GCES OFFICE COPY
DO NOT REMOVE!

GLEN CANYON ENVIRONMENTAL
STUDIES OFFICE
OCT 31 1995
RECEIVED
FLAGSTAFF, AZ

ZUNI AND THE GRAND CANYON:
A SELECTIVE ANNOTATED ARCHAEOLOGICAL BIBLIOGRAPHY

FINAL

Laura McKinley
October 1995

120.06
Env-3.00
Z95
Z3663

could/should be bibank

W

Table of Contents

Preface

Zuni and the Grand Canyon: A Selective Annotated Bibliography examines some of the archaeological studies available on Prehistoric Puebloans (once called the Anasazi) in the Grand Canyon. Choices for inclusion were governed by the Zuni Origin narration. This Emergence and Migration tale relates that, in The Beginning, the Zuni People emerged into a place in upper Bright Angel Canyon. From there they gradually migrated down that side canyon to the Colorado River, east along the river to its confluence with the Little Colorado River, ultimately following that river toward their present home in Zuni, New Mexico. Although the ancestors ranged farther than the strict bounds of the Migration route, this bibliography has been limited to the eastern Grand Canyon.

Ahlstrom, Richard V. N., David E. Purcell, M. Zyniecki, Dennis A. Gilpin, and Virginia L. Newton. 1993. *An archaeological overview of Grand Canyon National Park.* Flagstaff: SWCA, Inc.

By 1991, Grand Canyon National Park held records on approximately 2700 archaeological sites within its boundaries, and thousands of others were presumed to exist. These sites indicate human occupation of the Grand Canyon as far back as 11,000 years. This book, commissioned by the National Park Service, is a literature review of the major studies available on these cultural sites, as well as an overview of the park's archaeological inventory. It also provides a historiographic account and analysis of the archaeological debate surrounding the Canyon region. The authors refer the reader to other publications for the region's cultural history and site data, however, for example, Helen Fairley et al, *The Grand Canyon River Corridor Survey Project* (1994)* or Jeffrey Altschul and Helen Fairley, *Man, Models and Management* (1989). The following summary focuses as narrowly as possible on information regarding the Anasazis (more recently called Prehistoric Puebloans) and the portion of eastern Grand Canyon that lies within the traditional Zuni Migration route.

In an assessment of current archaeological knowledge, Ahlstrom et al reviewed the prehistoric period and the evolution of archaeological interpretations of the Grand Canyon. Two kinds of analysis frame such investigations, the authors explained: lifeways and cultural chronologies.

Lifeways are the ways that groups procure essential resources. The typologies currently recognized for southwestern prehistory are Paleoindian, Archaic, Formative, and Neo-Archaic. "The Paleoindian and Archaic lifeways were based on the exploitation of wild plant and animal resources, whereas the Formative lifeway depended upon agriculture" (p. 59). Neo-Archaic lifeways of the late prehistoric period combined agriculture with hunting and gathering.

Cultural chronologies divide the past into stages, distinguished largely by stylistic variations in artifacts and building construction. The Pecos system, which is used to classify the Anasazi tradition, is the most widely employed in the Grand Canyon, although modified to fit local circumstances. This spatial and temporal structure, favored by past and present park archaeologists Robert C. Euler and Janet Balsom, is chronologically divided into the Basketmaker II and III, and Pueblo I-V stages of cultural development. Douglas Schwartz and the School of American Research, on the other hand, prefer a more controversial system of archaeological stages in interpreting Grand Canyon's prehistoric ruins. These "phases"--Medicine Valley, Vishnu, Zoroaster and Dox--apply to cultural content and temporal factors.

The sections below concentrate on information regarding prehistoric lifeways and cultural sites that are possibly ancestral to the Zunis. Dates are specific to the Grand Canyon

---

*1994 is the final publication date; Ahlstrom et al worked with Fairley's 1991 draft.

populations; gaps between eras reflect a lack of datable physical evidence of use or occupation.

1. Paleoindian (9500-7500 B.C.): The Paleoindians enjoyed a moister climate than their descendants; grasslands were more extensive and luxuriant, ample enough to support large game such as mammoths and bison. Paleoindians were nomadic hunters and gatherers, not settlers. Only recently has any evidence of their presence been found in the Canyon, but this was far from conclusive. It consisted of a lone Folsom projectile point recovered from the Little Colorado River gorge (a place on the Zuni Migration route) and radiocarbon dated to 8500 B.C.

2. Archaic (2000-300 B.C.): Despite the gradual extinction of the large species mentioned above, hunting and gathering continued in the canyon region. The progression of the Archaic lifeway was accompanied by a population increase. This reduced the amount of territory accessible to various groups, forcing them to adapt to more specialized ways of foraging. There is an alternative view, which is that the decrease in large game and the arrival of postglacial biotic communities (with the concomitant introduction of grinding tools) fostered an increasing dependence upon plant procurement and processing. Such changes, proponents argue, necessitated mobility, since "in the Southwest, critical wild resources are too scattered to support sedentism" (p. 71). Even so, the later years of the Archaic era witnessed the introduction of agriculture and pithouses in southern Arizona, reflecting a more sedentary existence. On the Colorado Plateau, the onset of agriculture, a diagnostic aspect of Basketmaker II, prepared the way for the Formative Era.

In the Grand Canyon, evidence for an Archaic presence is "curiously biased." Descending from the plateaus deep into the canyons, Archaic hunters left in the redwall caves "a dramatic record of magic ritual and images they felt were important to understanding the world around them," in the words of Douglas Schwartz (p. 71). Schwartz was referring to rare Archaic remnants, namely pictographs in Shaman's Gallery, a cave in western Grand Canyon, and the more plentiful willow-twig animal effigies found in 10 caves throughout the eastern Canyon. Although one could interpret these as "complementary views of the Grand Canyon's Archaic inhabitants," say the authors, "the figurines and pictographs probably relate to different aspects of Archaic ritual, the figurines to hunting magic and the pictographs to communication with the spirit world" (p. 72).

Until recently, the hunting figurines were the primary evidence of Archaic activity in the eastern Canyon. Then in 1991 Helen Fairley and her team located 17 preceramic components* along the Colorado River corridor, lithic sites with Archaic or Archaic-style

---

*As is stated in the Fairley et al annotation, the term "component" here refers to an artifact site, structure, agricultural terrace, etc., that is one element of a unified cultural landscape. A "component site" is the cultural landscape itself, a distinct unit such as Unkar Delta (one site with multiple components) that is the sum total of all the human-made features found within a use area. "Component" can also be used in a temporal sense, to refer to a chronologically discrete artifact or feature.

projectile points. Of those in the east, four were within the Zuni Migration route. Ahlstrom et al concluded that "we now know that the Inner Canyon was also occupied during the Archaic" (p. 72). Just how extensively, they added, remains to be seen.

3. Formative (A.D. 200-1450): The Formative era is defined by "the presence of agriculture or any other subsistence economy of comparable effectiveness, and by the successful integration of such an economy into well-established, sedentary village life" (p. 72). This lifeway included the exploitation of wild plants and animals for food, hunting with bow and arrow rather than atlatl, and a settlement pattern of permanent or semi-permanent habitations and various limited-use activity sites. Limited-activity sites included food preparation areas, check dams, rock alignments and clusters, and field houses used for agriculture. If a group used no ceramics in preparing plants or animal foods, special-use processing sites are often indistinguishable from those of the Archaic era. The challenge, therefore, is to distinguish between preceramic and aceramic sites. (In addition to the 17 Archaic-style projectile points mentioned above, Fairley et al recorded 117 aceramic sites along the Colorado River that lacked any diagnostic artifacts, some of which may date to the Archaic or Basketmaker II periods.)

"The Prehistoric Pueblo [sic], or Anasazi, had a culture that was, almost by definition, Formative," the authors continued. "That is, they practiced agriculture throughout their history (from the Basketmaker II period on) and throughout their range. They also engaged in hunting and the gathering of wild plant foods" (p. 74). Douglas Schwartz has maintained that from A.D. 700 to A.D. 1050 the people in this era used the Inner Canyon only intermittently, primarily for foraging. After this, however, they settled into permanent agriculture, building first pithouses, then surface masonry structures and, eventually, kivas at Unkar Delta and Bright Angel Ruin (both within the Zuni Migration route). Schwartz and a number of researchers have in fact concluded that Walhalla Glades on the North Rim was a seasonal farming site for people who made their homes in the Inner Canyon, Unkar Delta being one such settlement.

The majority of the sites recorded in the Grand Canyon are Prehistoric Puebloan, and therefore most inquiries into settlement patterns (spatial arrangement of sites and their location) and settlement systems (behavior and social relationships) tend to focus on those people. Many researchers have concentrated in particular on the influence of environmental variables. For example, Robert Euler and Susan Chandler (1978) concluded that water was the most important resource to the ancient Puebloans. In the Inner Canyon, they tried to situate their agricultural settlements close to the river, yet far enough away to avoid flooding. Douglas Schwartz, Richard Chapman, and Jane Kepp (1979) concurred with this assessment in their analysis of the Bright Angel site. Subsequently, Fairley et al's 1991 Grand Canyon River Corridor Survey (GCRCS) recorded Prehistoric Puebloan sites all along the river, most in the eastern Canyon, the largest concentration being within the Zuni Migration route. Where once Unkar Delta had been considered unique, the GCRCS:

> showed that additional alluvial deposits, located upstream from Unkar Delta, also have concentrations of sites, including pueblos, small structures (1-3 rooms), and storage sites with either granaries or cists. . . . Thus, Unkar Delta is now known to be one of several inhabited alluvial areas in the Grand Canyon within about 10 miles in either direction of the confluence with the Little Colorado River. GCRCS also showed that sites occur within the flood zone, an observation that does not necessarily contradict earlier suggestions [i.e., Euler and Chandler 1978] that protection from floods was one factor in the placement of habitation sites (p. 75).

Schwartz, Chapman and Kepp also linked climatic change and settlement patterns in the Grand Canyon. Tree-ring data indicated that the period from A.D. 1040 to 1090 experienced above-average precipitation, and that this, they believed, coincided with a "virtual explosion" of the Anasazi population in the region. "This expansion of population is represented by the Vishnu and Zoroaster phases in the Grand Canyon," although the two phases were separated by a decade of drought (p. 76). They postulated furthermore that the movement into the Canyon was probably a range expansion by people already residing in the area. The final, drought-induced "abandonment," in this scenario, thrust the Prehistoric Puebloans out of the Grand Canyon and onward toward their contemporary homelands (or, as the Zunis would say about themselves, to the "Middle Place" of the world). Certainly by the early 13th century, all investigators have agreed, Prehistoric Puebloans were gone from the Grand Canyon.

This archaeological overview was prompted by the extension of eligibility for the National Register of Historic Places to all traditional cultural sites in 1992. The report indicates the National Park Service's heightened awareness of, and concern for, sacred cultural remains and associated landscapes. Today, seven other tribes besides the Zunis have ties to the Grand Canyon. Archaeologists often point to traditional Hopi culture as suggestive of the Prehistoric Puebloan way of life, but of course this comparison could be extended to traditional Zuni culture, as Ahlstrom et al imply:

> Although their reservation lands are far from the Grand Canyon, the Zuni still hold at least one documented belief that focuses on it: the place of emergence of the ancestral Zuni into this world is said to be within the Grand Canyon. . . . (p. 83).

An Archaeological Overview of Grand Canyon National Park clearly indicates that the inner canyon, especially that part within the traditional Zuni Migration route, was indeed occupied by Prehistoric Puebloans, the ancestors of the Zunis. All things in this place, animate and inanimate, are sacred in Zuni teachings.

Brook, Richard A. 1979. The cultural resources of the Grand Canyon cross corridor survey. *Western Anasazi Reports* 2 (March):75-122.

Under contract with the National Park Service, Brook and others from the Museum of Northern Arizona surveyed three primary park trails (North Kaibab, South Kaibab, and Bright Angel) in a 300-foot wide corridor. Among the Service's goals for this survey was to appraise the significance and representativeness of the archaeological resources in that segment of the Grand Canyon. This information would then be used to plan future trail and campground developments. Several nearby areas were also included in the study: campgrounds (Indian Gardens, Phantom Ranch, Cottonwood and Roaring Springs) plus archaeological sites that would contribute to interpretation (including Upper Ribbon Falls, Lower Pipe Creek Canyon and the Tonto Platform from Indian Gardens to Horn Creek). The surveyors did not closely examine sites already covered by other researchers, such as Bright Angel Pueblo and Indian Gardens.

Brook classified as a site any materials that indicated human activity in a specific location. Therefore, a site could be a ceramic and lithic scatter, a series of check dams, a cluster of habitations, and so on.

Prior to this survey the Park Service had 19 sites on record in the corridor areas. Altogether the survey located 34 sites of archaeological interest, only 11 of which had been previously recorded. Brook concluded that 13 sites represented Kayenta and 10 Virgin Anasazi culture. Five additional sites, including two series of check dams and a possible agricultural terrace or water diversion device, were also probably Prehistoric Puebloan. Most of the cultural remains were located in areas along the North Kaibab and Bright Angel Trails, and were clearly left by agricultural peoples.

This study confirmed for Brook that the river formed a divide between the Kayenta and Virgin branches. Of the Kayenta sites, eight had rooms, one consisted of a single broken vessel, one was a rock shelter, and two were granaries. Three-fourths were on the southern side of the river, and all dated to the Pueblo II and III periods (A.D. 900 - A.D. 1150/1200). The ten Virgin sites included seven with rooms, one granary, one overhang, and one sherd and lithic scatter. Most of these (nine) were on the north side of the river, and at a significant distance from it. The one that was south of the river contained sherds from three distinct cultures: Cohonina, Virgin, and Kayenta. Again, all sites dated to the Pueblo II and III periods. It must be noted that most archaeologists divide Kayenta and Virgin Anasazi cultures at Kanab Creek, an east-west separation, rather than at the Colorado River, a north-south division. This and methodological considerations have reduced the value of the survey. However, Brook was correct in assigning the cultural materials in this corridor to the Prehistoric Puebloans.

Bright Angel Trail

Brook described the masonry at some of the 16 sites here as "classic Kayenta Pueblo III" (p. 88). Most sites overlooked Garden Creek, and were situated close to available water. The area above Indian Gardens may have been farmed, evidenced by remnants of check dams, foundations for brush structures, and storage structures.

South Kaibab Trail

Utilized solely by the Kayenta people--and then not often--this segment of the trail yielded little material. Of course, the pueblo of Bright Angel, at the extreme south of the trail at the confluence of Bright Angel Creek and the Colorado River, was a different matter. But this Pueblo III Kayenta site was already under excavation by the School of American Research (see Schwartz, Marshall and Kepp). Therefore Brook noted the Bright Angel site primarily as rare evidence of permanent habitation (based on the presence of a kiva), of which he was skeptical in the other areas.

North Kaibab Trail

This trail is especially important to the Zuni People, as it is the first leg of their ancient journeys after emerging from the Underworlds. The 14 sites within the right-of-way of the trail network in this area included one at Upper Ribbon Falls, near the Zuni place of Emergence. The highest concentration of cultural materials was around the intersection of Bright Angel Creek with the creek flowing from Ribbon Falls. Among the cultural remains were a series of nine check dams, three habitation sites, and one sherd and lithic scatter. Brook assigned all of these cultural sites to the Virgin Anasazi.

Available potsherds, which Brook listed for each site, were largely Prehistoric Puebloan, although no single type of ceramic predominated. The sherds suggested that the sites documented were first occupied at around A.D. 1000. At this early date, all three cultures--Cohonina, Kayenta and Virgin Anasazi--utilized the area. The research uncovered little evidence of Kayenta or Cohonina occupation of these sites between A.D. 700 to A.D. 1000. Brook concluded that the Kayenta utilized the interior Canyon more than the Cohonina, and that in most places the Prehistoric Puebloans made only intermittent use of it themselves.

Consensus today is building toward the belief that Prehistoric Puebloans inhabited the Inner Canyon continuously for several generations. However much this may depart from Brook's evaluation (along with other considerations listed above), the fact remains that many of these places were within the Migration route of the first Zunis. They are part of the sacred heritage of the Zuni People in the Grand Canyon.

Emslie, Steven D., Robert C. Euler, and Jim I. Mead. 1987. A desert culture shrine in Grand Canyon, Arizona, and the role of split-twig figurines. *National Geographic Research* 3:511-516.

Before this article was written. nine shrine caves were known in the Grand Canyon. Shrine Cave, discovered only in 1984 as a split-twig figurine site, is 220 meters above the Colorado River in Grand Canyon National Park. The authors did not excavate the cave and in fact tried to disturb it as little as possible. Still, they counted 33 rock cairns--some lined along a ledge, some in a semicircle on the floor, and others placed on top of large limestone blocks. By gingerly lifting rocks, they located two split twig figurines and a number of unmodified twigs. The radiocarbon date of an unmodified twig from Shrine Cave was consistent with those cited by Schroedl (1977), in the second millennium B. C. Shrine Cave is unique, Emslie et al believe, because "no other cave in Grand Canyon has been found to contain so many cairns in association with split-twig figurines, or cairns clearly placed in a pattern" (p. 513).

The authors contend that the "specially built cairns, as well as simple, unmodified, or split twigs, were as significant to the Desert Culture peoples as the figurines" (p. 514). In addition, archaeologists believe that the figurines represent artiodactyls (bighorn sheep, deer, mountain goats); Emslie et al argue further that the consistent presence of the remains of such animals in figurine caves throughout the Canyon, including Shrine Cave, was no accident. "The presence of these remains in a cave was the reason a site was selected for deposition of figurines" (ibid).

> The large number of caves in Grand Canyon, and the abundance of fossil remains they contain, may be a primary reason why this area is an apparent center for the figurine complex. The authors agree with Schroedl (1977) that the figurine complex probably originated in Grand Canyon as part of a magicoreligious ritual that changed functionally in areas away from the canyon. The canyon caves thus could have become a sacred place where periodic visits by the Indians are evinced today only by the figurines (p. 516).

Zuni religious leaders believe that the Archaic Indians, their ancestors, left the Grand Canyon in a series of migrations. Of special concern are areas in the Migration route and all shrines, where their ancestors made such offerings as Emslie et al described.

Euler, Robert C. 1969. The archaeology of the canyon country. In *John Wesley Powell and the anthropology of the canyon country*, pp. 8-20. Don D. Fowler, Robert C. Euler, and Catherine S. Fowler, eds. Washington, D. C.: Government Printing Office, Geological Survey Professional Paper No. 670.

Robert Euler's contribution to this centennial publication was to retrace John Wesley Powell's 1869 and 1873 journeys along the Colorado River and to augment Powell's (and his companions') archaeological notations with modern research. The intention of this annotation is to highlight the first documentation of Prehistoric Puebloan ruins along the Colorado River. For the sake of brevity, the two Powell Expeditions will be conflated and discussion confined to the Zuni Migration route. However, it must be noted that the Zunis consider the entire Canyon sacred.

The first pertinent observations made related to ruins at the confluence of the Colorado and Little Colorado Rivers. Powell wrote of following a path worn deeply into the rocks. "It was doubtless a path used by the people who inhabited this country anterior to the present Indian races--the people who built the communal houses." His companions discovered ruins, "etchings and hieroglyphics" and pottery sherds (p. 11). George Bradley, boatman, concluded that the ancient campsite was either Hopi or Apache. Euler remarked that these sites were well known to the Hopis, who passed through the area on their way to traditional salt deposits downstream. This statement could be extended to the Zunis, whose ancestors migrated out of the grand Canyon via this place and who still return occasionally for religious purposes.

The only archaeological ruin that Euler knew of in this area was beneath Ben Beamer's cabin, a temporary home built on an ancient Indian ruin in 1890. Like many Anasazi people, Beamer had attempted to cultivate his plot of land near his home. Ceramic analysis had indicated a 12th century occupation by Kayenta Anasazis, succeeded after A.D. 1300 by Hopis, who used the site until late historic times, as well as Southern Paiute and Pai Indians. (No evidence corroborated Bradley's speculations about Apaches.) Again, Euler's statement regarding Indian usage must be extended to the Zunis.

Eleven miles down the river, Powell and his crew passed "the greatest concentration of Pueblo ruins to be seen anywhere along the river through the Grand Canyon," said Euler: Unkar Delta. But only a large, one-room masonry structure was visible to the Powell expedition from the river. It stood "on what probably was a cross-canyon trail from the Pueblo villages in the Unkar vicinity up to the South Rim of the canyon" (p. 14). Scientific analysis suggest that it was utilized by the Kayenta Anasazis in early Pueblo III (A.D. 1100-1150). After the first Powell Expedition, it would be 100 years before the 52 sites on Unkar Delta were revealed.

Four miles downstream the explorers noticed an "Indian camp" by Hance Rapids, a site also dated in modern times to the early Pueblo III era. At the mouth of Silver Creek, which he later renamed Bright Angel Creek, Powell found the ruins of two or three old

mortar-and-stone houses. A "mealing stone" and large quantities of pottery were strewn about, and deeply worn trails cut into the rocks (p. 15). He speculated that these had been agricultural people, drawing parallels with the Hopis and their terraced gardens. Powell's chief boatman George Bradley described the site as an old Moqui (Hopi) ruin, and Walter Powell, his cousin, wrote in his journal that they had "found the remains of some Moquis houses near by with some of their mills for grinding corn" (p. 16).

This place, which today stands at the north end of the suspension bridge to Phantom Ranch, parallels the other sites in being an early Pueblo II Kayenta site. Euler commented on the additional sites located up Bright Angel Canyon, some with "ample room to accommodate the small agricultural plots that the Pueblos would have cultivated" (p. 16). The sites in Bright Angel Canyon are also within the Zuni Migration route, and are therefore of great importance to the Zuni People.

Euler pondered the bedraggled state of the explorers at the end of their journeys, and remarked that "those prehistoric aborigines were in many ways much better adapted to the environment than the explorers were with their rancid bacon, soggy coffee, and mildewed flour" (p. 19). It has become clear, he concluded, that the Prehistoric Puebloans were "technologically attuned" to their environment and quite able to traverse its "vast recesses" (p. 20). This only helps to confirm what Zunis have believed for centuries: that their ancient search for the Middle Place began in the depths of the Grand Canyon.

Euler, Robert C. 1974. Future archaeological research in the Grand Canyon. *Plateau* 46:139-148.

Euler proposed a number of investigations that would answer questions about the various social, political and economic structures developed among the inhabitants of the Grand Canyon in response to environmental conditions. "In very few other areas can cultural ecological adaptations to so many varied environments be investigated within such a small geographical compass" (p. 140). Euler suggested some fruitful topics for research and recommended several locations that might contribute to such investigations. Some of these specifically mentioned sites in the area of the ancestral Zuni places of Emergence and Migration.

Urging scientists to pursue the identity of the split-twig figurine makers, Euler offered a recently recorded cave site in the Bright Angel area as one place to start. The entrance to the cave was still partially walled over and figurines had been placed inside. Euler also believed that temporal and spatial patterns had much to reveal in terms of the social adaptations of the Kayenta Anasazis. In the vicinity of the Little Colorado River was a rock shelter; a test excavation had indicated utilization from pre-ceramic times through Pueblo IV. Euler predicted that further sifting of the site would uncover evidence of Basketmaker III and earlier usage. Lastly, he noted that Kayenta sites throughout the Grand Canyon often consisted of single, unconnected masonry rooms, especially in the western half of the Canyon. Euler proposed an excavation of at least one such site to ascertain differences in social structure, if any, between the Kayenta people there and those who built the multi-room structures that predominated to the east.

While these are only suggestions for further research, Euler's comments have implications for managers of the Grand Canyon. Archaeologists have barely begun to understand the richness of the cultural resources in the Canyon and the importance of natural resources to Native Americans, past and present. The Pueblo of Zuni discourages further disturbance of the archaeological sites in the Canyon, however rich in information about Zuni ancestors. But the Pueblo is deeply concerned about protecting its religious shrines, burial sites, traditional resource collecting areas, and other highly sacred sites there. The Grand Canyon is the place of Emergence and Migration of the first Zuni People, and the entire region is hallowed ground.

Euler, Robert C., and Susan M. Chandler. 1978. Aspects of prehistoric settlement patterns in Grand Canyon. In *Investigations of the Southwestern Anthropological Research Group: An experiment in archaeological cooperation. The proceedings of the 1976 conference*, pp. 73-85. Robert C. Euler and George J. Gumerman, eds. Flagstaff: Museum of Northern Arizona Bulletin 50.

Euler and Chandler presented an environmental framework to decode settlement patterns among Prehistoric Puebloans in the Grand Canyon. They speculated on the relationship between the placement of Prehistoric Puebloan cultural sites and the location of critical natural resources. They were able to rank these resources in importance using a database developed by the Southwestern Anthropological Research Group (SARG). Out of approximately 1500 known sites in the park at the time, 382 had been entered into the database. Statistics available from these entries were used to confirm their hypotheses (see below).

The pair opened with a quick overview of the cultural history of the Grand Canyon. Except for the Archaic figurine makers of 3000 to 4000 B.P., Euler and Chandler characterized this history as predominantly Kayenta Anasazi until A.D. 1150. (The authors believed that the Virgin Anasazi branch was largely confined to the western portion of the Canyon during this time.) As evidenced by diagnostic projectile points found near the mouth of the Little Colorado River, the Kayenta people began some "halting" explorations in the Basketmaker II stage, especially in the eastern reaches of the Grand Canyon (Euler and Chandler did not define a timeframe for BII, but in 1974 Euler placed the initial forays of the Kayenta Anasazi at around A.D. 700[**]). Kayenta occupation remained minimal until A.D. 1000 (Pueblo II). But then, as ceramic remains indicate, these Prehistoric Puebloans expanded substantially throughout the Canyon. They occupied the majority of sites in the century from A.D. 1050 to 1150. Climate and precipitation shifts compelled a general abandonment beginning shortly before A.D. 1150.

The contemporaneous settlement system of the enlarged Kayenta population offered an opportunity for comparing spatial arrangement of cultural sites. In broad terms, Euler and Chandler determined that the Kayenta Anasazi acted on the following order of priorities in selecting a site:

1. Water: domestic water was crucial for habitation sites, but terraces, cliffs, and talus-slopes were preferred to the Colorado River. On the other hand, the largest sites in terms of mean room count and size in square meters, were riverine.
2. Access to trails: the majority of sites had access to the rim, or from one tributary canyon to another, and, to a lesser degree, to other communities.

[**]Robert C. Euler, "Future archaeological research in the Grand Canyon," *Plateau* 46, pp. 139-148.

3. Protection from the elements: most sites were located on physiographic features that afforded some protection from the elements, in the order noted in Priority 1.

4. Access to agave: food sources were hypothesized to be of relatively little importance in determining site selection, since game was found in all levels of the Canyon. The crucial exception was agave, which took relatively more labor, construction and time to process. Many limited activity sites, such as mescal pits, were located near agave.

This analysis does not address the spiritual life of Prehistoric Puebloans, but it suggests some compelling reasons for secular choices they made. Even if the data cannot truly represent the intimate relationship between the Zuni ancestors and their place of Emergence and early Migration, they underscore the importance of the Grand Canyon landscape to them and to their descendants today.

Euler, Robert C., and A. Trinkle Jones. n.d. Archaeological resources at Grand Canyon National Park (multiple resources partial inventory: Prehistoric and historic archaeological sites, historic and architectural properties). National register of historic places inventory nomination form. Grand Canyon: Grand Canyon National Park, ms. on file.

Prepared in 1980, this nomination is still in the pipeline in 1995.

The nomination outlines the range of prehistoric and historic cultural resources known to be within park boundaries, emphasizing such unifying themes as the adaptive abilities of Canyon dwellers and the general historic development of the West.
Around 2000 archaeological sites had been recorded by 1980, but the quality of the information available on these sites varied considerably. Continuing research adds to site inventories, the authors noted; "it is in more complete survey and test excavation of other as yet unexcavated sites that solutions to the many unanswered questions lie" (p. 10).

Euler and Jones summarized the cultural history of the Grand Canyon, beginning with the hunters of the Archaic Period who left split-twig figurines in caves 3000 to 4000 years ago. After a large gap in time, human use resumed as people of the Kayenta Anasazi culture made exploratory forays into the Canyon, beginning around A.D. 500. "Slab structures and circular pithouse-like dwellings along with early Kayenta ceramics and lithics are found in rockshelters and occasionally in the open" (p. 4).

Population and utilization of the Canyon peaked between A.D. 1000 and 1150. From this era,

> Riverine sites consist mainly of masonry pueblos of one to several rooms with occasional water/soil erosion control features. The higher . . . terraces are also characterized by open masonry pueblos. Granaries and small habitation sites are found on top of the talus of the Inner Gorge. The remains of single room sites and mescal pits dot the Tonto Plateau, and the Esplanade . . . has revealed a number of open masonry pueblos, rockshelter sites and mescal pits. . . . Single and multiroom dwellings, kivas, and granaries . . . . [and other sites throughout the Canyon] attest to intensive seasonal use of the canyon. The sites range in size from single broken ceramic vessel to a 20-room masonry structure with associated kiva (p. 4)

As the Kayenta Branch moved into the eastern Canyon, so too did the Virgin Branch of the Anasazis occupy the northwestern portion of the future national park. Climatic shifts forced both groups (as well as the Cohonina in western Grand Canyon) to depart shortly after A.D. 1150, but Southern Paiutes and others drifted back in after A.D. 1300. Yet the Prehistoric Puebloans were never really gone:

> Although the Anasazi abandoned the canyon area, their descendants, the Hopi, continue periodic visits. Trips are made to gather ceremonial salt from the salt

> deposits along the eastern section of the Colorado River and to the sipapu, a mineral spring on the Little Colorado River which is believed to be the place of origin for the Hopi (p. 6).

Today, of course, it is more widely known that Zunis also revere the Grand Canyon as their place of Origin, and many of Euler and Jones' comments regarding the Hopis apply to Zunis as well. A number of Native American groups continue to live in or return to the Grand Canyon for spiritual and other reasons. "All . . . have a long history in the area, a part of which remains of extreme interest to each and must be preserved" (p. 6).

Euler, Robert C., and Walter W. Taylor. 1966. Additional archaeological data from upper Grand Canyon: Nankoweap to Unkar revisited. *Plateau* 39:29-45.

Close on the heels of Douglas Schwartz, who surveyed Nankoweap to Unkar and then published his findings in 1965, Euler and Taylor retraced his steps along the Colorado River in June of that year and speedily weighed in with their own, competing, analysis of the area. As with Schwartz's publication, the present annotation summarizes their comments about sites within the traditional Zuni Migration route.

In 1869, John Wesley Powell reported seeing a prehistoric site at the mouth of the Little Colorado River. Although a prospector named Beamer later built his cabin atop these ruins, Euler had found potsherds there in 1960 and declared it a Pueblo III-IV site. Schwartz located two or three sherds and called this a "tentative" site in his report, but Euler and Taylor repeated Euler's earlier conclusions. Forty-two new sherds reiterated, in their opinion, that this site had been used by Kayenta Anasazis, Hopis, and probably Pais sometime between A.D. 1050 and post-A.D. 1300.

At the mouth of Lava Creek the duo noted two slab-based, U-shaped rooms and recovered 29 sherds of Kayenta Anasazi affiliation. They concluded that the people who left the sherds occupied the site A.D. 1075-1200, as opposed to Schwartz's approximate date of A.D. 1000.

Tanner Delta revealed at least eight rooms, including storage and living units, as well as a probable check dam, and an additional storage room across the arroyo. One hundred seventy-one sherds clearly indicated a Kayenta Anasazi affiliation; Schwartz's work did not contradict this, but he used the designation "eastern" to describe the affiliation, a designation he had conferred upon Kayenta and Tsegi ceramic types.

Euler and Taylor accepted Schwartz's description of three masonry sites at the mouth of Basalt Creek, although they added new structural details. But 200 meters to the east they located a series of at least 11 units, including four masonry rooms, two wall remnants, two check dams and three sherd concentrations. A three-room pueblo, a masonry wall and two round slab-based structures were discovered "further up the arroyo" (p. 39). The pair found other structures in the vicinity, as well, and recovered 673 sherds, almost all of which indicated a Kayenta Anasazi occupation primarily from A.D. 1050 to 1200. None of these had been recorded by Schwartz.

Across the river from what is called Furnace Flats, Euler and Taylor reexamined an isolated coursed masonry room first reported in R. B. Stanton's railroad survey in 1890. The deemed it a possible lookout, and recovered 56 Kayenta Anasazi sherds from dating roughly to A.D. 1100-1200. Schwartz had also bypassed this site.

This is a terse, concise reevaluation, but, whether competing or not, all three archaeologists agreed on the general timeframe and cultural affiliation of the sites (Kayenta

Anasazi, despite Schwartz's unusual phrasing). Each reexamination of these sites reinforced their awareness that this area, part of the traditional Zuni Migration, was indeed occupied by Prehistoric Puebloans, even as they debated the length of that occupation. That they continued to find new materials every time they returned suggests that we have only a fractured inventory of the sites that may have been known to the ancient Zunis.

Euler, Robert C., ed. 1984. *The Archaeology, geology, and paleobiology of Stanton's Cave, Grand Canyon National Park, Arizona.* Grand Canyon: Grand Canyon Natural History Association Monograph No. 6.

Railroad surveyor Robert Brewster Stanton first located this solution cave near Vasey's Paradise in 1889. Situated in the redwall limestone, the cavern is 44 meters above the Colorado River. One year after a CCC crew found the first known split-twig figurines in Luka Cave (Clear Creek Canyon), similar figurines were found in Stanton's Cave. In 1934, river runner Bus Hatch found "several little horses made out of willows and Sticks." Robert Euler and Alan Olsen retrieved 20 such figurines in 1963, radiocarbon dating one of them to 4095 B.P, give or take a century. Euler returned to excavate the cave in 1969, but an estimated 169 had already been looted by rafters and amateur cave explorers (p. 4).

By the mid-1970s (see Schroedl 1977 annotation), more than 370 figurines retrieved from the Southwest were known to researchers, most from the drainage of the Colorado River. Three-quarters of them were from caves of the eastern Grand Canyon, enough to dub them the "Grand Canyon Figurine Complex." But the consistent absence of diagnostic cultural remains in direct association with Grand Canyon figurines had always tilted interpretations of their significance toward the speculative. Pinto points found on the South Rim suggested that people of the Pinto Complex created the little figures; Euler conducted this 1969 excavation at Stanton's Cave in part to test this hypothesis.

Euler and his crew uncovered 74 split-twig figurines that had either been dragged into packrat middens, cached underneath rock cairns, or submerged under accumulations of silt. While no diagnostic artifacts could be located, the team did unearth some yucca fiber, flaked stone scrapers, and olivine shell beads. The beads are especially significant in light of Zuni tradition, which tells of olivine shells in Zuni possession, made sacred by virtue of their origins in the Underworld. Olivine shells came up with the ancestral Zunis at their Emergence in the Grand Canyon.*

Stanton's Cave is upstream from the sacred Migration route; however, the Archaic Indians are ancestral to the Zunis, whom Zuni religious leaders believe left the Grand Canyon in a series of migrations. These leaders therefore feel protective of the entire Canyon, and the cultural and natural materials associated with the area. Of particular concern are areas in the Migration route and places like Stanton's Cave, where their ancestors made such offerings as Euler described.

---

*See Ruth Bunzel, "Introduction to Zuni Ceremonialism," in *Forty-seventh Annual Report of the Bureau of American Ethnology, 1929-1930.* Washington, D. C.: Smithsonian Institution, 1932, p. 490).

Fairley, Helen C., Peter W. Bungart, Christopher M. Coder, Jim Huffman, Terry L. Samples, and Janet R. Balsom. 1994. *The Grand Canyon river corridor survey project: Archaeological survey along the Colorado River between Glen Canyon Dam and Separation Canyon.* Grand Canyon: Grand Canyon National Park.

This survey of the river corridor was undertaken between August 30, 1990 and May 10, 1991. It provided an inventory of all sites located within the environment along the river that is affected by the Glen Canyon Dam, that is, all riverine and former riverine environments. This included areas up to the 300,000 cubic feet per second level, the sand-covered zones above that level, and eolian sand areas. The team divided the river into thirteen segments, or "reaches," the first of which (Reach 0) began at the base of the Glen Canyon Dam; the final reach (Reach 12) contained no prehistoric elements and is not included in the following discussion.

Although the team could not assure that it would locate or gain access to every site possible, it did attempt a Class I (100% intensive) survey. It recorded a total of 475 sites, 357 of which were previously undocumented. Fairley et al cautioned the reader that the survey could not exhaust every possibility. They pointed out that the survey team did not systematically inventory groundstones, for example, but noted such materials if encountered. Ceramics received close attention, of course, but the authors stressed that many sites have been well picked over by collectors, or altered by environmental conditions, and that this could have skewed the ceramics report.

Overview of Prehistoric Periods in the Grand Canyon:

1. Preceramic Era (Archaic and Basketmaker II, 500 B.C.-A.D. 500):

According to Fairley's temporal divisions, the term "preceramic" encompasses both Archaic and Anasazi Basketmaker II remains. Seventeen sites in the Grand Canyon yielded evidence of such components, due largely to the presence of diagnostic dart points. In addition, 117 aceramic sites were recorded that lacked any diagnostic artifacts; some, the authors say, may date to the Archaic or Basketmaker II periods. "In the Grand Canyon," they note, "the best known evidence for Archaic occupation is at Stanton's Cave, where more than 200 split-twig figurines have been recovered over several years, in the almost absence of other cultural remains" (p. 95). Evidence for a Basketmaker II Anasazi occupation in Grand Canyon at present is limited to "a few aceramic roasting features with radiocarbon dates placing them in the 500 B.C.- A.D. 500 time range"; two examples are located near Tanner delta in Reach 4 (p. 100).

2. Formative Period (Anasazi and Puebloan, A.D. 500 - A.D. 1200):

"Formative" is defined here as "the presence of agriculture, or any other subsistence economy of comparable effectiveness, and by the successful integration of such an economy into well-established, sedentary life" (p. 101). Archaeologists attribute the majority of

prehistoric sites in the Grand Canyon to prehistoric Puebloans, and two ancestral Pueblo branches are commonly recognized in the Grand Canyon: Kayenta and Virgin. After A.D. 1050, Kayenta Anasazi tradewares or locally-produced equivalents dominate the ceramic assemblages in the eastern Canyon.

Pueblo I period (A.D. 800 - 1000) sites are scarce in the inner canyon; Fairley et al speculate that cultural, fluvial and flood deposits may have covered evidence of Pueblo I occupation. A hearth and associated deposits have been radiocarbon dated to an uncalibrated range of A.D. 325 to A.D. 1255 at Lava-Chuar Creek in the eastern Canyon.

Pueblo II (A.D. 1000 - 1150), say the authors, is the most thoroughly documented and best known period in Grand Canyon prehistory, with more site components dated to this era than any other. Prehistoric Pueblo peoples expanded into any potentially arable location, including every tributary canyon of the Colorado River with perennial water and arable land. Kayenta style kivas appeared in the Grand Canyon around A.D. 1050, the point in time when occupation dramatically increased.

Ceramic assemblages collected by Douglas Schwartz from Shinumo Canyon in western Grand Canyon indicate primary use of that area after A.D. 1100. In eastern Grand Canyon, Prehistoric Puebloans constructed at least two kivas at Unkar Delta and one at the Bright Angel delta. The most intensive occupation in this region of the Canyon, the authors surmise, was confined primarily to late Pueblo II-early Pueblo III; ceramic data gathered by Douglas Schwartz on Unkar Delta suggest dates of A.D. 1075 to 1200. The introduction of cotton cultivation into the canyon lowlands occurred sometime during late Pueblo II, and trade of cotton may explain the influx of Kayenta tradeware into the eastern Canyon. Such tradeware, and locally-produced analogs, were common after A.D. 1050. Cottonseed and bolls in the Glen Canyon region have indicated that local cultivation appeared in the Pueblo II era. Cutler and Blake have recovered cotton bolls from a Pueblo II granary below Unkar Delta.

For the Pueblo III phase (A.D. 1150-1200/1225) the principal diagnostic is Flagstaff Black-on-white, a Kayenta ceramic type which usually occurs with, among other things, Tusayan Corrugated and Virgin equivalents. Such ceramics are occasionally evident in the eastern Canyon. Along the Colorado River in this region, two late charcoal dates have been obtained from Site AZ:C:13:10 which generally support the A.D. 1150 - A.D. 1220 occupation dates suggested by the presence of Flagstaff Black-on-white and Tusayan Polychrome sherds in the same area. The termination of the Formative Pueblo occupation in the 1200s represents a mass migration of Puebloans from the Grand Canyon.

That climate forced Puebloan abandonment of the inner Canyon at the end of Pueblo III is the opinion of several archaeologists of the Grand Canyon. Robert Euler maintains that only those areas most favorable to cultivation permitted prehistoric Puebloans to sustain their cultural system. Analysis of two stratified midden sites in western Grand Canyon partially supports his theory. Near Whitmore Wash (Site AZ:A:16:1) Paiute ceramics and sandles

overlay strata containing Moapa Gray ware, a Virgin Anasazi ceramic. At Tuna Creek (Site AZ:B:15:7) a band of waterlaid sediment separated an upper Paiute stratum from a lower Virgin stratum.

> In addition, several rock art styles are represented along the river corridor,
>
> possibly reflecting occupation from Archaic times through the late protohistoric/early historic periods. These diverse styles are also indicative of the various cultural groups that occupied the canyon, as evidenced by other types of remains found during the survey (p. 91).

Researchers link archaeological remains from the Late Prehistoric-Historic transition (post-1200 A.D. to A.D. 1600) with modern tribes, namely the Hopi, Paiute and Pai peoples. However, the larger archaeological community has only recently acknowledged the Zuni relationship with the Grand Canyon, and some materials may need to be reevaluated in light of this fact. Nonetheless, this annotation overlooks materials attributed to these peoples in order to avoid confusion.

Inventory and Analysis by Reach

While evidence of prehistoric occupation in the Grand Canyon is scattered throughout the river corridor, human concentrations were highest at two widely separated stretches of the river, Reach 10 (53.9 miles) in the western Canyon and Reaches 5 and 6 (totalling 56.3 miles) in the east.

Eastern Grand Canyon is especially important to the Zunis -- Reaches 5 and 6 in particular because, according to tradition, this is the portion of the Colorado River that the first Zunis followed in their ancient Migration after their Emergence in the Canyon. It is interesting to note that the largest concentration of pueblo site types and half of all small structures of the entire 255-mile corridor are situated in Reaches 4 through 6. Pueblo II (84%) and Kayenta components (72%) dominate the cultural affiliation components in Reaches 4 and 5.

Ceramics are among the best diagnostic materials available to researchers; of the categories of cultural affiliation employed by the team, those that may apply to the ancestors of the Zunis include Anasazi (Kayenta and Virgin), Formative, Ceramic Unknown, and Unknown. The vast majority of pottery in the corridor was produced by the Kayenta branch. Ancestral Puebloan components were equally distributed on both sides of the river corridor, but there were twice as many Virgin components on the north side, with the river acting as a barrier to the south.

The authors employ the term "component" to refer to an artifact site, agricultural terrace, structure, and so on, that is one piece of a unified cultural landscape. A "component site" *is* that cultural landscape: a distinct unit such as Unkar Delta (one site with multiple

components) that is the sum total of all the human-made features found within a use area.* "Component" can also be used in a temporal sense, referring to a chronologically discrete artifact or feature.

Reach 0 (Glen Canyon, miles -15.5 to 0)

This segment extends from the Glen Canyon Dam to Lee's Ferry. Glen Canyon Linear and Kayenta Representational Style rock art designs were common here. "The former is believed to have been associated with Late Archaic hunter-gatherers . . . and the latter . . . affiliated with Kayenta Anasazi Pueblo II and III groups" (p. 91). Three preceramic sites were recorded, all based on the presence of the Glen Canyon Linear rock art designs. This petroglyph style is inferred to date earlier than Formative rock art because of differential patination and superimposition of later elements usually associated with ceramic sites. The resemblance of some zoomorphic elements to well-dated split-twig figurines suggests a Late Archaic designation.

Nearly half of the temporal components represent a strong Pueblo II occupation. Seventeen ceramic sites out of 22 (77.2%) located in Reach 0 could be attributed to Zuni ancestors; all but one contained Kayenta Anasazi ceramics.

Reach 1 (Permian Section, miles 0 to 11.3)

The confluences of the Paria River and Soap Creek with the Colorado are in this 11.3-mile segment. Eleven out of fourteen (78.5%) ceramic sites may be Zuni ancestral; ten sites contained Prehistoric Puebloan ceramics (p. 31). Seven ancestral Puebloan components were assigned to this reach, but with a wider temporal range than Reach 0 (spanning A.D. 800-1100).

In addition, here, in Reach 1, is a

> notable rock art site located at the mouth of Salt Water Wash. It consists of a single anthropomorphic figure, probably of Kayenta origin . . . A cache of corrugated vessels was found in the general vicinity of this glyph by river runners in the mid-1980s (p. 91).

Reach 2 (Supai Gorge, miles 11.3 to 22.6)

Reach 2 is only 11.3 miles long, and is primarily sheer and impassible canyon walls. Nothing in this reach contributes to this bibliography.

---

*Schwartz, Chapman and Kepp (1980) preferred to describe Unkar Delta as having 52 separate sites.

Reach 3 (Redwall Gorge, miles 22.6 to 35.9)

This 13.3-mile segment contained 6 Pueblo II and 1 Formative ceramics; these amounted to 70% of the total ceramic sites in the reach. Rock art included several petroglyphs pecked into a wall at the mouth of South Canyon:

> These panels are associated with a masonry habitation site primarily affiliated with a Kayenta PII occupation, although some Virgin and Cohonina ceramics are also present. Design motifs include spirals, and bear and eagle "tracks" which may represent clan symbols (p. 91).

Reach 4 (Lower Marble Canyon, miles 35.9 to 61.5)

Here the remnants of human occupation proliferated, particularly at the mouths of Nankoweap and Kwagunt Canyons, both of which have large prehistoric settlement areas. This 25.8-mile stretch contained 42 Prehistoric Puebloan and 1 Formative ceramic site out of 50 total, or 84%. Cultural affiliation of the component sites was exclusively Kayentan. Over half of the temporal components dated to the Pueblo II period between A.D. 1100-1150; on either side of this timespan were four components that may indicate Pueblo I occupation, and five which may date as late as A.D. 1200.

Two preceramic sites were recorded. In addition, the discussion of groundstones stated that Site AZ:C:13:6, located in Reach 4, is an example of "a classic . . . PII Kayenta habitation and processing site" (p. 87).

Reach 5 (Furnace Flats, miles 61.5 to 77.4)

Reaches 5 and 6 yielded the most evidence of prehistoric occupation of the eastern river corridor. Lava Canyon and Unkar Delta are within Reach 5, as well as the confluence of the Colorado and Little Colorado Rivers. The 15.9-mile-long segment contained 47 Prehistoric Puebloan and 4 Formative ceramics, for a total of 51 sites out of 64, or 79.6%. Seventy-two percent of the cultural affiliation components in Reach 5 were classified as Kayenta. Fifty-four temporal components occur before A.D. 1200, nearly half of these between A.D. 1000-1150 (Pueblo II); however, Pueblo I and late Pueblo-early Pueblo II components are more frequent in Reach 5 than in any other section of the river corridor. Several petroglyphs and pictographs are in this section, at a total of three sites, including a maze-like motif above Tanner Rapids that is interspersed with scrolls and anthropomorphs, and a clockwise spiral with a zoomorphic figure at Cardenas Creek.

Three preceramic sites were recorded; two sites that are evidence of a Basketmaker II Anasazi occupation were located near Tanner delta.

Reach 6 (Upper Granite Gorge, miles 77.4 to 117.8)

This segment included the mouth of Bright Angel Creek. It contained 5 Prehistoric Puebloan, 5 Formative, and 2 Ceramic Unknown ceramic sites, for a total of 12 out of 16, or 75%. Reach 6 also had one preceramic site.

Reach 7 (Aisles, miles 117.8 to 125.5)

Roughly 5.5 miles of this 7.7-mile stretch contain open topography and at least two access routes from the south rim (Great Thumb area) to the river, accounting for a concentration of sites. The team designated six ceramic sites as Anasazi or Formative; all may be Zuni ancestral.

Reach 8 (Middle Granite Gorge, miles 125.5 to 139.9)

Two access routes from the south rim account for sites in this 14.4 mile area, along with several from the north rim, including Stone, Tapeats and Deer Creeks. The majority of components are in the Pueblo II phase (p. 42); of 29 sites, 13 are potentially Zuni ancestral.

Reach 9 (Muav Gorge, mile 139.9 to 159.9

At river level the terrain is impassible between side canyons. Primary access routes to the river are at Kanab Creek and 140-Mile, Matkatamiba, Havasu and 150-Mile Canyons. Only a few small alluviated areas at and upstream of Kanab Creek are in this 20-mile stretch. Yet there are 13 sites total, including unclassified Formative and prehistoric Puebloan. Only one site is close to the river, a series of room outlines in an overhang with a slab metate and mixed Puebloan and Cohoninan ceramics. The five cultural-temporal components are evenly distributed among Puebloan, Virgin, Formative, Pai, and Pai-Paiute affiliations. Situated in the flood zone, other sites may have been buried by sediment. Three sites may be Zuni ancestral.

Reach 10 (Lower Canyon, mile 159.9 to 213.8)

In this 53.9-mile section, the widening of the river below Lava Falls, and a series of cross-corridor fault lines, contributed to a highly habitable environment. Sites occur at the mouths of every tributary canyon with an alluviated fan. Access routes are abundant, including Tuckup, National, Mohawk, Stairway, Cove, Toroweap Point-Prospect, and Whitmore Canyons, as well as other areas. Forty-one sites may be Zuni ancestral.

Reach 10 has more cultural components than the previous four combined. The authors note that, while previous reaches were characterized by Pueblo II Kayenta Anasazi, here Virgin Anasazi components (25) accounted for one-fifth of the total (Formative represented another 14 components). Fourteen of the 21 components classified as Pueblo I-Early Pueblo II are here, along with three of the five multicomponent sites with Archaic

components. Reach 10 has ten rock art sites.

Reach 11 (Lower Granite Gorge, mile 213.8 to 235.0)

Like Reach 9, continuous travel along the river is impossible in this 21.2 mile section, but routes descend from both rims to the river. Confined to alluvial debris fans, the dominant sites are camps and roaster complexes. Nine sites may be Zuni ancestral: five Virgin branch and four Formative. The number of sites with lithic artifacts dropped to 17, and 48 groundstones were counted.

Jones, Anne Trinkle. 1986. *A cross section of Grand Canyon archaeology: Excavations at five sites along the Colorado River.* Tucson: U. S. Department of the Interior, National Park Service, Western Archaeological and Conservation Center.

As a prelude to stabilization efforts after the unusually high rains of 1983, the National Park Service sponsored test excavations of five archaeological sites along the Colorado River in Grand Canyon National Park. Although all five sites shared some cultural similarities, the two of particular interest are Beamer's Cabin, near the confluence of the Colorado and the Little Colorado Rivers, and Furnace Flats, roughly one kilometer up the Colorado from Unkar Delta. The two sites yielded strong evidence of Kayenta Anasazi occupation, and both lie within the ancient Zuni Migration route. Each had suffered the impact of visitation by boat runners, but Furnace Flats had also eroded heavily.

In a quick cultural overview of the Grand Canyon, Jones began with the 1933 discovery of split-twig figurines in Luka Cave on upper Clear Creek (almost directly east of Ribbon Falls, the traditional Zuni place of Emergence). Such figurines--many more have since been found in other caves--have been radiocarbon dated to a range of 2668 B.C. to 1382 B.C. A few Prehistoric Puebloan sites from the Basketmaker II (pre-A.D. 575) and III periods (A.D. 575 to 800) have been found in the park, but it was only after A.D. 800 that Kayenta Puebloans began to occupy the eastern Canyon. Population gradually increased until A.D. 1100, and agriculture throughout the region became more important. Jones cited the predominant theories that climatic fluctuations and the breakdown of local trade precipitated a gradual exodus from the Grand Canyon. The Prehistoric Puebloans abandoned all but a few sites by A.D. 1150, she said, leaving them to the Southern Paiutes who moved into the area around A.D. 1300.

Beamer's Cabin

Ben Beamer's cabin stands at the base of a Tapeats Sandstone cliff, overlooking the Little Colorado River. This site, a prehistoric ruin rebuilt by a miner in the 1890s, revealed ten subsurface fire pits or rock-lined hearths, in addition to four surface features (masonry oven, bedrock mortar, a small rock shelter, and a pictograph panel, the last being the only surface feature not previously recorded).

Excavation exposed the profile of a sheltered midden. Jones recovered 118 potsherds total, primarily Tusayan White, Tusayan Gray (Tsegi Series), and Tsegi Orange Wares, all Kayenta Anasazi. "Reading" the strata from bottom to top, a firepit near the base of the profile was radiocarbon dated to around A.D. 618, with a 95% confidence interval (C.I.) of A.D. 440 to A.D. 795. The datable stratum above that contained Lino Fugitive Red and Black-on-Gray Wares, placing that segment of the midden in the Basketmaker III era. A firepit in the next level up dated to A.D. 1295 (95% C.I.= A.D. 1240-1350) and contained fragments of typical Pueblo II Tusayan Gray and White Ware. Lastly were two small firepits and rock-lined hearths, and a younger deposit of Jeddito Yellow, Southern Paiute and Tizon Brown wares (plus animal bones showing butcher marks, probably flung there by

Beamer). The final deposit of Indian refuse indicated to Jones that, although there evidently was a break in occupation at Beamer's Cabin after A.D. 1150, "it was reused after A.D. 1300 by the same cultural group, the ancestors of the Hopi" (p. 324). Now that the Zuni origin in the Grand Canyon has become more widely known, this statement may apply to the Zunis as well;
as Jones explained on page 10, "the presence of a few sherds of a particular ware does not necessarily equate [the site] with a particular people."

The pictograph panel at Beamer's Cabin consisted of matching handprints in blown hematite or limonite pigment. The prehistoric artist appears to have dropped a lump of hematite at the foot of the painted wall. The laboratory radiocarbon dated this paint fragment to the late Pueblo II era. Some types of hematite, according to Zuni tradition, came up with the Zunis from the Underworlds in the Grand Canyon; other types, also mined in the Grand Canyon, they acquired through trade into the 20th century. Grand Canyon pigments remain a part of Zuni religious ritual today, and some are considered highly sacred.

Furnace Flats

Furnace Flats is a multi-component, open masonry site on an alluvial terrace 7-10 meters above the Colorado River. Euler and Taylor initially described the Furnace Flats site, which they dated to the late Pueblo II era (see Euler and Taylor, 1966), but the heavy rains of 1983 had exposed two new locations. Both assisted and hampered by erosion and deposition, Jones recorded eleven structures (one 3 or 4 room block, three pithouses, and seven rooms) and forty features that included cists, fire pits, wall alignments, and the like. A deep pithouse "closely" resembled a kiva, but conditions prevented conclusive excavation (p. 82).

The total of 1,387 potsherds from Furnace Flats fell largely into two distinct ceramic groupings: Tusayan White (13%) and Tusayan Gray (Tsegi Series) (64%) Wares. The charcoal in one ashbox was radiocarbon dated to A.D. 1018 (95% C.I. = A.D. 775-1260), while another was dated to A.D. 1302 (95% C.I. = A.D. 1200-1350). Of all five sites, Beamer's Cabin and Furnace Flats had the greatest diversity of ceramics, although lacking in wares associated with the Virgin branch of Prehistoric Puebloans.
Jones's work indicated a Pueblo II-early Pueblo III occupation. She agreed with Robert C. Euler's ceramic chronology, although she modified it slightly to incorporate Ambler's earlier beginning date for the Pueblo II period, A.D. 950, and later end date of A.D. 1170.

Botanical materials recovered from the two Grand Canyon sites included some still used by Zunis in the twentieth century. Among these were yucca, which Jones noted was a multi-purpose staple among Zunis, as well as agave, corn, and squash. Remnants of the Chenopodiaceae genus and Amaranthaciae family ("Chen-Am," impossible to differentiate in archaeological contexts) were abundant in the fossil samples collected at Beamer's Cabin and Furnace Flats. Chen-Am seeds have been found in most Puebloan archaeological sites in the Southwest, but Jones noted that "the seeds are generally parched and ground into meal by the

Navajo, Zuni, and Papago," and that the Zunis, according to Stevenson's earlier ethnobotanical research, "mixed the ground seeds with corn meal to produce a stiff batter" (p. 295).*

Such archaeological and cultural details, while not exclusive to Zunis, do suggest the links between the Tribe and the Prehistoric Puebloans of the Grand Canyon. More compelling to the Zunis, however, is their spiritual relationship with the chasm and all things within their traditional and sacred landscape. They would neither say that they "abandoned" the Grand Canyon in A.D. 1150--they sometimes return for religious purposes, after all--nor would they say that they were driven away by a hostile environment. Once the Zunis Emerged from the Grand Canyon their search for the Middle Place began; it is for this reason alone that they migrated to their present home.

---

*Matilda Coxe Stevenson, "Ethnobotany of the Zuñi Indians," in *Thirtieth Annual Report of the Bureau of American Ethnology, 1908-1909,* Washington, D. C.: Smithsonian Institution, 1915, p. 66.

Merbs, Charles F., and Robert C. Euler. 1985. Atlanto-occipital fusion and spondylolisthesis in an Anasazi skeleton from Bright Angel Ruin, Grand Canyon National Park, Arizona. *American Journal of Physical Anthropology* 67:381-391.

In January 1982, a construction crew uncovered two burials near the Kayenta Anasazi ruins at the confluence of Bright Angel Creek and the Colorado River. Merbs and Euler examined the remains of one, a congenitally deformed, middle-aged woman. The other, an infant, was too fragmentary for analysis.

That her life in the Grand Canyon was harsh was patently clear from a variety of deformations and traumas to her skeleton. But of importance to this bibliography is the fact that certain features helped identify her as Prehistoric Puebloan. A pattern of osteological change indicated extreme hyperextension of the neck, an effect of using a trumpline across the forehead for carrying heavy items. An asymmetrical deformation of the cranium indicated the use of a cradleboard in infancy, and the presence of what the authors called "kneeling facets" on the tibiae was "likely due to the hours [Southern Puebloan women] spend kneeling before their metates while grinding maize and other foods" (p. 388). This woman evidently suffered from "metate elbow," as well, a condition Merbs had first associated with food grinding in Baja California. "In terms of cranial features and general body form, the adult skeleton from Bright Angel Ruin is typical of Pueblo Indian females," the authors concluded (p. 390), a statement that would have applied to traditional Zuni women even in the twentieth century.

Two burial items are also intriguing. Lying beside this woman was a Tusayan Corrugated jar, a Kayenta Anasazi artifact. And on the left wrist of the child was a bracelet made of olivella shell and siltstone beads. Olivella shell items, as some sacred Zuni rituals indicate, came up with the first Zunis from the Underworlds of the Grand Canyon, and some are still in Zuni possession.* They are but one material reminder that these people once lived in the Canyon. Such burial details, and the fact that for centuries Zunis continued the puebloan practices manifested by the markings on this woman's bones, help to illustrate the cultural connections between Zunis and the Grand Canyon.

---

*See Ruth Bunzel, "Introduction to Zuni Ceremonialism," in *Forty-seventh Annual Report of the Bureau of American Ethnology, 1929-1930.* Washington, D. C.: Smithsonian Institution, 1932, p. 490).

Schroedl, Alan R. 1977. The Grand Canyon figurine complex. *American Antiquity* 42:254-265.

Split-twig figurines have rarely been found in association with other diagnostic artifacts. This lack of archaeological context in which to place these figurines prevented researchers from determining their cultural affiliation. But the excavation of Utah's Cowboy Cave in 1975 uncovered 20 whole and fragmentary Archaic split-twig figurines. Their recovery, says Alan Schroedl, was completed under good stratigraphic control, and "provide[d] a foundation for discussing the possible cultural affiliation of the Grand Canyon figurine complex" (p. 254).
He believed that, in order to understand the later Western Archaic era, we must grasp their significance. After his study of Cowboy Cave, Schroedl reexamined all published reports on similar effigies from the Grand Canyon. Schroedl's article provides a good overview of the research to 1977 on split-twig figurines.

At that point in time Schroedl knew of 370 figurines, and he estimated that many more had been collected but not reported. Most came from caves, and all but around six (from Newberry Cave in California) were found within the drainage of the Colorado River. Shrine caves known at the time within Grand Canyon -- Luka, Tse-An-Sha, Tse-an-Kaetan, White, and Stanton's -- produced the bulk of the figurines. These are five relatively inaccessible caves, clustered in eastern Canyon along the Colorado River. All but Stanton's Cave lie between Bright Angel Canyon and the Little Colorado River, the traditional Migration route of the Zunis. The discoveries in these caves were as follows:

1. Luka Cave (upper Clear Creek Canyon): 3 figurines, along with a drilled sandstone pendant.

2. Stanton's Cave (Marble Canyon, along the Colorado River): an estimated 200 figurines or more. Figurines have also been found in this cave in which deer droppings had been placed by the makers.

3. Tse-An-Sha Cave (south side of the Colorado River, Pipe Canyon): 3 figurines. Douglas Schwartz, Arthur Lange, and Raymond DeSaussure radiocarbon dated two of these, one to 3100 years ago (plus or minus 100 years) and the other to 3530 years ago (plus or minus 300 years).

4. White Cave (south side of the Colorado River, upper Cottonwood Canyon): 8 figurines.

5. Tse-An-Kaetan Cave (south side of the Colorado River, Cremation Canyon): 23 figurines, along with a hank of human hair tied with string and suspended from a stick from the cave wall, a possible torch, a wooden spatula-like object, a wooden awl, a vine-wrapped stick, a chert flake wrapped in bark, a hammerstone, one projectile point, and a small wooden "spear," found within a cache of figurines.

Euler and Olson earlier concluded that the figurines were magico-religious objects used in hunting rituals. In attempting to define their cultural affiliation, the two had thought the Grand Canyon figurine complex to be part of a late Archaic assemblage associated with the loosely-defined Pinto complex (Euler and Olson 1965; Euler 1966). However, the dig at Cowboy Cave revealed Gypsum points mixed with the stick figures, and Schroedl therefore hypothesized a Gypsum rather than Pinto complex. In addition, corn has been found at several figurine sites (though none in eastern Grand Canyon). "The possibility of a relatively early introduction of corn into a late Archaic non-basketmaker context in conjunction with the spread or use of split-twig figurines must be seriously entertained and examined" (p. 262). Pictographs found near a few sites in the Grand Canyon must also be taken into account. Pictographs near Cowboy Cave, rendered in the Barrier Canyon style, were surmised as being Archaic.

The figurine sites found in the Grand Canyon have certain distinctions. The figurines there were almost always found without any other cultural materials, but were relatively abundant (about 75% of all known figurines are from this area). They were found intact, sometimes pierced with "spears," in caches along the cave wall or scattered on the surface. In sum these traits led Schroedl to agree with Euler and Olson regarding their use in hunting rituals. He hypothesized that the five caves in the Grand Canyon represented a core or focal area for the development of split-twig figurines, and that the practice spread to outlying areas along the tributaries of the Colorado River. Schroedl concluded that "the stick figurine developed as a cultural trait during the second millennium B. C. by Archaic hunting and gathering populations in the Grand Canyon area, and possibly persisted in outlying areas for another thousand years" (p. 263).

That this area may be the center of this Archaic development as well as the sacred Migration route of the Zunis is probably not coincidental. The area is critical to Zuni religion, and must be kept in as close to its original state as possible.

Schwartz, Douglas W. 1963. An archaeological survey of Nankoweap Canyon, Grand Canyon National Park. *American Antiquity* 28:289-302.

The paucity of archaeological information on the northeastern Grand Canyon impelled Schwartz to explore Nankoweap Canyon, but he was also enticed by its wide valley floor and available water. He was not disappointed. A total of forty-eight sites were found, including sherd areas, granaries, rock house outlines, rock alignments, and a single petroglyph location. Schwartz's was not the first archaeological investigation of Nankoweap Canyon, but it was the most thorough to date.

Because time had made no difference in the size and location of the sites, Schwartz deduced that Nankoweap's was a short but intensive occupation. He estimated that a population of 927 people lived in the canyon over a range of two centuries (A.D. 1000 to 1200), although hunters from the rim undoubtedly had ventured along old game trails into Nankoweap much earlier.
Consisting of one to seven (possibly more) rooms, most sites in Nankoweap Canyon appeared to have been built between A.D. 1050 and 1150. The majority (34) were rock house outlines (including some kiva depressions) generally situated on the edges of the plateaus, some 100 to 200 feet above the valley floor. This left the plateaus themselves open for farming and afforded what might have been a defensive a view of the valley. Once the major habitation commenced, smaller sites sprang up along the valley floor, but these appeared late in the occupation and were apparently little used. The settlement began to decline after around 80 years of continuous habitation. The first site occupied (the closest to the rim) was the last vacated. "It had taken a young radical to move from the rim into the untouched canyon and settle this site," Schwartz mused, "but it was probably an old conservative . . . that refused to leave until the last dog was dead" (p. 298).

Schwartz ruminated further on the character of the settlers of Nankoweap Canyon and the effect their experiences may have had on their culture; however, his analysis of physical artifacts provided the most conclusive data. Most ceramics were Kayenta Anasazi (although he never referred to these sites as Anasazi habitations), with a high percentage of Moenkopi Corrugated, Tusayan Corrugated, Gray and White Wares. The petroglyph site, located near the center of Nankoweap Valley, consisted of a single sandstone boulder with pecked images, which Schwartz placed between A.D. 1050 and 1175. He compared these rare petroglyphs to similar works reported in Glen Canyon by Gene Foster, but left analysis for a later time.

In a brief appendix, botanical archaeologist Hugh Cutler added a few paragraphs on plant remains from a rock shelter at the mouth of Nankoweap Canyon. They located several corn cobs of a type intermediary to the Pima-Papago variety (roughly pre-A.D. 900) and a modern Pueblo hybrid. Cutler also dated a squash stem to A.D. 1050-1150. Uncultivated plant remains included a mesquite pod and reed grass sheaths; the latter plant being one acknowledged in the tale of the Emergence of the Zunis into the Grand Canyon.

These and other remains provide evidence of Kayenta Anasazi occupation of Nankoweap Canyon and therefore indicates a possible connection between the former inhabitants and the Zuni Indians. Although outside of the traditional Migration route of the first Zunis, Nankoweap may nonetheless have been one of their ancestors' settlements.

Schwartz, Douglas W. 1965. Nankoweap to Unkar: An archaeological survey of the upper Grand Canyon. *American Antiquity* 30:278-296.

Throughout the 1960s Douglas Schwartz plied the Colorado River within the Grand Canyon, seeking to fill gaps in information about inner canyon archaeology.

His work in the eastern half of the Canyon convinced Schwartz that Prehistoric Puebloans lived continuously within the inner canyon for at least a full century, from A.D. 1050 to 1150. The first settlers descended into the eastern canyons from the North Rim, perhaps as early as A.D. 900. Over two centuries of seasonal and full-time occupation, the pioneers and their descendants built habitations of one to several rooms, some with nearby kivas. These people were "struggling agriculturalists" who cultivated the arable lands of the Colorado River and side canyons, transporting stream water to their fields in jugs or building terraces and rock alignments to channel surface runoff (p. 294). Unable to adjust to the rigorous environment of the inner canyons, Schwartz said, the ancient Puebloans abandoned the inner gorges by A.D. 1200.

As the title indicates, Schwartz covered the riverine environment from Nankoweap Delta to Unkar Delta, and included four side canyons (Kwagunt, Lava, Basalt, and Unkar). In total he located 18 archaeological sites. A goal of the project was to gain a reasonably accurate picture of prehistoric life in these environments by sampling materials, as opposed to conducting a complete survey, as Schwartz had done at Nankoweap (see Schwartz 1963 annotation). The present annotation focuses only on the riverine sites located within the traditional Zuni Migration route. As is usually done, the survey boats headed downstream, which means that they followed this ancient route in reverse. The first archaeological site of special interest, therefore, is located at the mouth of Little Colorado River (LCR). It is at that place that the Migration route leaves the Colorado River and follows the LCR east and south, toward its confluence with the Zuni River.

Based upon decorated pottery sherds Schwartz concluded that, with one or two exceptions, all sites surveyed were occupied in the 100 years between A.D. 1050 and 1150. Schwartz distinguished between "eastern" type sherds, which included Tsegi and Kayenta Anasazi series, and "western," which encompassed Virgin Anasazi, Johnson, Shinarump, and White wares. Over 90% of the sherds were "eastern" types.

At the mouth of the LCR, Schwartz found only two or three sherds (his description and table disagree on the number), all Puebloan. Unable to devote much time to this area, he acknowledged that it had been used and would require investigation at a later time. Overall he viewed the mouth of the LCR as a "passageway between the Hopi pueblos and the Hopi salt mine, with an intermediate stop at the sipapu [the Hopi place of Emergence five miles up the LCR]" (abstract, p. 278). Of course, the Zuni Origin narrations are now more widely understood, and these indicate that the first Zunis also followed this route after their own Emergence near Bright Angel Canyon.

Many more potsherds surfaced at the mouths of Tanner Creek (158) and Basalt Creek (285). These again indicated eastern affiliation, dominated by Moenkopi Corrugated, Tusayan Corrugated and Tusayan Grey. Schwartz found three room outlines at Basalt Creek Delta which differed, he said, from the usual multiroom pueblo habitation. From this and the dearth of sherd areas (save one), he deduced that Basalt Delta's had been a short-term, nonintensive occupation, ranging from A.D. 1070 to 1150. The 386 sherds found at Unkar Delta, which Schwartz investigated more completely a few years later, yielded an even higher ratio of eastern pottery (see Schwartz et al [1980] for his full excavation of Unkar Delta).

Schwartz's collections clearly indicated a Kayenta Anasazi affiliation along this segment of the river. That the Zunis are descendants of the Anasazis, and that these sites were within the Zuni Migration route, is now well known. Schwartz's analysis highlights the ancient and traditional Zuni relationship to the Grand Canyon.

Schwartz, Douglas W. [1989]. *On the edge of splendor: Exploring Grand Canyon's human past*. Santa Fe: Annual Bulletin of the School of American Research.

Douglas Schwartz began studying archaeology in Grand Canyon National Park in the early 1950s, and he conducted major excavations throughout the 1960s. *On the Edge of Splendor* reflects his 40 years of research. This annotation focuses primarily on his discussions of Prehistoric Puebloan activities within the Zuni Emergence and Migration route in eastern Grand Canyon. Schwartz surveyed much of the Colorado River in that area, and his excavations there included Bright Angel Pueblo and Unkar Delta. In this publication he reiterated his long-standing assertion that for roughly 150 years (A.D. 1050-1200), Prehistoric Puebloans occupied the inner canyon year-round, but with abrupt departures. Twice, he argued, they abandoned their habitations for brief periods, returning to live in the Canyon in ways that had measurably changed. The third abandonment, however, was permanent.

Schwartz's brief discussion of the Archaic Indian presence in the Grand Canyon (he established this at approximately 2000 B.C.-A.D. 1) was illustrated with paintings and split-twig figurines found in caves. The relatively ubiquitous figurines could be as much as 4000 years old. Some of these have been found in eastern Grand Canyon, Schwartz noted, including a side-canyon to Bright Angel Canyon. Bright Angel Canyon, of course, is part of the traditional Migration route of the first Zunis.

In his chapter on the Grand Canyon Anasazi, Schwartz began by explaining that these people originated in the Four Corners area and moved west over the Little Colorado River. They appeared in the Canyon region at around A.D. 700, occupying the land only seasonally and intermittently until A.D. 1050. Then moisture conditions there improved, and the Canyon "exploded" with agricultural Prehistoric Puebloan settlements (p. 53). Yet Prehistoric Puebloan habitation of the inner gorge was punctuated by retreats to higher elevations during drought conditions. Eventually long-term dry climate set in, driving Prehistoric Puebloans permanently from the entire Grand Canyon region.

But their century-and-a-half of occupation was productive. "The dominant presence in the prehistoric Grand Canyon region were the Anasazi," and

> For a time in the A. D. 1000s and 1100s, they seemed to have been everywhere except south and west of the region, areas used by the Cohonina. Well over one thousand Anasazi sites have been found in the canyon area, including rock-lined roasting pits, cliff granaries, agricultural terraces and fieldhouses, rock paintings and petroglyphs, and hundreds of single-to many-room pueblo dwellings (p. 53).

One Prehistoric Puebloan area Schwartz surveyed in 1960 was Nankoweap Canyon, at the east end of the park. He found 48 sites, including apparent kiva depressions (the first found in Grand Canyon), habitations, granaries, and pottery, enough evidence to conclude

that this was an "exclusively Anasazi occupation that began about A.D. 1050 and was over by A.D. 1200" (p. 50). In 1963 he returned to explore the Colorado River from Nankoweap to the beginning of Granite Gorge, a stretch that encompasses the Zuni Migration route along the Colorado. The work confirmed to him that

> wherever there was water and arable land, there had once been Anasazi. At the junction of every side canyon and up nearly every creek we found sites -- Kwagunt, Lava, Basalt, and a great many on Unkar Delta. For the first time I saw evidence of use as early as A.D. 900, but here also, the major occupation has occurred during the eleventh and twelfth centuries (p. 50).

His survey of Unkar Canyon, which included his most comprehensive Prehistoric Puebloan excavation (Unkar Delta), yielded over 94 sites, several containing large rooms and kivas.

Schwartz outlined his three phases of Prehistoric Puebloan occupation in Grand Canyon. For the Vishnu Phase (A.D. 1050-1070), he cited evidence of settlement marking the Bright Angel and Unkar Deltas, where masonry pithouses and ramadas predominated. Schwartz believed that these people were compelled to abandon the site by a decade or so of drought. But the rugged Puebloans returned in greater numbers, and with the intention of remaining.

In this second colonization, which Schwartz labeled the Zoroaster Phase (A.D. 1075-1095), the Prehistoric Puebloans constructed

> well-planned, above-ground pueblos consisting of several rooms, and for the first time they built ceremonial kivas near their habitations -- one indication that they were committed to a year-round communal occupation (p. 56).

Now they spread rapidly throughout the canyon region, occupying any arable land outside of Cohonina territory. At the excavated settlements on Unkar Delta, Schwartz determined that the total rooms had increased from the previous Vishnu Phase, from two to twenty-three. Habitations built above ground in contiguous blocks, they typically formed a U around a plaza. "In two of the plazas they built square subterranean kivas, a feature still used by Pueblo Indians for ceremonial purposes" (p. 57). In addition, "extensive agricultural terrace systems" indicated that agricultural activity on the delta also increased from the previous occupation (p. 51). However, when climatic conditions again deteriorated, the Prehistoric Puebloans retreated once more from the river corridor.

This absence, too, was temporary. The Dox Phase (A.D. 1100-1180) brought the Prehistoric Puebloans back to the inner canyon. They built Bright Angel Pueblo during this phase, and added one kiva to Unkar Delta. On Sky Island and Wotan's Throne, two rock pillars closer to the North Rim, new structures arose. Sky Island, nearly adjoining the North Rim, held eighteen small rooms and a hearth, suggesting a temporary habitation and food

storage and processing area (p. 62). Halfway between rim and river, a smaller number of rooms, granaries, and a possible agricultural terrace arose on Wotan's Throne.

When Prehistoric Puebloan occupation in the Grand Canyon faded, said Schwartz, "it is reasonable to suggest that when they left the canyon they moved east and became part of the ancestral line of the Hopi Indians." Hopi life at the time of the Spanish entrada fit "precisely with what we know of the life of the Canyon Anasazi" (p. 67). This statement may be extended as well to the Zuni People, who shared a similar origin with the Hopis, in that both peoples have a tradition of Emerging from the Underworlds into the Grand Canyon. Any of Schwartz's statements about Prehistoric Puebloans may be assumed relevant to the Zunis, descendants of the Grand Canyon Anasazi.

Schwartz, Douglas W., Richard C. Chapman, and Jane Kepp. 1980. *Archaeology of the Grand Canyon: Unkar Delta.* Grand Canyon: Grand Canyon Natural History Association, and Santa Fe: School of American Research. Grand Canyon Archaeological Series, Vol. 2.

The earliest human use of the Grand Canyon, stated the introduction to this volume, began in approximately 1500 B.C. The primary evidence for this are split-twig figurines crafted by hunters as part of a hunting-magic ritual. These figurines have been found in caches in caves high on redwall cliffs throughout the Grand Canyon. The hunters who made them appear to have entered the Grand Canyon only to search for game, since no conclusive evidence has been found of occupation of the Canyon before 700 A.D. After this date, however, small groups of hunter-farmers gradually colonized the plateaus bordering the canyon rims, while a few pioneers attempted to settle the gorge. Larger family groups established permanent homesites on the Canyon floor by roughly A.D. 1050. For the next century they and their descendants intermittently inhabited nearly all of the arable land available. Shortly before A.D. 1150 they began to depart from both canyon and plateau, and after the early 1200s no Prehistoric Puebloan settlements in or around the Grand Canyon were inhabited, with the possible exception of Havasu Canyon.

Twelve miles downstream from its confluence with the Little Colorado River, the Colorado River curves around a semicircle of land called Unkar Delta. At 125 acres, this knob of land is one of the largest arable sites on the Colorado in Grand Canyon National Park. It is bounded on the north side by a talus slope and on the south and southeast by a flat skirt of sand dunes. The Delta's natural isolation, along with variations in its human site types and an extensive agricultural system, suggest that a relatively self-contained community lived here.

This volume is the report of excavations on the Delta in 1967-1968. The surveyors defined a site as:

> any cultural material indicating human activity in a particular location. Thus, the term "site" covers a variety of remains from sherd concentrations to agricultural terraces and from isolated hearths to multiroom pueblos (p. 5).

Roughly half of the 52 sites that Schwartz et al documented contained one or more known or likely surface rooms. Three of these included kivas. In addition, the team located two pithouses, nine agricultural features (including terraces, bordered plots and check dams), seven sherd and/or lithic scatters, three isolated hearths, and six indeterminate agricultural features.

Two years later (1970), a surface survey of Unkar Canyon its adjoining terraces and tributaries, revealed sixteen more sites, including twelve granaries, twenty surface rooms, three lithic scatters, and one possible fire pit (see Appendix A).

In their initial reconnaissance of Unkar Delta, the researchers quickly concluded that the human sites were not all inhabited contemporaneously. Rather, occupation appeared to have been punctuated by drought-impelled retreats over a span of 250 years. Thus the authors ultimately assigned four sequential eras of occupation on the Delta, each decidedly different from the others. Inventing terms for Unkar Delta alone, they designated these eras "phases," as opposed to Harold Colton's "focuses," which covered a broader geographical area, and delineated them as follows:

1. A.D. 900: the "Medicine Valley" phase, so named because its characteristic pottery was San Francisco Mountain Gray Ware, the ware typical of the Cohonina Branch of the Coconino Plateau. Diagnostic pottery types of the Medicine Valley phase included Kana'a Gray and Black-on-white Wares, Floyd Gray and Black-on-gray Wares, Deadman's Gray, and possibly Coconino Gray and Deadman's Black-on-red. Because they became extinct about A.D. 875, the absence of Lino Gray and Black-on-gray Wares also helped to define this phase.

The date of A.D. 900 represents the dividing point between Colton's Coconino focus (A.D. 700-900) and his Medicine Valley focus (A.D. 900-1100). It was chosen because only after A.D. 900 did the Coconino Plateau undergo enough population pressure to prompt expansion into the depths of the Canyon. Thus the earliest use of Unkar Delta probably occurred after A.D. 900.

The investigators could not conclusively assign any structures to this phase, but judging from the large quantity of culinary pottery they concluded that occupation was at least partially sedentary, although low in population and relatively short-lived. They estimated that, once this colony left the Delta, it remained empty for 150 years.

2. A.D. 1050-1070: the "Vishnu" phase, the first relatively permanent inhabitation. This colony appears to have constructed two pithouses in these years. The one pithouse that was thoroughly excavated was roughly oval in shape, a semisubterranean room excavated into the side of the slope, with limestone masonry, a clay floor, ventilator shafts in the east and north walls, and a square adobe-lined fire pit. The other pithouse appeared to be similar. A third possible Vishnu site, which could have been either an agricultural plot or a roomblock, remained undated due to a limited amount of surface potsherds, but these sherds did conform to the characteristics of the Vishnu phase.

Equal amounts of Tusayan Corrugated and Plain Wares constituted 70% of the total ceramics. Tusayan Gray and White Wares predominated, suggesting that Kayenta Anasazis had taken the place of the earlier Cohoninas on Unkar Delta. A sample of corn pollen indicated at least partial dependence upon agriculture.

3. A.D. 1075-1100: the "Zoroaster" phase, in which a much larger number of people gradually populated the Delta. Most of the Zoroaster sites stood on the higher river terraces, and the authors speculated that the residents cultivated some of these terraces as well as the floodplain below. Over this 25 year span they erected five or six habitation sites, surface

masonry pueblos of two to seven rooms. Four of the Zoroaster habitations consisted of two or more surface rooms arranged in linear roomblocks; two faced semisubterranean kivas. The largest of these pueblos consisted of a U-shaped block of seven rooms, opened to the east toward a plaza containing a square kiva with round corners. Three larger rooms accommodated firepits, and four smaller rooms seem to have been storage areas. In total, the 23 rooms, two kivas, eight firepits and 21 subfloor cists suggested a primarily sedentary occupation.

These occupants left a greater variety of pottery types behind, but Kayenta Branch pottery (pre-Flagstaff Black-on-white) predominated, although Virgin ceramics were more abundant than in the Zoroaster phase. The key diagnostic ceramics for the Zoroaster Phase were Sosi Black-on-white and Dogoszhi Black-on-white. Tusayan Gray Ware (and within that, the Tusayan Corrugated) remained the major utility pottery, although Shinarump and Walhalla Gray Wares also appeared in significant numbers for the first time.

4. A.D. 1100-1150: the "Dox" phase. Eleven sites, including one square kiva with rounded corners (lined with benches on three sides and ventilated to the east), were clearly assignable to the Dox Phase, possibly two large fire pits, as well. This occupation produced an architecture and site distribution "radically" different from the preceding phase. "Instead of compact, linear pueblos, most Dox phase sites were complexes of scattered habitation and storage rooms, bins, fire pits, and various outdoor activity areas" (p. 10). Site locations shifted to areas of poor agricultural potential, the talus slope on the northern side of the Delta and the sand dunes on the southern end. The changes suggested to the researchers a greater emphasis on agriculture and food processing.

Pottery in this half-century occupation, although not abruptly altered from the previous phase, continued its trend toward Virgin materials, approaching an equal balance with Kayenta ceramics. Such data probably represent the development of indigenous ceramics and increasing trade relations to the north. The range of decorated pottery types exceeded even that of the Zoroaster Phase. The chief diagnostic type was Flagstaff Black-on-white, followed by the Sosi Black-on-white and Dogoszhi Black-on-white seen in the previous occupation. Tusayan Polychrome appeared in traces for the first time. In utility wares, Tusayan Gray Ware decreased relative to Shinarump and Walhalla Gray Wares. And in the Tusayan Gray Ware found, Moenkopi Corrugated replaced Tusayan Corrugated as the predominant type.

The situation of Unkar Delta on the margins of three cultural branches--Kayenta, Virgin, and Cohonina--complicates an analysis of the delta's cultural affiliation. However, an initially high frequency of Cohonina ceramics in the Medicine Valley phase (44% as opposed to 51% Kayenta/Virgin) was followed by an overwhelming predominance of Kayenta Branch ceramics in the Vishnu phase (94%) gradually replaced by Virgin types in the last two phases, during which Cohonina never rose above 2% of the total.

The authors believed that the Prehistoric Puebloan permanently vacated Unkar Delta after A.D. 1150, and noted that the only further evidence of use there were sherds from two Hopi yellow ware vessels crafted after A.D. 1250. These wares probably reflected trade between the Hopis and Paiutes, said Schwartz et al, but also suggested the final direction of the canyon's inhabitants and recalled "the Hopi myth that their ancestors emerged from their original sipapu in the bottom of the Grand Canyon" (p. 188). Of course, while the canyon's "final" inhabitants indeed migrated east, some continued their journey southeasterly toward the Middle Place in Zuni, New Mexico. Perhaps this is reflected in Appendix H, contributed by Erik K. Reed. Reed noted that human skeletal remains from Unkar Delta conformed to those of the Ashiwid type (from "Ashiwi," the Zunis' name for themselves), an anthropological categorization developed by studies of Zuni ancestral remains at Hawikuh, an old Zuni village. Another telling detail is found in Appendix G, which described olivella shell beads excavated at Unkar Delta. Such beads have been found in burial sites along the Zuni Migration route. Olivella shells came out of the Underworlds in the Grand Canyon with the first Zunis, who safeguarded them during their search for the Middle Place. These sacred shells are still used in ceremonial rattles or fetishes.* These parallels are but a few that underscore the close relationship between Zunis, Grand Canyon, and the ancient people who lived there.

---

*See Frank Roberts, Jr., *The Ruins at Kiatuthlanna, Eastern Arizona* (1931), who described olivella jewelry found at this ancient Zuni ruin. For a description of recent usage, see Ruth Bunzel, "Introduction to Zuni Ceremonialism," *Forty-seventh Annual Report of the Bureau of American Ethnology* (1932).

Schwartz, Douglas W., Jane Kepp, and Richard C. Chapman. 1981. *Archaeology of the Grand Canyon: The Walhalla Plateau.* Grand Canyon archaeological series, vol. 3. Santa Fe: School of American Research.

Walhalla Plateau is in the general area of the sacred Zuni Migration route in eastern Grand Canyon National Park. Not surprisingly, it contains archaeological remnants similar to those found within the narrowest definition of the route (which follows Bright Angel Canyon from Ribbon Falls to the Colorado River, then east to the confluence with the Little Colorado River, and up the latter to beyond park boundaries).

Schwartz, Kepp and Chapman built upon and expanded Edward T. Hall's survey of Walhalla Glades in the late 1930s. They tested or excavated 25 sites, and determined that the Plateau had been used by hunting bands between 100 B.C. and A.D. 500, and then again by agricultural people between A.D. 1050 and 1150, the time of most intense Prehistoric Puebloan activity throughout the Grand Canyon. As at other sites along the traditional Zuni Migration route, Kayentan pottery was most prevalent on Walhalla Plateau. Out of 32,507 potsherds recovered by this team, more than half (55%) were Kayenta Anasazi, with Tusayan Gray and White Wares predominating at 48% of the entire collection.

Schwartz et al posited a connection between the population of Walhalla Plateau and the communities of the inner canyons. In fact, they may have been one and the same. Archaeological evidence and the severe winter conditions of the plateau convinced the researchers that the ancient Puebloans migrated seasonally between Walhalla and the inner canyon. In comparison with riverine sites such as Unkar Delta, the relatively limited cultural debris, the smaller number of rooms and hearths, and the absence of kivas at Walhalla Glades suggested that Prehistoric Puebloans used the plateau only in the summer. They argued that "the long growing season on the canyon floor likely permitted an early spring and a late fall crop to be raised that were in addition to the summer harvest produced on the plateau" (p. 129). It seemed likely, therefore, that

> the farmers who inhabited the Walhalla Glades during the summers were the same ones who spent the rest of the year at the many known sites in the side canyons surrounding the Glades and in river-edge locations such as Unkar and Bright Angel deltas" (p. 130).

Similarities abounded between these riverine sites and Walhalla Glades. Most agricultural features and stone industries were "virtually identical," pot makers of the plateau and inner canyon were "obviously part of a single ceramic tradition because they produced exactly the same wares and types"; and architectural features differed due only to summer versus winter use and the variability of local materials (p. 131). Concluded the authors:

> We certainly would not go so far as to say that the inhabitants of a particular site in the Walhalla Glades were the same people who occupied another specific site in the canyon. But to say that in general the farmers of the

> Glades were the same people who lived in the side canyons and riverside sites of the Grand Canyon seems warranted on the basis of strong similarities in both material culture and economic adaptation (p. 132).

As with other archaeological sites throughout the eastern Grand Canyon, Walhalla Plateau is situated in the general area of the ancient Zuni Migrations, and must be considered a Zuni heritage site, especially in light of the authors' assertion that the same people who lived within the strict bounds of the traditional route also occupied Walhalla in the summers.

Schwartz, Douglas W., Michael P. Marshall, and Jane Kepp. 1979. *Archaeology of the Grand Canyon: The Bright Angel site.* Santa Fe: School of American Research. Grand Canyon Archaeological Series, Vol. 1.

In 1869, John Wesley Powell became the first person to document the Bright Angel archaeological site. Not until 1953 did anyone attempt a systematic analysis of potsherds there; W. W. Taylor recorded the presence of Dogoszhi and Sosi Black-on-white and Tusayan Black-on-red surface sherds. However, it was Robert Euler who concluded in 1969 that the ceramic record indicated an early Pueblo III Kayentan occupation. That same year, Schwartz et al conducted their excavations, through the cooperation of the National Park Service and the School of American Research in Santa Fe.

Bright Angel sits atop a talus slope, thirty feet above the confluence of Bright Angel Creek and the Colorado River. It looks down upon an alluvial fan washed out of Bright Angel Canyon, from which one can see the Kaibab Suspension Bridge nearby. It once was a relatively small and isolated habitation. It was also an important stopping point in the ancient Migration route of the first Zunis.

The first occupation of Bright Angel lasted no more than a generation. The settlement consisted of a single rectangular pithouse dug during a period of high moisture values between A.D. 1050-1060. "This type of lone dwelling was not uncommon in either the Kayenta or Virgin Branch region at this period," the authors remarked, although it lacked an associated surface storage unit typical of other such sites in the region (p. 78). The semi-subterranean pithouse had masonry-lined walls, a centrally located, slab-lined hearth, and at least a partial slab floor. A low bench stretched across the west end of the room, where a ventilator also opened at ground surface. By A.D. 1070 the pithouse was abandoned, the authors believed, an event that correlated with the regional decline in precipitation.

After a hiatus of perhaps 30 years a larger habitation resumed, indicated by the addition of three surface masonry structures built in a single line across the same talus slope. The builders soon added a fourth room at a right angle to the three. All four rooms eventually accommodated slab-lined hearths. In the plaza surrounded by the new pueblo and the older pithouse, a second pit structure appeared, different from the other by virtue of being square with rounded corners and containing a sand floor, a ventilator shaft to the east, a central, slab-lined hearth and an informal ash pit. About this the authors observed:

> Although there is no definitive set of characteristics that can be used to identify prehistoric kivas in northern Arizona, [this feature] does satisfy the requirement of somehow being 'different' from all the other structures at Bright Angel (p. 80).

Its location apart from the roomblock, its shape and subterranean construction all point to this structure's function as a kiva.

The settlement began to decline sometime after A.D. 1115, a time when moisture values again had begun to drop. It appears to have been abandoned by A.D. 1150.

The pueblo was an agricultural community that probably supplemented its diet by hunting and gathering. The general lack of sophisticated tools suggests that the inhabitants used the abundant local chert in an expedient manner. Pottery from outside sources indicates contact with other communities, but the nearest of these was probably Clear Creek Canyon, several hours away by foot. Beyond Clear Creek Canyon, Indian Gardens appeared to be the next settlement, requiring another two hours' walk and a swim across the river. These and other factors suggest the relative isolation of Bright Angel Pueblo, of importance in explaining its cultural evolution.

The predominant ceramics at Bright Angel--Shinarump Gray (38.2%), Tusayan Gray (20.2%), and Tusayan White (14%)--were all Prehistoric Puebloan, and most of the remaining wares as well (with the exception of San Francisco Mountain Gray Ware, at 4.7% of the total). A predominance of Kayentan ceramics from the first occupation clearly support this assessment; however, the second occupation left behind remnants of both Virgin and Kayentan utility wares. In other words, the four predominant ceramics of the first occupation (Tusayan Gray and White, and Tsegi Orange Wares--all Kayentan) declined somewhat, and Virgin Wares (Shinarump Gray and White, and Walhalla Gray and White Wares) increased relatively sharply. The authors rejected the hypothesis that people from the Virgin River gradually replaced the former inhabitants, however. The site seemed too homogeneous in terms of structure; hearths, floors and other features were consistently similar, most walls were built as a single interlocking unit and those that did not interlock nonetheless followed the same style of masonry construction. The most likely analysis, they concluded, was that, while the initial pithouse indicated an initial Kayenta provenience, the culture at the isolated Bright Angel settlement developed in place, forming its own unique characteristics within a broader Anasazi context. "Lying on the border of both Virgin and Kayenta areas, this local population might be expected to accept cultural traits from both sources and carry on trading activities with both sets of neighbors." Thus its branch affiliation became a moot point (p. 84).

Taylor, Walter W., Jr. 1958. *Two archaeological studies in northern Arizona: The Pueblo ecology study, hail and farewell, and a brief survey through the Grand Canyon of the Colorado River.* Flagstaff: Museum of Northern Arizona Bulletin No. 30.

Noteworthy as the first professional reconnaissance of archaeological sites in the Grand Canyon river corridor, this brief trip disclosed previously unrecorded sites all along the length of the river. Based on the small number of sites that he recorded, Taylor concluded (rashly, as we now know) that there was "very little aboriginal occupation of the near reaches of the Colorado River in the stretch between Lees Ferry and Lake Mead" (p. 29). He has been criticized for dismissals of some locales as potential cultural sites after only brisk walk-throughs, but he did initiate a dialogue on the patterns of habitation within the Canyon.

Among the unrecorded sites that Taylor located were Vasey's Paradise, Nankoweap Delta, the Unkar Delta complex, and the Bright Angel site, the last of which both Powell and Stanton had noted. The vast majority of sherds retrieved were Kayenta Anasazi.

At Vasey's Paradise, Taylor found three series of surface structures with masonry walls, a ledge with a bedrock mortar, and a boulder marked with petroglyphs and surrounded by potsherds. Only water seemed reasonable to Taylor as an explanation for occupation of this site; agriculture appeared out of the question. He believed that habitation was intermittent or short-lived, and concluded that excavation would be of little value.

Nankoweap Delta revealed four more aboriginal sites, including granaries, sherd and chip areas, five rooms under an overhang with barrel-shaped doors, stone lintels and wooden rod sub-lintels (one such room contained corn husks), at least one habitation possible room, and a variety of charred rodent bones, charcoal remnants, and so on.

Unkar Creek was the only promising site for excavation that he found, Taylor declared. He found the remains of several series of surface structures, a semicircular terrace that he decided was a house platform, and "an extensive and quite intricate system of agricultural terraces and wing dams" (p. 22).

Taylor made a point of searching Bright Angel Creek for the archaeological remains made famous by John Wesley Powell. He found the ruins near the lower Kaibab Trail, commenting that they had been raided for stones by the modern trail-builders. He also located some potsherds and debitage. Taylor believed that agriculture in the areas was "inconceivable" (p. 22), an analysis overturned by Douglas Schwartz's investigations in the late 1960s.

Ultimately, Taylor deduced that "what little [inner canyon habitation] there was shows relationship with the occupation of the north rim;" it was a Kayentan frontier with little contact with other peoples (p. 29). Neither agriculture nor hunting, both more rewarding on the rim, would have drawn the Prehistoric Puebloans into the Canyon, he thought. But if the gorge was a way-station after the "abandonment" of the Arizona Strip by the Anasazis, as

some believed, why did they remain throughout Pueblo I (at least at Unkar Delta) to Pueblo III? Taylor raised a number of intriguing questions.

Taylor's study, brief and sometimes faulty, nonetheless illustrates two aspects of the Kayenta Anasazi story in the Grand Canyon: that they were *there*, and that there will always be more to learn about them. That some of these people were ancestors of the Zunis has only recently become widely known. The tale of their ancient Emergence and Migration in the Grand Canyon sheds additional light on the importance of the riverine archaeological sites and the canyon region. This landscape is sacred to the Zuni People.

West, George A. 1923. Cliff dwellings and pueblos in the Grand Canyon, Arizona. *Yearbook of the Public Museum of the City of Milwaukee for 1923* 3:74-97.

Although Neil M. Judd explored Bright Angel Canyon in 1920, the S. A. Barrett expeditions provided a more detailed description of ruins in the area. George West, president of the board of trustees for the Milwaukee Museum, accompanied Dr. Barrett on his second archaeological expedition to the Grand Canyon. Six people, with twice as many pack mules, trekked across the Canyon from rim to rim, examining ruins along the Bright Angel Trail, Bright Angel Canyon, and at Ribbon Falls. The generally accepted theory under which the team operated was that "these ancient Pueblos and cliff dwellings were in ages past occupied by the ancestors of the present Pueblo people" (p. 74).

The team examined a handful of sites on the southern side. Of importance to this bibliography is "an old Indian agricultural site" called Indian Gardens. But West had little to say about this site, noting only that it was verdant and bountifully supplied with water (p. 79).

Archaeological sites were abundant as the party climbed Bright Angel Canyon. Where Ribbon Creek flowed into Bright Angel Canyon the latter widened considerably, and for three or so miles small flats were visible, utilized by ancient aboriginals as fields and building sites. The men explored ruins above and below Ribbon Falls, encountering a variety of artifacts still strewn about, including a metate, rubbing stones, broken pottery, and corncobs blackened with age. A field between the upper and lower falls had been cleared, "presenting the appearance of an ancient Indian corn field or garden" (p. 88). At the site immediately south of Upper Ribbon Falls they found a rock wall that had partially fallen away. Upon it were

> a number of rooms projecting out from the present base of the cliff, indicat[ing] that there was originally a large and rather deeply eroded cavern in which this cliff dwelling was built. Only a relatively small crevice, at was the rear of this cavern, still persists and the remains of the cliff ruin, are located in this crevice (pp. 82-83).

Following Bright Angel Creek up to the North Rim, the team found numerous other signs of ancient occupation, including ruins, a large circle of stones, a high cobblestone mound, building walls, terraces, black and white ware, sherds ornamented with coil decorations, and so on.

All of these sites may be ancestral to the Zunis, especially from Ribbon Falls to the Colorado River. This, of course, was the ancient Origin/Migration route of the first Zuni people.