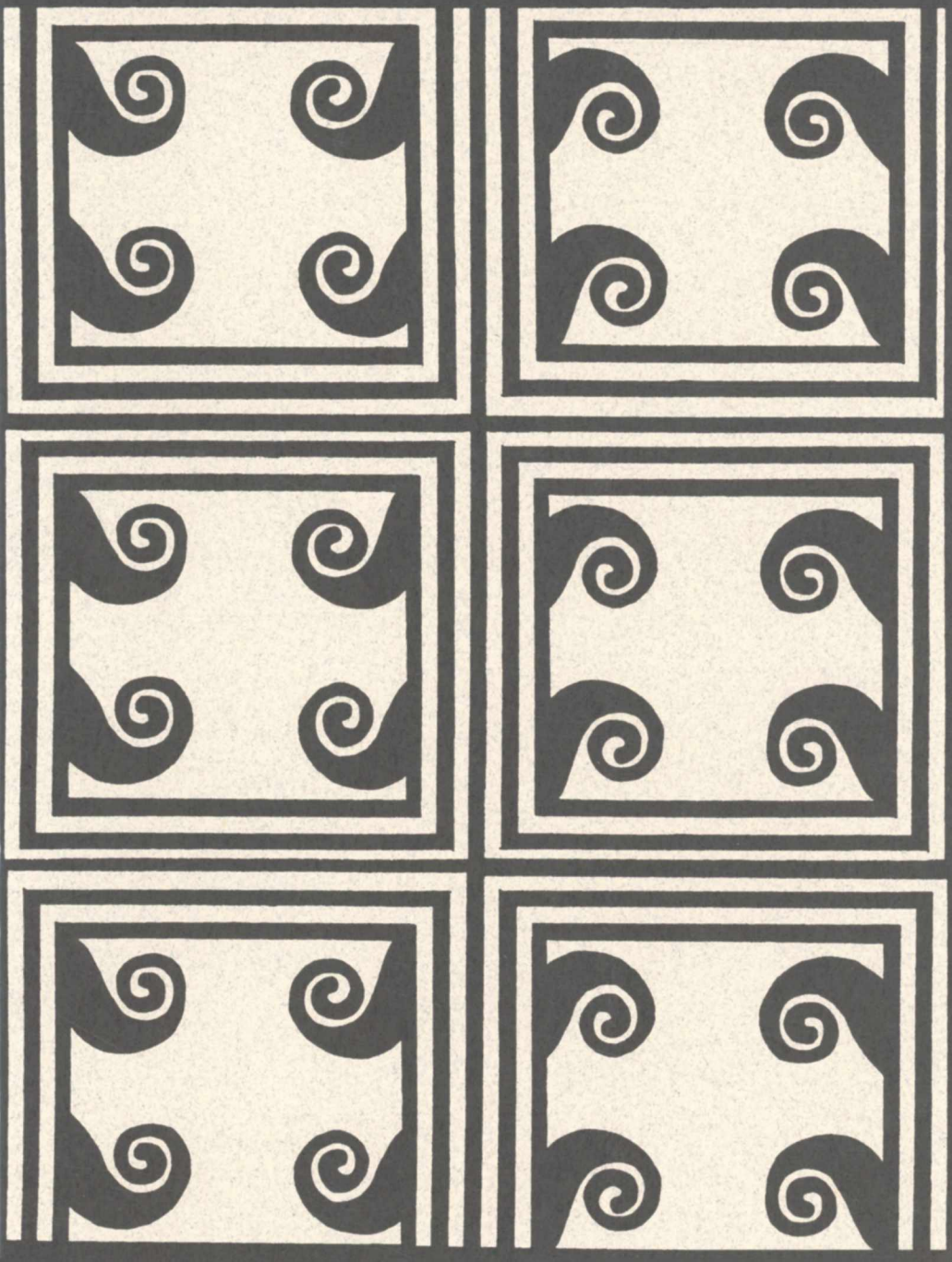
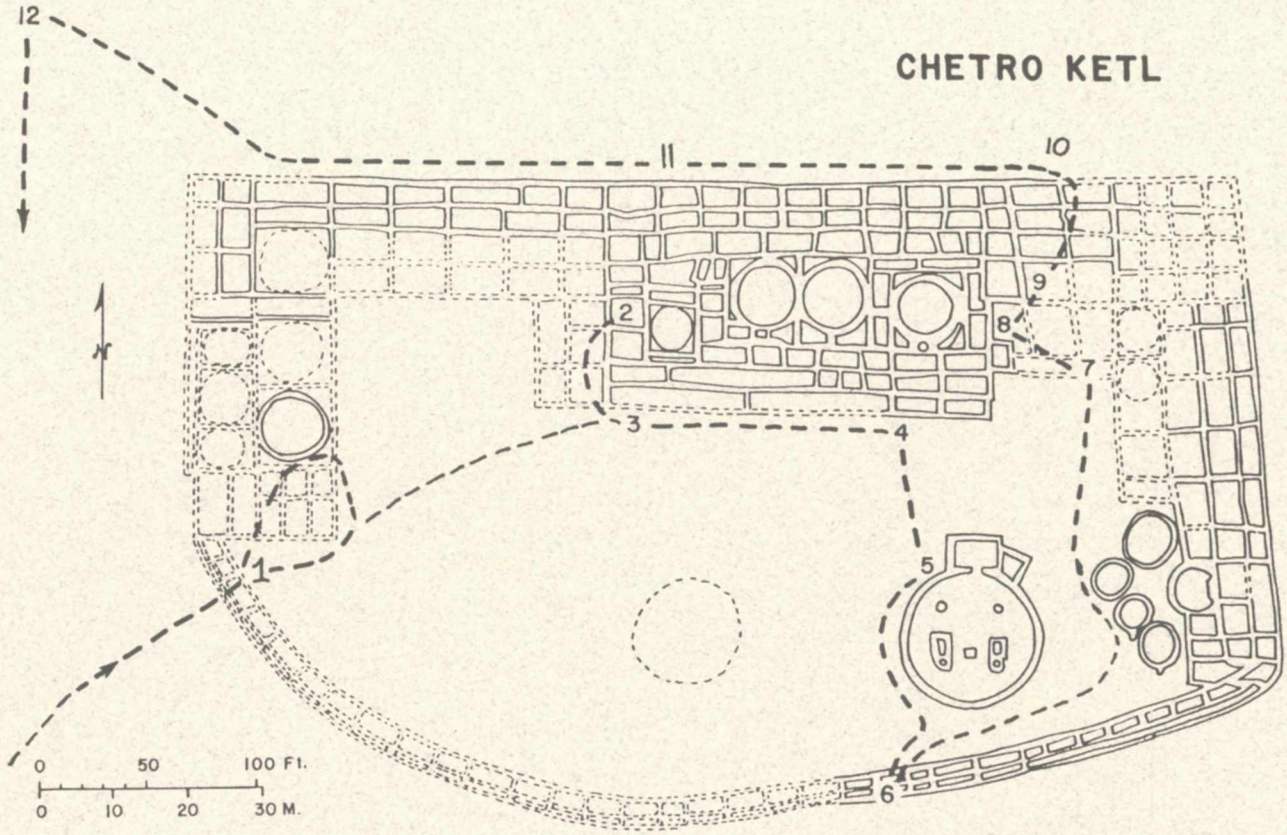
Chetro Ketl




CHETRO KETL
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Welcome to Chetro Ketl

To use this trail guide, follow the numbered stops along the trail, which correspond to the numbered items in the text.

The trail through Chetro Ketl is 1/2 mile, roundtrip. It is graveled, and climbs several short, steep rises, so assistance is recommended for people using wheelchairs.

While you visit Chetro Ketl today, use the trail guide to help you recognize characteristics of Chacoan architecture—features that are both typical and unique.

The cultural sites of Chaco Culture National Historical Park are fragile, irreplaceable, and a significant part of our cultural heritage. Today, they are considered part of the sacred homeland of the Hopi, the Pueblo peoples of New Mexico, and the Navajo, who continue to respect and honor them.

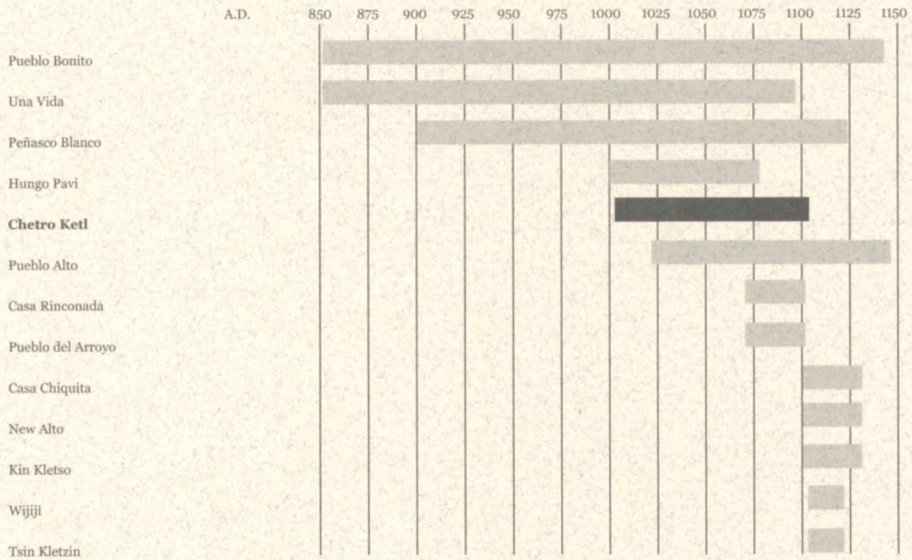
The park received international recognition for its cultural resources when it was designated a World Heritage Site in 1987. You can help protect and preserve this part of our global cultural heritage by following these basic rules:

> *Do not collect pottery or other protected artifacts, plants, or rocks anywhere in the park. Do not walk, climb, sit, or lean against fragile walls. Stay on designated trails. Do not deface, add to, or alter the petroglyphs, pictographs, or rocks. Do not climb canyon walls. Children should remain with the guardian responsible for their safety. Pets are not permitted in the sites.*

If we all take responsibility for these sites, they will be here for the education and enjoyment of those that come after us.

This is a sacred area. Enter with respect.

The origin and meaning of the name Chetro Ketl is not known. There are at least two Navajo names for the site—*tsebida 't'ini'ani*, or "covered hole," referring to sealed cavities found in the cliff behind the site; and *nastl'a kin*, or "house in the corner," referring to the location of the building near a small *rincon* (box canyon). William Henry Jackson, photographer and explorer, visited Chaco Canyon in 1877. He translated the name as "Rain Pueblo," but he did not identify his source.

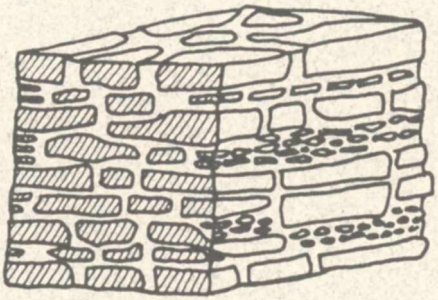


Chaco Timeline

Chaco Canyon contains evidence of 10,000 years of human occupation. However, it is best known for the large-scale, multi-storied masonry buildings that were planned and constructed more than a thousand years ago by the ancestors of the Hopi and the New Mexico Pueblo peoples. From A.D. 850 until A.D. 1150, Chaco was the center of a political, ceremonial, and trade network that encompassed a vast area of the Southwest.

The Chaco region was unique because the structures built during this period were immense—some of them covering several acres. Room blocks were more extensive, and multi-storied. A distinctive *core and veneer* masonry

was developed that added to the strength and stability of the massive structures. Roads, stairways, ramps, and communication features connected sites together within the canyon—and beyond it.



Core and veneer

The public structures built throughout the region in the Chacoan style, from A.D. 850 through A.D. 1150 are called *great houses*. They are easily distinguished from other regional architecture by their excellent and distinctive masonry, massive scale, preplanned design, and geometry.

Chetro Ketl is a Chacoan great house. As is the case with most other great houses in the canyon, its original construction was modest. Beginning with a single-story room block around A.D. 1010, it grew to become a monumental structure that covered almost 3 acres by the early 1100s. The overall ground plan of Chetro Ketl is a D shape, with the front wall of the plaza forming the arc of the D. There are an estimated 500 rooms in the site—approximately 225 ground-floor rooms, and 275 second- and third-floor rooms.

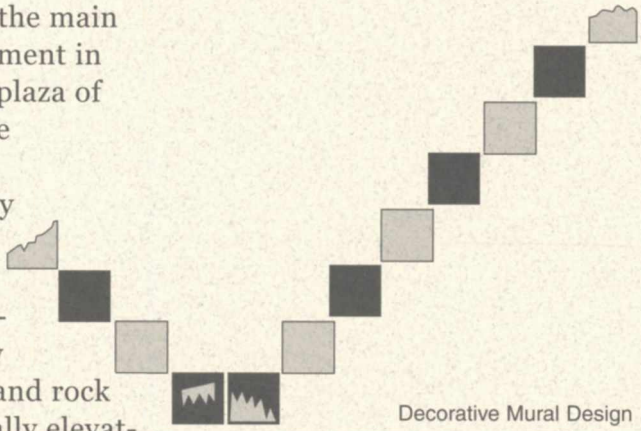
1 This unexcavated section of Chetro Ketl forms the western wing of the site.

Leaving sites unexcavated is the best way to preserve them. The blanket of wind-blown sand and native vegetation that covers this area protects the fragile walls from the destructive effects of wind, rain, freeze-thaw cycles, and human impacts.

A short side trail on the left leads to a *kiva*. In modern Puebloan cultures, kivas are buildings used for religious worship, similar to churches, mosques, and synagogues. Kivas were constructed with flat roofs and hatchway entrances. Ladders placed in the hatchways allowed people to enter the kivas.

The masonry wall of this kiva has a deep red cast to it because it burned during prehistoric times.

When you return to the main trail, pause for a moment in the open plaza. The plaza of Chetro Ketl is unique because its Chacoan builders intentionally elevated it above the surrounding landscape. They constructed the plaza by hauling tons of dirt and rock to create the artificially elevated platform.

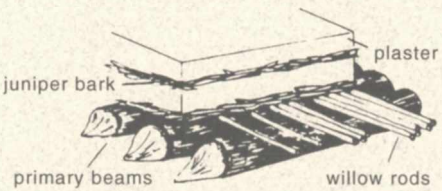


Decorative Mural Design

As you stand atop the elevated plaza, imagine the Chacoan labor involved in raising this area 12 feet above the surrounding valley floor. This practice may have made the impressive public building look even more imposing to the people. Engineering and monumental projects were hallmarks of the Chacoan world.

2 Behind the glass-fronted door is a two-story room that was built around A.D. 1030. This is the upper-story section of a multi-storied room block that contains original plaster and floor or roofing elements. Chacoan builders applied a decorative mural to the east wall of this room, consisting of a geometric design in shades of blue and green.

In cross-section, the construction details of the floor consist of primary beams (called vigas in Spanish), willow rods laid perpendicularly on top of them, followed by sequential layers of juniper bark and mud plaster.



Roof construction

The exposed logs you see in this roofless room are vigas, used in roof and upper-story floor construction. The Chacoan builders gathered an estimated 26,000 trees, from forests dozens of miles away, for the construction and main-

tenance of Chetro Ketl. The trees were cut and allowed to dry—reducing their weight. Before using them, they carefully trimmed and peeled them, cutting the ends flush and sanding them with stone tools. Archeologists have been able to date several thousand of the vigas used in great house construction using the science of tree-ring dating (*dendrochronology*).

Before leaving this area, look down into the room behind the protective rails. This perspective will show you the height to which the plaza was elevated. You are standing in one of the oldest sections of the building. Construction on Chetro Ketl began around A.D. 1010 and continued through the early 1100s. During this hundred-year period, there were over 15 stages of construction.

Please return
to the main trail
in the plaza.

3 Some archeologists suggest that influences from Mexico were responsible for some of the architectural developments in Chaco. Supporting evidence for this theory includes the remains of the colonnade wall in front of you.

Colonnade architecture is virtually nonexistent in the Puebloan Southwest. It is characteristic of Toltec (Mexico) architecture, and it is found at the site of Paquimé (Casas Grandes, Chihuahua, Mexico). Paquimé and Chaco actively traded in macaws and turquoise. Ideas and architectural features may also have been exchanged.

The colonnade was originally built by placing square masonry pillars along the wall of a long, narrow room that faced the plaza.

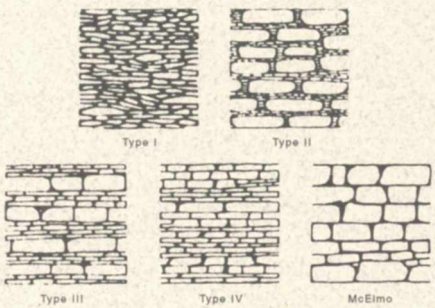
The people later renovated this room by filling in the spaces between the columns. The long, narrow room was then divided into several smaller rooms.

The original construction of the colonnade can't be dated with precision, but evidence suggests that it may be as recent as 1100.

The late construction date for the colonnade is at least 50 years after the main portion of

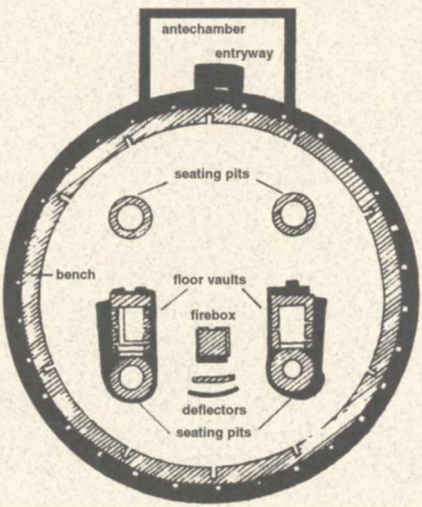
Chetro Ketl was designed and built. If the colonnade was inspired through contact with Mexico, it was long after the original design and construction of this great house was completed.

4 This cross section of broken wall demonstrates how the walls were constructed. Chacoan walls are commonly referred to as "core and veneer." The core consists of roughly shaped stones or rubble laid flat in mud mortar. The core was faced with carefully selected shaped stones to make a veneer on both sides of the wall. Although the word "veneer" is used to describe these facing stones, they were more than decorative overlays. The facing stones (veneer) were important structural elements of the wall.
In other cross sections, you will see that the lower wall is wider than those in the upper stories. Very wide walls in the first story created a strong and stable base upon which to build. The decrease in wall width in each additional story lightened the load of the upper stories on the massive base. Decreasing wall widths also demonstrated that the second and third stories were planned before the first story was built.



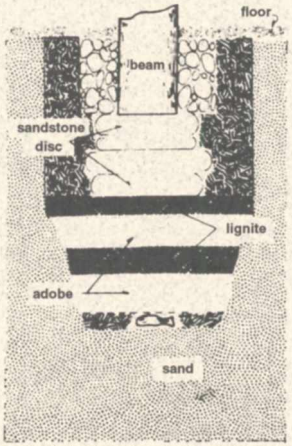
Wall facings

5 This very large, round, subterranean room is a *great kiva*, and is a classic element of great house construction. It was built on an earlier structure of the same form, which is revealed in the cut-away section of the floor.



Great Kiva

Great kivas contain a set of highly formalized features: an entryway and antechamber on the plaza level; a low masonry bench encircling the base of the room; a raised masonry fire box and deflector; four seating pits (for roof supports); and raised floor vaults between the seating pits.

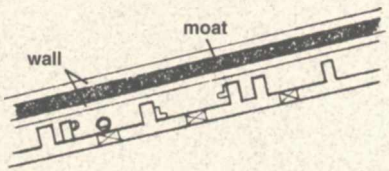


Seating pit

Located in the four quadrants of the circle, the seating pits are the circular, well-like depressions that you see in the kiva floor. These elaborately constructed pits formed the foundation for the large, upright roof beams. When archeologists excavated the pit in the northeast corner, they found four sandstone discs layered beneath the floor, separated from one another by layers of adobe. Beneath the fourth disc, they found two alternating layers of adobe and lignite, and in the center of the circle, a suede leather bag containing powdered turquoise.

6 A long line of narrow one-story rooms enclosed the plaza of Chetro Ketl, fronting on the plaza's south perimeter. The rooms connected the east and west room blocks. This is a typical Chacoan great house feature. Its function is unknown.

These narrow rooms were finished on all four walls, and well-plastered floors were laid between them. The plastered floor and a wall vent suggest that the rooms were roofed. When first constructed, the walls were probably free standing. As the plaza filled with soil and rubble from construction, the structures became a retaining wall to hold back the plaza fill.



Plaza-enclosing walls

7 The archeological record and historical chronicles provide us

with a great deal of information about Chacoan architecture—but there is much more that we do not know—and may never know. This knowledge lies with the Chacoan people themselves, and with the Hopi and the Pueblo peoples of New Mexico, who continue to return to the sites.

Acoma, Zia, Zuni, Laguna, Cochiti, San Felipe, Santo Domingo, and other New Mexico pueblos have oral-history traditions passed down through generations that speak of clan migrations from Chaco. Many Hopi clans trace their ancestry to Chaco. The Chacoan descendants return to Chaco to pray and honor the spirits of their ancestors.

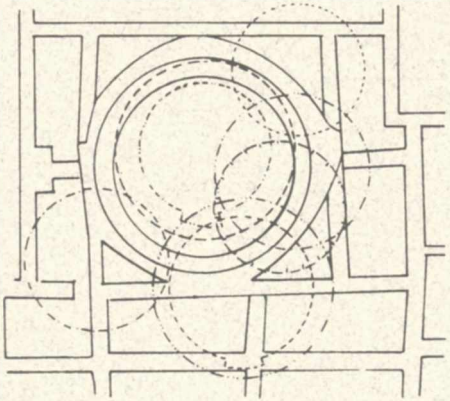
The Navajos are not a Puebloan people, but they came to occupy much of the former Puebloan homelands. Navajo oral histories refer to Chaco as the home of the Great Gambler, and they too, have ceremonies and stories relating to Chaco.

Representatives from the pueblos and neighboring tribes now actively consult with the park on important management issues. They share their knowledge and history of the area with park staff and visitors. They provide valuable assistance with museum collections, site preservation, and public education. They help us to better understand the history and the legacy of their Chacoan ancestors.

8 The curved wall below you is the outer wall of a kiva. In this area, kivas were built, razed, remodeled, and replaced during the long construction history of Chetro Ketl. This section of the structure is referred to by archeologists as the "Kiva G Complex." The remodeling of the round and rectangular rooms in this section created an architectural maze of curved and straight walls. This maze provides an excellent illustration of re-use and renovation of a site through time. Some of the rooms that were created serve no apparent function, while others provided a form of structural buttressing.

9 In this section of the room block, you can see an example of an *elevated kiva*. Built into an aboveground rectangular room, it gives the appearance of being multi-storied. Elevated kivas are single-story

structures. There are also multi-storied kivas that are referred to as *tower kivas.*



Kiva G complex

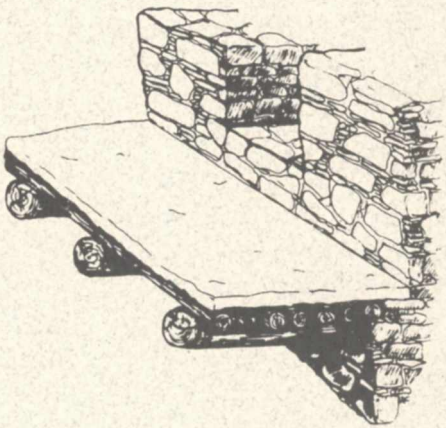
The numerous stones projecting from the exterior wall of this kiva may have been used as steps or scaffolding during construction. Another suggested use is that they may have tied the kiva wall into the *fill* (building debris, trash, and soil) that could have been placed between the exterior wall of this kiva and the interior walls of the enclosing rectangular room. When these triangular spaces were filled, they provided support to the circular wall of the kiva.

10 Evidence of irrigation ditches has been found in the small box canyon behind Chetro Ketl, on the canyon floor to the east of the site, and elsewhere. Large Chacoan-constructed dams, ditches, and water-control devices are found throughout the canyon. The Chacoans appear to have actively managed the precious water resources (9 1/2 inches annually).

Nearly half of the precipitation in Chaco occurs in the summer months, and comes in the form of intense and sudden showers. These heavy summer rains produce rapid runoff. Waterfalls cascade off the canyon walls. The runoff is particularly abundant in the small side canyons along the north side of the canyon. The Chacoans took advantage of these brief floods by capturing the runoff in a system of stone-lined irrigation ditches that transported the water throughout the canyon to storage ponds and fields.

The earthen ridges and stone structures that you can see in the canyon behind Chetro Ketl (and at most of the large cultural sites) are modern erosion-control structures built in the 1950s to preserve the sites from flashflood damage.

11 Early observers at Chetro Ketl mention balconies along the second and third stories of the back wall. Although the third-story sections have collapsed, evidence of a balcony can still be seen on the second-story floor level. Ponderosa pine, fir, and spruce beams (vigas) extended out of the wall sockets to support the balcony. The narrow groove that extends the length of the wall (above the viga sockets) held the upper layers of the balcony in place, and tied the balcony to the wall. Above the groove, doorways led out onto the balcony.



Balcony

These balconies were reported intact in 1901. Within 20 years, they were gone, due to scavenging for firewood and building materials.

Look at the canyon wall behind Chetro Ketl. Numerous circular sockets of various sizes are carved into the canyon wall. Many are spaced at regular intervals. These shallow, pecked depressions supported the wooden roof and floor beams of smaller buildings. The canyon served as a back wall for these structures. They were an integrated part of the architectural complex at Chetro Ketl.

Walking along the long and elegant back wall of Chetro Ketl, imagine how it may have looked when it was occupied—with walls covered in coats of plaster, and with other great houses, villages, roads, ramps, and irrigation features surrounding the structure.

12 This structure is called Talus Unit, because of its location at the foot of the talus (an accumulation of fallen rock debris) slope below the canyon wall.

The site consists of two distinct room blocks. The western block contained 30 to 35 ground-floor rooms. It was multi-storied, and the plaza contained a large kiva. The later eastern block included

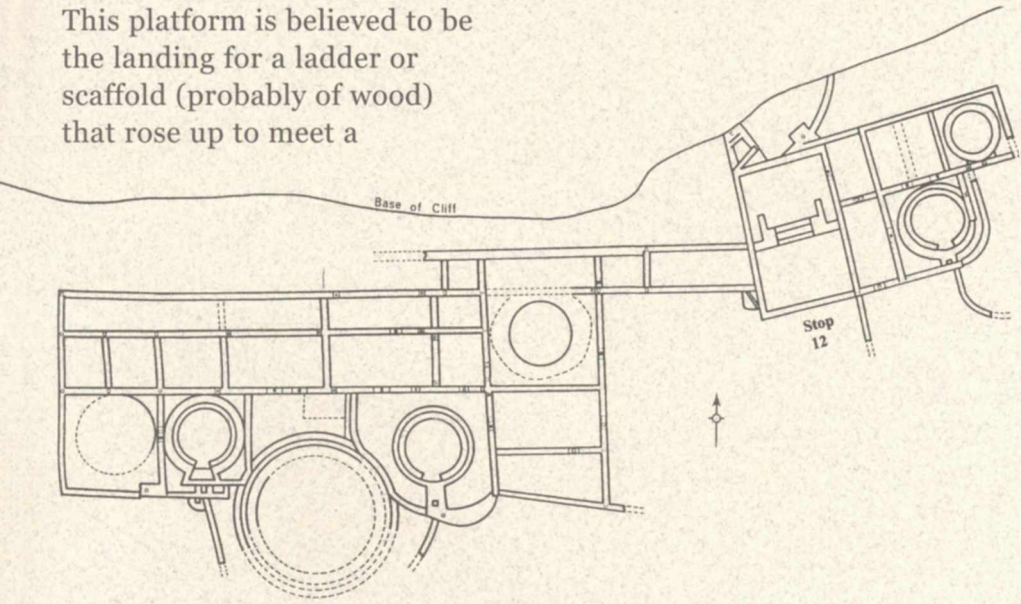
eight ground-floor rooms and two kivas. The east and west blocks were joined by two rooms.

While Talus Unit appears to be separate from Chetro Ketl, many researchers believe that both sites functioned as an integrated unit. The fallen rooms along the cliff base, the roads, the ramps, the stairways, the irrigation systems, and the petroglyphs were also part of this integrated complex.

Directly in front of the Stop 12 marker is a large room divided by a low partition with steps. This unusual feature is believed to be a stepped platform associated with the Chacoan road system.

This platform is believed to be the landing for a ladder or scaffold (probably of wood) that rose up to meet a pecked stairway high up the canyon wall. If you look carefully in the crevice high above the building, you can see stairway depressions carved into the sandstone. You can also see small holes along the sides of the stairs. These cavities are handholds that allowed the people to safely climb to the top of the cliff. Once on top, they could continue to walk the Chacoan road between the Chetro Ketl complex and Pueblo Alto, 3/4 mile away.

Roads connected Chetro Ketl and the other great houses of Chaco Canyon. Some roads may have been used for foot traffic, and some may have been extensions of the public architecture. Roads radiated out from the canyon core to connect more than 150 great



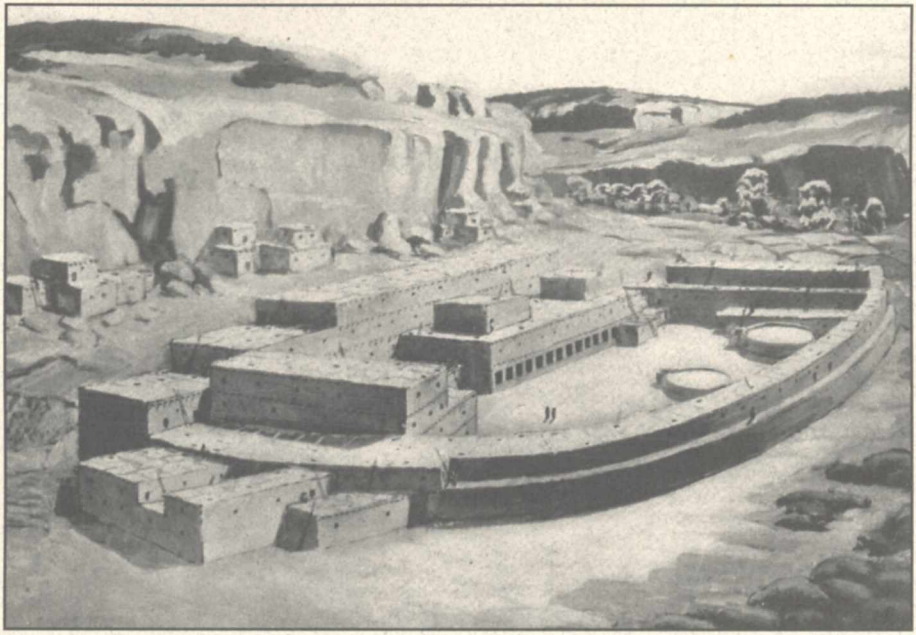
houses, as far away as present-day Colorado, Utah, and Arizona.

When you return to the parking area, look at the open, empty-looking landscape between Chetro Ketl and Pueblo Bonito. Surprisingly, recent non-destructive archeological studies (called *subsurface imaging*) in this area located an extensive network of rooms, kivas, and foundations in this area that may have been designed to link and integrate the Chetro Ketl complex with Pueblo Bonito.

Recent studies of the elaborate public architecture of the Chacoan people indicate that virtually nothing was randomly built. Most of the public buildings were purposely situated to tie them together with other great houses, with the movements of the sun, moon, planets, and stars, and with places in the surrounding sacred landscape.

It appears that the Chacoans had a unique vision of their world. That vision was integrated into the forms of their architecture, and into the places in which they chose to erect buildings on the landscape. The Chacoans were quite concerned with large-scale engineering, and with molding their vision of the world onto the landscape they inhabited.

Today, this "Chacoan vision" is preserved in the architectural remains of the great houses, roads, and features within Chaco Culture National Historical Park. Chetro Ketl and the other great houses of the Chacoan world represent a unique expression of Puebloan culture and architecture—one that continues in the lives and traditions of the Pueblo peoples today.



This reconsruction drawing of Chetro Ketl by artist Robert M. Coffin is a good approximation of how the site may have appeared in the early A.D. 1100s, with the colonnade wall, enclosed tower kivas, and associated structures along the cliff base.

Read More About It!

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Lekson, Stephen H. *Great Pueblo Architecture of Chaco Canyon.* University of New Mexico Press, 1986.

Lekson, Stephen H., Editor. *The Architecture and Dendrochronology of Chetro Ketl.* Reports of the Chaco Center, No. 6, Division of Cultural Research, National Park Service, Santa Fe.

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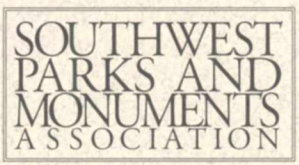

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