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A Reimagining of the Chacoan World

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A new paradigm of the Chacoan world is presented, wherein Chaco Canyon is considered to be a mostly unoccupied architectural complex that functioned primarily as a pilgrimage destination. Chaco was the political, religious, and social focal point of people living in outlying regions. The resident population of the Canyon consisted of a small number of caretakers, charged with maintaining great house structures, food supplies, and their ceremonial contents. Chacoan chiefdoms were mostly located in large, well-watered, agriculturally-based communities situated at the base of mountains that ring the San Juan Basin, e.g., the Chuskas. Chiefly elites lived year-round in those areas, but during pilgrimages they occupied Canyon great houses associated with their respective dynasties, whereas their subjects occupied small houses situated on the Canyon floor. Not having 2000 people in the Canyon renders large-scale irrigated agriculture and massive importation of food unnecessary and provides an adequate explanation for the small number of burials found in the Canyon.

Se presenta un nuevo paradigma del mundo chacoano, en el que el Cañón del Chaco es considerado como un complejo arquitectónico mayoritariamente desocupado que funcionaba principalmente como destino de peregrinación. Chaco fue el centro político, religioso y social de las personas que viven en regiones al aire libre. La población residente del Cañón consistía en un pequeño número de cuidadores, encargados de mantener grandes estructuras de casas, suministros de alimentos y su contenido

ceremonial. Las jefaturas chacoanas se encontraban principalmente en grandes comunidades agrícolas bien regadas situadas en la base de montañas que anillan la cuenca de San Juan, por ejemplo, los Chuskas. Principalmente las élites vivían durante todo el año en esas áreas, pero durante las peregrinaciones ocuparon grandes casas del Cañón asociadas con sus respectivas dinastías, mientras que sus súbditos ocupaban pequeñas casas situadas en el suelo del Cañón. No tener 2000 personas en el Cañón hace que la agricultura de regadío a gran escala y la importación masiva de alimentos sean innecesarias y proporciona una explicación adecuada para el pequeño número de entierros encontrados en el Cañón.

KEYWORDS Chaco Canyon pilgrimage center Chuskas; chiefdoms great houses small houses

The Conventional Model of Chaco

The commonly held view of Chaco is that it was a political and socio-economic hub where Chacoan elites governed a regional trade and redistribution center (Judge 1989; Sebastian 1992). Most southwestern scholars consider that, during its heyday (1050-1130 CE), it was a city with a few thousand residents, the great majority of whom lived in small houses on the Canyon valley floor, together with perhaps 300 elites and retainers occupying the several great houses (e.g., Bernadini 1999; Lekson 1991; Windes 1987). In order to sustain this population, it was originally held that substantial quantities of maize had been produced within the Canyon.

Problems with the Conventional Model

The agricultural productivity and protein sources in Chaco Canyon have recently been dealt with by [Benson and Grimstead \(2019\)](#) who demonstrated that Chaco Canyon's agricultural productivity was minimal and could only sustain a few hundred year-round residents. In addition, they showed that attempts to irrigate much of the Canyon's valley floor would have entailed the construction of massive rock-armored berms and ditches, which should still be visible on the landscape but are not.

With respect to the amount of meat protein required to support a Canyon population of a few thousand, [Benson and Grimstead \(2019\)](#) determined that the Canyon's small and large mammal populations would have been exhausted within a few years. Thus, if Chaco had a resident population of a few thousand, meat and maize would have had to be imported requiring approximately 18,000 annual trips by porters carrying 45 kg of meat and maize ([Benson et al. 2019](#)).

There have been far too few burials found in Chaco to support a resident population of a few thousand; i.e., only 578 burials have been exhumed dating between 850 and 1130 CE ([Akins and Schelberg 1984](#); [Akins 1986 2001](#)). Using a range of mean-annual death rates for 32 African third-world countries (1.29 to 2.50% of the population/year; [World Statistics 2012](#)), a calculation indicates that a resident population of 83 to 160 individuals with an average population of 113 would account for all burials that date between 850 and 1130 CE. It should be noted that evidence of cremation at Chaco has never been demonstrated.

On the other hand, a resident population of 2300 individuals should have resulted in 8300 to 16,000 burials. Clearly unexcavated Chacoan remains exist within the Canyon, but the number that have been exhumed argue strongly against an average resident population of 2300. This finding is consistent with [Windes et al. \(2000\)](#) who suggested that the lack of bodies in the

Canyon area indicate a mobile, transient population that spent far less time there than cultural remains suggest. In addition, the $^{87}\text{Sr}/^{86}\text{Sr}$ values of teeth from skeletal remains of elites found in Pueblo Bonito are consistent with either a Canyon or a Chuskan origin (Benson et al. 2019; Price et al. 2017), which raises the possibility that the remains of these individuals were transported from their distant communities to Chaco in order to honor their ties to the Pueblo Bonito great house.

The population Puzzle

It is the magnitude of the estimated population of Chaco Canyon that necessitates the overwhelming amounts of imported foodstuffs. While such a large-scale effort cannot be ruled out, it represents a huge drain on manpower.

The principal argument for a few thousand permanent residents in Chaco is the presence of small houses mostly located on the Canyon valley floor (Hayes 1981). However, only a small sample of small house sites has been excavated, and furthermore, the assumption of long-term continuous occupation is based on the unstated conditional assumption, that if surface scatters (or excavated small houses) contain artifacts created within a certain time range, then the site was continuously occupied throughout that time range. This assumption ignores the possibility that such artifacts could have been deposited during numerous periodic occupations of the site; e.g., during annual pilgrimages of thousands of people to Chaco over a period of 100 years or more. This is consistent with the argument of Windes et al. (2000) that neither small nor great houses have been demonstrated to have been continuously occupied.

Lastly, just what function did the 2000 small-house people perform? Benson and Grimstead (2019) demonstrated that large-scale Canyon agriculture was not feasible so small-house

residents would not have been involved in farming. In addition, maintenance of great house structures would not have necessitated such a large work force.

An Alternative Model of the Chacoan World

A hypothesis is offered that Chaco was essentially an empty architectural complex built by and for the use of visitors that took part in pilgrimages from outlying regions. Timbers were brought from the Zuni and Chuska mountain to build the great houses ([Betancourt et al. 1986](#); [English et al. 2001](#); [Guiterman et al. 2016](#); [Reynolds et al. 2005](#)). The people that carried the timbers probably played a part in the construction of both small and great houses, and they may also have occupied those dwellings during their stay in the Canyon

Chaco was not an urban center. It was the political, religious, and social focal point of people living in outlying regions. The principal activities at Chaco may have included dispute resolution of problems arising among outlying sites, trading of ceramics, tools, and other materials, religious and political observances, and the redistribution of food and seeds to small agriculturally poor communities.

After 1050 CE, numerous outlying communities, exhibiting elements of Chacoan architecture, dotted the San Juan Basin (Figure 1 in [Van Dyke \(2002\)](#)). Some of these villages practiced dryland farming, which under the best circumstances was risky in the arid San Juan Basin. During times of drought these villages would have sought support from more agriculturally productive communities. In a sense, Chaco became a central place for people to gather and solve intra-basin problems including food shortages. Its location was chosen, not because of its verdant environment or intrinsic beauty; it was chosen because it was more-or-less equidistant from communities located within and at the periphery of the San Juan Basin.

There are a substantial number of material imports from outlying regions that support the concept of Chaco as a focal point for people from outlying areas. For example, architectural timbers were brought from the Chuska Slope and Zuni Mountains (Betancourt et al. 1986; English et al. 2001; Guiterman et al. 2016; Reynolds et al. 2005); Narbona chert and corrugated gray ware were imported from the Chuska Slope (Cameron 2001; Toll 2001); and maize and meat were brought in from areas outside the Canyon (Benson 2010, 2012; Benson and Grimstead 2019; Benson et al. 2019).

Cameron (2001:98) in her study of exotic stone materials found in Chaco Canyon stated

“The deposit of literally hundreds of projectile points at rooms in Pueblo Bonito seems likely to have been another aspect of the ritual activity connected with the Chacoan Regional System, one that fits well with Renfrew's view of Chaco as a location of High Devotional Expression. Chipped-stone data support the suggestion made by Earle (2001), Peregrine (2001), Renfrew (2001) and others (Judge 1979; Loose and Lyons 1977; Toll 1985) that great houses in Chaco Canyon were the focus of periodic communal gatherings.”

Toll (1985) was one of the first to propose that people from outlying areas regularly gathered in Chaco for rituals and feasting based on his ceramic analysis of the trash mound at Pueblo Alto, and it is probable that the five ceremonial roads leading from Chaco to outlying regions acted as processional avenues along which pilgrims traveled to and from Chaco.

Tom Windes led an excavation of the Pueblo Alto complex, including its mound, and concluded the layered regularity of the deposit and the apparent agreement between layer number and the period of deposition suggested that deposition was an annual event (Windes

(1987). Toll (2001) concurred with Windes' conclusion, suggesting that stratigraphic discontinuities existed between material accumulations indicating a lengthy series of periodic gatherings (but see Wills 2001; Plog and Watson 2012).

Lekson et al. (1988) has pointed out that some of the features of Chaco Canyon great houses indicate a relatively small resident population and that it may have been a ceremonial center, serving the needs of outlying groups. Some of those features include the relatively small number of habitation rooms and the intermittent deposition of cultural material previously noted by Toll (1985) and Windes (1987). Thus, stratigraphically layered materials derived from periodic feasting comprise a significant part of the fabric of the great mounds and may appear in other contexts at Chaco.

At the most, a few hundred caretakers resided in Chaco. Their principal duties would have included maintenance of existing structures, protection of stored foodstuffs, and the care and preservation of ceremonial objects. A small resident population is consistent with the limited number of burials discovered at Chaco and, more importantly, makes unnecessary non-quantitative arguments that attempt to exaggerate the agricultural productivity of Chaco, as well quantitative arguments that that necessitate the massive importation of foodstuffs to the Canyon.

Small houses in the Canyon were not permanently occupied but were used periodically by those that made pilgrimage to the Canyon and by the workers and their families that built and remodeled the great houses. During pilgrimage events, the elites and their retinue occupied the Canyon's great houses and it is conceivable that each great house was associated with a particular chiefdom.

Throughout the most of the year the elites resided in large, well-watered, agriculturally productive chiefdoms located on the periphery of the San Juan Basin. For example, regions such as the Chuskas were densely populated and resource rich. Heilen and Leckman (2014) found that between 10,600 and 17,000 individuals occupied the Chuska Slope during Chaco's heyday, and Benson et al. (2019) estimated that the Chuska Slope may have been able to provide meat and maize for approximately 27,000 people in an average water year. Chuskan Slope great houses in the vicinity of large field systems such as those found in the Sanostee, Newcomb, Black House Valley, and Tohatchi areas may well have served as domains of Chacoan chiefdoms. Figure 6 in Benson et al. (2019) shows existing large Navajo agricultural field systems in those that areas that probably were also farmed during Chaco's heyday.

The construction and maintenance of elaborate irrigation systems as well as the production and distribution of food in agriculturally productive outlying areas required an elaborate administrative system. This suggests that elites governing these areas oversaw these tasks, thereby consolidating their overall authority.

Advantages of the New Model

1. The impossibility of large-scale agriculture in Chaco Canyon makes the presence of 2000 resident workers unnecessary and the lack of such a work force renders massive food importation unnecessary.
2. The question of why material goods seem to flow into Chaco but almost never flow out is answered. During pilgrimages, people from outlying areas brought foodstuffs and exotic materials to trade and store in the Canyon. Thus, exotic material found in outlying areas represents material that was cycled through Chaco but did not originate there.

3. The paucity of Canyon burials is explained by the fact that few people actually resided in the Canyon. It is also possible that elite burials found in Pueblo Bonito may represent individuals that lived year-round in outlying regions and were buried in the Great House that symbolized the power and prestige of their lineage.
4. The model described herein is consistent with the thoughts and studies of others. [Judge and Cordell \(2006\)](#) suggested that people living outside Chaco may have constructed, maintained, and owned some of the structures in Chaco, including great houses and communal great kivas. [Toll \(1985\)](#) suggested that Chacoan sites were not intended for full-time residence; instead, he believed they were constructed for gatherings of people from outlying communities. A substantial number of Chaco scholars consider Chaco to have served as a seasonal pilgrimage center for residents from outlying communities ([Judge 1984, 1989; Malville and Malville 2001; Toll 1985, 1991; Windes 1987](#)), and several Chaco scholars ([Fowler and Stein 1992; Fritz 1978; Lekson et al. 1988; Sofaer et al. 1989, 1991](#)) and [Stein and Lekson 1992](#)) proposed that Chaco's architectural complex was primarily constructed for ritual expression and public image.
5. Chaco's monumental architecture together with the presence of a large number of people living in such a desolate and inhospitable environment has long been termed the "Mystery of Chaco Canyon". The answer to that mystery is simply that the monumental architecture was chiefly symbolic and served as a focal point of pilgrimage from outlying areas, and that the full-time resident Canyon population was quite small.

Summary

Chaco was essentially an empty monumental complex built by and for the use of visitors that took part in pilgrimages from outlying regions. Only a few hundred caretakers made up the

resident population of Chaco. Their principal duties included maintenance of existing structures, protection of stored foodstuffs, and the care and preservation of ceremonial objects.

Chaco functioned as the political, religious, and social focal point of people living in and around the San Juan Basin. The principal activities at Chaco may have included dispute resolution of problems arising among outlying sites, trading of ceramics, tools, and other materials, religious and political observances, and the redistribution of food and seeds to small agriculturally poor communities.

Small houses in the Canyon were not permanently occupied but were used periodically by those that made pilgrimage to the Canyon and those that constructed and remodeled the Canyon's several great houses. During pilgrimage events, the elites and their retinues occupied the Canyon's great houses and it may have been that each great house was associated with a particular chiefdom from an outlying region. Throughout the rest of the year the elites resided in large well-watered agriculturally productive chiefdoms located on the periphery of the San Juan Basin where they oversaw the production of maize and its distribution.

Disclosure Statement

No potential conflict of interest was reported by the authors

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