



**KIVA**

Journal of Southwestern Anthropology and History

ISSN: 0023-1940 (Print) 2051-6177 (Online) Journal homepage: <http://www.tandfonline.com/loi/ykiv20>

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To cite this article: Robert S. Weiner (2015) A Sensory Approach to Exotica, Ritual Practice, and Cosmology at Chaco Canyon, KIVA, 81:3-4, 220-246, DOI: [10.1080/00231940.2016.1147681](https://doi.org/10.1080/00231940.2016.1147681)

To link to this article: <http://dx.doi.org/10.1080/00231940.2016.1147681>



Published online: 16 Jun 2015.



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# A Sensory Approach to Exotica, Ritual Practice, and Cosmology at Chaco Canyon<sup>†</sup>

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The “Chaco Phenomenon” has been a major research focus within Ancestral Puebloan archaeology, yet while most scholars agree that some kind of shared ideology and ritual permitted the creation of this distinctive network of pueblo villages throughout a vast region of the American Southwest, few have attempted to explain the specifics of Chacoan ritual practice. This paper uses a phenomenological approach to examine exotic imports in Chaco Canyon including turquoise, shell, cacao, copper bells, and macaws and argues for the importance of these objects’ unique sensory characteristics in crafting Chaco’s compelling ritual environment. By skillfully employing striking new colors, sounds, and tastes in both “concealed” and “conspicuous” practices of ritual deposition and public performances, Chacoan religious personnel would have not only have demonstrated their spiritual prestige by having acquired such items, but also allowed ritual participants to hear, see, and taste a paradisiacal realm akin to the shared Mesoamerican-Southwestern Flower World. Ultimately, this paper argues that sensory-based archaeological approaches can greatly enrich investigations of ritual practice, cosmology, and human experience at Chaco Canyon.

El “Fenómeno Chaco” ha sido un foco importante de investigación en la arqueología de los pueblos ancianos, pero mientras la mayoría de los estudiosos coinciden en que algún tipo de ideología y ritual compartido permitió la creación de esta red distintivo de pueblos a través de una vasta región del suroeste de Estados Unidos, pocos han tratado explicar los detalles específicos de practica ritual en Chaco. Este trabajo utiliza un enfoque fenomenológico para examinar las importaciones exóticas en el Cañón del Chaco incluyendo turquesa, conchas, cacao, cascabeles de cobre, y guacamayos y aboga por la importancia de las características sensoriales únicas de estos objetos en la elaboración de ambiente ritual

<sup>†</sup>Winner of the 2015 Julian D. Hayden Paper Competition

convinciente del Chaco. Por hábilmente empleando llamativo nuevos colores, sonidos y gustos en prácticas rituales “ocultos” y “conspicuos” de ofrendas y actuaciones públicas, personal religioso en Chaco no solo habrían demostrado su prestigio espiritual por haber adquirido este tipo de artículos, sino que también permitió participantes rituales escuchar, ver, y saber un reino paradisíaco semejante al compartido Mesoamericano-Suroeste Mundo Florido. En última instancia, este trabajo aboga por los enfoques arqueológicos basados en los sentidos que pueden enriquecer enormemente la investigación de la práctica ritual, la cosmología y la experiencia humana en el Cañón Chaco.

**KEYWORDS** Chaco Canyon, exotica, archaeology of the senses, ritual, Flower World

The archaeological sites at Chaco Canyon (ca. AD 800–1150) in northwestern New Mexico have received considerable attention, comprising a large ceremonial center whose scale and regional influence are unparalleled in the Puebloan world. Southwestern archaeologists have traditionally emphasized Chaco’s monumentality—the Great Houses, Great Kivas, outliers, and roads—in developing their explanations of the ritual context of the sociopolitical system (Kantner 2004:87–112; Mills 2002; Sebastian 1992; Wills 2000). Less frequently have scholars considered the ritual functions of exotic materials amassed by the inhabitants of its Great Houses, including turquoise, shell, copper bells, cacao, and scarlet macaws from places as far away as the tropical forests of Mexico (but see Crown and Hurst 2009; Kantner 2010; Lekson 2015:30–34; Lister 1978; Mathien 1986, 1993, 2001, 2003; Nelson 2006; Toll 1991; Weigand and Harbottle 1993).

This paper builds on the work of Van Dyke (2007) by taking a phenomenological approach to Chacoan exotica and examining their sensory qualities to suggest elements of a ritual sensorium—the environment of combined sensory inputs perceived by participants in ceremony. I offer a provisional scenario that these exotica—and, specifically, their sensory characteristics—were understood as embodying cosmological principles such as water, creation and origins, and the shared Mesoamerican-Southwestern Flower World paradise (e.g., Hill 1992, Schaafsma and Taube 2006; Taube 2010). The use of symbolic, sensorially striking exotica in both “concealed” and “conspicuous” ritual practices at Chaco would have allowed cosmological beliefs to be performed, internalized, and reproduced by participants in ceremonies. My proposition builds on previous research in attempting to offer a new and more fully integrated explanation of the religious allure that Chaco held for an entire regional system by examining and analyzing the hitherto marginalized impact of strikingly different colors, sounds, tastes, and textures as critical components of what Renfrew (2001:16), quoting an O’Shaughnessy poem, calls the “Dream” at Chaco.

## Exotica and the Chaco Sensorium

Helms (1988, 1993) has provided the most comprehensive treatment of exotica as a topic of anthropological inquiry. In many of the premodern societies studied by

Helms, geographical distance is imbued with supernatural and spiritual qualities, and those who hold knowledge of far-off places and travel to them acquire a special status as “long-distance specialists” (Helms 1988). She proposes that exotic objects

acquired by long-distance activities in traditional societies are obtained from a cosmologically charged outside realm that is by definition accorded mystical or sacred properties and powers that imbue the goods derived therefrom with inalienable qualities ultimately associated with concepts of supernatural origins (Helms 1993:118).

The exotic, then, is not merely the strange, hard-to-obtain, striking, and unusual, but rather a class of potent, spiritually charged materials. The objects made from these materials, such as costumes and ritual paraphernalia, elevate the prestige and supernatural power of the obtainer within society (Helms 1993:10). Another helpful way to understand exotica comes from Gell (1992), who considers how sensorially striking objects can be used as “technologies of enchantment” that awe and influence the thoughts and behaviors of others, not solely through aesthetic impact, but also through an “enchantment of technology” that masks the process through which it was crafted or, perhaps in this case, acquired.

One well-known attempt to understand the role of exotica within the Chacoan system appears in Lekson’s *The Chaco Meridian*, which argues that Chaco acted as a redistribution center that dealt not in subsistence goods, but rather “fluff... rare, costly, symbolic, and above all portable [objects]” that served as emblems of leadership, listing “macaws...parrots, shells, turquoise, cacao, and copper bells” as examples of such items and placing them within the framework established by Helms (Lekson 2015:32). While this idea has been critiqued (Kantner and Kintigh 2006:169), Lekson’s work is crucial for pointing out the marginalization of exotica in studies of Chaco, whose presence among the archaeological assemblage is either omitted or downplayed in favor of Southwestern archaeologists’ bias towards “real stuff like pots, rocks, and food” (Lekson 1999:55).

Plog and Heitman have provided significant research on the potential role and symbolic importance of exotica within Chacoan society (Heitman 2007; Heitman and Plog 2005; Plog 2012; Plog and Heitman 2010). They have analyzed the distribution of artifacts associated with the famous burials in Rooms 33 and 38 of Pueblo Bonito to show how acquisition of items such as turquoise, shell, cylinder jars, and conch shells “sanctified and legitimized [elites buried in Pueblo Bonito] by linking people to founders, ancestors, and cosmological forces” (Plog and Heitman 2010:19619). Nelson (2006:368) has also sought to contextualize Mesoamerican exotica in Chaco in terms of Helm’s framework, suggesting that Chacoan leaders may have enhanced their elite status by building a perceived link with a distant land. Plog (2012:57–60) takes the important step of proposing interpretations of the symbolic importance of some exotica as connected with directional symbolism, water, and mountains based on ethnographic analogy with modern Pueblo communities and suggests “there is a wealth of evidence regarding iconography, symbolism, and offerings in the canyon” (Plog 2012:52). I agree and argue that at Chaco access

to novel, strange, bizarre, symbolically charged and spiritually potent exotic goods was controlled and selectively employed in ceremonial and ritual contexts to evoke a paradisiacal realm related to ancient Mesoamerican and later Puebloan ideological complexes.

Recent studies have attempted to build on phenomenological approaches and the anthropology of the senses to provide a framework for conducting an archaeology of the senses (e.g., [Hamilakis 2013](#); [Houston et al. 2006](#); [Skeates 2010](#)), noting that all experience involves some combination of vision, smell, sound, touch, and taste—among other modalities not included in the Western sensorium—and suggesting that traces of sensory experience and cultural understandings of the senses are encoded in ancient material remains. [Van Dyke \(2012\)](#) has attempted an archaeology of the senses at Chaco using the technique of an “imagined narrative,” a piece of creative non-fiction that highlights imagined sensory experience at Chaco in an archaeologically accurate framework. A more recent, innovative piece by [Van Dyke \(2015\)](#) raises the question of non-visual sensory experience at Chaco, exploring the mating call of toads that accompany the summer rains and providing links to video and audio clips that enhance the sensory investigations in her chapter. Aside from the work of [Van Dyke \(2007\)](#) that considers visibility; [Loose \(2002, 2009\)](#), [Stein et al.’s \(2007\)](#), and [Van Dyke’s \(2015\)](#) investigations into sound, and hints scattered throughout [Lekson’s](#) writings, the senses are missing from studies of Chaco. Interestingly, a National Park Service sign currently displayed at Pueblo Bonito invites the visitor to “imagine all the sights, sounds, and smells you might have enjoyed.” In other words, the senses are used as means of capturing the attention of the public, but have remained absent from academic studies of the archaeology of Chaco in a demonstration of the common understanding of the senses as “lowly” and unable to be accessed through material culture despite evidence that the agential sensory characteristics of objects can play significant roles in history (e.g., [Gell 1992](#); [Pauketat 2013:32–34](#)).

## Methods

I utilize a variety of methods including analogy with Mesoamerican cosmologies, phenomenology, and analogy with indigenous Southwestern groups to investigate the potential symbolic significance and ritual usage of exotica within Chacoan society. First, the presence of indisputable Mesoamerican objects such as cacao, macaws, and copper bells in Chaco Canyon permits a consideration of the possibility that Chacoan cosmology incorporated elements of shared Southwestern-Mesoamerican ideological principles as suggested recently by [Jolie and Webster \(2015\)](#). Many scholars have discussed the various parallels in worldview and cosmology between Mesoamerican and Southwestern societies across time (e.g., [Hill 1992](#); [Schaafsma and Taube 2006](#); [Taube 2010](#); [Young 1994](#); for a list of parallels see [McGuire 2012:Table 2.1](#)). Here I emphasize numerous possible connections between Chacoan exotica and elements of the Flower World ideology proposed by [Hill \(1992\)](#).

For thousands of years, Uto-Aztecan<sup>†</sup> speakers such as the Hopi, Aztec/Mexica, Nahuatl, as well as *neighboring groups* such as the Maya and Rio Grande Pueblos

have shared a notion of the Flower World—a glimmering paradisiacal realm characterized by bright colors, flowers, colorful birds, and butterflies that is evoked through sounds and music (Hays-Gilpin 2006; Hays-Gilpin and Hill 1999; Hill 1992; Taube 2010). Hill mentions specific occurrences of Flower World cosmology among the Hopi and other Pueblo groups descended from the inhabitants of Chaco in her original piece, but more extensive treatment of the subject is provided by Hays-Gilpin and Hill (1999) and Hays-Gilpin (2006). There is significant archaeological and ethnographic evidence that this “glittering, flowery paradise evoked through singing and the sounds of bells, rattles, flutes, and birdsong” has existed among Hopi and Pueblo people in both prehistoric times and the present (Hays-Gilpin 2006:67; see also Taube 2010), yet there have been few additional efforts to investigate the possibility of Flower World principles at Chaco as evidenced in material culture.

Hays-Gilpin and Hill (1999:8–9) are the first to propose that a Flower World concept may have existed at Chaco, citing the macaws skeletons found in Great Houses as well as painted wooden ritual items from Chetro Ketl that depict flowers, macaws, and other birds (see Vivian et al. 1978) as evidence. While depictions of Flower World imagery are lacking in Chacoan rock art and pottery designs, I consider the possibility that elements of the Flower World were expressed at Chaco in different, non-material ways such as ritual performance. Hays-Gilpin et al. (2010:122; emphasis in original) make the crucial recognition that “the Flower World may *always* have appeared in song, but only *sometimes* coalesced in visual media.” Brown (2014) makes a similar argument for Flower World cosmology being expressed in Chaco through music. In other words, at Chaco the Flower World may have been expressed primarily through performance rather than iconographically as in later periods of Puebloan history. This paper attempts to lend another line of evidence to the possible presence of Flower World cosmology at Chaco Canyon by emphasizing the sensory aspects of exotic goods in ritual practices. I also follow others in emphasizing that moisture and water—always necessities in the arid Southwest and central to modern Pueblo ceremonialism—and concepts of creation and origins were also critical components of this belief system (Dozier 1970:200; Plog 2012:57–60; Schaafsma and Taube 2006). Finally, I argue that the absence of non-visual sensory experience from the preliminary, limited investigations of Chacoan exotica, ritual, and cosmology hinders attempts to understand these topics.

I also draw on ethnographic analogies with Rio Grande Pueblo, Hopi, Zuni, and Navajo communities descended from the inhabitants of Chaco Canyon. Though many changes in indigenous Southwestern societies have certainly occurred since the 11th century AD (including, most drastically, Spanish missionization), the link between modern Pueblos and Chaco Canyon are significant. Chaco is remembered in the oral history of the many Pueblos, and members of these communities recognize artifacts and practices still occurring in their communities today (Kuwanwisiwma 2004; Ortiz 1992; interviews in Sofaer 1999; Swentzell 2004). Additionally, though general archaeological consensus holds that Navajo occupation of Chaco Canyon dates to the 15th century, this paper recognizes the close links and interconnections between the Navajo Nation and Pueblos and takes the perspective that Navajo oral tradition and ritual practices should be considered as legitimate

sources for understanding Bonito-period Chaco. As an example of the close links between the Navajo and Pueblo peoples, numerous Pueblo clans took refuge in Dinétah (including the Chaco District) during and after the Pueblo Revolt period, leading to the adoption of various Pueblo clans into the Navajo tribe (Preucel 2010). In fact, Reichard (1928:22–25) reports that one-third of Navajo clans claim Pueblo origins. Additionally, Warburton and Begay (2005) provide a wealth of evidence from traditional Navajo oral history to demonstrate the many interlinkages between the Anasazi and the Navajo, and they call for a more nuanced and open-minded approach to understanding this complex relationship. Navajo traditions, stories, and practices that remember Chaco Canyon—such as the story of the Great Gambler (Chapin 1940; Judd 1954; Matthews 1897; Stein et al. 2007)—may have become incorporated into oral history through a variety of mechanisms (intermarriage, refuge, etc.). While recognizing that a one-to-one mapping of modern beliefs onto the past is misleading, I employ ethnographic analogy in recognition of the common cultural traits preserved in Puebloan and Navajo traditions across time.

## The Sensory Significance of Chacoan Exotica

### *Turquoise: Water and Sky*

Kantner (2010:240) writes that “one of the features of Chacoan sites that receives considerable attention was their occupants’ apparent fascination with turquoise.” Turquoise found at Chaco sites has been chemically traced to sources in New Mexico, Colorado, Arizona, Nevada, and California (Hull and Fayek 2012; Hull et al. 2014). The nature of turquoise artifacts ranges from craft debris to finely crafted “beads, pendants, and tesserae” – other notable turquoise artifacts uncovered at Pueblo Bonito include carved jet frogs and tadpoles with finely executed turquoise inlay, as well as a turquoise encrusted cylindrical basket (Figure 1; Mathien 2001:105, 110; Pepper 1920:Plate 1, 164). Most turquoise has been found in two types of locations: ritual deposits and burials. The ritual deposits include concealed locations in both Great Kivas and “clan kivas,” such as beneath pilasters (Mathien 2001:112–113) or in wall niche caches such as at the Chetro Ketl Great Kiva (Hewett 1936:90–92). The most notable use of the stone as a grave good occurred in Room 33 in Pueblo Bonito, where disarticulated skeletal remains of up to sixteen individuals were buried with 26,000 pieces of turquoise on a plank floor atop a crypt housing the remains of two middle aged men buried with over 20,000 pieces of turquoise (Akins 2003:96–97). Plog (2003) suggests that the color turquoise served as an identity marker for participation in the Chaco system and suggests, following Brody’s proposal, that the hachure pattern on Chacoan pottery encodes the color blue-green. Indeed, greenish-turquoise is the most common color of paint used in the Chetro Ketl painted wood (Vivian et al. 1978:123).

While the importance of turquoise at Chaco is apparent, its symbolic significance is less clear. Kantner (2010:250) points out that his behavioral ecological model fails to explain “how material such as turquoise would become imbued with ideological value in the first place,” asking: “Is it the unique coloration compared with other





FIGURE 1 Turquoise beads from Chaco Canyon, AD 1050–1100. National Park Service Museum Management Program, Public Domain.

materials?” Turquoise, both the color and stone, are important in Pueblo and Navajo culture and carry a wide variety of symbolic associations (Whiteley 2012). Accompanying material for the recent Museum of Indian Arts and Culture exhibit on turquoise states: “The Zuni word for turquoise can be translated as ‘sky stone’...Pueblo dancers wear turquoise regalia during the summer growing season to ensure rain” (Museum of Indian Arts and Culture 2014). For the Navajo, “sky-blue turquoise, as in some Pueblo contexts and as for turquoise and jade among the Mexica, is the color of living water and rain” (Whiteley 2012:148). Furthermore, given the focus on water and moisture in modern Pueblo beliefs, it is possible that turquoise was understood as a medium that represented the ephemerality of mists and waters captured and eternalized in a workable, stone material similar to Houston’s (2014:129) conceptualization of green-blue stone artifacts in the Maya world.

Lakes, springs, and bodies of water are cosmologically charged features in Puebloan beliefs. For the Zuni, the lake called *kolhu/wala:wa* is “the most sacred place...home of the ancestors... [and] place where the spirit returns upon death” (Ladd 1983:177). Lakes and springs are visited on pilgrimages by Keresan rain-making societies (White 1962:234) and understood as homes for supernatural beings such as water serpents (e.g., Parsons 1996[1939]:184–185). Tewa origin stories speak of how the ancestors first entered this world through a lake (Ortiz 1969:13). Furthermore, Edward Dozier of Santa Clara Pueblo stated that “much of Pueblo ceremonialism, particularly among the Western Pueblos [geographically, closest to Chaco], has been characterized as ‘rain-making’ ceremonies” (Dozier 1970:200). Numerous Chacoan roads lead to lakes and springs, lending further evidence to the notion of a watery cosmology at Chaco (Marshall 1997:66–67; Roney 2001: Table 10–1). Supposing that this tradition of ritual focus on moisture and rain



was also a primary concern at Chaco, it would appear that turquoise's color—the hue of sacred bodies of water and the vast blue sky through which rain-bearing clouds moved—was a central element of the stone's importance in Chacoan society.

### ***Shell, Fossils, and Landscape Traces of a Watery Past***

Shells uncovered archaeologically at Chaco Canyon originated from various distant locations including the length of Pacific Coast from California to Mexico, the Gulf of California, freshwater sources in Texas and Arkansas, and local fossil deposits (Mathien 2003:129), but most were probably acquired through the Hohokam region to the south (Nelson 2006:350). Over 20 species of shell have been identified at Pueblo Bonito, and these were worked into bracelets, beads, and pendants (Mathien 2003:130; Neitzel 2003:110; Nelson 2006:350), and also deposited similarly to turquoise as offerings in concealed locations such as kiva pilasters (Mathien 2001:112–113) or under Great Kiva roof support stone discs (Lekson 2015:75). Parsons (1996[1939]:331) writes that “shells...are largely used in Pueblo rituals” as offerings, fetishes, and are associated with war. The link between shell and its watery origin seems symbolically important, and the dyadic pairing of shell and turquoise in Puebloan thought is also worth emphasizing (Whiteley 2012:145). Shell is also listed by Hill (1992:117) as a “chromatic symbol” associated with the Flower World complex.

By wearing shell jewelry in dances and other spiritual performances, Chacoan ritual leaders and participants would have explicitly demonstrated their link to distant, watery lands and brought them to life in the desert canyon. For those present at a ritual dance or performance, the allure of shells would have not only been visual, but auditory. *Conus* shells are used by the Hopi to craft “clinkers” (*silala*), and the noise produced by these objects during dances evokes the sound of rain and thunder (Ferguson and Colwell-Chanthaphonh 2006:146). Shells used as clinkers often have a hole drilled so they can be attached to ritual costumes, such as in the Chacoan shell artifact pictured above (Figure 2; Ferguson and Colwell-Chanthaphonh 2006:146). A Zuni origin story tells of how an early priest named Yanáluha carried a sacred staff decorated with brightly colored feathers, “shells and other potent contents of the under-world. When the people...*heard the song-like tinkle of the sacred shells*, they stretched forth their hands like little children and cried out, asking many questions” (Cushing 1896:384–385; emphasis added). It is meaningful to note that the “tinkling” of shells is repeatedly noted in the Zuni creation stories collected by Cushing (Cushing 1896:385, 408, 410, 412, 413).

Fossilized shell is widely present in the natural landscape of Chaco Canyon, providing a further link to an ideology of water. The majority of the cliffs exposed in Chaco Canyon are composed of the Lower Sandstone unit, wherein “fossils include shells and casts from clams, ammonites...snails, and shark's teeth. Iron-cemented, knobby casts of burrows...[of ancient shrimp-like crustaceans] are particularly common” (National Park Service 2013; Figures 3–5). Parallel ripple marks from the ancient shallow sea have been solidified in the sandstone, evoking



FIGURE 2 *Cerithidae albonodosa* shell pendent found at Casa Rinconada, imported into Chaco Canyon from the northern Gulf of California. National Park Service Museum Management Program, Public Domain.



FIGURE 3 Fossilized shrimp burrows on Chaco Canyon's North Mesa. © Robert S. Weiner.



FIGURE 4 Fossilized shell on trail north of Kin Kletso. © Robert S. Weiner.



FIGURE 5 Wave patterns in the sandstone on Chaco Canyon's North Mesa. © Robert S. Weiner.

the movement of water from the primordial past (Figure 3). If Chaco was the embodiment of a watery paradise as I suggest, markings of the land's oceanic past within the sandstone of the canyon could have added to this association.



Zuni creation stories speak of a time when the earth was “covered in water” (Cushing 1966[1883]:13) and “slimy” beings with webbed feet roamed its surface (Bunzel 1932:584) along with other “strange beings... monsters and animals of prey” (Cushing 1966[1883]:13). Subsequently, “all kinds of beings changed to stone,” and Cushing’s correspondents noted “that we find....among the rocks the forms of many beings that live no longer” (Cushing 1966[1883]:14–15). The Zuni considered finding these fossils “great good fortune... for the sake of the sacred (magic) power which was given them in the days of the new” (Cushing 1966[1883]:15). Van Dyke and King (2010:362) have suggested links between Pueblo III towers in the northern San Juan with an ideology of watery origins, drawing on evidence such as impressions of human footprints in the plaster floor of Twin Tower at Hovenweep that can be seen as “reminiscent of the muddy footprints left by Puebloans emerging from the underworld onto the ‘unripe’ or soft earth.” At Chaco, the procurement of shells, and presence of fossils and evidence of a water past in the sandstone landscape demonstrate repeated emphasis on water and past ages.

### ***Cacao: Froth, Taste, and Mental Stimulation***

One hundred and eleven cylinder vessels were excavated in a cache in Room 28 at Pueblo Bonito (Crown and Hurst 2009). Much work has been done comparing their form to Mesoamerican cylinder vessels which were associated with the consumption and preparation of cacao, and the form and decoration of the Bonito group of cylinder jars appears “without precedent” in the ancient Southwest (Washburn 2011:252). Residue analyses of the vessels detected traces of theobromine, the chemical marker of cacao (Crown and Hurst 2009:2110). Subsequent work by Washburn et al. (2011) first presented evidence for widespread cacao consumption throughout the American Southwest, a notion which has been recently corroborated by evidence of theobromine as well as *Ilex vomitoria* in ceramic vessels from multiple sites and time periods throughout the American Southwest including Chaco outliers (Crown et al. 2015). While evidence for the presence of cacao in ancient Southwestern contexts is increasing, the quantity of cylinder vessels and other forms bearing traces of theobromine in Chaco remains unique.

Crown and Hurst (2009:2110–2112) suggest the Chacoan cylinder vessels may have been used to froth the beverage as they were in Mesoamerica. The symbolic potential of frothing a cacao beverage in ancient Puebloan society is significant, as this process would have given the drink an appearance evocative of fog, mist, and clouds, understood in modern Pueblo society as the domain of benevolent ancestor spirits who bring rain (Parsons 1996[1939]:170–172). Bubbles were produced in Zia medicine bowls during rain ceremonies to evoke clouds (White 1962:316), and a Zuni story describes Earth-mother producing foam in a bowl of water as an act of creation (Cushing 1896:380). Pouring cacao beverages between cylinder vessels would have also produced a splashing, bubbling sound reminiscent of sacred springs and other bodies of water. As for the taste of the beverage, Mesoamerican sources reveal that cacao could have been combined with ground corn, chile, and other flavors (Crown and Hurst 2009:2112). Specific ingredients aside, the

bitter flavor of cacao drink at Chaco would have been strikingly distinctive for ritual participants. It is also important to note that [Crown and Hurst \(2009:2112\)](#) point out, “the stimulant properties of cacao beverages made them highly desirable,” and contemporary research participants demonstrated “improvements on the mood construct ‘energetic arousal’ and cognitive function” as the result of ingesting cacao ([Smit et al. 2004:412](#)). The use of cacao at Chaco would have allowed those consuming it not only a new taste, but also a new, heightened mental state. The question of who drank cacao and the extent of its consumption throughout the Chacoan system is unclear, but the highly concentrated cache of cylinder vessels inside an exotica-rich area of Pueblo Bonito and analogy with Mesoamerican societies suggest limited access and high spiritual value.

### ***Copper Bells: Tinkling, Sun, and Moon***

Forty one copper bells and bell fragments have been found at Chaco in Pueblo Bonito, Pueblo del Arroyo, Pueblo Alto, and Casa Rinconada, mostly in fill contexts ([Mathien 2003:128](#); Figure 6). These were traded up from the western coast of Mexico, where typological analysis allows for dating the bells to as early as 900 AD ([Nelson 2006:349–50](#)). Bells are commonly worn by participants in ethnographic and modern Pueblo dances (e.g., [Parsons 1996\[1939\]:652](#)). The Hopi Kwaaniiytaqa (One-Horn Priests) and other religious practitioners use copper bells, though further information about these uses is not shared ([Ferguson and Colwell-Chanthaphonh 2006:147](#)). Among the Aztecs, Tarascans, and other ancient peoples throughout Mesoamerica, the sound of bells was associated with agricultural and human fertility by evoking the sound of rain and thunder, and also with protection in warfare ([Hosler 1994:233](#)). Additionally, bells were used to call forth a Flower World-type paradise where their tinkling sound was tied to “shimmering, colorful, singing birds” ([Hosler 1994:233; 233–246](#)). The color of bells also held symbolic importance. In ancient west Mexico, bells were purposefully crafted in distinct copper alloys—one more golden, one more silvery—and these two glimmering hues of metal were associated by Tarascans, Aztecs and other Nahuatl-speakers, and probably other Mesoamerican groups with the sun (golden) and moon (silvery) ([Hosler 1994:228–230](#)). It is of interest to note these symbolic associations in relation to numerous solar and lunar alignments of Chacoan Great Houses ([Sofaer 2007](#)), as well as the possibility suggested by [Sofaer \(2008:xviii\)](#) and [Tuwaletsiwa \(2015:xv\)](#) that the Chacoans’ knowledge of astronomy could have been another form of exotica acquired from the cultures of Mesoamerica.

It is important to note that in Mesoamerican Flower World concepts such as that of the Aztecs, the metallic sound of bells, bright colors, and floral smells were synesthetically linked ([Hosler 1994: 241](#)). This bundling of copper bells with sight, sound, birds, flowers, and astronomy in ancient Mesoamerican cosmologies suggests that one should not necessarily understand exotica as stimulating only a single sense modality or association, and that in fact, a segmentation of various sense modalities may be at odds with ancient understandings. Copper bells would have glimmered in light of the sun or moon, perhaps conjuring the bright feathers of tropical birds and linking their tinkling sound with scent of flowers.

### **Macaws: Bright Colors and Speech**

Skeletons and feathers of scarlet macaws (*Ara macaw*), military macaws (*Ara militaris*), and a thick-billed parrot (*Rhynchopsitta pachyrhyncha*) have been recovered at Chaco Canyon in sites including Pueblo Bonito, Pueblo del Arroyo, Kin Kletso, Una Vida, and Chetro Kettle (Mathien 2003:129). Fourteen macaw skeletons were excavated in Room 38 of Pueblo Bonito where 25 cm of bird droppings had accumulated, and their feathers have also been found in concealed offering locations in kivas (Chaco Research Archive 2010; Pepper 1920:194–195). Recent radiocarbon dates suggest that these birds were acquired by the Chacoans as early as 900–975 AD (Watson et al. 2015). Many of the skeletons were identified as scarlet macaws, whose natural range is thousands of miles south in the lowland tropical forests of Mexico, and since all the specimens excavated at Chaco were fully grown, it appears they were imported rather than bred on site (Mathien 2003:129). Gilman et al. (2014) discuss how transporting young macaws would have required direct—rather than down the line—procurement with “specialized care, especially hand feeding and bonding with individual handlers... requiring specialized knowledge, training, and experience” (Gilman et al. 2014:103). They also note that adult macaws are highly aggressive towards people with whom they are not familiar (Gilman et al. 2014:103). Within Helms framework, the individuals who made the journeys to acquire macaws would have gained considerable social prestige and authority as “long-distance specialists” (Helms 1988:5). Transportation of, care for, and possibly violent interaction with scarlet macaws would have been powerful sensory interactions of sight, sound, and sensation for the people of ancient Chaco.



FIGURE 6 Copper bell excavated at Pueblo Alto, AD 1020–1140. National Park Service Museum Management Program, Public Domain.



Among modern Pueblos, macaws and parrots are associated with the direction south and also with the sun, rainbows, pets of Cloud, and “the wedding of sun and rain” (Dozier 1970:206; Tyler 1979:14–16). Macaw clans exist at Zuni, Acoma, and among the Hopi, who represent the Flower kachina “with a cluster of parrot feathers on top of the mask” (Tyler 1979:31, 39–41). Macaw feathers are attached to fetishes and ritual apparel (Tyler 1979:32–38), and prayer-feathers and prayer-sticks with appended feathers are important ritual implements in modern pueblos (Parsons 1996[1939]:270–292). In addition, macaws play an important role in Acoma and Zuni clan histories (e.g., Cushing 1896:385–386). Scarlet macaws have brightly colored red, blue, green, and yellow feathers with black and white faces. These colors have directional symbolism and associations in modern Pueblo thought (Dozier 1970:Table 7), and scarlet macaws could have been understood symbolically as combining the four directions, zenith, and nadir through their six-fold coloration. Finally, the sounds and colors of brightly colored birds are an important element of Flower World cosmology (Hosler 1994:241).

Lekson (2015:32–33) describes an elaborate 11–12th century AD sash made of macaw feathers and squirrel pelt from Lavender Canyon in Utah, which may provide insight into how macaw feathers were utilized in the Chacoan world to create multi-colored, soft, downy ritual costumes. Also, macaws are noisy and able to mimic human speech. A macaw belonging to the Sun Priest at Zuni in the 1920s “spoke Zuni and knew the names of a dozen or so individuals” (Ladd 1998:127). The potential employment of a speaking bird that knows names and words as a “technology of enchantment” in ceremonial practices cannot be emphasized enough. Engagement with macaws at Chaco would have been a highly unusual experience and extremely stimulating sensorially.

### ***Musical Instruments: Evoking the Flower World***

Seventeen conch shells have been excavated at Chaco Canyon, fifteen of which were found at Pueblo Bonito in Rooms 33 and 38, kivas, and other “ritual store rooms” (Mills and Ferguson 2008:346). Conch shells are important to the Hopi and Zuni—among the latter of whom there is a Great Shell Society—and these groups associate them either with powerful warfare and curing magic, or the shared Mesoamerican-Southwestern feathered serpent deity associated with water (Mills and Ferguson 2008:341–343). Conch shell trumpets are used to create the voice of the feathered serpent in ritual contexts, demonstrating a possible use of ancient Chacoan conch shell trumpets in performative ritual practices as described below (Mills and Ferguson 2008:343). The oceanic origin of conch shells and their novel sonic quality could have played a role in ceremonies evoking a distant watery paradise.

Although not themselves crafted from foreign materials, it is worth mentioning that flutes were found in Pueblo Bonito in association with exotica, including one with black, orange, and blue-green decoration and another decorated with a carved effigy interpreted variously as a bear or, more fitting with a watery cosmology, a frog (Brown 2014; Pepper 1909:199–201; Pepper 1920:164). Zia origin stories

recount how the first living beings on the earth were created through “low and sweet” music produced by Sûs’sistinnako (Stevenson 1894:27), and both Hopi and Navajo creation stories relate flutes and flute playing with emergence (Taube 2010:113). Songs play an important role in Pueblo rain ceremonies (Stevenson 1894:122–31) and Zuni medicine society and priesthood rituals and dances (e.g., Tedlock 1980:13). Of course, song is the primary means through which the Flower World is evoked and created (Hays-Gilpin et al. 2010: 122; Hill 1999:119–27; Hosler 1994:241), and Brown (2014) argues for the use of Chacoan instruments in conjuring the Flower World. A fuller description of how and where sound might have been used in Chacoan rituals appears below, and here I merely reiterate the strong linkage between sound and cosmologies of the ethnographic Pueblo world and ancient Mesoamerica, and suggest that the Pueblo Bonito flutes and shell trumpets would have seen ceremonial usage.

In this section, I have attempted to briefly describe Chacoan exotica with particular emphasis on their sensory qualities and possible association with a watery, Flower World-like paradise replete with beautiful sounds, bright colors, new tastes, and altered mental states. The results of this preliminary attempt to define some aspects of the ritual sensorium at Chaco Canyon are presented in Table 1. I now proceed to propose two types of ritual practice at Chaco Canyon that emphasized the sensory aspects of exotica in perpetuating and manifesting the ideology of a bright, watery paradise.

## Sensory Ritual at Chaco Canyon: Concealed and Conspicuous

### ***“Concealed” Ritual Practices: Ritual Deposition and Restricted Access***

The principle of concealment—hiding what is or was once able to sensed—appears to have been an important element of Chacoan ritual practice (Crown and Wills 2003; Mills 2010; Van Dyke 2007:121). The senses are inherently political; control over what is allowed to be sensed, by whom, and in what context is an exercise of power, exclusion, and can serve to establish and reinforce hierarchies (Ranci  re 2013). One ritual practice of concealment involved depositions and offerings that concealed spiritually charged, sensorially stimulating objects within architectural features (Mills 2010). These votive offerings include “caches of turquoise, beads, and other items [exotica, such as shell and macaw feathers] found in sealed wall niches, under remodeled floor vaults, and under the seating discs for roof columns in some great kivas” (Van Dyke 2007:125; see also Chaco Research Archive 2010; Lekson 2015:75; Mills 2010). By depositing exotica into hidden parts of buildings, the potency of these objects would have been transformed and moved out of the capacity of human perception. Just as the leaders of the Great Houses gained prestige and power through the acquisition of exotica, so too, Great Kivas and Great Houses may also have “consumed” these powerful objects linked to a distant paradise and in doing so been transformed and spiritually exalted. Mills (2010:375) has characterized this practice as a form of “dressing the house” that drew linkages between architecture and “the proper way to adorn a body, animating the ritual structure.”

TABLE 1  
SOME ASPECTS OF A PROVISIONAL CHACOAN RITUAL SENSORIUM.

Object type	Visual	Auditory	Tactile	Gustatory	Olfactory	Possible ideological associations
Turquoise	Blue-green	Rattling/tinkling of stringed beads	Both rough and smooth, shaped and rounded, cold to the touch	?	?	Water, sky, fertility
Shells and Fossils	Off-white, reddish-pink, orange, light brown, mixed, and others	Tinkling, clanking	Smooth, roughness and bumps, spiraling turns, cold to the touch	?	?	Water, previous watery worlds and origins, Flower World
Copper Bells	Gold and silver hues of copper; glimmering	Tinkling, jingling, ringing	Very high thermal conductivity	?	Linked with flowery smells in Flower World cosmology	Sun, Moon, Flower World
Macaws	Red, yellow, blue, green, white, black; iridescent	Squawking, speaking	Fluffy feathers, scratching claws	?	Smell of a living animal, feces in Room 38	South, combining all directional colors, Flower World
Wooden Flutes	Undecorated wood, wood painted black/orange/blue-green	Light, airy, higher pitch than shell trumpet	Smooth, elongated, straight wood	?	?	Creation and origins, rain-making and water, Flower World
Shell Trumpets	Off-white/light-pink, orange-brown, purple; turquoise encrusted mouthpiece	Single harsh tone, deeper pitch than flute	Smooth, roughness and bumps, cold to the touch, vibrates when being played	?	?	Water, powerful magic (warfare, curing), calling spirits, Flower World (shell and song)
Cacao	Brown liquid in black and white cylinder vessels	Frothing, splashing, gurgling (like running water)	Wet; Thick? Lumpy? Watery? (depending on additives); Warm? Unheated?	Bitter? Spicy? Mixed with corn?	Cacao and flavor additives	Water (sound and appearance), creation and origins, mental stimulation

Evidence for other offering practices can be seen in the grave goods of the two elite burials in Room 33, including 20,000 pieces of turquoise that would have gone from being sense-able to being hidden and concealed. By removing the stone from the visible, its power was transferred from the terrestrial into the spiritual realm while also anchoring a social memory for the community in a practice Mills (2010:379) calls “remembering while forgetting.” Edmund Ladd of Zuni Pueblo explains how terminating the use of an object in this world can be an offering, describing the ancient Chacoan ritual practice of purposefully smashing ceramic vessels (see Toll 2001) by saying: “you send it into the afterworld, because you make it unusable [or perhaps in the case of exotica, unable to be sensed] for the living” (in Sofaer 1999). Similarly, by removing the sensory aspects of exotica from what could be perceived by ritual participants at Chaco, these objects may have gained religious

meaning as a potent offering. However, Plog and Heitman (2010) have determined that secondary burials were also present in Room 33, which suggests that the concealed exotica within would have been periodically “seen, and perhaps even used... each time the room was accessed in new acts of deposition and burial” (Mills 2010:380). Such control of secret knowledge—in this case, restricted access to events of symbolically charged deposition—would provide potent means of establishing and legitimating power, as is known among ethnographic Pueblo contexts (Brandt 1977).

There is also the potential for concealment practices across the different types of ritual spaces such as plazas, kivas, and Great House rooms. Van Dyke (2007:121) points out how “Pueblo Bonito may have had nested layers of access, with some individuals allowed into the innermost sanctums, some allowed into the great house plaza or great kivas, and some perhaps not allowed into the great house at all.” Not only are the happenings of interior rooms invisible to those viewing Pueblo Bonito from the outside, but also the smells, sounds, temperature, sense of disorientation, taste, and texture of whatever took place inside. Perhaps ritual participants without access to Great House interiors would have heard the squawk of macaws and sound of flutes emanating from the unknown depths of these monumental structures, and this partial sensing of the exotic would have heightened the allure of these buildings. Additionally, Crown and Wills (2003:514–518, 523–524) have compellingly demonstrated how the continued repainting of ceramic vessels to cover up traces of their former designs—renewal through concealment—was an important aspect of Chacoan ritual and worldview.

Finally, the sense of taste (and therefore cacao consumption) is relevant to the discussion of concealed ritual at Chaco. While a ritual participant might see the dark beverage being poured between cylinder vessels and hear the splash of the liquid, the opportunity to taste the beverage and feel its mental effects was not easily accomplished. If chocolate consumption was restricted to “elites” as was in the case in Mesoamerica, we see an example of the political nature of the senses and concealment; who was allowed to taste would be tightly controlled and social inequality would be perpetuated through the novel taste and mental stimulation of Mesoamerican cacao.

### ***“Conspicuous” Ritual Practices: Dances, Processions, and Acoustic Performances***

Other ritual practices at Chaco would have involved conspicuous performance of the sensory characteristics of exotica. Dances in which performers wore and displayed turquoise jewelry, shell clinkers, copper bells, and macaw feathers—all known in the ethnographic context of modern Pueblo dances—would have made the colors and sounds of Chacoan exotica able to be perceived by many, linked the dancers with powerful spiritual forces, and evoked a Flower World-like spiritual realm. Similarly, if processions between Great Houses and Great Kivas or along Chacoan roads did indeed take place within the Chaco, then exotica could have been explicitly displayed and utilized in these highly perceptible ceremonial events (Van Dyke 2007:57, 166). Tenth century rock art at the Waterflow site in the

Chaco region appears to show “a procession to a central place” and lends support to the existence of Ancestral Puebloan processions during Chaco’s era (Wilshusen et al. 2012:212–215).

Shell trumpets, flutes, and copper bells excavated at Pueblo Bonito could have been utilized in ritual practices. Sound recordings performed by Loose (2002) in a reconstructed Great Kiva at Aztec Ruins using computer tones, flutes, conch shells, and other music found that “a 60-dB reverb decay lasted from 1.8 to 2.0 s, nearly ideal for public performances of music” (Loose 2002:2285). By drawing analogies between features in Chacoan Great Kivas and foot drums in ethnographic kivas at Acoma and among the Hopi (Parsons 1996[1939]:382–3), Van Dyke (2007:125) suggests that “floor vaults may have been used as foot drums, overlain with wooden planks that would make a booming noise when people jumped or danced atop them.” Ethnographically, foot drums were used to correspond with spiritual beings of the world below (Parsons 1996[1939]:383), and the use of drums, copper bells, flutes, and shell trumpets to summon spirits or to evoke the Flower World within a Great Kiva with ideal acoustic properties could have been a powerful experience for ritual participants in ancient Chaco. Sound, temperature, and performances within Great Kivas would have created a powerful ritual atmosphere that manifested a spiritually potent realm through the use of exotica. The nature of acoustic rituals within Great Kivas as both concealed (for those outside the kiva) and conspicuous (for those inside) allows for speculation on the social organization of Chaco Canyon and the power dynamics underlying access to sensory rituals.

A valuable insight into acoustic ritual practice at Chaco comes from a Navajo oral tradition that emphasizes the importance of a 152 m wide shallow alcove in the cliff wall between Pueblo Bonito and Chetro Ketl with striking acoustic properties (Figure 7). This natural concavity in the cliffs was “considerably modified” by the removal of 360 (m<sup>2</sup>) of rock by human agents (Stein et al. 2007: 206). The site is known to the Navajo as Tsbiinaholts’a Yalti or “Curved Rock that Speaks,” and an oral tradition suggests that the dictator known as the Gambler who ruled Chaco “seized the power of the portal at Tsbiinaholts’a Yalti[,]... the origin place of the tones that give power to contemporary Navajo chants” (Stein et al. 2007:201;206). For some Navajo, Tsbiinaholts’a Yalti is a place where the spirits can be contacted through sound, and ritual practitioners ingest datura and use shell trumpets, bone flutes, and reed whistles to communicate with these deities (Blackhorse Jr. and Williams 2002:2282). It is interesting to note that all of the instruments used in this Navajo ceremony—shell trumpets, flutes, and whistles—were found archaeologically at Pueblo Bonito (Brown 2014:45).

Loose’s (2009:31) experimental recordings at Tsbiinaholts’a Yalti show that “there are unusual acoustic effects at conjugate foci. Time history analysis showed that a 60 dB reverberation decay lasted from 1.8 to 2 seconds,” demonstrating that “Tsbiinaholts’a Yalti exhibits acoustical properties comparable to those of the great European cathedrals and concert halls” (Stein et al. 2007:208). Stein et al. (2007:208) write that “experiencing the behavior of the tones firsthand was an unforgettable experience. The canyon floor was filled with sound, and at certain frequencies there was a sensation of being ‘bathed’ in sound.” In further



FIGURE 7 Tsbiinaholts'a Yalti ("Curved Rock that Speaks"), a modified alcove at Chaco Canyon with striking acoustic properties. © Robert S. Weiner.

support of performances at the amphitheater, a small natural cavity on its northwestern side was enlarged such that a few people could fit inside, and it has been suggested the traces of an adjacent masonry wall to the southeast could have acted as a "backstage" area for performances (Loose 2009:42; Stein et al. 2007:208). Humans playing instruments or macaws speaking names and words could have been concealed in this cave, producing sound that would be amplified yet appear to have emerged from nowhere, thereby joining the conspicuous and the concealed. Tsbiinaholts'a Yalti, its associated features, and their combined potential for conspicuous public ritual performances should all be understood in the context of the widespread shared importance of ritual drama among numerous indigenous cultures of the Southwest (Frisbie 1980; Ortiz 1972).

This use of Tsbiinaholts'a Yalti in Navajo ritual practices is consistent with the use of sound and songs in Pueblo and Mesoamerican ceremony to create and evoke the Flower World (Hays-Gilpin et al. 2010:122; Hill 1992:119–27; Hosler 1994:241), bring rain (Stevenson 1894:27), and the importance of song in creation stories (Stevenson 1894:122–31; Taube 2010:113). Given these associations among descendent communities and the quantitatively demonstrated, special acoustic properties of the amphitheater, the potential for powerful rituals involving performance, musical instruments, and the evocation of a Flower World-like realm, rain, and origins is impressive.

## Conclusion

In this paper, I have attempted to integrate Chacoan *exotica* into a provisional reconstruction of an ancient ritual sensorium to show that the ceremonial center at Chaco



Canyon gained much of its regional importance by periodically recreating an earthly manifestation of a watery, bright, song-filled paradise through ritual practices. I argue that ritual leaders at Chaco evoked and manifested this heightened spiritual realm through the use of sensorially striking, exotic artifacts such as turquoise, shell, cacao, copper bells, macaws, shell trumpets, and flutes in rituals that either concealed or conspicuously performed the most striking characteristics of these objects. In doing so, Chacoan leaders would have gained considerable power and prestige by connecting themselves with distant, spiritually charged lands from which the exotica were acquired and by bringing spiritual realms related to water, origins, and the Flower World to life within the canyon. Periodic ritual gatherings at Chaco in which exotica with restricted circulation were used and displayed would have established and reproduced cosmological beliefs and duties among participants, leading to the continued linkage between outlier communities and the center at Chaco. Further work should continue efforts to analyze the distribution and find contexts of exotica within Chaco sites and make reasoned inferences about their symbolic importance using spatial analysis; Pueblo, Zuni, Hopi, and Navajo ethnography and oral tradition; shared Southwestern-Mesoamerican cosmological principles; and sensory approaches. I hope to have demonstrated that through engagement with exotica in concealed and conspicuous ritual practices, ancestral Puebloan ritual participants at Chaco would have not only glimpsed, but tasted, smelled, felt, and heard a bright watery paradise amidst the sandstone cliffs of the San Juan Basin.

## Acknowledgments

This paper was first written for a seminar at Brown University taught by Felipe Rojas, and I am grateful to him for introducing me to the archaeology of the senses. Two people in particular—Bob Preucel and Anna Sofaer—have tirelessly provided feedback, edits, criticism, and references for this paper for which I am immensely thankful. Conversations with Steve Houston, John Cherry, Rich Friedman, Linda Wheelbarger, Randy McGuire, Wolky Toll, Scott Ortman, Mike Marshall, and Bill Simmons also greatly enriched my thinking. I am also grateful to Ruth Van Dyke and an anonymous reviewer for very helpful feedback and additional references. Finally, I thank the Arizona Archaeological and Historical Society for selecting my paper for the 2015 Hayden Prize. Any errors are entirely my own and in no way reflect upon the individuals listed above.

## Note

1 Flower World cosmology need not be coterminous with Uto-Aztecan language, and I do not mean to propose that Uto-Aztecan was the

primary language spoken at Chaco. Ortman (2012:166) suggests it may have been Keres.

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