

# ARCHAEOLOGY SOUTHWEST *magazine*

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# Archaeology Southwest

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## Ancient Chaco's New History

Stephen H. Lekson, University of Colorado, Boulder

**C**HACO IS AN ARID, BARREN, SANDSTONE CANYON in the middle of nowhere. But a millennium ago, in the eleventh and twelfth centuries A.D., ancient peoples not only survived there, they thrived and created an amazing city. Chaco's ruins awe us even today. The people we call the ancestral Pueblo (also "Anasazi") built monumental political and ceremonial buildings that towered, literally and figuratively, above anything previously seen in the Southwest.

The ruins are preserved in Chaco Culture National Historical Park, 175 kilometers (110 miles) west of Santa Fe, New Mexico. Ancient Chaco Canyon was the center of a regional system covering over 100,000 square kilometers (40,000 square miles). The principal excavated ruins are Pueblo Bonito, Chetro Ketl, Pueblo del Arroyo, Pueblo Alto, and Kin Kletso. Hundreds of other buildings, large and small, dot the canyon floor. The largest buildings, called "Great Houses," are usually associated with "Great

*Overview to the north of central Chaco Canyon. Casa Rinconada, an isolated Great Kiva, is in the foreground. Pueblo Bonito and Chetro Ketl are in the left and right midground, respectively. Above the cliffs is Pueblo Alto. Photo courtesy of Adriel Heisey.*



## Introduction

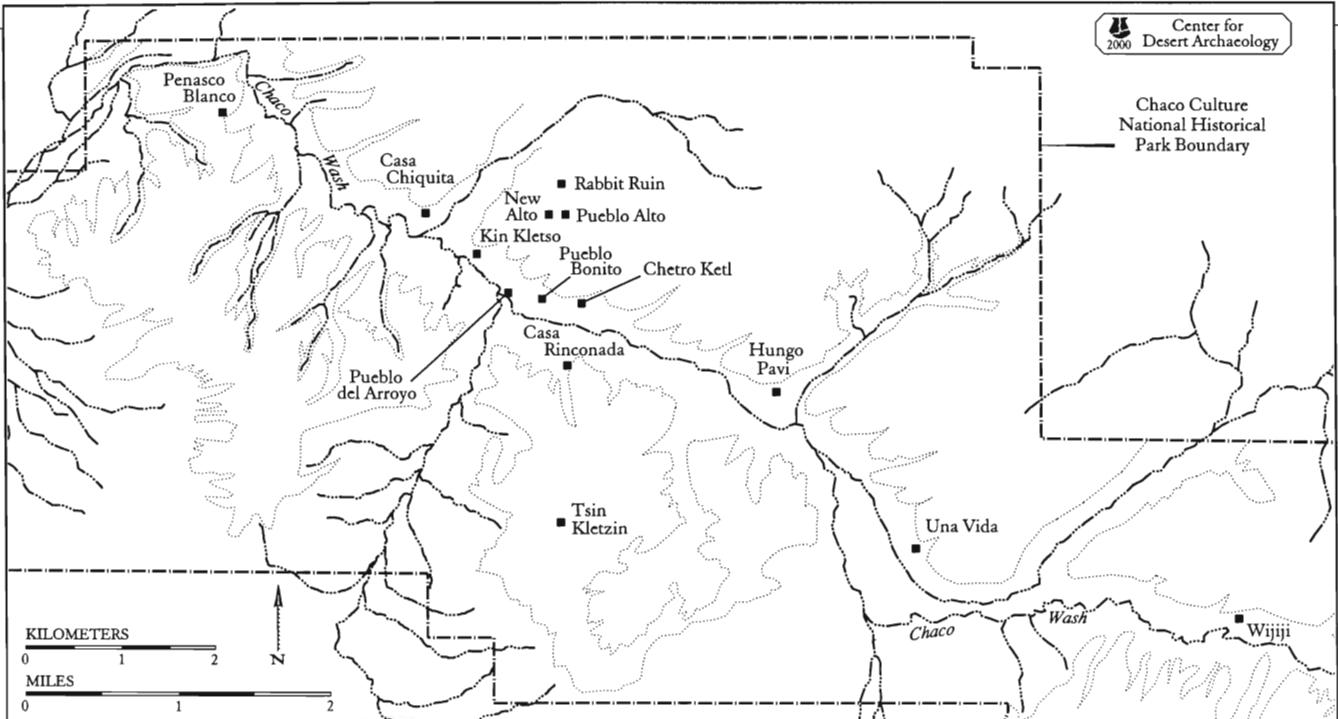
Chaco Canyon sparks an intense interest in nearly all who see it. Even though it is a national park, Chaco's isolation means that few experience it directly.

This special issue of *Archaeology Southwest* explores current efforts to synthesize the research of the Chaco Project that conducted large-scale fieldwork between 1971 and 1982. Stephen H. Lekson is the editor of this issue, and he is the principal organizer of the Chaco Synthesis Project (see page 3). In his introductory article, Lekson provides key background information. In addition, he has written introductions (in italics) to each article on the special-topic conferences that have been held to date.

A second theme of this issue is a photo essay by Adriel Heisey, whose remarkable photography is created in an ultra-light airplane. Thirteen of Heisey's photos convey the detail that is of interest to the archaeologist within a landscape-scale perspective that captures the emotional impact of Chaco's ruins.



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*Map of Chaco Canyon.*

Kivas"—16-meter-diameter (53-feet) subterranean ceremonial chambers, such as Casa Rinconada.

Pueblo Bonito was the largest Great House. Construction began as early as 850 and continued until about 1125; the D-shaped building stood five stories tall, covered .8 hectares (2.2 acres), and contained over 650 rooms, 45 smaller "kivas," and two Great Kivas. The carefully coursed sandstone masonry walls were up to 80 centimeters (2.6 feet) thick. Over 25,000 pine roof beams were transported from distant forests. Chetro Ketl and the unexcavated ruins of Una Vida and Penasco Blanco were almost as large as Pueblo Bonito and had similar construction histories.

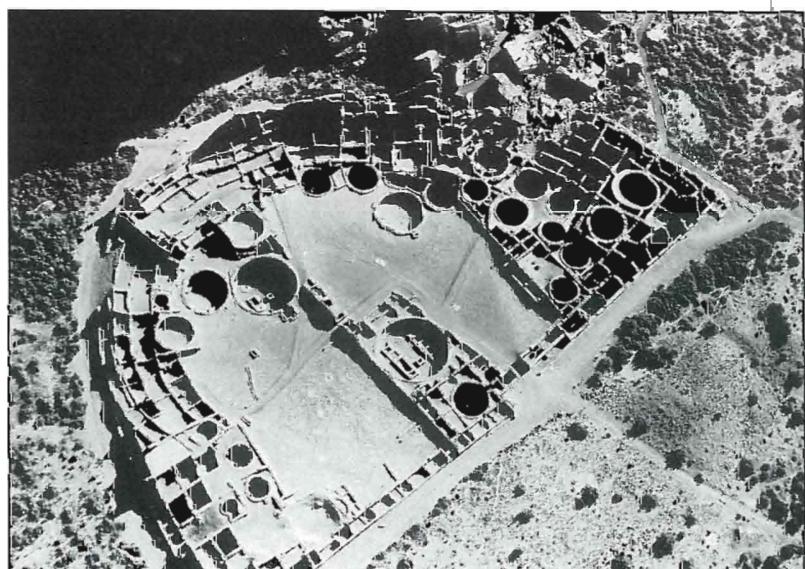
Many thousands of turquoise beads, pendants, and inlays were found at Chaco Canyon sites. The turquoise came from mines near Santa Fe and elsewhere. Macaws and parrots, copper bells, and sea shells were imported from Mexico, up to 1,000 kilometers (more than 600 miles) to the south. Kitchen pottery and stone for tools were also brought from distant sources. Much of the pottery at Pueblo Alto, for example, was made two days' walk to the west.

Rich burials at Pueblo Bonito suggest to some archaeologists the existence of elite leadership, presum-

ably the lords of the regional system indicated by a network of "roads" and over 150 smaller Great Houses or "outliers." The roads were 9 meters (30 feet) wide, arrow-straight constructions, up to 60 kilometers (36 miles) long—probably landscape monuments rather than transportation corridors.

Chaco Canyon was much like the rest of the ancestral Pueblo area until about 900. What some archaeologists call the "Chaco Phenomenon" began, in the early-tenth century, as a local center in northwest New Mexico, perhaps serving as a food storage and redistribution center in a highly uncertain environment. About 1020, the scale of the Chaco region and Chacoan building expanded, eventually encompassing most of the ancient Pueblo world. Contacts with Mexico intensified after Chaco assumed regional pre-eminence.

*Aerial view of Pueblo Bonito. The first official excavations, sponsored by the American Museum of Natural History, with field directors George Pepper and Richard Wetherill, dug here in 1896-1901. Neil Judd directed a major excavation of the rest of Pueblo Bonito through the 1920s. Photo courtesy of Chaco Culture National Historical Park, negative 25462E.*



## The Chaco Synthesis Project

Directed by Stephen H. Lekson, the Chaco Synthesis Project consists of five small working conferences, each focusing on a different aspect of Chaco Canyon archaeology. A “capstone” conference will synthesize the results of these working conferences.

“Economy and Ecology” was organized by R. Gwinn Vivian (Arizona State Museum), Carla VanWest (Statistical Research), and Jeffrey S. Dean (University of Arizona) and held in Tucson at the University of Arizona’s Desert Laboratory. Participants examined how the Chacoan environment (and its changes) influenced the economy in Chaco Canyon. Chaco was a rather simple agricultural society, growing corn, beans, and squash and hunting a range of game animals. How did the desert environment of Chaco support the remarkable construction in the canyon?

“Organization of Production,” arranged by Catherine M. Cameron (University of Colorado, Boulder) and H. Wolcott Toll (Museum of New Mexico), was held at the University of Colorado, Boulder. This conference invited scholars to address the production of items used in everyday life and ritual ceremonies, and how that production was organized. Did Chaco have craft specialists? Factories? A political economy?

“Architecture,” organized by Stephen H. Lekson (University of Colorado, Boulder) and Thomas C. Windes (National Park Service), will be held at the University of New Mexico and at Chaco Canyon in late summer 2000. Preliminary research on Chaco’s famous architecture is already under way and is summarized here.

“Chaco World,” organized by Nancy Mahoney (Arizona State University), Keith Kintigh (Arizona State University), and John Kantner (Georgia State University) and held at Arizona State University in Tempe, examined Chaco’s (apparent) role as a central place, or a kind of capital. Among the participants in this conference were a group of younger scholars who are on the cutting edge of research on the greater Chacoan World—and understandably skeptical of the grand claims of Chacoan regional domination.

“Society and Polity,” led by Linda S. Cordell (University of Colorado, Boulder) and W. James Judge (Fort Lewis College), was held at Fort Lewis College in Durango, Colorado. The nature of Chaco’s government is obviously central to our understanding of the Chaco Phenomenon; yet the social and political structures that shaped the lives of Chacoan people have been remarkably difficult to unravel from the archaeological ruins and artifacts.

Two other conferences will explore the public fascination with Chaco. The first looks at the general attraction of Four Corners’ ruins to writers, poets, artists, and other deeply engaged non-archaeologists. Called “Chaco, Mesa Verde, and the Confrontation with Time,” this conference is organized by Patricia Limerick and Stephen H. Lekson (both University of Colorado, Boulder) and will be held at the Center of the American West at the University of Colorado, Boulder. The second “public” conference will focus more closely on the architecture and landscape of Chaco Canyon. Less technical “popular” books are also planned, along with other public media, to disseminate the results of this effort to the widest possible audience.

Names of all conference participants are listed on page 14. For more information on participants and additional background reading, visit the Center for Desert Archaeology webpage at <<http://www.cdarc.org>>. Ongoing updates on the Chaco Synthesis Project can be found at: <<http://www.colorado.edu/Conferences/chaco>>.

At Chaco’s height in the early-twelfth century, between 2,000 and 5,000 people may have lived in the canyon, though some believe even the lower figure is way too high. A drought, beginning about 1130, coincided with the end of monumental building at Chaco Canyon and the beginning of a second major center, 85 kilometers (50 miles) north of Chaco Canyon, at Aztec Ruins National Monument.

From about 1000 to 1150, Chaco was the “capital” of the Pueblo world. Some scholars believe that Chaco was an economic, political, and fundamentally ceremonial center that transformed many slow centuries of Pueblo village life into a coherent regional system. Chacoan buildings, even in ruins, astonish us with their size, complexity, and beauty. At its height, Chaco was a ceremonial city of unprecedented wonder. Its monumental structures housed rooms full of bright imported feathers, shell, and turquoise, all used in ceremonies staged on a ritual landscape of vast geometric symmetry. Surrounding these immense villages were sophisticated irrigation and water control systems that transformed the dry canyon into a tapestry of corn fields, Great Houses, and monuments.

Events in Chaco Canyon had far-reaching effects, both in its time and in all subsequent Pueblo history. Smaller, less formal versions of the Great Houses of Chaco Canyon were erected all over the Colorado Plateau in the eleventh, twelfth, and even the thirteenth centuries. Acoma and many other Pueblos recall Chaco as the seminal “White House” and regard it as a sacred place. Important Hopi clans originated there. Chaco saw dramatic events—recounted in origin stories—which shaped Pueblo life, society, and religion forever after. The many Navajo people who live all around Chaco today tell stories of the astonishing things that happened there long ago. There was nothing remotely like Chaco in the eleventh- and twelfth-century Southwest. Chaco was epochal.

So much for the hype. Some archaeologists have more modest readings of Chaco, as we shall see. But Chaco Canyon *was* special. The hundreds of archaeologists who have flocked to Chaco over the last century attest to Chaco’s particular fascination. Chaco was evidently so central to Southwestern prehistory, yet so mysterious in the



The crew of the Chaco Project's 1977 excavations at Pueblo Alto. Director Jim Judge is at front right. Photo courtesy of Chaco Culture National Historical Park, negative 24595E.

details of its history, that archaeologists came to call it the "Chaco Phenomenon."

We may never resolve the Chaco Phenomenon. Who built these amazing buildings? How many people lived in this forbidding canyon? How did people survive in Chaco—much less create this astonishing civilization? What effects did Chaco have on the rest of the Southwest? These are only a few of the questions that people who have seen this wonder have asked and tried to answer. Scholars of Southwest archaeology have argued about these issues for decades.

In 1969, the National Park Service embarked on an appropriately large, complex, and ambitious field program to resolve, to decode, and to understand the Chaco Phenomenon. A small working conference of university archaeologists, museum personnel, and National Park Service staff was convened at the School of American Research in Santa Fe, New Mexico. The group defined six research themes: 1) development of agriculture; 2) the rise of Great Houses ("towns" in the terminology of the time); 3) population size, political authority, and agricultural technology; 4) Chaco's rapid development, contrasted to other ancestral Puebloan areas; 5) the interaction of multiple cultural or ethnic groups in the canyon; and 6) the effects of rapid population growth. To address these themes, a long and well-supported series of field projects was proposed, combining ecological and ethnographic research with major archaeological excavations. The project was intended to use state-of-the-art technology, especially aerial photography and "remote sensing." Fieldwork—on a grand scale—was planned to address these themes.

This effort became known as the Chaco Project. It began as a joint program of the National Park Service and

the University of New Mexico in Albuquerque (which had a long history of research in Chaco, in the 1930s and 1940s). Today, the Chaco Project collections and archives reside at the university.

Frances Joan Mathien of the National Park Service is writing the definitive history of the Chaco Project: its research, administration, and accomplishments (she provided much of the information used here). The project was in the field from 1971 to 1982, with smaller field projects and laboratory analyses continuing thereafter. Every inch of the park was examined, and several thousand sites were carefully located, mapped, and recorded. Twenty-five sites were excavated, either partially or fully, culminating in three years' work at Pueblo Alto, one of the major Great Houses. This work produced 1.5 million artifacts, 150 linear shelf-feet of notes and maps, and 40,000 photographs. Twenty technical monographs were issued by the National Park Service, and about 45 scholarly articles, chapters, and books were published. The total cost of the project was about five million dollars, with an additional one million dollars for curation of the artifacts and documents. The Chaco Project was a *really* big undertaking.

There will be no further Chaco research on that scale in our lifetimes. The Chaco Project, however, is not quite complete. A book-length final synthesis of this huge research effort is yet to be written. Chaco is sufficiently complex that there may never be a last word, a "true" reading of Chaco's ancient history—but there should be a single source for researchers, Pueblo people, students, and the public to access and understand the broad and diverse results of the Chaco Project. That compendium does not exist . . . yet.

The National Park Service and the University of Colorado at Boulder have organized the Chaco Synthesis Project (see sidebar on page 3). The synthesis enlists the help of scores of leading Chacoan archaeologists and most of the major Southwestern research institutions. These Chaco specialists (called "insiders" here) are matched with leading archaeologists and scholars in other parts of the world ("outsiders") to bring new perspectives and new ideas to the vast Chaco data.

The ideas and conclusions generated by the working conferences will then be taken to a "capstone" conference that will mix the organizers of each working conference with other Chaco scholars and prominent "outsider" archaeologists to produce a synthesis of Chaco Canyon archaeology. This synthesis will, we hope, summarize the Chaco Project and its massive output, but—if this we can be sure—our synthesis will not "solve" the Chaco Phenomenon. Chaco remains a sacred place for Pueblo and Navajo people, and a mystery for the rest of us to contemplate, enjoy, and learn.

# Economy and Ecology

R. Gwinn Vivian, Arizona State Museum

**H**OW WAS IT POSSIBLE TO BUILD A CITY IN A BARREN DESERT CANYON? Chaco Canyon today has little to offer: hot dry summers, bleak cold winters, a short growing season, no wood for construction or fuel, no flowing streams for drinking or for crops. Was Chaco like that in the tenth and eleventh centuries when the magnificent Great Houses were being built? Mostly, yes; even then, Chaco was not an easy—or even likely—place for such monumental construction.

Archaeologists learn about ancient environments with a number of different tools. The remains of food—animal bones (“fauna”) and vegetable scraps (“flora” or “ethnobotanical” remains)—can be identified. Farming often leaves archaeological traces: dams, canals, and even fields have been located at Chaco, showing us how the ancient peoples managed this unlikely environment. Conserving, diverting, and moving water to crops is called “hydraulic technology.” The types of wood used for construction and fuel can tell us where those trees came from: species that do not grow today at Chaco demonstrate laborious movement of big beams from high mountain forests into the canyon. These clues tell us how Pueblo people adapted and thrived in this seemingly harsh environment.

But what of the environment itself? What was Chaco like a thousand years ago? Our best information comes from two unlikely sources: the nests of packrats and the growth rings of trees. Packrats build nests under cliffs, using almost every kind of plant material within the immediate area. They stack up leaves, twigs, berries, and cones in a remarkably useful “sample” of their environment. They have done so for many thousands of years. Sometimes ancient nests survive intact. These can be dated with radiocarbon analysis, and they provide very useful “snapshots” of the plants that grew at Chaco hundreds of years ago.

Tree-rings, too, can be dated very accurately—to the exact year, in fact. We use tree-ring dating to determine when buildings were built, which we know very accurately at Chaco where thousands of intact roof beams have been recovered. Tree-rings are created by annual growth and annual growth is a direct reflection of rainfall and precipitation. Thus, tree-rings can tell us very accurately how much rain and snow fell every year, back hundreds and hundreds of years. This is called “dendroclimatology.” At Chaco, a desert where rainfall controls the success of farming, dendroclimatology is a remarkably useful insight to ancient conditions. For example, we know that Chaco was as much a desert a thousand years ago as it is now, and we know when particularly severe droughts hit.

The goal of this conference was to examine environmental conditions, subsistence practices, and the history of Chaco’s growth from approximately 850 to 1150. In an arid land, changes in the environment or the development of new agricultural techniques can make the difference between success and failure—or between farming villages and capital cities.

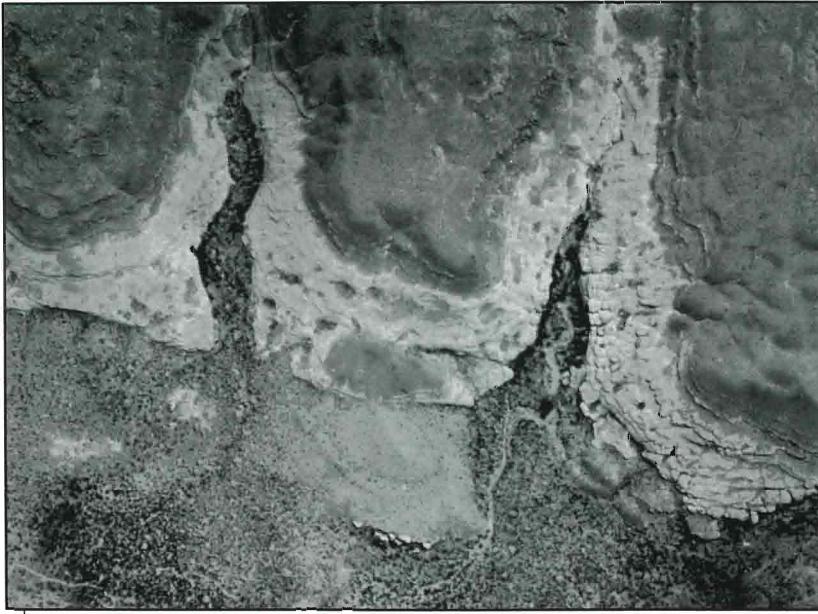
The conference started with a review of the Chacoan economic resource base (fauna, flora, and wood), hydraulic strategies, and agricultural technologies. Animal bones recovered from excavations provide insights into past hunting practices. Smaller animals were always the most numerous, especially cottontails, jackrabbits, and prairie dogs. They probably represent “garden hunting”—taking small game that was attracted to fields and gardens.

Over time, the ancient Chacoans ate more and larger animals—principally pronghorn antelope and deer. The marked increase in pronghorn and deer during the eleventh century probably reflects scheduled communal hunting activities far outside the canyon to compensate for the depletion of locally available game. That strategy appears to have changed after 1150 when mature turkey may have been imported as a food source. Rather than travel miles for a deer, the Chacoans brought in turkeys from the margins of the San Juan Basin. Except for turkeys, birds

were rarely used for food, and carnivores such as bears and mountain lions were never numerous. Overall, animal use in the diet declined during the eleventh century, the period of highest population in the canyon, but increased again, slightly, in the early-twelfth century. There were no obvious differences between small house sites and Great Houses.

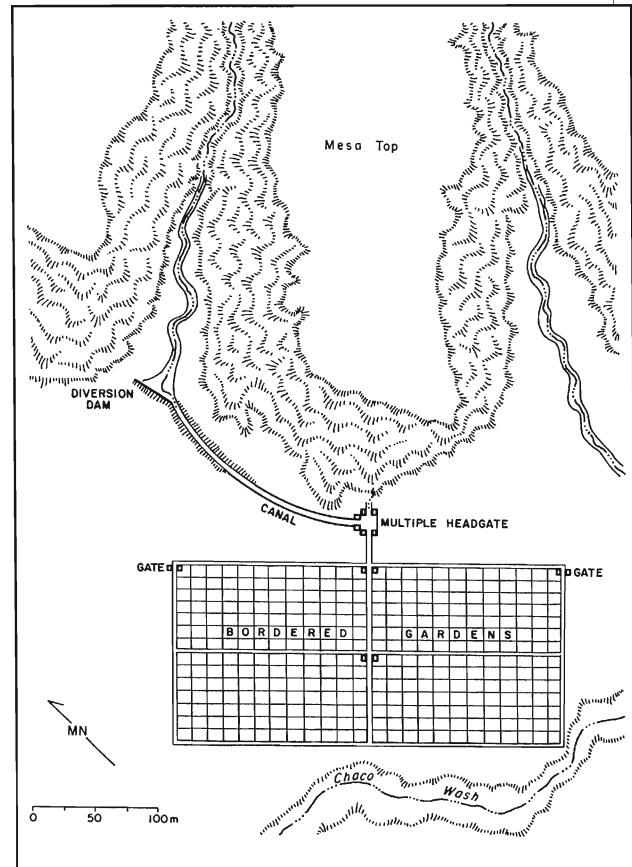
Plants always provided the largest portion of the diet. Corn (maize), beans, and squash were the principal crops, but wild plants were also very important. Over time, the intensity and diversity of plant procurement increased steadily. Initially, corn was most important, but about 900 there was a shift to much greater use of wild perennials and weedy annuals. This same trend was noticed at sites throughout the San Juan Basin. Around 1050, corn returned as the clear primary crop. These changes through time were noted for both small house sites and Great Houses.

Preserved cobs and fragments of corn, the principal crop, tell us much about growing conditions. Fewer kernel rows, shorter cob length, and thinner cob diameter all indicate difficult growing conditions (moisture, temperature, and mineral stress) in addition to genetic affinities (“types” of corn). Number of rows of kernels was highly variable in early corn (circa 600-900), but there was a fairly consistent cob diameter. That pattern reversed after 900. Despite vari-



Aerial photograph and idealized drawing that illustrate how water was harvested from the large side canyons on Chaco Canyon's north side. Stone-lined canals carried the water to field areas where it was distributed over extensive areas of bordered gardens.

Photo and drawing courtesy of R. Gwinn Vivian.



ability within the San Juan Basin, there is notable consistency in row number and cob diameter within the canyon. By 1050, maize from sites in Chaco Canyon tends to sort out into two major patterns. Smaller sites (including smaller Great Houses) have smaller, predominantly 10-rowed cobs while the largest Great Houses in "downtown" Chaco have large, 12-rowed cobs. The very largest Great Houses had "better" corn, but other Great Houses did not. Overall, there is a tendency in Chaco Canyon and throughout the San Juan Basin for decreasing average cob size after circa 1050, suggesting greater difficulties in producing maize.

Wood was always a scarce resource at Chaco, and great quantities were needed for construction and fuel for heat and cooking. Prior to 900, construction wood was predominantly focused on local conifers; some spruce/fir in early Great Houses may have come from greater distances. The pattern of wood procurement changed in the tenth and eleventh centuries as quality beams were increasingly selected from distant sources. The one large sample from a small house site seemed to mirror the more common Great House pattern. By the early 1100s there was a shift back to more local procurement of trees for construction, though the sample is small.

Wood fuel use also showed considerable variation through time. Local conifers were used for heating fuel in early sites, but pressure on local wood resources by the 1000s forced use of smaller shrubs for heating. An increase after 1100 in pinyon and juniper for fuel drew two interpretations. It could indicate importation of firewood, though it is possible that early recognition of impacts on local forests had led to long-term preservation and managed use of some local wood resources.

Chacoans used a variety of farming techniques, and their agricultural technologies developed over time. In addition to dune and dry farming, which leave no structural traces but are presumed to have been practiced in the

canyon, at least three methods of floodwater farming were employed in the Chaco area. These included ak-chin; terraced gardens; and irrigation utilizing diversion dams, ditches, gate complexes, and gridded fields. Terraced gardens were the least common feature, occurring in only one limited area of Chaco Canyon. Ak-chin farms may have been enhanced with low diversion walls. The most complex agricultural system involved a highly consistent pattern of floodwater irrigation from 28 northside drainages in the lower 15 kilometers (9.3 miles) of the canyon; remains of agricultural features were found in 17 of these locations, including two of three major drainages.

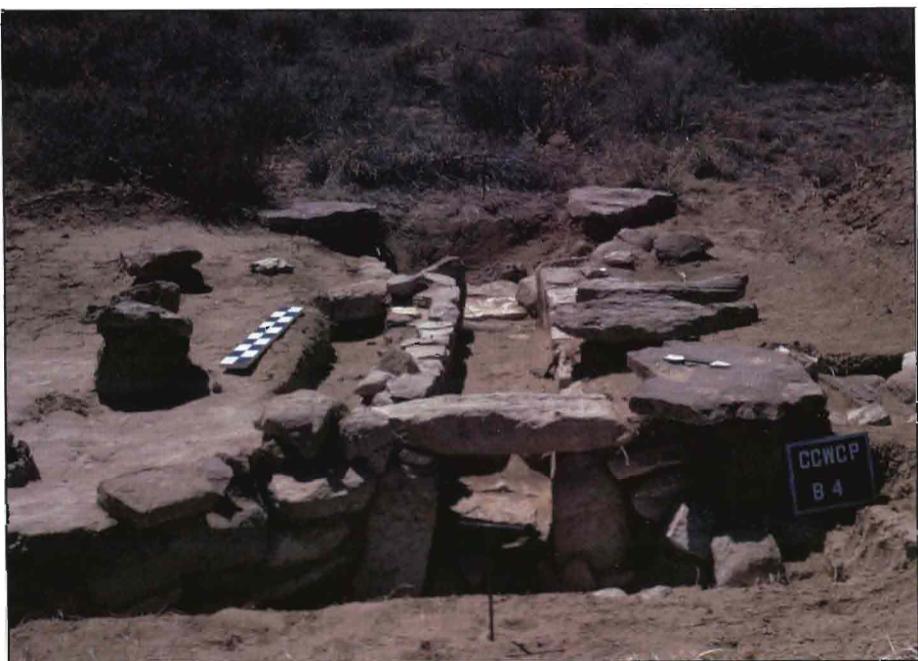
Within Chaco Canyon canal irrigation to gridded fields occurred almost exclusively on the north side of the canyon, where most of the large Great Houses are located. Two southside canyon occurrences were in the vicinity of a Great House (Penasco Blanco) and the isolated Great Kiva, Casa Rinconada. Farming on the south side of the canyon, where small house sites were predominant, was assumed to have involved a mix of ak-chin and dune and other dry

farming techniques. Canal and gridded field irrigation was documented at Kin Bineola and Kin Klizhin outside the canyon, and irrigation from living streams was presumed, but not fully documented, at the Aztec Ruins on the Animas River.

Chacoan irrigation features seemingly were in major use during the eleventh century and presumably could have functioned into the early-twelfth century. Earlier and less durable structures also may have been present. Most systems were marked by relatively consistent rising canal, headgate, and field levels. This suggests that over time there were both greater quantities of water and higher silt loads to recharge the organic content of fields and maintain their viability.

Although agricultural products and tools were essentially the same for Great Houses and small house sites, it is likely that different agricultural strategies were practiced by occupants of these two Chacoan site types. The differences result from hydrological peculiarities in the canyon, the scale of labor pools in Great House versus small house site, and the different types of social groups that lived in the two settlement types.

Agriculture and, ultimately, all Chacoan life depended on rainfall and snowfall. Tree-ring evidence provides a fine-grained paleoenvironmental reconstruction for the Chacoan area to help us understand changes in animal and crop foods and agricultural technology. For the eleventh century, precipitation fluctuated around or slightly above



average values, except for a moderately dry spell between 1030 and 1060. A major drought that was particularly severe in the summer occurred between 1130 and 1180 and would have seriously impacted farming dependent on runoff from summer storms. A preliminary chart of changes in rainfall, floral, faunal, and agricultural data suggested some interesting correlations. For example, a shift to increased use of deer occurs at the same time gridded gardens first appear. Plotting change through time for a wide range of environmental and economic information is still ongoing.

*Above: Stone-lined canal and headgate system that delivered water to a gridded garden. Below: Hopi bean field planted in sand dunes. The rows of brush set in the sand serve as a windbreak to protect the plants. Similar fields are inferred to have been present within portions of Chaco Canyon. Both photos courtesy of R. Givinn Vivian.*



# Organization of Production

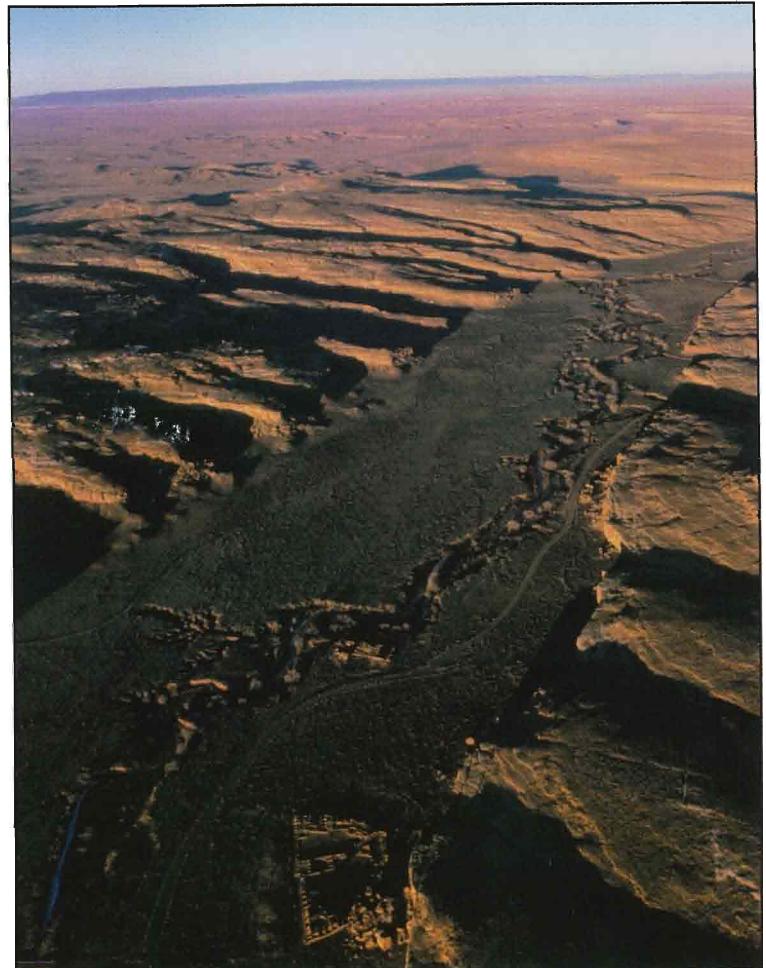
Catherine M. Cameron, University of Colorado, Boulder,  
and H. Wolcott Toll, Museum of New Mexico

**E**ARLY EXCAVATIONS AT CHACO around the turn of the century produced astonishing finds: thousands of turquoise beads and pendants, scores of unique cylindrical pots, copper bells and tropical birds from Mexico, caches of ceremonial objects, and beautifully crafted stone tools. The Chaco Project found a number of spectacular artifacts, but most of what we know about Chaco comes from broken fragments of pottery and stone tools. The Chaco Project recovered only a few intact pots and arrow points. Potsherds and stone flakes were recovered by the Chaco Project in huge numbers, carefully screened from the soil of ancient middens. These fragments come from rubbish, but they contain remarkable information on how craft manufacture was organized, how objects were traded, and who had access to what.

Not all stone, for example, is equally useful for making tools. In fact, the most easily worked stones were highly prized, and were transported by trade or by special expeditions over long distances. Obsidian, a black volcanic "glass" that was easily shaped and very sharp, was brought to Chaco from a number of different sources or quarries. These sources were discovered by the chemical analysis of obsidian flakes. Cherts and other useful stones were imported in even higher quantities than obsidian from all around the Chacoan region.

Everyday kitchen pottery, too, has much to tell us. Potsherds often contain temper—tiny stone fragments intentionally added to the clay to strengthen the pot while it is being constructed—and that temper can sometimes be identified geologically to determine its origin or source. One particular temper originated in a particular geologic formation in the Chuska Mountains; during some periods, more than half of the pottery at Pueblo Alto was made with this easily recognized mineral. Does the Chuska Valley temper mean that pottery was made there, or that the temper material was brought to Chaco? Probably the former: it seems likely that many hundreds of pots were made in the Chuska Valley and then brought, on people's backs, to Chaco. Insights like these tell us much about the organization of production.

Above right: Pueblo Bonito, Pueblo del Arroyo, and the Chuska Mountains to the west in the distant background.  
Photo courtesy of Adriel Heisey.



This conference first reviewed individual ideas about the Chacoan regional system and its economy, the household and community organization of production, and the nature of Chaco's political economy. The participants then focused on the production and distribution of several key classes of artifacts found in Chaco: ceramics, flaked stone, turquoise, and construction timber.

We agreed that Chaco was a place for communal ceremonial events, including building Great Houses—as much ritual acts as they were architecture. We argued about the meaning of these events. Some saw Chaco as a place of ceremony and ceremonial deposition of goods, a "location of high devotional expression." Others suggested that Chaco was a "corporate chiefdom" in which leaders gathered goods from commoners to support large public rituals or construction projects, like Great Houses, Great Kivas, and roads. These goods would have included food and everyday goods, acquired and distributed to support the large communal events—including building activities.

There must have been leaders in Chaco, to organize the construction of Great Houses and roads, but their status was

not highly marked—no kings, no queens. Indeed, the power of Chacoan leaders may have been situational, emerging only in the context of various different communal activities. Production of most artifacts and goods was probably household based, although there may have been specialization in the production of some goods, such as certain types of ceramics and turquoise ornaments. The kin-based nature of production was probably matrilineal—as in modern Pueblos—which might have enhanced the regional mobility of males. That is, men may have married out of their villages all over the large Chacoan region. Corporate leaders may have encouraged widespread production of important religious or ceremonial goods as support for communal activities. Turquoise ornaments, for example, were *produced* at the household level, but *consumed* in ceremonial contexts in Great Houses. There was little evidence of elite control of the production of special goods: no palace workshops or factories. Although wealth was probably important at communal events, “prestige goods”—goods imported a great distance, such as copper bells or macaws from Mexico—were probably of minor significance.

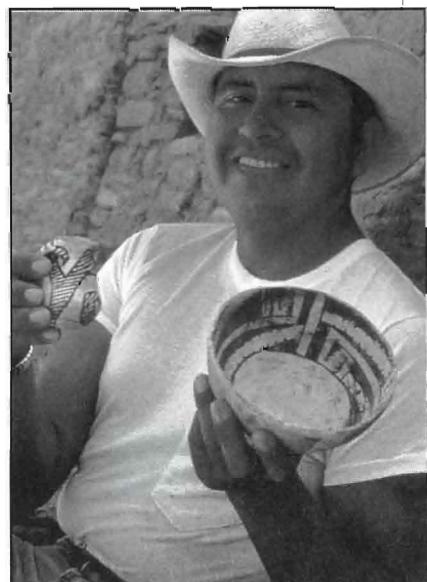
Pottery (perhaps the most famous and frequent Southwestern artifact) does not suggest political power or control of production. Although there are some very interesting specialized vessel forms, such as the famous cylindrical vases from Pueblo Bonito, there is little evidence of pottery specialization beyond the community level. There was, in some cases, however, long-distance movement of large quantities of pots. At Pueblo Alto, much of the pottery was made in the Chuska Mountains and not in Chaco. Pots were imported in smaller quantities from other areas as well. Flakeable stone—used for arrow points, drills, knives, and other tools—was imported from around the fringes of the San Juan Basin. The quantities and characteristics of flakeable stone at Chaco support the idea of periodic gatherings—communal ritual—in Chaco Canyon. While most flaked stone seems to have been procured and manufactured at the household level, large quantities of Narbona Pass chert from the Chuska Mountains suggest that this material, like pottery, was sometimes imported in bulk.

Turquoise, one of the hallmarks of Chaco and still a ritually important gemstone for Pueblo peoples, was processed and manufactured on the household level, but its use and consumption were largely ceremonial. Thousands of pieces of finished turquoise were found at Chaco; most of these were found in Great Houses, usually in ceremonial or burial contexts.

Forests were far distant from the desert canyon; as a result, wood was almost as rare as turquoise. Wood use at Chaco Canyon became increasingly structured and scheduled during the height of the building boom in Chaco, from 1020 to 1100. Hundreds of thousands of trees were required simply to build the Great Houses, much less the

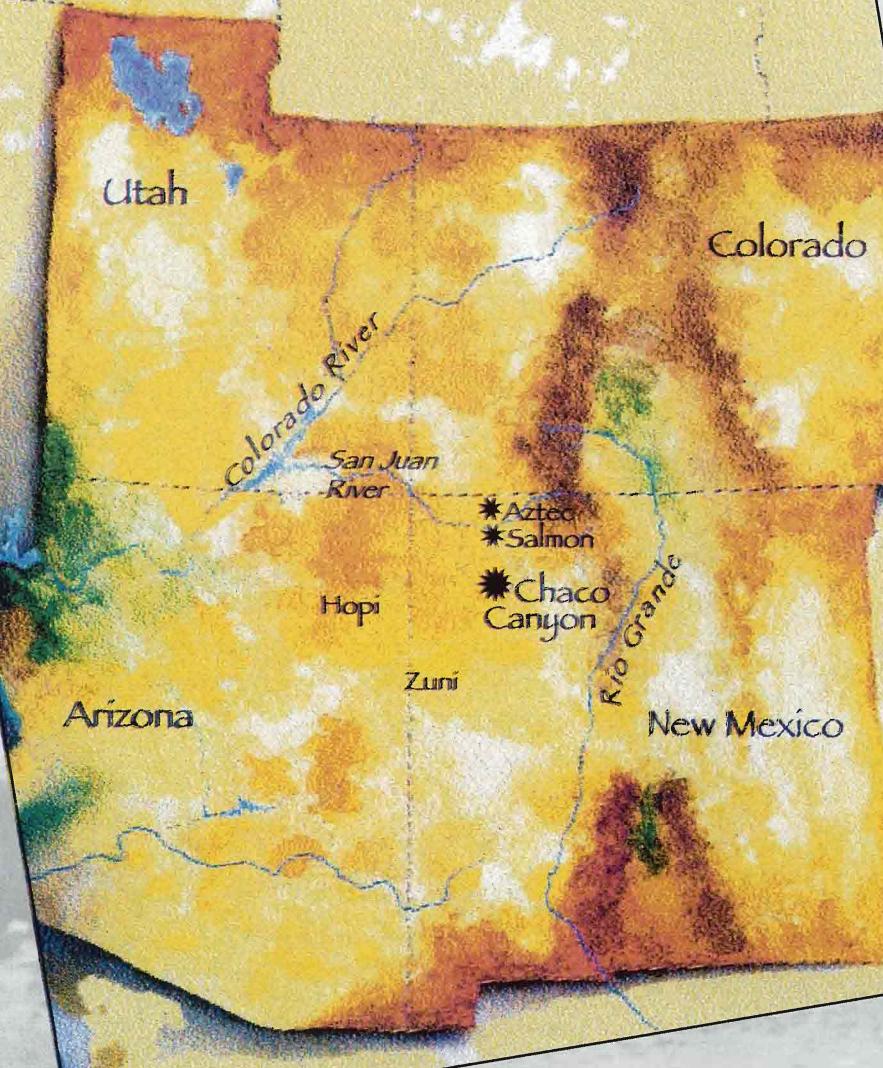
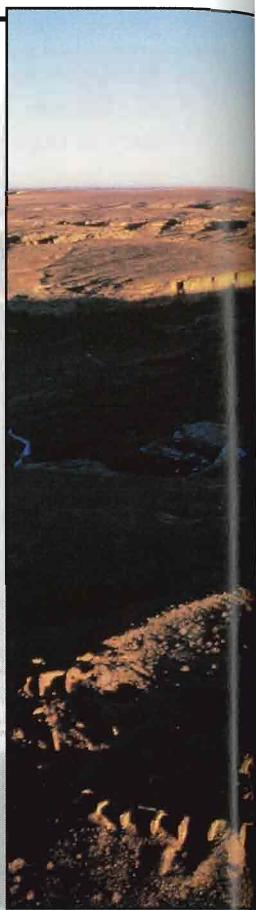


Above: Late black-on-white bowl found at Pueblo Alto during the Chaco Project excavations. Photo courtesy of the Chaco Culture National Historical Park, negative 15390. Right: Amos Hasuse holds two ceramic vessels found in Room 110 by the Chaco Project during excavation of Pueblo Alto. Photo courtesy of Stephen Lekson.

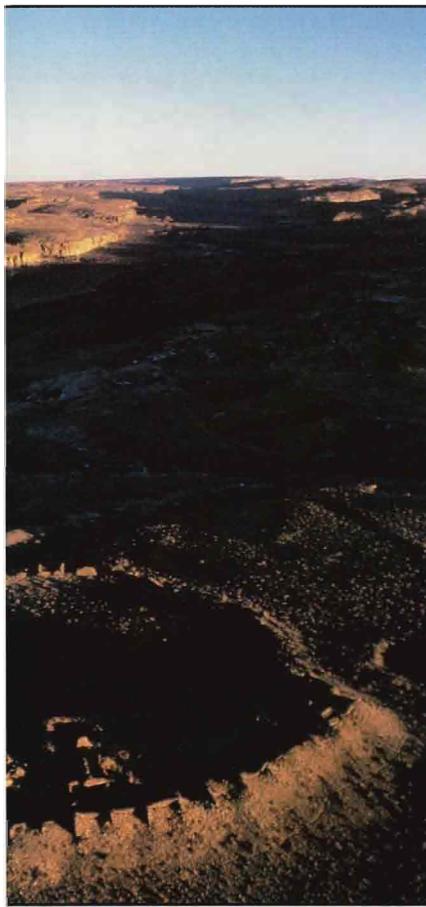


hundreds of other buildings in Chaco. However, this demand may not have required a timber industry. Small, periodic tree harvests could have been handled by relatively small numbers of laborers. Tree harvester may actually have been residents of the Chuska Valley below the heavily forested Chuska Mountains.

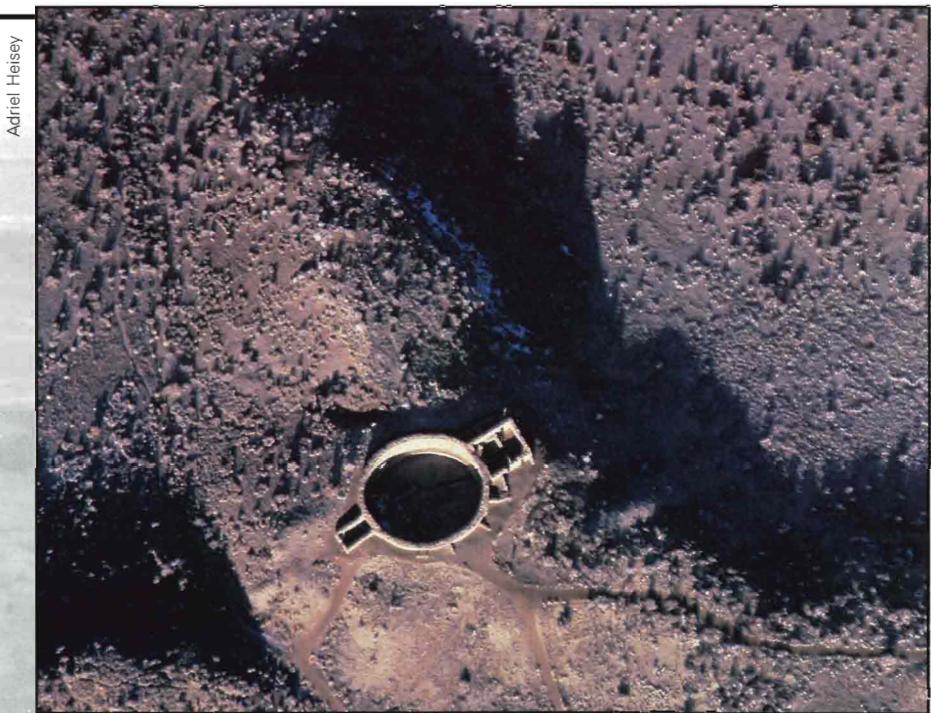
In summary, Chaco Canyon was a place where communal ceremonial events were held and the construction of Great Houses was part of those scheduled communal activities. Goods were imported either for ceremonial deposition into Great Houses or as part of the finance of a corporate chiefdom, integrated by ritual. Production was accomplished mainly at the household level, but there was household or regional specialization in the production of some goods, such as turquoise and some types of ceramics. Chaco Canyon had a special relationship with the Chuska Mountains and some production activities, such as wood procurement, may have been performed by Chuska residents.



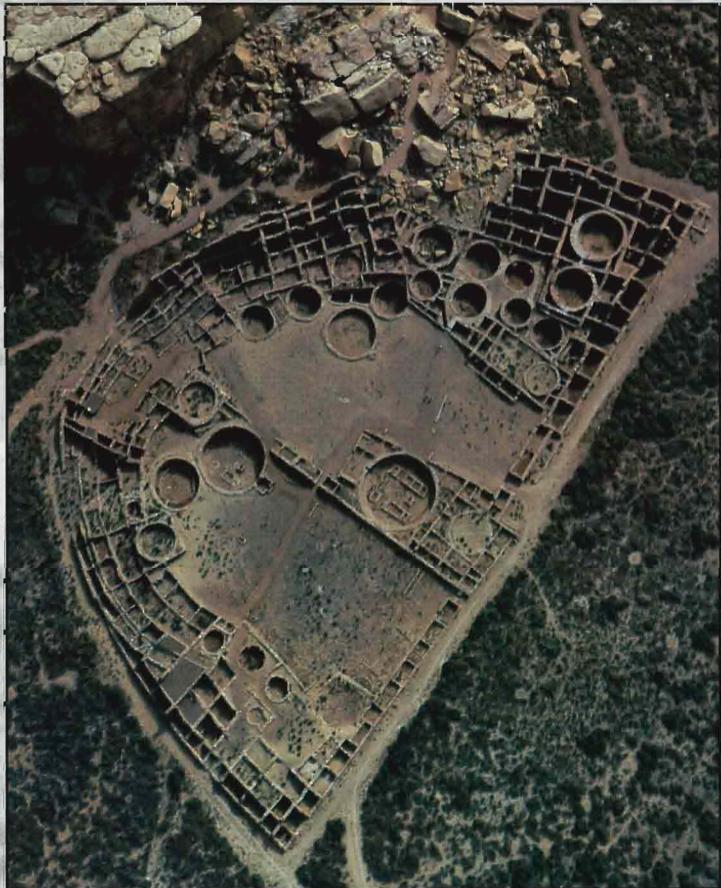
Pueblo Bon



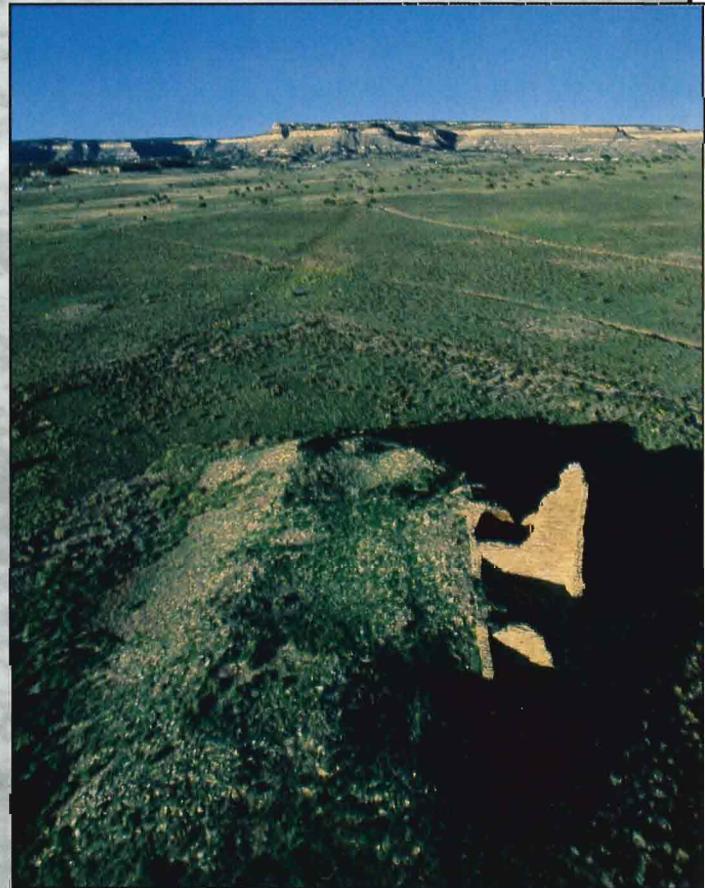
Penasco Blanco



Casa Rinconada



Outlier Kin Ya'a. Road extends toward mesa.



# Architecture

Stephen H. Lekson, University of Colorado, Boulder

**A**RCHITECTURE IS THE “PRINCIPAL FACT” OF CHACO CANYON. It was Chaco’s astonishing ruins that first attracted archaeological attention to the canyon in the 1890s. Pueblo Bonito has 650 rooms; even in ruin, it stood five stories tall. And Chetro Ketl, a stone’s throw away, was equally large and impressive. The more the early explorers looked, the more they found—a dozen huge buildings in the canyon bottom, more perched atop the bleak wind-swept mesas, and hundreds of smaller ruins dotted almost every low hill or terrace along Chaco Wash.

The first excavations at Pueblo Bonito produced wonderful artifacts. Excavations at Pueblo del Arroyo, Chetro Ketl, Kin Kletso, and—much later, Pueblo Alto—were frustrating because these ruins did not produce the huge quantities of turquoise, the exotic Mexican artifacts, and the remarkable caches of ceremonial objects that had been found at Pueblo Bonito. But the buildings themselves were recompense for the hot, hard labor of hauling away tons of rubble and collapsed roofs to expose labyrinthian rooms, hallways, and kivas.

Chetro Ketl provides a good example. Despite Chetro Ketl’s reputation as an archaeological “dry hole” (few spectacular artifacts, compared to nearby Pueblo Bonito), teams of students from the University of New Mexico returned, summer after summer, to excavate and clear its awesome architecture. Chetro Ketl was a gigantic building, almost as big as Pueblo Bonito, and also reached five stories along its tall rear wall. A huge Great Kiva was prominent within its plaza; the plaza itself was artificially raised at least ten feet above the natural floodplain. Along the public, most prominent wall facing that plaza, ancient builders had constructed a monumental colonnade, modeled on similar public colonnades in Tula and other central Mexican cities, far to the south. The Chetro Ketl colonnade was the only such feature known in the eleventh- and

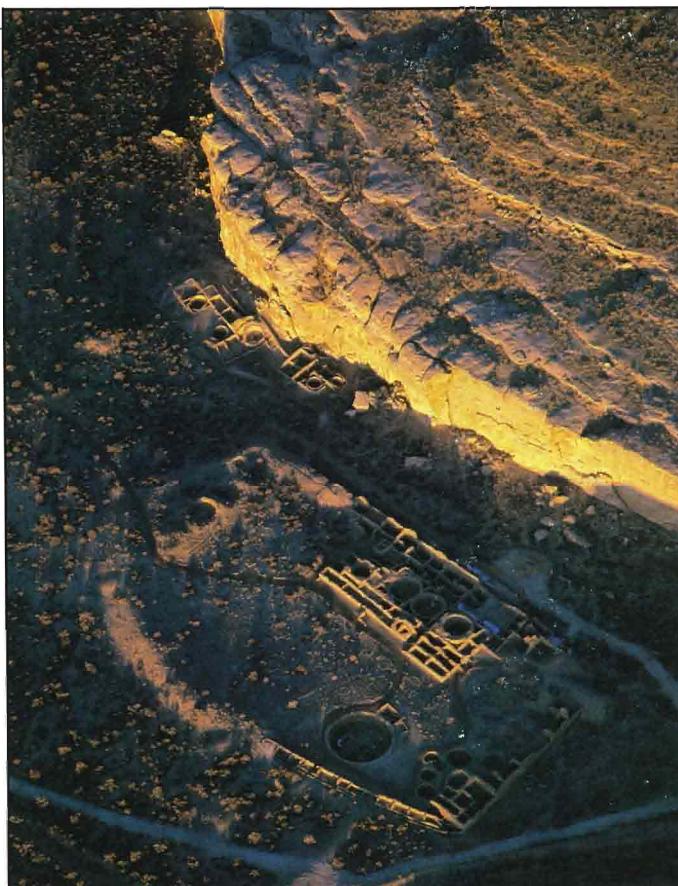
*Pueblo Bonito in 1920 before Neil Judd began excavation and stabilization. Photo by Charles Martin, 1920.*



twelfth-century Southwest. A suite of "roads" ran from Chetro Ketl to massive masonry ramps and elaborate wooden stairs, mounting the cliffs behind the huge building. From atop those cliffs, viewers ancient and modern have seen that the Great Houses were designed with great geometric formality. Pueblo Bonito and Chetro Ketl are giant "Ds," one oriented north and the other south. The shape of the buildings was clearly a major design factor, to be appreciated and understood only from the cliffs above.

And the cliffs are still a favorite viewpoint. Chaco's artifacts are housed in distant museums, but the buildings themselves draw more and more fascinated visitors to remote Chaco Canyon. Even today, the trip is arduous, but few who make it are disappointed. The ruins of Chaco Canyon are quantitatively and qualitatively different than any other pre-Columbian sites in the United States. Pueblo Bonito and Chetro Ketl established Chaco as an architectural marvel.

Indeed, Chaco is where the idea of a ruin as an "exhibit in place" was first undertaken in the United States. Left alone, an excavated site will inevitably crumble back into ruin. After excavation, ruins were stabilized to solidify the fragile ruins for decades and decades of public use and enjoyment. Ruins stabilization does not reconstruct buildings, but, instead, minimally treats walls to prevent deterioration. Chacoan masonry was massive and well-crafted, but the mortar was local mud. When that mud is exposed to rain and snow, the walls (missing their original protective roofs) must collapse. An exposed wall can be "capped" with a few layers of stone set in an impervious soil-cement, to prevent rain from attacking the structure from the exposed top. The magnificent Chacoan masonry patterns can be "repointed" with small amounts



*Top: Aerial view of Chetro Ketl. Photo courtesy of Adriel Heisey. Below: Chaco Project excavations at a small site in 1976. Photo courtesy of Stephen H. Lekson.*



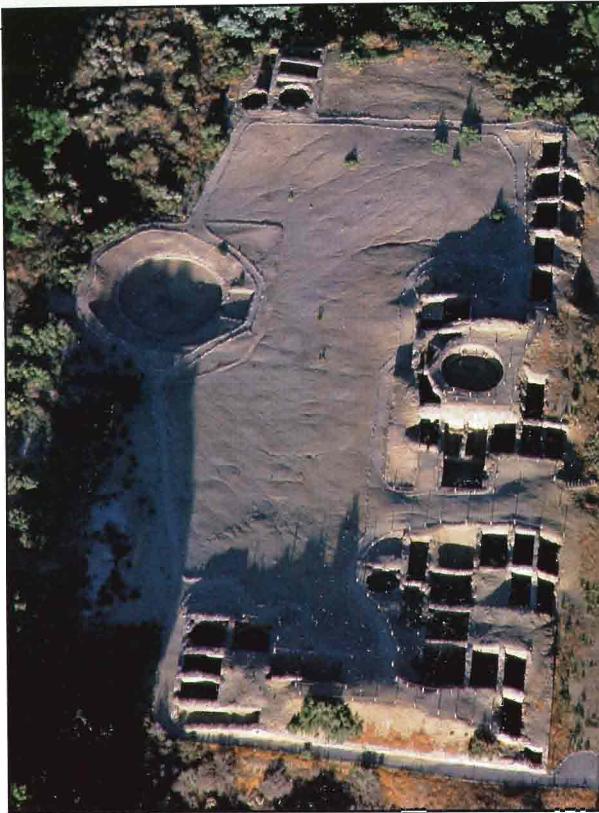
of soil-cement carefully inserted between stones, where the mud mortar is exposed, to keep rain and snow from seeping in through the wall's face. Even sandstone wears out and, sometimes, eroded stones must be chiseled out and replaced. These and other techniques keep exposed walls standing without altering their original appearance, but ruins stabilization is a constant effort. Each year, the winter's damage must be assessed and corrected.

Neil Judd, from the Smithsonian Institution, was the excavator of Pueblo Bonito and an early pioneer of "ruins stabilization." Slightly later, Edgar Hewett (a remarkable popularizer of Southwestern archaeology) and his colleagues from the Museum of New Mexico

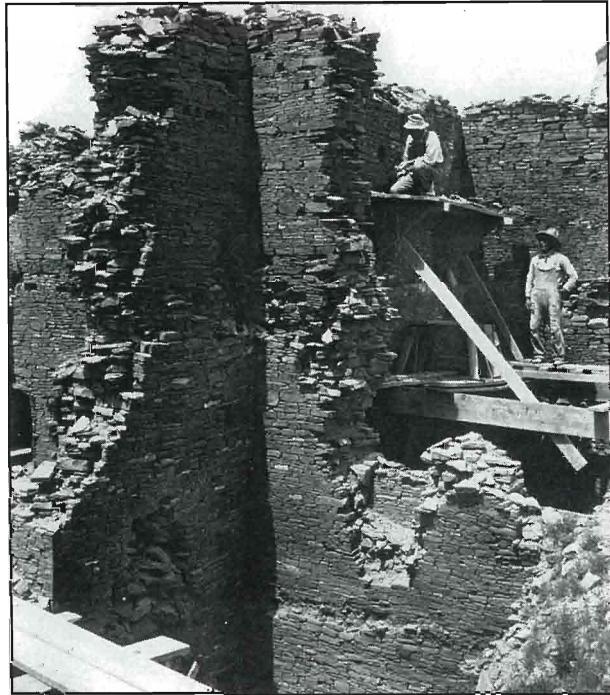
demonstrated remarkable ingenuity in bracing a series of kivas, built one over the other, exposed during excavations at Chetro Ketl. Today, sixty years later, the ingenious field engineering still holds fast, and visitors marvel at huge kivas stacked like pancakes, free of the earth and rubble that supported them in ancient times. Later, the National Park Service's Ruins Stabilization Unit was based at Chaco, and developed many of the standard practices and techniques in the very specialized field of ruins stabilization.

When the Chaco project excavated Pueblo Alto in the 1970s, the park's stabilization crew worked alongside the archaeologists, preserving what was exposed. These men came from local Navajo communities around the park.

Many had worked for the park, restoring the fragile masonry of the ruins, for many years. Some had learned their craft from fathers or uncles who had worked on these same ruins in decades past. These craftsmen are vanishing treasures. Science can provide better mortars and engineering analyses, but masonry skills cannot be taught from studies or



*Left: Salmon Ruin, a major outlying Chacoan Great House. Note Great Kiva at left and elevated kiva at right. Photo courtesy of Adriel Heisey. Below: Neil Judd's stabilization crew working on a third-story room at Pueblo Bonito during the 1920s. Photo by Neil Judd, 1921.*



textbooks. Masonry skills must be learned through long apprenticeships and, with urban opportunities luring young Navajo people away from the Chaco area, there may not be a “next generation” of Chaco masons to care for ruins. That would be a loss to the national heritage and Pueblo history, but also to the Navajo people since Chaco’s ruins figure prominently in several Navajo origin myths.

The buildings are undeniably Pueblo—indeed, Chaco is where the Pueblo style of massed, terraced rooms around a plaza first began. Pueblo people know these buildings best, and Chaco figures prominently in the traditional histories of Pueblos from Hopi to the Rio Grande. But other cultures can contribute to the appreciation of Chacoan building, and add new perspectives to its architectural wonder. The Navajo tell compelling stories about the “Great Gambler” who ruled all the tribes around Chaco from his palace at Pueblo Alto—a story recalling long distant history? Archaeologists, another “culture” alien to Chaco, but equally fascinated by it, analyze the buildings for labor costs, solar adaptations, astronomical alignments,

and architectural patterns of rooms and suites to decode the social and political structure of their ancient residents.

One perspective that archaeology brings to Chaco is a global comparison, for archaeology is the study of ancient peoples everywhere, not only in the Southwest. The Chaco Synthesis Project is compiling information on monumental constructions in nonindustrial societies around the globe, to better understand Chaco as one of many examples of human achievement. Chaco was not the pyramids of Egypt, nor was it Stonehenge. But, with additional studies, it has become increasingly clear that Chaco *was* special, unusual, even unique among the world’s societies. We are having trouble finding parallels in the Old World or the New. Eventually, to be sure, the cross-cultural study will allow us to “contextualize” Chaco among the world’s many architectural achievements, but we may have to create a new category for Chaco’s Great Houses.

## *Participants in Chaco Synthesis Project Conferences*

**Ecology and Economy:** R. Gwinn Vivian, Carla VanWest, Jeffrey S. Dean, Nancy Akins, Julio Betancourt, William Doolittle, Brian Fagan, Enrique Salmon, Mollie Toll, and “Butch” Wilson. **Organization of Production:** Catherine M. Cameron, H. Wolcott Toll, Timothy Earle, Melissa Hagstrum, Peter J. McKenna, Peter Peregrine, and Lord Colin Renfrew. **Chaco World:** Nancy Mahoney, Keith Kintigh, John Kantner, David Anderson, Roger Anyon, David Doyel, Dennis Gilpin, Sarah Herr, Winston Hurst, James Kendrick, Timothy Pauketat, Kathy Roler, Sarah Schlanger, and Ruth Van Dyke. **Society and Polity:** Linda S. Cordell, W. James Judge, Nancy Mahoney, Mark Varien, John A. Ware, Henry T. Wright, and Norman Yoffee. Also attending most conferences were Karin Burd, Dabney Ford, Michael Larkin, Stephen H. Lekson, Frances Joan Mathien, Robert Powers, and Thomas C. Windes. Note: **Bold** text indicates conference organizers.

# Chaco World

Nancy Mahoney, Arizona State University

**C**HACO IS OFTEN CALLED A "CENTER"—a ceremonial center, political center, even an economic center. Center of what? Chaco had a region or hinterland of smaller settlements. Typically, these had, at their center, a small Great House, constructed much like Pueblo Bonito and Chetro Ketl in Chaco Canyon, but a fraction of their huge size. Some archaeologists call these buildings "outliers," implying that they are distant outposts of Chaco; other archaeologists think the label "outlier" assumes a political relationship that may not have existed.

Near most Great Houses was a Great Kiva and, often, segments of mysterious Chacoan "roads." In most cases, ten to a hundred small family houses were clustered around the central Great House complex. The combination of Great House, Great Kiva, road segments, and the surrounding small family houses forms a unit that archaeologists call a "community." In areas of dense population, it is sometimes hard to determine where one community ends and another begins.

The combination of Great House, Great Kiva, roads, and communities formed a repeated pattern over much of the Colorado Plateau, from the San Juan Mountains on the north to the Mogollon Rim on the south, and from Rio Puerco on the east to the Hopi Mesas on the west—an area about the size of Ireland. But what was the nature of that region? Some archaeologists argue that it was an empire, dominated militarily by Chaco. Others suggest that Chaco was more a ceremonial "capital"—like Vatican City or Mecca. Still other archaeologists suggest that Chaco was an economic node, a place for the exchange and redistribution of food and other goods. According to a few archaeologists, Chaco was not a center at all. They argue that the pattern of Great House and Great Kiva was universal among ancient Pueblo peoples, and Chaco was simply an unusually large version of that widespread pattern.

The Chaco Project conducted its research largely within the boundaries of the national park. A small crew was dispatched to find and record "outliers," but most research on the Chacoan region comes from archaeologists outside the Chaco Project. Excavations by Cynthia Irwin-Williams at Salmon Ruin produced a remarkable set of data from a very large Great House about 45 miles north of Chaco. Field surveys by a number of institutions located and mapped many more Great Houses. Many younger scholars, with a healthy skepticism of models of the "Chacoan regional system" or the "Chaco Phenomenon" that focused narrowly in the canyon itself, have decided to conduct research at Great Houses within Chaco's region, to see what those buildings really were.

A main goal of this conference was to produce a complete map of Chaco-period Great Houses throughout the Southwest. Participants reviewed original records and updated information on all Great House communities occupied between 900 and 1150. Detailed data on architecture, chronology, artifacts, and information source were recorded and entered into a centralized database. The database, at Arizona State University, now lists over 200 Great Houses.

Although there was considerable discussion about the variability of Great Houses, we agreed that these structures can be recognized as visually notable features on the landscape, possessing one or more of the following: core/veneer or banded masonry, unusually large and tall rooms, geometric

## Expanding Cultural Perspectives

Stephen H. Lekson

**N**ATIVE AMERICAN participation has been encouraged at each conference, and will play a major role in the capstone efforts. The Chaco Project, however, reflected its times: archaeological research in the 1970s did not incorporate native peoples, unlike today. Native perspectives were all but absent from almost every Southwestern archaeological project in the 1960s and 70s. That was then, this is now.

We began the Chaco synthesis with the idea that native scholars and intellectuals would be integral to every aspect of the program. This goal was complicated by another development, new since the Chaco Project: the Native American Grave Protection and Repatriation Act (NAGPRA). This Federal law, passed in 1990, gives native peoples much greater control over archaeological collections and operations. We, and most other archaeologists, support NAGPRA and recognize it as a long-overdue correction of a historical wrong. In this case, however, an intertribal NAGPRA dispute has made the full integration of native perspectives in the Chaco synthesis much more difficult.

A key tenet of NAGPRA is the identification of the "cultural affiliation" of ruins and collections: which groups are descended from the ancient peoples? In the case of Chaco, several groups claim the canyon and there has been, as yet, no resolution of this contentious issue. The Chaco Synthesis Project cannot short-cut NAGPRA. We cannot make (nor would we wish to make) an independent judgment on this very important issue. So native peoples are participating in conferences as experts or artists or distinguished voices in their fields, and not as tribal representatives. We hope that NAGPRA issues will no longer limit Native American participation when the final synthesis takes place.

ground plans, blocked-in kivas, plazas, earthen berms, Great Kivas, or roads. A detailed examination of architectural attributes from 61 Great Houses revealed only a few outlying Great Houses that exhibit characteristics suggestive of “directed” Chacoan construction. Instead, outlying Great Houses exhibit a continuum of architectural similarity to Chaco Canyon Great Houses. The variability among outliers probably reflects fundamentally local, rather than Chaco-directed, processes.

What was the function of Great Houses? Were they used primarily as residences or for ritual? Only a few outlying Great Houses, such as Salmon and Aztec, began as massive, planned structures like those in Chaco Canyon. Reports from several completely excavated Great Houses suggest that many started out as four- to ten-room

structures with exceptionally large, core/veneer masonry rooms. These early Great House structures lacked fire hearths, mealng bins, and other “furniture” necessary for daily life-and they were substantially different from typical residential sites. Great Houses were probably used as meeting and/or storage buildings. Many Great Houses were remodeled and expanded after the initial construction phase, apparently to create residential space. Large rooms were subdivided, kivas and hearths were added, and smaller rooms of simple or compound masonry were tacked on the original structure with less regard for symmetry.

The residential/ritual dichotomy remains unresolved. The difficulty in reaching a single conclusion might be due, in part, to the fluidity between secular and religious modes. For example, in modern Pueblos the function of rooms and/or buildings can change frequently depending on the context of use.

Detailed comparisons between artifact assemblages from Great Houses and associated residential sites (“unit pueblos”) should tell us something about the functions of Great Houses. Domestic artifacts are abundant in Great Houses, but subtle differences in faunal, ceramic, and lithic assemblages may suggest ceremonial activities, such as feasting, occurred at Great Houses. At present, there is no evidence that specialized production occurred at outlying Great Houses. Furthermore, it appears that trade items or



*Aztec Ruin, a major outlying Chacoan Great House. Excavated by Earl H. Morris between 1916 and 1921 for the American Museum of Natural History. The Great Kiva was reconstructed by Morris in 1934. Photograph courtesy of Adriel Heisey.*

high-status goods are only slightly more abundant at outlying Great Houses than at their associated residential sites. The quantities of long-distance exchange items were low, which suggests that control over their trade, manufacture, or distribution probably did not serve as a significant source of power for aspiring leaders. Based on the scant evidence for violence or warfare at Chacoan sites, the group also agreed that coercive force was not an integral part of Chacoan society.

The Chacoan community needs rethinking. The tight “package” of Great House and residential sites, seen at sites like Bis sa’ani, is far harder to define in the valley of the Puerco of the West, where one community grades continuously into another, and Great Houses are closely spaced. At least six types of Chaco-period

communities can be distinguished: 1) dispersed settlements around a Great House; 2) clustered settlements around a Great House; 3) dispersed settlements around a Great Kiva without a Great House; 4) clustered settlements around a Great Kiva without a Great House; 5) dispersed settlements without public architecture; and 6) clustered settlements with no public architecture. Chaco-era communities lacking Great Houses may represent “internal frontiers,” or examples of resistance to the Chaco experience. The memorable image of “blinking Christmas lights” was used to suggest that Chacoan settlements may represent sequential, short-lived occupations, as neighboring elites competed for constituents, not unlike Mississippian chiefdoms in the eastern United States.

Given the great variability in Chacoan “communities,” were they really a social unit? Given that clan or religious society (sodality) memberships figure more prominently in oral histories and in contemporary conceptions of identity among Pueblo people, we questioned whether the community was an important component of social identity in the past. In addition, the impact of seasonal or annual economic movements and of directed migrations on social organization has been under-appreciated in our models of ancient communities. Most, however, agreed that there was some validity to the concept of

*Pueblo del Arroyo was excavated by Neil Judd during the 1920s at the same time that Pueblo Bonito was being excavated. Photograph courtesy of Adriel Heisey.*

a community identity in the past, if only as “ancestral environments”—places visited and revisited for residence and ceremony. Physical links between Great Houses and Great Kivas built during different eras were often accomplished by “roads.” This curious circumstance was not uncommon in the Chacoan regions and can be interpreted as conscious statements about social histories of important places that we today call “communities.”

Participants were especially interested in the suggestion that Great Kivas were not associated with Great Houses until after 1050 throughout most of the Chacoan world. Great Kivas predate Great Houses by at least two, and perhaps as many as five, centuries. Some participants proposed that Chacoan leaders co-opted this ancient, communal ceremonial system to legitimize their authority. Others suggested the Great House/Great Kiva association represents the convergence of katsina-style religion with ceremonies associated with clans, sodalities, or priesthoods.

Different ideas were proposed for the rise of the Chacoan system. Based on the presence of several early-tenth-century Great Houses both inside and outside Chaco Canyon, most participants agreed that Chaco probably did not become a “center” until the late-tenth or early-eleventh century. Many agreed that Chaco’s emergence as a central place was a historical process that could not have been predicted by ecological or economic models. However, once Chaco became an established center of ritual and other activity, people from increasingly distant locales were attracted to what was going on and elected to participate in different ways, possibly for different reasons.

All agreed Chaco became a center for periodic pilgrimages by groups throughout the Colorado Plateau. Several ideas were presented to account for how such a large regional pattern could have come about without centralized controls. Incipient leaders may have recognized the uncertainty of their precarious environment and, through “mutual legitimization,” sought economic benefits by “providing a developed ideological infrastructure to outlying communities in return for the material



goods that outlying leaders could supply.” Or Chaco may have been a center for converging ritual traditions on a multi-ethnic, multilingual landscape, in which Great Houses were used for exclusive ceremonies by clans and/or sodalities, and Great Kivas were places for inclusive, katsina-style ritual performance. Another proposal was that outlying Great Houses were constructed by corporate households who emulated Chacoan symbolism in efforts to compete for resources in an increasingly populated landscape.

Each position stresses a fundamental dynamic between local and regional processes, but emphasizes different roles for leaders and different motivations for constructing Great Houses. Future research projects need to identify archaeological criteria necessary to distinguish between three models of Chacoan leadership: leaders that use ritual to legitimize coercive power and/or control over material resources; ritual leaders who obtain economic privileges because of their status; and leaders whose power or authority is situational, and rooted mainly in the ritual context. By the end of the conference, there seemed to be a consensus that Chaco was a participatory “experience” marked by the construction of Chaco-style architecture, rather than a system defined by regular interaction, economic interdependence, or political hegemony. We dropped the terms “system” and “phenomenon” in favor of the “Chaco Experience” to describe the eleventh- and twelfth-century cultural developments in the northern Southwest.

# Society and Polity

Linda S. Cordell, University of Colorado, Boulder, and W. James Judge, Fort Lewis College

**W**HAT SORT OF SOCIETY WAS CHACO? Do modern Pueblo villages provide a good model? Modern Pueblo Indian societies are deeply traditional, good stewards of their environment, and averse to personal power or wealth. Although individuals can excel as craftsmen, farmers, artists, poets, or athletes, the success of the community is far more important than the success of any one person. Pueblos have governments (parallel traditional and public governments), but those leaders do not benefit from their offices. Indeed, appointment to a position of power within a Pueblo often costs the officeholder who must support feasts and other communal obligations. Archaeologists call that kind of society "egalitarian."

How would an egalitarian society show up, archaeologically? Archaeologists measure social position and political power in a number of ways. Housing is one such measure: kings and queens live in palaces. If we find a palace, we can infer a king or queen. A Pueblo town does not include palaces. Traditional Pueblo building practices created blocks of "apartments" that were, at least initially, identical. The equality of Puebloan society was quite visible in their architecture. But what were the Great Houses of Chaco Canyon? They are notably different—larger, more formal, and far more costly to construct—than the family homes that constitute 99 percent of eleventh-century Pueblo architecture. The multiple rooms of a typical family "apartment" would fit into a single room of Pueblo Bonito.

If the Chaco Canyon Great Houses were residences, were their occupants as different from the rest of the population as their houses were? Many archaeologists believe that Great House residents represent a social class not seen in modern Pueblos: a social and political elite. That is, there were political leaders at Chaco who ruled, perhaps loosely, a larger society of "regular" people, and those leaders enjoyed the benefits of power, among them palace-like houses. Other archaeologists still view Chaco as an early version of modern Pueblos, and the Great Houses as a simple stylistic preference of one ethnic group not shared by other groups.

Archaeologists use the term "polity" for any political organization larger than a village. Chaco's "regional system" and its monumental Great Houses combine to suggest that Chaco was a "polity"—a center for a political organization of considerable regional size. As we shall see, the term "polity" implies political coherence that not everyone sees at ancient Chaco.

The nature of society and polity is very difficult to determine from archaeological data. Corncobs and deer bones tell us directly about ancient diet. Whole pots and broken potsherds contain a great deal of information about time, trade, and artistic traditions. Ruins reflect village size and permanence, and the organization of architectural labor. However, to understand ancient society and polity requires a deeper reading of the material evidence. We will never understand Chaco until we know something of its society and its political organization. Was Chaco just like the modern Pueblos or was it something different?

After wide-ranging discussions, there was near consensus that Chacoan society was unique in the Southwest and among non-state societies in general. Chaco may represent a form of government that has no suitable analog in the historic, ethnographic, or modern worlds. This agreement creates a particularly difficult challenge: How can we describe an ancient polity or government that is, to us, entirely new? In a dissenting view, one participant related Chacoan society to the Rio Grande Pueblos.

The careful study of the distribution of large-scale physical remains—architecture, landscapes, monuments—is a starting point for political reconstructions. The broad distribution of similar features such as Great Houses and roads, for example, raises the question of how they came to be so widely shared. Was there a powerful leader, or a few leaders, who imposed new ways by force? Or were there economic relationships or belief systems that played more important roles in spreading the Chaco "system?"

Accurate knowledge of the sequence of regional developments is critical to understanding Chaco, and a major contribution of the Chaco Project was the refinement of chronology and dating. Most maps depict the Great

Houses, small sites, and other features known from Chaco Canyon as if they were static and all in contemporaneous use. In reality, there was a sequence of Great Houses and related communities that changed over the two centuries of Chaco's development. A simple map with hundreds of ruins might suggest that Chaco had thousands of inhabitants—a city. But, if some of those sites were actually "in ruins" when Pueblo Bonito, Chetro Ketl, and the other monumental buildings were in use, then the population would be much smaller. It has been suggested that the maximum population of Chaco Canyon was probably only in the hundreds of people, not thousands. Better data give us a much more accurate picture of the society we are trying to understand.

On a larger scale, we now know that some outlying Great House communities, especially those south of Chaco, either predate or are contemporary with the earliest Great Houses within the canyon proper. Thus "central Chaco" emerged from a broader regional base; it wasn't always the center. It is also now clear that the known road segments and outlying Great Houses did not all exist at the same time. Chacoan Great Houses and roads north of the

San Juan River, for example, were constructed largely after 1080, toward the end of Chaco Canyon's construction boom. Not only are the northern examples formally different from Great Houses in the canyon, but the "center" that provided the stimulus for them may have been sites such as Salmon or Aztec pueblos, rather than anything in Chaco Canyon. And "central Chaco" didn't always remain *the* center. Some researchers have suggested that Aztec Ruins might have followed Chaco as a second, smaller regional center.

Archaeologists have suggested that leadership roles developed in Chaco during the early 900s and evolved into regional political coordination in the 1000s, based in part on the changing architecture of Chaco itself. The earliest large-scale buildings at Chaco look like regular family houses, but they are constructed on monumental scales. By the early 1000s, however, the nature of large-scale building changes, and the monumental structures are very different in form from regular family houses. For example, they have far more storage rooms, by a factor of ten or twenty. Such storage facilities may have served as repositories for ritual or other materials belonging to distant Great House communities, serving to help integrate "central Chaco" with the larger regional system.

Various communities within the canyon may have had very different ethnic origins, and may have been linked to related ethnic communities far outside the canyon. A particular example is the special case of Pueblo Alto and the Chuska Mountains to the west. A great deal of the pottery (and other artifacts) found at Pueblo Alto originated in the Chuska Mountains, as did the timbers used in construction of most of the Great Houses. The situation at Pueblo Alto was discovered as a result of Chaco Project excavations and specialized analyses of artifacts. The other Great Houses—Pueblo Bonito, Chetro Ketl, and the rest—were excavated many years ago, before these analytical techniques had been fully developed. We wondered whether the same situation was reflected in Great Houses other than Pueblo Alto.

Chaco seems unique. But a challenge to this view comes from a consideration of the history of social organization among the Eastern Pueblos along the Rio Grande. Chaco is more often compared to Western Pueblos, such as Hopi and Zuni, and it seems unlike those modern Pueblos, which have few leadership roles and little centralized con-

trol. Eastern Pueblos do have something like elites. They emphasize ranked non-kin "sodalities" (organizations and institutions that are *not* kinship-based), whereas Western Pueblo social organization is kinship-based. Eastern Pueblo society is divided between initiated elite leaders and

commoners based on membership in these sodalities. The inter-village ties among the religious leaders link villages in ways that might resemble multiple Chacoan communities. It seems possible that something as complex and apparently centralized as Chaco could have been the product of ranked sodalities, like those of the Eastern Pueblos.

The important integrating role of ritual becomes evident when Chaco is viewed against a broad range of comparable societies, where ritual was often more important

than political power. For example, in the Near East archaeological "civilizations," such as Sumeria, in fact referred to people in many different polities with different leaders and different languages, but linked through a common belief system. The power of ritual and belief may have served as the primary organizing principle of entities like Chaco.

The importance of ritual does not mean there were not people with greater power and greater wealth. Such "elites" may have achieved their status through their ritual knowledge, but there is evidence that there were economic consequences. For example, the fact that some individuals at Pueblo Bonito were taller than people elsewhere in the canyon suggests that the people at Pueblo Bonito—the largest of all the Great Houses—apparently ate better food than others at Chaco. Better diets, other things being equal, often indicate higher status and power. Furthermore, the labor investment in Chaco Great Houses was truly enormous. It was clearly beyond the capacities of the resident population in Chaco Canyon, particularly if that population numbered only in the hundreds, and, at the very least, some form of central leadership was needed to direct the construction efforts. But there is not compelling evidence for strong political leadership roles or an elite social stratum at Chaco and, in the end, the conference participants were not comfortable with use of the term "polity" to describe Chaco society. Chaco may have been a ritual entity, or something like the Eastern Pueblos, but it appears to have been unique to itself, too: a society created in no image with which we are, today, familiar.



*The Chaco Project undertook large-scale excavations at Pueblo Alto. Photograph courtesy of Adriel Heisey.*

## BACK SIGHT

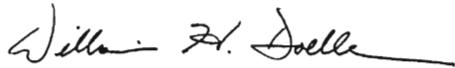
Images of ancient Chaco roads are a fitting accompaniment to this forum about the Center for Desert Archaeology's mission. Normally, roads have a straightforward meaning. They are a route of passage between two or more places. They carry people or commerce.

Chaco's "roads," however, have an element of mystery. The researchers in this issue maintain that they were landscape monuments rather than transportation corridors. Our curiosity is piqued by things that are not what they first seem to be.

The importance of preservation within our mission has piqued the curiosity of Center friends in recent times. Often, while showing visitors impressive sites along the San Pedro River, for example, the question is raised: "When are you going to dig this site?"

It is true that many research questions can only be addressed by digging in such sites—in fact, digging a great deal. However, archaeology can mean much more than excavation—what it first seems to be. Sometimes digging is not the answer.

Preservation archaeology—which is our growing priority as we begin a new millennium—can pursue a broad range of research issues employing little, if any, excavation. Research and preservation can work together. Upcoming *Back Sight* columns will explore further the story of preservation archaeology.



*Top: Pueblo Bonito in foreground. In the mid-ground, road segments pass to the left and right of Pueblo Alto. Right: Closeup of a Chacoan road. Both photos courtesy of Adriel Heisey.*



**T**HE CENTER FOR DESERT ARCHAEOLOGY, a private, nonprofit organization, promotes stewardship of archaeological and historical resources in the Greater Southwest through active research, preservation, and public education.

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