stopping places.

3. Other archaeological sites are also on the routes but the story versions consulted here leave those locations unnamed, and the stories also name many more landmarks without known big architecture nearby.
4. Archaeological and ethnohistorical work in west Mexico (Adams 1991, 322–26; Vargas 1995; Anawalt 1997) suggests pre-Columbian trade along the Gulf of California in boats. The trade network may have extended as far south as coastal Ecuador. Traders from there may have sailed as far north as the Gulf of California for spondylus shell to trade to the highland Peruvians for ceremonial offerings. To Anawalt (1997), shaft tombs, pottery, metallurgy, and clothes suggest that certain west Mexican groups, including Tarascans, may have been enclaves of these Ecuadorians. The clothing, incidentally, includes a shell penis cover that can hardly fail to remind one of the humpbacked fluteplayer in pre-Columbian petroglyphs, possibly trailside, all over the Colorado Plateau. The Tarascans of Michoacan, west Mexico, florescent politically and metallurgically 1000–1500 C.E., may be linguistic relatives of Zuni and the South American Macro-Chibcha family (Adams 1991, 324–25) and seem to be the main source of copper bells in the southwestern United States after 1200 (Vargas 1995). The Allantown site is near the heart of the traditional Zuni land base. The storeroom with the spondylus at Allantown probably dates to the period 600–900 C.E., as do other occurrences of spondylus in the Anasazi region such as the Artificial Leg Site in the Río Grande Valley and Chaco (Mathien 1997, 1153, 1155, 1162). Allantown is in the zone that Salt Woman traveled through (see note 2).
5. The routes might even have delineated hunting territories. For comparison, see post-Columbian Chemehuevis (Laird 1976, 119)
6. In Navajo and western Apache clan histories, Deeshchí'í'nii and linked clans Tl'ááshchí'í, Tsi'naajinii, and Kint'ichí'í'nii originated or traveled along the corridor identified with the antelope in the Chinle–Pueblo Wash zone of the Colorado (Fishler 1953, 101; Goodwin 1942, 614–16). The western Apache Deeshchí'í'nii clan—perhaps the largest western Apache clan—migrated south from Navajo land because of warfare and settled at Cibecue.
7. We have suggested elsewhere (Kelley and Francis 1999) that the Navajo Blessingway ceremonial stories about the Water People, who are associated with shell and traveled the northern or southern corridors, may have something to do with trading partnerships. Along their route, each pair, whose descendants through the female line belong to one of the four or six Navajo primary clans, established kinship links with various local people. The matrilineal descendants of these local people make up many of the other fifty-plus Navajo clans. Note also “high status” individuals at

both Chaco (Old Bonito [Frisbie 1998]) and the San Francisco Peaks area (Ridge Ruin, Eldon Pueblo [Pilles 1987]), which have qualitatively (evidently not quantitatively) similar assemblages of "exotic" goods, including labrets, ceremonial wands or canes, and conch shell trumpets, that Frisbie (1998) identifies with specialist long-distance traders from Mesoamerica. Wiegand (2001) reports that Cerrillos turquoise, the dominant type at Chaco, is also in contemporaneous sites on the Mexican West Coast and in Yucatán (Chichén Itzá).

## References

- Adams, Richard E. W. 1991. *Prehistoric Mesoamerica*. Rev. ed. Norman: University of Oklahoma Press.
- Adler, Michael, and Amber Johnson. 1996. Mapping the Puebloan Southwest. In *The prehistoric Pueblo world, A.D. 1150–1350*, edited by Michael A. Adler. Tucson: University of Arizona Press.
- Altschul, Jeffrey H. and Edgar K. Huber. 2000. Economics, site structure, and social organization during the Basketmaker III period: A view from the Lukachukai Valley. In *Foundations of Anasazi culture*, edited by Paul F. Reed. Salt Lake City: University of Utah Press.
- Amsden, Charles Avery. 1949. *Prehistoric southwesterners from Basketmaker to Pueblo*. Los Angeles: Southwest Museum.
- Anawalt, Patricia Rieff. 1997. Traders of the Ecuadorian Littoral. *Archaeology* 50 (6): 48–52.
- Anderson, Gary Clayton. 1999. *The Indian Southwest, 1580–1830*. Norman: University of Oklahoma Press.
- Bartlett, Katharine. 1942. Notes upon the route of Espejo and Farfán to the mines in the sixteenth century. *New Mexico Historical Review* 17 (1): 21–36.
- Barth, Frederik. 1998. *Ethnic groups and boundaries*. London: Allen and Unwin, 1969. Reprint, Prospect Heights, Ill.: Waveland Press.
- Bennett, Edna Mae. 1966. *Turquoise and the Indian*. Denver: Sage Books.
- Bradley, Ronna Jean Earthman. 1996. *The role of Casas Grandes in prehistoric shell exchange networks within the Southwest*. Ph.D. diss., Arizona State University, Phoenix. Ann Arbor, Mich.: University Microfilms.
- . 2000. Networks of shell ornament exchange: A critical assessment of prestige economies in the North American Southwest. In *The archaeology of regional interaction: Religion, warfare, and exchange across the American Southwest and beyond*, edited by Michelle Hegmon. Boulder: University Press of Colorado.
- Brotherston, Gordon. 1994. *Book of the fourth world: Reading the Native Americas through their literature*. Cambridge, U.K.: Cambridge University Press.
- Brugge, David M. 1964. Vizcarra's Navajo campaign of 1823. *Arizona and the West* 6: 223–44.
- . 1983. Navajo Prehistory and History to 1850. In *handbook of North American Indians, vol. 10. Southwest*, edited by Alfonso Ortiz. Washington, D.C.: Smithsonian Institution Press.
- Byrkit, James W. 1988. The Palatkwapi trail. *Plateau* 59 (4).



- Campbell, Lyle. 1997. *American Indian languages: The historical linguistics of Native America*. New York: Oxford University Press.
- Castañeda, Pedro de et al. 1990. *The journey of Coronado*. Translated by George Parker Winship. 1933. Reprint, New York: Dover.
- Clinton, Alvin. 1990. Interview. In *I am a child of this sacred land*, by The Teesto Navajos Affected by the Relocation Efforts. Window Rock, Ariz.: Navajo-Hopi Land Commission.
- Colton, Harold S. 1964. Principal Hopi trails. *Plateau* 36 (3): 91-94.
- Damp, Jonathan E., and Edward M. Kotyk. 2000. Socioeconomic organization of a late Basketmaker III community in the Mexican Springs area, southern Chuska Mountains, New Mexico. In *Foundations of Anasazi culture*, edited by Paul F. Reed. Salt Lake City: University of Utah Press.
- Dean, Jeffrey, S., Robert C. Euler, George J. Gumerman, Fred Plog, Richard H. Hevly, and Thor N. V. Karlstrom. 1985. Human behavior, demography, and paleoenvironment on the Colorado plateaus. *American Antiquity* 50: 537-54.
- Dick, Herbert. 1965. *Bat Cave. Monograph 27*. Santa Fe, N.Mex.: School of American Research Press.
- Douglas, John E. 2000. Exchanges, assumptions, and mortuary goods in pre-Paquimé Chihuahua, Mexico. In *The archaeology of regional interaction: Religion, warfare, and exchange across the American Southwest and beyond*, edited by Michelle Hegmon. Boulder: University Press of Colorado.
- Doyel, David E. 1991. Hohokam exchange and interaction. In *Chaco and Hohokam: Prehistoric regional systems in the American Southwest*, edited by Patricia L. Crown and W. James Judge. Santa Fe, N.Mex.: School of American Research Press.
- Fewkes, Jesse Walter. 1898. Archaeological expedition to Arizona in 1895. In *Seventeenth annual report of the Bureau of American Ethnology, 1895-1896, Part 2*. Washington, D.C.: Smithsonian Institution Press.
- Fishler, Stanley A. 1953. *In the beginning: A Navaho creation. Anthropological paper 13*. Salt Lake City: University of Utah Press.
- Fowler, Andrew, and John Stein. 1991. The Anasazi Great House in space, time, and paradigm. Manuscript in possession of author.
- . 2001. The Anasazi Great House in space, time, and paradigm. In *Anasazi regional organization and the Chaco system*, edited by David E. Doyel. Anthropological Paper 5. Reprint, Albuquerque: Maxwell Museum of Anthropology.
- Friedman, Jonathan. 1999. System, structure, and contradiction. Copenhagen: National Museum of Denmark, 1979. Reprint, Walnut Creek, Calif.: Altamira Press.
- Frisbie, Theodore. 1971. An archaeo-ethnological interpretation of maize deity symbolism in the Greater Southwest. Ph.D. diss., Southern Illinois University. Ann Arbor, Mich.: UMI Dissertation Services.
- . 1998. New light on the Pochteca concept and the Chaco phenomenon. In *Din Bikyah: Papers in honor of David M. Brugge*, edited by Meliha S. Duran and David T. Kirkpatrick. Paper 24. Albuquerque: Archaeological Society of New Mexico.
- . 2000. Conversation with the senior author. Sixth Occasional Anasazi Symposium, San Juan College, Farmington, N.Mex., 27 October.

- Calinat, Walton C., and James H. Gunnerson. 1969. Appendix I: Fremont Maize. In *The Fremont culture*, edited by James H. Gunnerson. Papers of the Peabody Museum vol. 59, no. 2. Cambridge, Mass.: Harvard University Press.
- Gilpin, Dennis. 1989. Great houses and Pueblos in northeastern Arizona. Paper presented at the 1989 Pecos Conference, 17–20 August, at Bandelier National Monument, Los Alamos, N.Mex.
- . 1994. Lukachukai and Salina Springs: Late archaic/early Basketmaker habitation sites in the Chinle Valley, northeastern Arizona. *Kiva* 60 (2): 203–18.
- . n.d. *Boundaries of Tsegi phase architecture in northeastern Arizona*. Flagstaff, Ariz.: SWCA, Inc. Environmental Consultants.
- Gilpin, Dennis, and Larry Benallie Jr. 2000. Juniper Cover and early Anasazi community structure west of the Chuska Mountains. In *Foundations of Anasazi culture*, edited by Paul F. Reed. Salt Lake City: University of Utah Press.
- Goddard, Pliny Earle. 1933. *Navajo texts*. New York: American Museum of Natural History.
- Goodwin, Grenville. 1942. *Social organization of the western Apache*. Chicago: University of Chicago Press.
- Guernsey, Samuel James. 1931. *Explorations in northeastern Arizona: Report on the archaeological fieldwork of 1920–1923*. Papers of the Peabody Museum of Archaeology and Ethnology, vol. 12, no. 1. Cambridge, Mass.: Harvard University Press.
- Gumerman, George J., and Jeffrey S. Dean. 1989. Cooperation and competition in the western Anasazi area. In *Dynamics of southwest prehistory*, edited by Linda S. Cordell and George J. Gumerman. Washington, D.C.: Smithsonian Institution Press.
- Gumerman, George J., and Emil W. Haury. 1979. Prehistory: Hohokam. In *Handbook of North American Indians*, vol. 9. *Southwest*, edited by Alfonso Ortiz. Washington, D.C.: Smithsonian Institution Press.
- Hackbarth, Mark. 1999. Letter to Klara Kelley. Northland Research Inc., Flagstaff and Tempe, Ariz., 23 August.
- Hafen, LeRoy R., and Ann W. Hafen. 1954. *The old Spanish trail*. Spokane, Wash.: Arthur H. Clark Press.
- Haile, Berard. 1943. *Origin legend of the Navaho Flintway*. Publications in Anthropology, Linguistic Series. Chicago, Ill.: University of Chicago Press.
- . 1978. *Love Magic and Butterfly People: The Slim Curly version of the Ajilee and Mothway myths*. Flagstaff: Museum of Northern Arizona Press.
- . 1981. *The upward moving and emergence way: The Gishin Biye' version*. Lincoln: University of Nebraska Press.
- Haines, Francis. 1995. *The buffalo: The story of American bison and their hunters from prehistoric times to the present*. New York: Crowell, 1970. Reprint, Norman: University of Oklahoma Press.
- Hammond, George P., and Agapito Rey, eds. and trans. 1953. *Don Juan de Oñate, colonizer of New Mexico, 1595–1628*. Albuquerque: University of New Mexico Press.
- . 1966. *The rediscovery of New Mexico*. Albuquerque: University of New Mexico Press.
- Havelock, Eric. 1986. *The muse learns to write*. New Haven, Conn.: Yale University Press.

- Hegmon, Michelle, ed. 2000. *The archaeology of regional interaction: Religion, warfare, and exchange across the American Southwest and beyond*. Boulder: University Press of Colorado.
- Hickerson, Nancy Parrott. 1994. *The Jumanos: Hunters and traders of the South Plains*. Austin: University of Texas Press.
- Hill, W. W. 1940. *Navaho salt gathering*. University of New Mexico Bulletin, Anthropological Series 3.
- Hudson, Luanne B. 1978. A quantitative analysis of prehistoric exchange in the Southwest United States. Ph.D. diss., University of California, Los Angeles. Ann Arbor, Mich.: University Microfilms International.
- Hughes, Richard E., and James A. Bennyhoff. 1986. Early Trade. In *Handbook of North American Indians*, vol. 11. *Great Basin*, edited by Warren L. D'Azevedo. Washington, D.C.: Smithsonian Institution Press.
- Jennings, Jesse D. 1966. *Glen Canyon: A summary*. Anthropological Paper 6. Salt Lake City: University of Utah.
- . 1978. *Prehistory of Utah and the eastern Great Basin*. Anthropological Paper 56. Salt Lake City: University of Utah Press.
- Judge, W. James. 1989. Chaco Canyon, San Juan Basin. In *Dynamics of Southwest prehistory*, edited by Linda S. Cordell and George J. Gumerman. Washington, D.C.: Smithsonian Institution Press.
- Kaestle, Frederika, and David Glenn Smith. 2001. Ancient mitochondrial DNA evidence for prehistoric population movement: The Numic expansion. *American Journal of Physical Anthropology* 115 (1): 1–12.
- Kelley, J. Charles. 1986. The mobile merchants of Molino. In *Ripples in the Chichimec Sea*, edited by Frances Joan Mathien and Randall H. McGuire. Carbondale: Southern Illinois University Press.
- Kelley, Klara, and Harris Francis. 1998. Anthropological traditions versus Navajo traditions in early Navajo history. In *Diné Bikéyah: Papers in Honor of David M. Brugge*, edited by David Kirkpatrick and Meliha Duran. Albuquerque: Archaeological Society of New Mexico.
- . 1999. Kin Yaa'a, an Anasazi ruin with a Diné (Navajo) story. In *Affiliation conference on ancestral peoples of the Four Corners region*, edited by Philip Duke. Santa Fe, N.Mex.: Southwest Regional Office, National Park Service, and Durango, Colo.: Fort Lewis College.
- . 2000a. *Navajo Nation historic preservation plan: Background study for Din (Navajo) traditional cultural places, phase 2: Confidential stories and story geographies*. Window Rock, Ariz.: Navajo Nation Historic Preservation Department.
- . 2000b. Pearlshell buffalo People. Paper prepared for the sixth occasional anasazi symposium, 25–28 October 2000, San Juan College, Farmington, N.Mex. Manuscript on file, Museum of Northern Arizona Library, Flagstaff.
- Klah, Hosteen. 1942. *Navajo Creation Myth*, recorded by Mary C. Wheelwright. Santa Fe, N.Mex.: Museum of Navajo Ceremonial Art.
- Kluckhohn, Clyde. 1967. *Navaho witchcraft*. 1944. Reprint, Boston, Mass.: Beacon Press.

- Knight, Paul. 1982. The climate in the McKinley Mine lease area. In *Anasazi and Navajo land use in the McKinley Mine area near Gallup, New Mexico*, vol. 1: *Archaeology*, edited by Christina G. Allen and Ben A. Nelson. Albuquerque: Office of Contract Archeology, University of New Mexico.
- Kuznar, Lawrence. 2001. Ecological mutualism in Navajo corrals: Implications for Navajo environmental perceptions and human/plant coevolution. *Journal of Anthropological Research* 57 (1): 17–39.
- Laird, Carobeth. 1976. *The Chemehuevis*. Banning, Calif.: Malki Museum Press, Morongo Indian Reservation.
- LeBlanc, Steven A. 1999. *Prehistoric warfare in the American Southwest*. Salt Lake City: University of Utah Press.
- Lekson, Stephen. 2000. *The Chaco meridian*. Walnut Creek, Calif.: Altamira Press.
- Lorenz, Joseph G., and David Glenn Smith. 1996. Distribution of four founding mtDNA haplogroups among native North Americans. *American Journal of Physical Anthropology* 101 (3): 308–23.
- Luckert, Karl W. 1975. *The Navajo hunter tradition*. Tucson: University of Arizona Press.
- . 1977. *Navajo mountain and rainbow bridge religion*. Flagstaff: Museum of Northern Arizona Press.
- . 1978. *A Navajo bringing-home ceremony: The Claus Chee Sonny version of Deerway Ajilee*. Flagstaff: Museum of Northern Arizona.
- Luckert, Karl W., and Johnny C. Cooke. 1979. *Coyoteway: A Navajo holyway healing ceremonial*. Tucson: University of Arizona Press.
- Manville, Richard H. 1980. The origin and relationships of American wild sheep. In *The desert bighorn: Its life history, ecology, and management*, edited by Gale Monson and Lowell Sumner. Tucson: University of Arizona Press.
- Marshall, Michael P. 1997. The Chacoan roads: A cosmological interpretation. In *Anasazi architecture and American design*, edited by Baker H. Morrow and V. B. Price. Albuquerque: University of New Mexico Press.
- Mathien, F. Joan. 1996. Trials and troubles with turquoise tests. Paper presented at Bead Expo 1996, 9 March, in San Antonio, Tex.
- . 1997. Ornaments of the Chaco Anasazi. In *Ceramics, lithics, and ornaments of Chaco Canyon*, edited by Francis Joan Mathien. Chaco Canyon Studies, Publications in Archeology 18G. Santa Fe, N.Mex.: National Park Service.
- Matthews, Washington. 1994. *Navaho legends*. 1897. Reprint, Salt Lake City: University of Utah Press.
- Miera y Pacheco, Bernardo. 1770. *Plano geografico de los descubrimientos hechos por don Bernardo Miera y Pacheco y los RRs. Ps. Fr. Francisco Atanasio Dominguez y Fr. Silvestre Veles* [*Plano geográfico de los descubrimientos hechos por don Bernardo Miera y Pacheco y los Reverendos Padres Fray Francisco Atanasio Domínguez y Fray Silvestre Vélez*]. A facsimile of the original in the Western Americana Collection of the Beinecke Rare Book and Manuscript Library, Yale University. 1778. Meriden, Conn.: The Meriden Gravure Company.
- Mitchell, Frank. 1978. *Navajo Blessingway singer*. Edited by Charlotte Frisbie and David McAllester. Tucson: University of Arizona Press.

- Montgomery, Ross Gordon, Watson Smith, and John Otis Brew. 1949. *Franciscan Awatobi: The excavation and conjectural reconstruction of a 17th-century Spanish mission establishment at a Hopi Indian town in northeastern Arizona*. Papers of the Peabody Museum of American Archaeology and Ethnology, vol. 34. Cambridge, Mass.: Harvard University Press.
- Morris, Elizabeth Ann. 1980. *Basketmaker caves in the Prayer Rock district, northeastern Arizona*. Anthropological Papers 35. Tucson: University of Arizona Press.
- Nát'oh Dine'é Táchií'nii Clan People. 1981. Transcript of meeting of 23 August. In authors' possession.
- Nelson, Ben A. 2000. Aggregation, warfare, and the spread of the Mesoamerican tradition. In *The archaeology of regional interaction: Religion, warfare, and exchange across the American Southwest and beyond*, edited by Michelle Hegmon. Boulder: University Press of Colorado.
- Nichols, Johanna. 1997. Modeling ancient population structures and movement in linguistics. *Annual Review of Anthropology* 26: 359–84.
- O'Bryan, Aileen. 1956. *The Dine: Origin myths of the Navaho Indians*. Bureau of American Ethnology Bulletin 163. Washington D.C.: GPO.
- Pilles, Peter J. 1987. The Sinagua: Ancient people of the Flagstaff region. In *Wupatki and Walnut Canyon: New perspectives on history, prehistory, rock art*, edited by David Grant Noble. Santa Fe, N.Mex.: School of American Research.
- Preston, Scott. 1954. The clans. In *Navajo historical selections*, edited by Robert Young and William Morgan. Navajo Historical Series 3. Bureau of Indian Affairs. Phoenix, Ariz.: Indian School Print Shop.
- Reed, Paul F., Lori Stephens, C. Dean Wilson, and Kelley A. Hays-Gilpin. 2000. From brown to gray: The origins of ceramic technology in the northern Southwest. In *Foundations of Anasazi Culture*, edited by Paul F. Reed. Salt Lake City: University of Utah Press.
- Reichard, Gladys. 1977. *Navajo Medicine Man: Sandpaintings and Legends of Miguelito*. 1939. Reprint, New York: Dover.
- . 1977. *Navaho Religion: A Study in Symbolism*. New York: Pantheon Books, 1950. Reprint, Princeton N.J.: Princeton University Press.
- Robins, Michael R., and Kelley A. Hays-Gilpin. 2000. The bird in the basket: Gender and social change in Basketmaker iconography. In *Foundations of Anasazi culture*, edited by Paul F. Reed. Salt Lake City: University of Utah Press.
- Roney, John R. 2001. Prehistoric roads and regional integration in the Chacoan system. In *Anasazi regional organization and the Chaco system*, edited by David E. Doyel. Reprint, Albuquerque: Maxwell Museum of Anthropology.
- Smith, David Glenn, Joseph Lorenz, Becky K. Rolfs, Robert L. Bettinger, Brian Green, Jason Eshleman, Beth Schultz, and Ripan Malhi. 2000. Implications of the distribution of Albumin Naskapi and Albumin Mexico for New World prehistory. *American Journal of Physical Anthropology* 111 (4): 557–72.
- Smith, David Glenn, Ripan S. Malhi, Jason Eshleman, Joseph G. Lorenz, and Frederika A. Kaestle. 1999. Distribution of mtDNA haplogroup X among Native North Americans. *American Journal of Physical Anthropology* 110 (3): 271–84.

- Snow, David H. 1973. Prehistoric southwestern turquoise industry. *El Palacio* 79 (1): 33–51.
- Stein, John R. 1995. Untitled list of Anasazi ceremonial sites in present Navajoland. In authors' possession.
- Stein, John R., and Andrew P. Fowler. 1996. Looking beyond Chaco in the San Juan Basin and its peripheries. In *The prehistoric Pueblo world, A.D. 1150–1350*, edited by Michael A. Adler. Tucson: University of Arizona Press.
- Stephen, A. M. 1930. Navajo origin legend. *Journal of American Folk Lore* 43: 88–104.
- Sutton, Mark Q. 2000. Prehistoric movements of northern Uto-Aztec peoples along the northwestern edge of the Southwest: Impact on Southwestern populations. In *The archaeology of regional interaction: Religion, warfare, and exchange across the American Southwest and beyond*, edited by Michelle Hegmon. Boulder: University Press of Colorado.
- Talbot, Richard K. 2000. Fremont farmers: The search for context. In *The archaeology of regional interaction: Religion, warfare, and exchange across the American Southwest and beyond*, edited by Michelle Hegmon. Boulder: University Press of Colorado.
- Thompson, Stith. 1966. *Tales of the North American Indians*. 1929. Reprint, Bloomington: Indiana University Press.
- Toll, H. Wolcott. 1991. Material distributions and exchange in the Chaco system. In *Chaco and Hohokam*, edited by Patricia L. Crown and W. James Judge. Santa Fe, N.Mex.: School of American Research Press.
- Trager, George L. 1967. The Tanoan settlement of the Rio Grande area: A possible chronology. In *studies in Southwestern ethnolinguistics*, edited by Dell H. Hymes and William E. Bittle. The Hague, Netherlands: Mouton.
- Turner, Christy G., II. 1971. Petrographs of the Glen Canyon Region. Museum of Northern Arizona Bulletin 38, Glen Canyon Series 4. Reprint, Flagstaff: Northern Arizona Society of Science and Art.
- Upham, Steadman. 2000. Scale, innovation, and change in the desert West: A macro-regional approach. In *The archaeology of regional interaction: Religion, warfare, and exchange across the American Southwest and beyond*, edited by Michelle Hegmon. Boulder: University Press of Colorado.
- Van Valkenburgh, Richard F. 1974. Navajo sacred places. In *Navajo Indians III*, edited by David A. Horr. New York: Garland.
- Vargas, Victoria D. 1995. *Copper bell trade patterns in the prehispanic U.S. Southwest and Northwest Mexico*. Archaeological Series No. 187. Tucson: Arizona State Museum.
- Warner, Ted J., ed. 1976. *The Domínguez-Escalante journal: Their expedition through Colorado, Utah, Arizona, and New Mexico in 1776*. Translated by Fray Angélico Chávez. Provo, Utah: Brigham Young University Press.
- Wheelwright, Mary C. 1956. *The myth and prayers of the Great Star Chant and the myth of the Coyote Chant*. Navajo Religion Series 4. Santa Fe, N.Mex.: Museum of Navajo Ceremonial Art.
- Wiegand, Phil C. 2001. The macroeconomic role of turquoise within the Chaco Canyon system. In *Anasazi regional organization and the Chaco system*, edited by David E. Doyel. Reprint, Albuquerque: Maxwell Museum of Anthropology.

- Wilcox, David R. 1986. The Tepiman connection: A model of Mesoamerican-Southwest interaction. In *Ripples in the Chichimec Sea: New considerations of Southwest-Mesoamerican interactions*, edited by Frances Joan Mathien and Randall H. McGuire. Carbondale: Southern Illinois University Press.
- Wills, W. H. 1988. *Early prehistoric agriculture in the American Southwest*. Santa Fe, N.Mex.: School of American Research Press.
- Windes, Thomas. 2001. Electronic communication to the senior author. 3 January.
- Woodbury, Richard B., and Ezra B. W. Zubrow. 1979. Agricultural beginnings, 2000 B.C.–A.D. 500. In *Handbook of North American Indians*, vol. 9. *Southwest*, edited by Alfonso Ortiz. Washington, D.C.: Smithsonian Institution Press.
- Woodward, David, and G. Malcolm Lewis. 1998. Introduction. In *Cartography in the Traditional African, American, Arctic, Australian, and Pacific Societies*, edited by David Woodward and G. Malcolm Lewis. *The History of Cartography*, vol. 2, book 3. Chicago: University of Chicago Press.
- Wyman, Leland C. 1952. *The sandpaintings of the Kayenta Navajo*. University of New Mexico Publications in Anthropology, no. 7. Albuquerque: University of New Mexico Press.
- . 1965. *The red ant way of the Navaho*. Santa Fe, N.Mex.: Museum of Navajo Ceremonial Art.
- . 1970. *Blessingway*. Tucson: University of Arizona Press.
- Young, Robert W. 1983. Apachean languages. In *Handbook of North American Indians*, vol. 10. *Southwest*, edited by Alfonso Ortiz. Washington, D.C.: Smithsonian Institution Press.