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The Great North Road: a Cosmographic Expression of the Chaco Culture of New Mexico

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29.1 Introduction

The Great North Road is one of the most enigmatic constructs of the ancient Chaco culture of New Mexico. Efforts to establish strict utilitarian purposes for its construction do not explain certain unique features of it. We suggest it is a cosmographic expression of the Chaco culture.

The Chaco society, a prehistoric Pueblo culture, flourished between AD 950 and 1150 throughout the 80 000 km² of the San Juan Basin of northwestern New Mexico (Marshall *et al.* 1979; Powers, Gillespie and Lekson, 1983; Cordell, 1984; Marshall and Sofaer, 1988) (Figure 29.1).

Figure 29.1
Map of the San Juan Basin, showing major Chacoan sites and roads. The inset shows this region within present State boundaries. Lines represent prehistoric roads and dots indicate outlying Chacoan communities. Copyright Carol Cooperrider, 1986; additional data supplied by John Roney.



Chaco Canyon was the center of this culture. Here the Chaco people constructed multi-storied buildings containing 100 to 700 rooms (Lekson, 1984). These structures are noted for their planned, symmetric organization, massive core-veneer masonry construction, and numerous great kivas, the large ceremonial chambers of the prehistoric pueblo culture.

Descendants of the prehistoric Pueblo culture live today in the pueblos of New Mexico and Arizona. Ethnographic reports on the traditions of the historic Pueblo Indians suggest parallels between the historic and prehistoric and may provide insights into the general cosmological concepts of the prehistoric Chaco culture.

Astronomy played an important role in the Chaco culture. This is expressed in the cardinal alignments of the major axes of several large ceremonial structures at or near the center of the canyon (Williamson, Fisher and O'Flynn, 1977; Sofaer and Sinclair, 1986a), and in a complex set of solar and lunar markings on Fajada Butte, at the south entrance of the canyon (Sofaer, Zinser and Sinclair, 1979; Sofaer, Sinclair and Doggett, 1982; Sofaer and Sinclair, 1986a).

29.2 The roads

Roads also played an important role in the Chaco culture, judging from their extent and the effort required for their design and construction (Kincaid, 1983). In the late florescence of the Chaco civilization (c. AD 1050 to 1125) elaborate, formalized roads were constructed (Figure 29.2). No archetype for these roads appears to have existed in the region before their development by the Chacoans, and a recent inventory shows they were not used after the Chaco civilization's peak, about AD 1140. The Chaco roads have generally been interpreted as arteries connecting communities for trade, transportation of goods and materials, and movement of population. These explanations of the roads' functions have been premised on a model of the Chaco culture that has envisioned Chaco Canyon as the political and economic center of a widespread trade and redistribution system extending throughout the San Juan Basin. (Vivian, 1983, provides a detailed summary of the various economic models which have been applied to the Chaco culture.)

The extensive religious architecture in Chaco Canyon suggests that the canyon may have served primarily as a ceremonial nexus for the outlying communities. Factors supporting this concept include: evidence from the middens of periodic intensive consumption of food at the large public structures (Judge, 1984); the dearth of burials and the presence of a few 'high status' burials (Akins and Schelberg, 1984); and possible large-scale ceremonial breakage of ceramic vessels (Toll, 1984). Consistent with this view of the religious function of Chaco Canyon, it appears that one of the Chaco roads - the Great North Road - and perhaps others, express religious considerations

The Chaco roads have been noted for their great width and unusual linearity, and they have been described as 'extensively engineered' (Nials, 1983, p. 6.26). The roads were developed by excavation to a smooth, level surface, and some included masonry construction.

Approximately 300km of roads, including the Great North Road, have been documented in the last 15 years by aerial photography and ground investigation in numerous intensive studies. A further archaeological investigation of the Great North Road was recently conducted by the authors. This involved the inspection of all structural sites and many kilometers of roadway. Numerous sites were mapped and sampled, and a technical report concerning this work is in preparation (Marshall and Sofaer, 1988).

29.3 The Great North Road - description

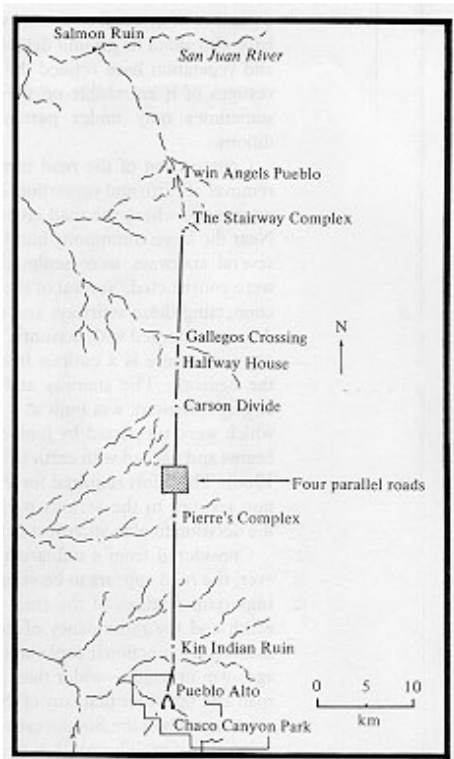


Figure 29.3
Map of the Great
North Road.
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The Great North Road (Figure 29.3) has its origin in several routes which ascend by staircases carved into the cliff from Pueblo Bonito and Chetro Kettle in Chaco Canyon, which are the two largest structures of the Chaco region. These routes converge at Pueblo Alto, a large structure located close to the north rim of the canyon. From there the road runs 13 degrees to the east of north for 3 km to Escavada Wash. It then heads within 1/2 percent of true north for 16km, where it articulates with Pierre's Complex, an unusual cluster of small buildings on knobs and pinnacles. The road then heads close to 2 degrees east of north for 31 km and ends at Kutz Canyon. It appears to terminate at three small, isolated sites, and a stairway recently located by the Solstice Project (Marshall and Sofaer, 1988) that descends from the Kutz Canyon escarpment to the canyon floor (see Figures 29.5 and 29.6).

From Pueblo Alto to Kutz Canyon, the road lies within one corridor, with no evidence of bifurcations. For much of its length, it exists as two, and occasionally four, closely spaced, parallel roads. The road's length and the

complexity of its construction have led scholars to term it the 'Great North Road'.

The road traverses rolling, sagebrush country, where the only prominent natural features in view, and then only from rises, are the distant snowcapped mountains to the north. The only major topographic relief are the canyons at each end. With the possible exception of Pierre's Complex, there are no communities on the road's course from Pueblo Alto to Kutz Canyon. Two large complexes - Aztec and Salmon Ruin - lie to the northwest, 20 and 30 km beyond the road's terminus. Most of the outlying Chacoan communities are to the south, west and east of Chaco Canyon.

The road has been traced in numerous segments by aerial photography. On the ground, it has been intensively investigated from Chaco Canyon to Pierre's Complex and partially studied from there to Kutz Canyon. Its straight course and distinctive parallel segments have aided scholars in identifying and following it. Associated ceramic scatters and a number of unusual structural sites along its route have also aided its ground detection. Because earth and vegetation have refilled the road, only limited vestiges of it are visible on the ground today and sometimes only under particular lighting conditions.

Construction of the road involved primarily the removal of earth and vegetation. Extensive road cuts were made where the road crosses land elevations. Near the large community buildings of the canyon, several stairways were sculpted and large ramps were constructed. Several of the multiple roadways connecting these stairways

and ramps with Pueblo Alto were curbed with masonry. Along one of these segments there is a curious linear groove cut into the bedrock. The stairway at Kutz Canyon, now largely collapsed, was built as a series of platforms which were supported by juniper posts and crossbeams and packed with earth (Marshall and Sofaer, 1988). The effort required for the road's construction testifies to the serious purpose that attended the decision to plan and execute it.

Considered from a utilitarian perspective, however, the road appears to be *overbuilt* and *underused*. Important features of the road - its extraordinary width and the redundancy of its routes - have no satisfactory functional explanation. The road averages 9 m in width - wider than a modern two-lane road and far wider than any of the other prehistoric roads or trails of the Southwest outside of the Chaco cultural region. The width is greater than required for draft animals or wheeled vehicles. Since this culture had neither, the width seems especially excessive in practical terms.

Redundancy occurs in the multiple stairways heading out of the canyon, the four routes that converge on Pueblo Alto, and most particularly where the Great North Road is expressed, for a good fraction of its length north of Pierre's Complex, as a set of two parallel roads. In addition, at one location, a set of four 'almost perfectly parallel' roads extending for 1.5 km is evident in aerial photography (Nials, 1983, p. 6.29) (Figure 29.4). Recent reevaluation of the aerial imagery for the Solstice Project has revealed further portions of the road in previous gaps to the north of Pierre's Complex (G. Obenauf, 1986, unpublished report to the Solstice Project on reevaluation of Bureau of Land Management aerial photography). Many of these segments consist of two parallel roads. (The new portions lie on the straight line determined by the sections found earlier and thus further emphasize the overall linearity of the road.) There is no satisfactory functional explanation for these redundant features. Yet the effort devoted to achieving them indicates they are not casual expressions of the Chaco culture.

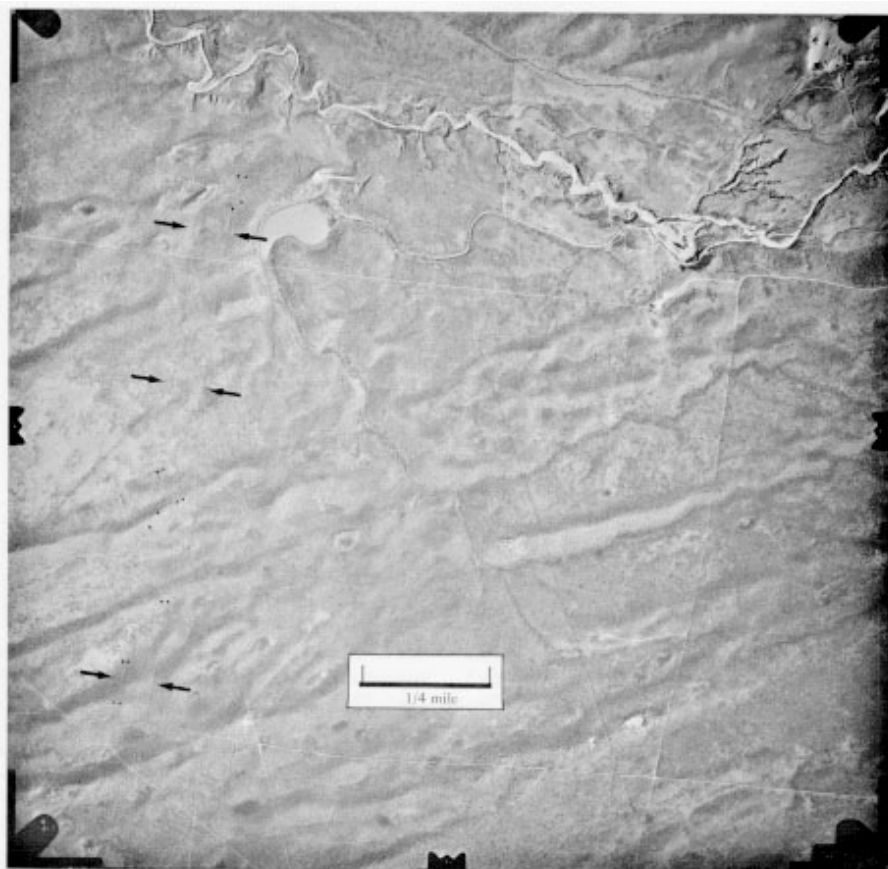


Figure 29.4
Aerial view of a 2km section of the Great North Road north of Pierre's Complex. Arrows and dots indicate the road's four parallel segments. (Other linear features are modern roads.)
Bureau of Land Management aerial imagery, 1981.

Viewed from a utilitarian perspective, we would expect the Great North Road to connect Chaco Canyon with other major population centers. An examination of the structures along the Great North Road and its destination, however, does not appear to support the earlier functional interpretation of its development and use. The road, after leaving the ceremonial complex of Chaco Canyon, traverses the least developed region of the Chaco

cultural area. The structures along the road are small in comparison with other outlying Chaco structures, and minute in comparison with those in Chaco Canyon. All of the structures contain less than six rooms, and most of them contain less than three. Only Pierre's Complex suggests a possible community.

Earlier maps and reports of the Chaco cultural region have assumed that this road goes to Twin Angels Pueblo (Kincaid, 1983, Figure 4.1) and then extends at a NNW bearing, to one or both of the large San Juan River communities of Salmon Ruin (Powers *et al.*, 1983; Cordell, 1984) and Aztec (Morenon, 1977). There is, however, no ground inventory or aerial investigation that provides evidence that, in fact, the road goes to these pueblos. Moreover, efficiency for travel and transportation of goods to Salmon Ruin and Aztec would dictate a more direct and easier route from Chaco Canyon - one further to the west. Instead, the road goes north and descends a nearly impassably steep slope of Kutz Canyon.

Twin Angels Pueblo is located in the Kutz Canyon badlands, 6 km from the road's apparent terminus (Carlson, 1966). It is a relatively small pueblo of 17 rooms - less than one-tenth the size of Salmon Ruin or Aztec. (We note with interest that, although there is no evidence of the continuation of the road to or near Twin Angels Pueblo, that site lies only 1/2 degree east of north from the start of the road near Chaco Canyon. We cannot, at this point, rule out the possibility of a road relationship with this pueblo.)

A recent inventory of the Great North Road has produced no evidence that indicates extensive use for the transportation of economic goods (Stein, 1983). It is estimated that only 10% of the ceramics found on the Great North Road are from the San Juan River communities (Stein and Levine, 1983), giving scant evidence of significant trade with them. The absence of hearths and ground or chipped stone in the road inventory suggests there was little encampment along the road.

To summarize, the road's great width and parallel routes, its ephemeral practical use, and apparent terminus at an isolated badlands canyon fail to justify, in functional terms, the effort entailed in its construction. The road apparently goes 'nowhere' and displays a level of effort far out of proportion to the meager tangible benefits that may have been realized from it. In many important respects, the road appears to be its own reason for development - an end in itself.

29.4 The Great North Road - purpose

In the absence of a satisfactory functional explanation and practical destination for the Great North Road, and knowing what we do about Chaco and its interest in religious architecture, we posit that the primary purpose of the road may have been the expression of spiritual values. We will consider its direction to the north and its topographic direction with this in view. In addition, we will consider the sites along its course and their frequent location on distinctive land forms.

In the ceremonial architecture and astronomy of the Chaco culture the north-south axis is primary. Most of the great kivas have approximate north south axes and the kivas generally have niches primarily located to the north (Reyman, 1976). The axes of two major ceremonial structures of Chaco Canyon, Pueblo Bonito and the great kiva, Casa Rinconada, are within 1/4 degree of north (Williamson *et al.*, 1977; A. Sofaer and R. M. Sinclair, 1984, unpublished survey). A bearing within 1/2 degree of north south has been noted between two high ceremonial structures which are intervisible - Pueblo Alto and Tsin Kletzin (Fritz, 1978) - the former of which is itself aligned to the cardinals (Sofaer and Sinclair, 1986b). It is interesting to observe that Pueblo Alto and Pueblo Bonito are origin points in the canyon for the Great North Road. Just prior to the time of the road's construction, Alto was constructed; close to the time of the road's actual development, Bonito was greatly expanded and given its cardinal alignments (Lekson, 1984).

Seven noon-seasonal markings using shadow and light patterns on petroglyphs on Fajada Butte also involve the north-south axis. They occur within a few minutes of meridian passage of the sun, when the sun is due south, and thus involved a comparable interest in and knowledge of the north-south axis (Sofaer and Sinclair, 1986a).

The effort made by the Chacoans to construct the Great North Road with a bearing within 1/2 degree to 2 degrees of true north is similar to the effort they made to involve the north-south axis in their large ceremonial constructions and the noon-seasonal markings on Fajada Butte. It is important to note that the road appears to deviate intentionally from astronomic north after Pierre's Complex in order to arrive at the dramatic edge of Kutz Canyon. Clearly the people of Chaco had the capability of directing the road to within 1/2 degree of north, and as noted above they did so in a 16 km segment. For the next 31 km of the road they departed from this bearing and

struck, with a rigorously straight course, their direction to a large mound on the edge of Kutz Canyon. The purpose of this deviation appears to have been a blending of astronomic north and symbolic use of topographic features in a cosmographic expression.

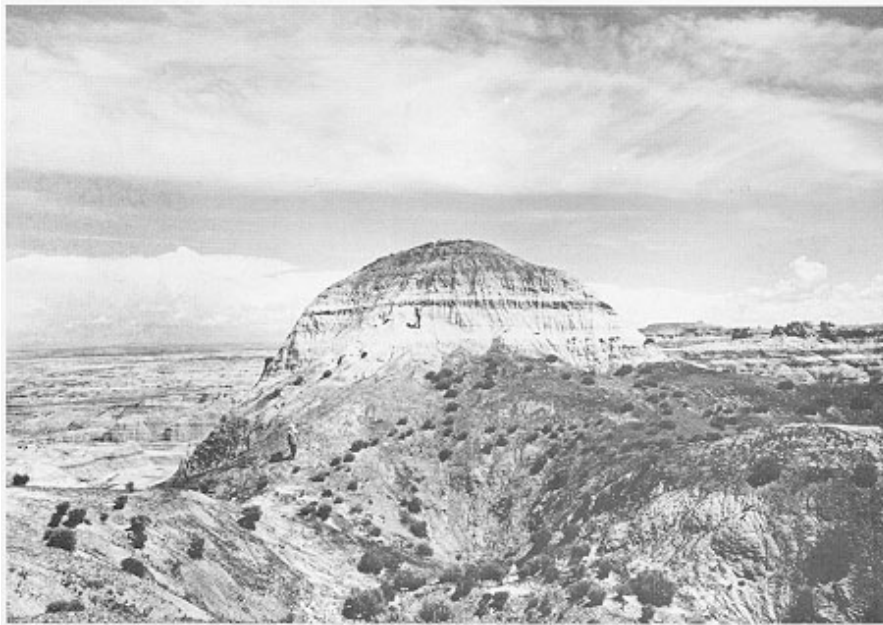


Figure 29.5
Upper Twin Angels mound, looking north, seen from the edge of the canyon. A small shrine-like structure is located on top. The road terminus and stairway are just out of the picture to the left.
Photograph by Anna Sofaer, Copyright The Solstice Project, 1986.

The road's 2 degree angle change directs it straight from the cone-shaped mound at Pierre's Complex, El Faro, to the large Upper Twin Angels mound. This mound (Figure 29.5) is located on the edge of the steepest slope of Kutz Canyon, where the stairway descends to the canyon floor. The mound stands out prominently above the deeply eroded slope of the canyon wall (Figure 29.6); from 10 km to the north, it is the only relief that extends above the southern horizon. These symmetrically shaped pinnacles, El Faro and Upper Twin Angels mound, while not very high, are the most distinctive prominences in the vicinity of the road corridor as it crosses the rolling northern terrain.

The straightness of the Great North Road has suggested that it was 'laid out as a single unit' (Morenon, 1977), and the 'chronological homogeneity' in the material culture associated with it has suggested 'that it can be viewed as a single construction event' (Kincaid, Stein and Levine, 1983, p. 9.76). The sites adjacent to the road were built at the time of its construction, apparently in association with its construction and use.

Five isolated structures along the road are small low-walled units located on distinctive land forms such as pinnacles or ridge crests (Kincaid, 1983; Marshall and Sofaer, 1988). They resemble shrines of the historic Pueblo culture, which are similarly small, often in remote locations, and frequently on elevated land forms. Such a site was constructed on the top of the Upper Twin Angels mound.

At Pierre's Complex, almost all of the 27 cures are located on pinnacles, mesa tops, and steep ridge slopes (Powers *et al.*, 1983). While it is the largest development on the road and three of its structures are similar in scale to some small-to-medium outlying Chacoan pueblos, it is atypical. About a third of the structures are isolated rooms or non-habitation sites. A recent report describes it as 'a constellation of special-function architecture', the location of which 'was probably predetermined during the engineering of the North Road' (Stein, 1983, p. 8.9). This report further states: 'indeed, arrangement of the major structures within the complex acted to preserve the bearing of the road and to "receive" it into the community.' These structures include a hearth construction on top of El Faro, from which there is extended visibility north and south.

Certain aspects of the ceramics associated with the Great North Road suggest the possibility of ceremonial activity on the road. There are several curious concentrations of shards along the road at locations isolated from structures and without evidence of nearby encampment. Unusually dense elongate ceramic scatters occur along the road

several kilometers south of Pierre's Complex (Kincaid *et al.*, 1983, p. 9.74). Along the isolated Kutz Canyon stairway, there is a concentration of ceramics (Marshall and Sofaer, 1988). The extensive quantity of broken ceramics at Pueblo Alto has suggested to some analysts the possibility of large ritual gatherings involving dispersal of food items and deliberate breakage of vessels (Judge, 1984; Toll, 1984). The ceramics along the Great North Road (Kincaid *et al.*, 1983) and at Pueblo Alto (Toll, 1984) have a significantly higher proportion of jars and non-utility ware than the ceramics at a typical Chacoan site. The road's enigmatic ceramic concentrations, the possibility of ceramic related rituals at Pueblo Alto, and the character of the road ceramics suggest the possibility of ceremonial activity associated with ceramics on the road.



Figure 29.6
North slope of Kutz Canyon seen from the canyon floor. The arrow indicates the top of the stairway. Photograph by Anna Sofaer. Copyright The Solstice Project, 1986.

29.5 Other Chaco roads

Many of the other Chaco roads also exhibit nonutilitarian features and suggest cosmological purposes. For instance, the other roads are as wide and straight, and show no evidence of frequent use. Long linear grooves were cut into the bedrock along certain roads. The principal road to the south, the South Road, has a segment of parallel roads. The ceramics on the other roads share the same non-utility ratio as the Great North Road. Small isolated structures resembling historic shrines have been found so frequently along the roads that they are now used as a means of predicting the presence of a road (Kincaid *et al.*, 1983, p. 9.16).

Recent road inventories have discounted several earlier postulated road connections between Chaco Canyon and major communities (Nials, Stein and Roney, 1988). Only a few such roads have been verified. Where certain roads do articulate with large communities, they appear to be only interconnecting avenues between nearby outlying communities or to link structures within the community, such as the large public building and the great kiva. Sometimes they appear to represent only a formalized entrance way to ceremonial locations in the community. Where the road articulates with public buildings, there is frequently evidence of large ceremonial earthen architecture: ramps, circular mounds, and platform mounds (J. R. Stein, 1983, private communication). The roads in this vicinity are usually wider and often curbed with masonry (see Figure 29.2). The pecked grooves and evidence of fire on ramps, burnt structures, elevated fire boxes, and fire pits warrant further investigation for possible ceremonial significance. At Pueblo Alto, very large firepits are located at the road's entrance points.

Some roads lead *only* to topographic features such as pinnacles, springs, or lakes. One major road, the Ashlislepah Road, which runs from Penasco Blanco in Chaco Canyon Chaco to the northwest, connects with no other communities. It articulates, instead, with a group of cisterns, where there is a small, apparently non-utilitarian site, and then appears to terminate at now-dry Black Lake (Marshall and Sofaer, 1988). Another road,

which runs from the community of Kin Ya'a and the southern terminus of the South Road 7 km to the south appears to terminate near the base of massive Hosta Butte, one of the highest and most prominent natural formations in the San Juan Basin (Nials et al., 1988).

29.6 Ethnographic background

Historic Pueblo cosmology and ceremony may afford insights into the religious considerations underlying construction of the Great North Road and other Chaco roads. Here we find frequent symbolic use of straight roads, mythic and ceremonial journeys to and from the north and the 'middle place', and attention to prominent topographic features as elements of a spiritual landscape. There is even evidence of emblematic use of parallel roads and pecked grooves.

There are many symbolic uses of roads in Pueblo ritual and myth. 'Road' translates as 'channel for the life's breath' in Tewa, a Pueblo language (A. Ortiz, 1987, private communication). 'Life is a road; important spirits are . . . keepers of the roads, the life roads. All spirits or sacrosanct persons have a road of cornmeal or pollen sprinkled for them where their presence is requested' (Parsons, 1939, pp. 17-18). These roads can represent the road traveled by the people to the middle place from the shipapu, the place where they emerged from the worlds below (Parsons, 1939, pp. 310, 363). Sometimes the road is for the spirits of the dead to return to the shipapu (White, 1942, p. 177).

For the Keresan Pueblos, north is where Iyatiku, the mother of all, resides at the shipapu. An account of Keresan cosmology describes the importance of north and the road to the north (White, 1960). When the people came out from the worlds below 'they stayed near the opening at Shipapu for a time, but it was too sacred a place for permanent residence, so Iyatiku told them they were to migrate to the south.' They moved south and stopped at a place where they lived for a long time.

When people died, their bodies were buried, but their souls went back to Shipapu, the place of emergence and returned to their mother in the fourfold womb of the earth . . . So every year, now, the souls of the dead come back to the pueblos of the living and visit their relatives and eat the food that has been placed for them on their graves and on the road to the north.

This 'road to the Shipapu' is described in another report as 'crowded with spirits returning to the lower world, and spirits of unborn infants coming from the lower world' (Stevenson, 1894, p. 67). This and other roads are frequently described as 'straight' (Stevenson, 1894, pp.31, 41, 145).

When a person dies in the Keresan and Tanoan pueblos, the officiant takes offerings that represent that person's soul to the north and deposits them in a canyon or a mesa crevice (White, 1973, p. 137). Ceramic vessels are frequently broken in rituals related to the dead (Parsons, 1939, pp.72,, 77; Ortiz, 1969, p. 54). Sometimes a vessel containing food which is 'the last meal of the deceased' is put on the road to the north or sometime it is 'killed' (broken at the rim) and then thrown by the officiant 'out to the north, the direction in which the soul . . . travels toward Shipapu' (White, 1942, p. 177).

Traditionally, the Pueblo people re-enact the creation and emergence events, especially at important solar times. As part of these ceremonies, they make ritual journeys to certain mountains, canyons, caves and lakes - places they regard as Shipapu openings (Ellis and Hammack, 1968, pp. 31, 33; Ladd,, 1983). These journeys may be as long as 500 km to and from the pueblo. Along the route, the ceremonialists leave offerings at shrines which are located on distinctive land forms, such as buttes, cone-shaped hills, ravines and springs. From a Keresan pueblo on the south edge of the prehistoric Chaco region, ceremonialists packed their burros with solar offerings and traveled north, stopping first at Chaco Canyon (Ellis and Hammack, 1968, p.32). They made offerings at a shrine on the south side of the canyon and then traveled to a shrine at Jackson Butte and finally to the shipapu, a small lake or spring in the San Juan Mountains. In Pueblo culture, the mountains are where the cloud beings, the spirits of the dead, reside (Parsons, 1939, pp. 172, 173).

For Jemez, a Tanoan pueblo, north is 'spiritually indicative of the mythical and ancestral homeland' (Weslowski,, 1981, p. 123), and the place of emergence is in the mountain range to the north of the pueblo. One of their most sacred shrines is located on its prominent peak. There the 'underworld chiefs make a pilgrimage... every June to begin the summer series of rain retreats and ceremonies' (Weslowski, 1981, p. 117). In the emergence and migration of this pueblo, the leader Fortease, upon emergence from the shipapu, chooses the direction 'towards the south' and then makes four roads for the people to travel on in search of their place of settlement (Parsons,

1925, pp. 137, 138). Fortease is reported to have made the roads by 'clearing away the brush'. Reference to two parallel roads occurs in Tanoan cosmology (Ortiz, 1969, p.57):

True to the underlying message of the origin myth. . . the Tewa do begin and end life as one people. The term they use for the life cycle is poeh, or 'path', after the two different migration paths the moieties followed after emergence. Thus, at the beginning of life there is a single path for all Tewa.... it divides into two parallel paths and continues in that way until the end of life. At death the paths rejoin again and become one, just as the moieties rejoined in the myth of origin.

At the Zuni Pueblo, a pilgrimage is conducted every four years at summer solstice by 50 religious leaders to a lake, the Zuni 'village of the gods', the place where the spirits of all Zunis go after death (E. R. Hart, 1985, unpublished manuscript: 'The Zuni Indian tribe and title to *Kolhu/wala:wa* (Kachina Village)). Fires are lit along the route by one of the participants, the Zuni Fire God. Another important pilgrimage, to the Zuni Salt Lake, is on roads that have been described as very straight and with shrine- like sites similar to those on the Chaco roads (Kelley, 1984). Although for the Zuni, these sacred lakes and the origin place are not located to the north, north is associated with the 'undermost' of the below worlds (Stevenson, 1904, p. 25) and has primacy in the ordering of ceremonial events and religious leadership (Cushing, 1979, pp. 188-90). In the prayers and chants telling of their emergence and migration to the middle (i.e. Zuni), reference is made to four parallel roads: 'Hither towards Itiwana (the middle) I saw four roads going side by side.' (Bunzel, 1932a, p. 717.) One Zuni ceremony includes breakage by the religious leaders of ceramic vessels throughout the pueblo (Cushing, 1979. D. 321).

Long linear grooves are cut into the mesas near two present-day pueblos. Contact with these grooves is reported to help diagnose sickness in curing ceremonies, to help people to regain their strength and to help persons 'to cease yearning for the dead or absent and to keep them from returning in their dreams' (Parsons, 1939, p. 449). There are many references to running in Pueblo ceremony and myth, sometimes on north-south roads (Parsons, 1925, p. 119) and sometimes symbolic of emergent events on north-south parallel courses (Dutton and Marmon, 1936, p. 12); and in certain instances on ritually swept east-west tracks to aid the journey of the sun (Parsons, 1939, p. 547).

In several reports, canyons or deep holes are seen in myths or in the actual topography as leading to the shipapu (E. R. Hart, unpublished manuscript). Symbolic ladders connect with the underworld (Bunzel, 1932b, pp. 589, 590; Cushing, 1979, p. 132). At one Keresan Pueblo, the shipapu is described as (Lange, 1959, p. 416) 'the Lagune... to the north, beyond the "Conejos". . . very round and deep. Many streams flow into it, but it has no issue. Out of this Lagune came forth the Indians and in it dwells "Te-tsha-aa", our mother... The good ones return to her.'

The 'middle place', so important in Pueblo cosmology, is seen as the place of the convergence of the cardinal directions and the nadir and zenith directions (Ortiz, 1972, p. 142). Where these directions join is the sacred center for Pueblo people. This place is sometimes symbolically conveyed in the joining of ritual roads at the pueblo center (Goldfrank, 1962, p. 47). It is interesting to note that the cardinal directions in the Chaco architecture, and the north-south axis of the Great North Road, merge at a central ceremonial complex of the vast Chaco cultural province, Pueblo Bonito.

29.7 Conclusion

The Great North Road embodies many non- utilitarian aspects and has no clear practical destination. It displays a level of effort in its engineering and construction that is far out of proportion to any material benefits that could be realized from it. Its direction to the north and its linkage to the middle place of Chaco Canyon find echoes in much of the tradition of the historic Pueblos, where roads, and especially a road to the north, have intense symbolic value. We conclude that the Great North Road was conceived, in harmony with much of Chaco architecture, as a cosmographic expression uniting the Chaco world and its works with its spiritual landscape.

Acknowledgments

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References

- Akins, N. J. and Schelberg, J. D. (1984). Evidence for organizational complexity as seen from the mortuary practices at Chaco Canyon. In *Recent Research on Chaco Prehistory*, eds. W. J. Judge and J. D. Schelberg, pp. 89-102. Albuquerque: US Department of the Interior, National Park Service.
- Bunzel, R. L. (1932a). *Zuni Ritual Poetry*. 47th Annual Report, Bureau of American Ethnology, pp. 611-835. Washington: Smithsonian Institution.
- Bunzel, R. L. (1932b). *Zuni Origin Myths*. 47th Annual Report, Bureau of American Ethnology, pp. 545-609. Washington: Smithsonian Institution.
- Carlson, R. L. (1966). Twin Angels Pueblo. *American Antiquity* 31, (5), 676-82.
- Cordell, L. S. (1984). *Prehistory of the Southwest*. Orlando: Academic Press.
- Cushing, F. H. (1979). *Zuni, Selected Writings of Frank Hamilton Cushing*, ed. J. Green. Lincoln: University of Nebraska Press.
- Dutton, B. P. and Marmon, M. A. (1936). The Laguna calendar. *University of New Mexico Bulletin, Anthropological Series* 1, (2), 3-21.
- Ellis, F. H. and Hammack, L. (1968). The Inner Sanctum of Feather Cave. *American Antiquity* 33, (1), 25-44.
- Fritz, J. M. (1978). Paleopsychology today. In *Social Archaeology: Beyond Subsistence and Dating*. Orlando: Academic Press.
- Goldfrank, E. C. (ed.) (1962). *Isleta Paintings*. Bureau of American Ethnology Bulletin 181. Washington: Smithsonian Institution.
- Judge, W. J. (1984). New light on Chaco Canyon. In *New Light on Chaco Canyon*, ed. D. G. Noble, pp. 1-12. Santa Fe: School of American Research Press.
- Kelley, K. B. (1984). *Historic Cultural Resources in the San Augustine Coal Area*. Draft on file at Bureau of Land Management, Socorro District, New Mexico, June 1984.
- Kincaid, C. (ed.) (1983). *Chaco Roads Project Phase 1, A Reappraisal of Prehistoric Roads in the San Juan Basin*. Albuquerque: US Department of the Interior, Bureau of Land Management.
- Kincaid, C., Stein, J. R. and Levine, D. F. (1983). Road verification summary. In *Chaco Roads Project Phase 1, A Reappraisal of Prehistoric Roads in the San Juan Basin*, ed. C. Kincaid, pp. 9.1-9.78. Albuquerque: US Department of the Interior, Bureau of Land Management.
- Ladd, E. (1983). Pueblo use of high-altitude areas: emphasis on the A: Shiwi. In *High Altitude Adaptations in the Southwest*, ed. J. C. Winters, pp. 168-76. Albuquerque: US Forest Service, Southwest Region Report no. 2.
- Lange, C. H. (1959). *Cochiti: A New Mexico Pueblo, Past and Present*. Austin: University of Texas Press. (Reprinted in 1968 by Southern Illinois University Press, Carbondale.)
- Lekson, S. H. (1984). *Great Pueblo Architecture of Chaco Canyon, New Mexico*. Albuquerque: US Department of the Interior, National Park Service.

- Marshall, M. P. and Sofaer, A. (1988). *Report on the Solstice Project Archaeological Investigations in the Chacoan Province, New Mexico*. (To be published.)
- Marshall, M. P., Stein, J. R., Loose, R. W. and Novotny, J. E. (1979). *Anasazi Communities of the San Juan Basin*. Albuquerque: Public Service Company of New Mexico.
- Morenon, E. P. (1977). *A View of the Chacoan Phenomenon From the 'Backwoods'. A Speculative Essay*. On file, Archaeological program of the Institute of Applied Sciences, North Texas State University, Denton.
- Nials, F. L. (1983). Physical characteristics of Chacoan roads. In *Chaco Roads Project Phase 1, A Reappraisal of Prehistoric in the San Juan Basin*, ed. C. Kincaid, pp. 6.1-6.51. Albuquerque: US Department of the Interior, Bureau of Land Management.
- Nials, F. L., Stein, J. R. and Roney, J. R. (1988). *Chacoan Roads in the Southern Periphery: Results of Phase II of the Bureau of Land Management Chaco Roads Study*. Albuquerque: Department of the Interior, Bureau of Land Management. (In press.)
- Ortiz, A. (1969). *The Tewa World: Space, Time, Being, and Becoming in a Pueblo Society*. University of Chicago Press.
- Ortiz, A. (ed.) (1972). *New Perspectives on the Pueblos*. Albuquerque: University of New Mexico Press.
- Parsons, E. C. (1925). *The Pueblo of Jemez*. Papers of the Phillips Academy Southwestern Expedition, 3. New Haven: Yale University Press.
- Parsons, E. C. (1939). *Pueblo Indian Religion*. University of Chicago Press.
- Powers, R. P., Gillespie, W. B. and Lekson, S. H. (1983). *The Outlier Survey, A Regional View of Settlement in the San Juan Basin*. Albuquerque: US Department of the Interior, National Park Service.
- Reyman, J. E. (1976). The emics and etics of Kiva wall niche location. *Journal of the Steward Anthropological Society* 7, (1), 107-29.
- Sofaer, A., Zinser, V. and Sinclair, R. M. (1979). A unique solar marking construct. *Science* 206, 283-91.
- Sofaer, A., Sinclair, R. M. and Doggett, L. E. (1982). Lunar markings on Fajada Butte, Chaco Canyon, New Mexico. In *Archaeoastronomy in the New World*, ed. A. F. Aveni, pp. 169-86. Cambridge University Press.
- Sofaer, A. and Sinclair, R. M. (1986a). Astronomical markings at three sites on Fajada Butte. In *Astronomy and Ceremony in the Prehistoric Southwest*, eds. J. Carlson and W. J. Judge. Albuquerque: Maxwell Museum Technical Series, University of New Mexico.
- Sofaer, A. and Sinclair, R. M. (1986b). Astronomic and related patterning in the architecture of the prehistoric Chaco culture of New Mexico. *Bulletin of the American Astronomical Society* 18, (4), 1044-5.
- Stein, J. R. (1983). Road corridor descriptions. In *Chaco Roads Project Phase 1, A Reappraisal of Prehistoric Roads in the San Juan Basin*, ed. C. Kincaid, pp. 8.1- 8.15. Albuquerque: US Department of the Interior, Bureau of Land Management.
- Stein, J. R. and Levine, D. F. (1983). Documentation of selected sites recorded during the Chaco Roads Project. In *Chaco Roads Project Phase 1, A Reappraisal of Prehistoric Roads in the San Juan Basin*, ed. C. Kincaid, pp. C. I-C.64. Albuquerque: US Department of the Interior, Bureau of Land Management.
- Stevenson, M. C. (1894). *The Sia*. 11th Annual Report of the Bureau of American Ethnology, pp. 3-157. Washington: Smithsonian Institution.
- Stevenson, M. C. (1904). *The Zuni Indians*. 23rd Annual Report, Bureau of American Ethnology, pp. 3-634. Washington: Smithsonian Institution.

Toll, H. W. (1984). Trends in ceramic import and distribution in Chaco Canyon. In *Recent Research on Chaco Prehistory*, eds. W. J. Judge and J. D. Schelberg, pp. 115-36. Albuquerque: US Department of the Interior, National Park Service.

Vivian, R. G. (1983). Identifying and interpreting Chacoan roads: an historical perspective. In *Chaco Roads Project Phase 1, A Reappraisal of Prehistoric Roads in the San Juan Basin*, ed. C. Kincaid, pp. 3.1-3.20. Albuquerque: US Department of the Interior, Bureau of Land Management.

Weslowski, L. V. (1981). Native American Land Use Along Redondo Creek. In *High Altitude Adaptation Along Redondo Creek*, eds. C. Baker and J. C. Winter. Albuquerque: University of New Mexico, Office of Contract Archaeology.

White, L. A. (1942). *The Pueblo of Santa Ana, New Mexico. Memoirs of the American Anthropological Association* 60, Menasha, Wisconsin.

White, L. A. (1960). The world of the Keresan Pueblo Indians. In *Culture in History: Essays in Honor of Paul Radin*, ed. S. Diamond, pp. 53-64. New York: Columbia University Press.

White, L. A. (1973). *The Acoma Indians*. Glorieta, New Mexico: Rio Grande Press.

Williamson, R. A., Fisher, H.J. and O'Flynn, D. (1977). Anasazi solar observatories. In *Native American Astronomy*, ed. A. F. Aveni pp. 203-18. Austin: University of Texas Press.

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