

Great Kivas of the American Southwest

*J. Donald Hughes
Department of History
University of Denver
Denver, Colorado 80208
U.S.A.*

Summary

Great kivas are large structures of the high period of Anasazi Pueblo Culture in the southwest United States. Each was a circular room about 15 m. in diameter, partly underground, with flat floor and thick stone walls. A timber roof rested on four piers of timber and/or masonry. Characteristic interior features are arranged symmetrically in relation to a north-south axis. There are alignments to astronomical events such as the Sun's position at solstices and equinoxes. The function of the architecture was undoubtedly ceremonial, and its form relates to the structure of Pueblo myth. The layout of the great kiva was that of a theatre for enactment of myths in dance and song at important times in the yearly round. It provided a setting in which Pueblo people could feel connected with Earth, Underworld, and Sky, and sense that the energies of their rituals and their desire for rain, fertility, and completion of the cycles of life, would be carried outward and reciprocated by the powers of nature.

Résumé

Les grands kivas sont d'importantes constructions datant de la période d'apogée de la culture Anasazi Pueblo, au sud-ouest des Etats-Unis. Ils ont la forme d'une pièce circulaire d'environ 15 m. de diamètre, enfouie en partie sous terre, avec un sol plat et d'épais murs de pierre. Quatre piliers de bois et/ou de maçonnerie portent un toit de bois. Les éléments caractéristiques de l'intérieur sont placés symétriquement à l'axe nord-sud. L'alignement d'autres composantes se fait en fonction de données astronomiques comme, par exemple, la position du soleil aux solstices et aux équinoxes. L'architecture avait une fonction clairement cérémonielle et ses formes sont en rapport avec la structure du mythe Pueblo. Le grand kiva était agencé comme un théâtre dans lequel on pouvait danser et chanter les mythes aux moments importants du cycle de l'année. Il fournissait un cadre dans lequel le peuple Pueblo se sentait en contact avec la Terre, le Royaume des Ombres et le Ciel. Il lui permettait en outre de sentir que les énergies de ses rituels, son désir de pluie ou de fertilité et son passage au travers des cycles de la vie seraient transmis vers l'extérieur et réciproqués par les puissances de la nature.

1. Introduction

Great kivas are large ceremonial structures of the prehistoric Anasazi Pueblo Indians of the southwestern United States. They occur at dozens of sites in northwestern New Mexico, southwestern Colorado, northeastern Arizona, and southeastern Utah,

and the finest and best preserved examples are in Chaco Canyon and Aztec Ruins National Monuments, New Mexico (Fig. 1). Generally they are associated with pueblos of the highest period of development of Pueblo Culture (900-1250 C.E.), although there are earlier large structures that appear to represent the development of the type. There are no great kivas dating after the beginning of the fourteenth century, although ones built earlier may have continued in use for a while; their functions were apparently eventually performed by smaller kivas and large open plazas, both of which continue in use to the present day. It should be noted that "Anasazi" is a Navajo Indian word which has been adopted by archaeologists to refer to the prehistoric cultures that include the Basketmaker and Pueblo phases (from about 700 B.C.E. to 1541 C.E.) (Ferguson & Rohn, 1987, 6).

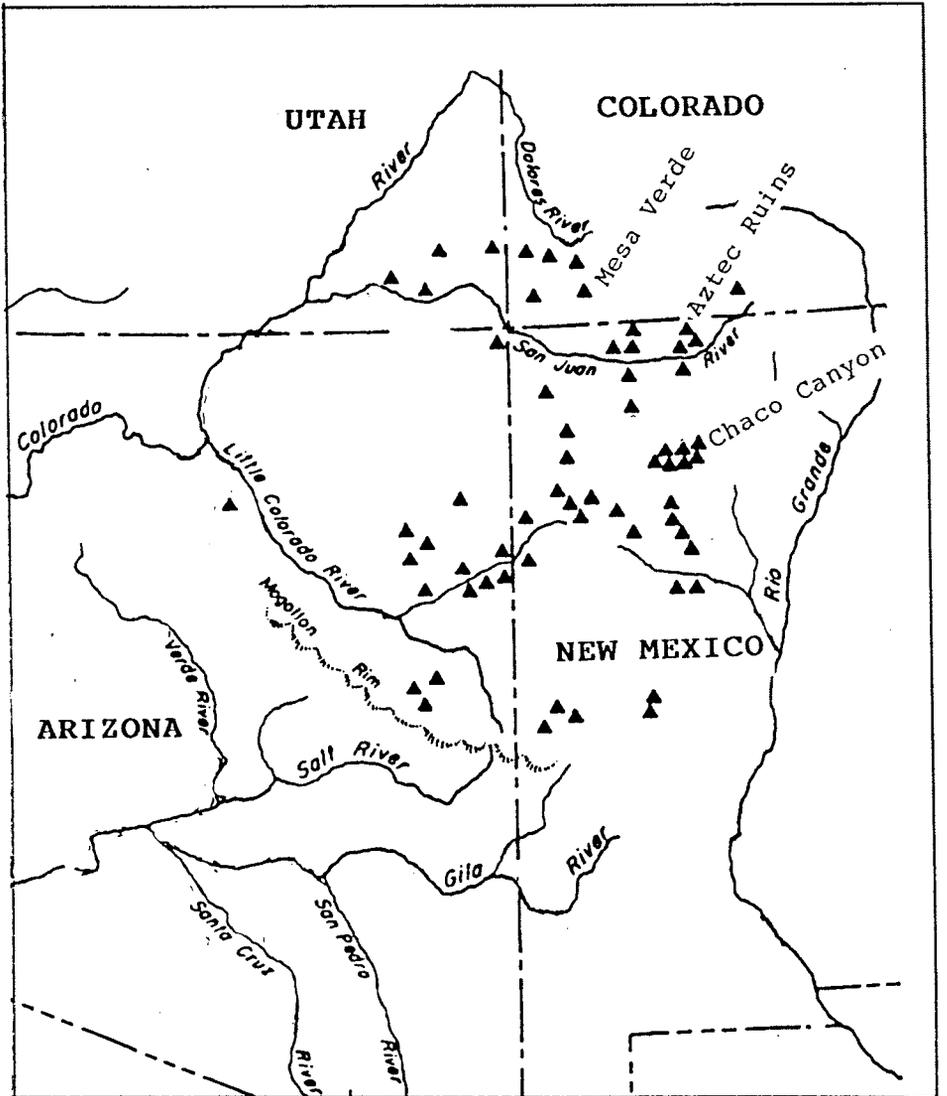


Fig. 1 Reported locations of great kivas
Locations connues des kivas

2. Architectural form of kivas

The architectural form of the great kiva is a large circular room with a flat floor and thick walls of stone laid in courses (Fig. 2 & 3). In many cases, especially in Chaco Canyon, the masonry is laid in alternating bands of thick and thin stones, and is of surprising beauty. A roof of round timbers was supported by four piers of masonry, timber and masonry, or large tree-trunk columns arranged in a regular rectangle around the centre of the room. The diameter of the circle averages about 15.2 meters (Vivian & Reiter, 1965, 84). Most of those that have been measured are near that size, but the extreme examples are 10.2 and 24.6 meters. For comparison, it may be noted that the much more numerous smaller kivas are mostly between 3 and 5 meters wide. All great kivas are at least partially underground, even though their builders often had to excavate in hard and resistant rock strata. The height of the walls must be estimated in most cases due to collapse and erosion. It probably averaged from 3.3 to 4.3 meters above the inner floor, but only 0 to 3 meters above the ground outside. The roof was either flat or higher above the centre, reaching as much as 4.9 meters above the floor. There usually exist exterior rooms attached to the circular chamber, most commonly one on the north side through which the latter may be entered by steps. Occasionally this room has a small platform or altar. There is sometimes a room with an entrance on the south side as well. Other rooms may be attached, with or without inner doors. The great kiva at Aztec Ruins had as many as twelve peripheral rooms opening into the central chamber, with ladder rungs set in tall niches below the openings, in addition to the northern entrance room (Lister & Lister, 1987, 62) (Fig. 6-8).



Fig. 2 Photograph of Casa Rinconada great kiva, Chaco Canyon, from the air. The black slanting line at the center left is the underground passage, which is also visible in the north room (Ferguson & Rohn, 1987, 214; photograph taken with assistance of John Q. Royce).

Photographie aérienne du kiva de Casa Rinconada, Chaco Canyon. La ligne diagonale noire à la gauche du centre est un passage souterrain, que l'on voit aussi dans la pièce nord (Ferguson & Rohn, 1987, 214; photograph taken with assistance of John Q. Royce).

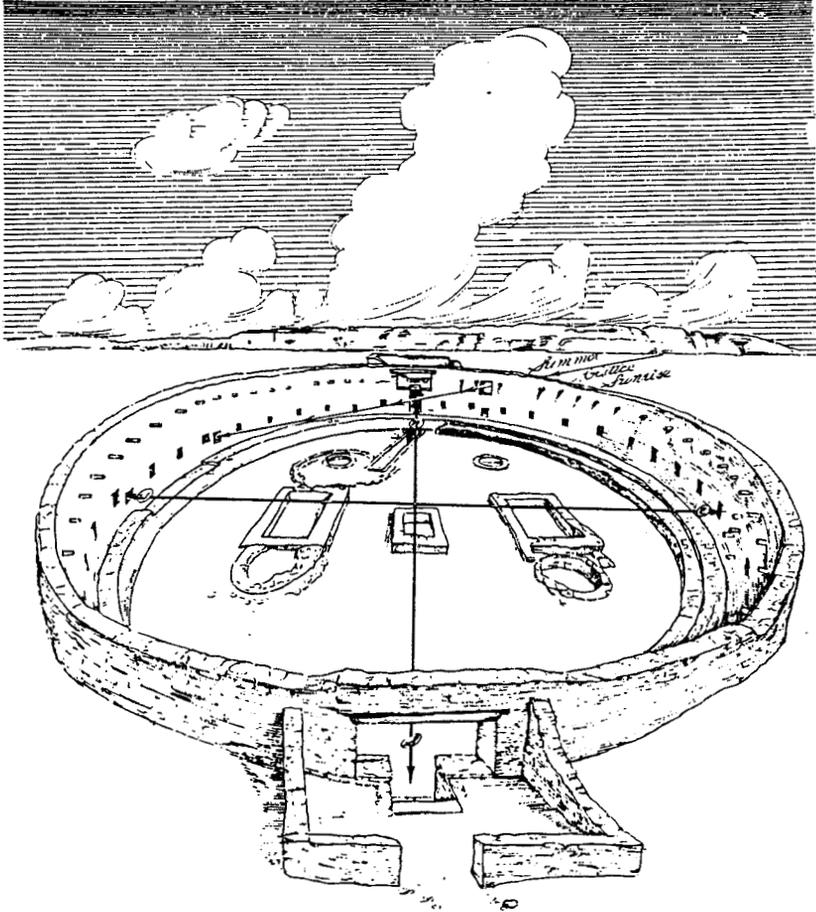


Fig. 3 Drawing of Casa Rinconada great kiva (Williamson 1982, 206; drawn by Snowden Hodges).

Dessin représentant le grand kiva de Casa Rinconada (Williamson 1982, 206; dessin de Snowden Hodges).

Also on the principal axis, north of and at some distance from the fire box, may be a hole, usually lined with stone. This can be identified by analogy with a similar feature in historical small kivas as the *sipapuni* (its Hopi designation), the symbolic doorway between this world and the world below, the place of emergence of the ancestors of humans, animals, and plants. Other features, such as stone boxes, perhaps for storage, may be present.

Some great kivas show variations in the features just described. There are a few rectangular great kivas that can be recognized as such because they have most or all of the diagnostic features just enumerated, such as Fire Temple in Mesa Verde. In some circular great kivas, one or more features may be lacking; for example, no *sipapuni* has been found in certain great kivas in Chaco Canyon. On the other hand, Casa Rinconada has a tunnel entering from the north side below floor level which would have allowed costumed figures to come up through a literal entrance from below (Fig. 2). There are great kivas without any apparent niches, and the largest known specimen may never have had a roof.

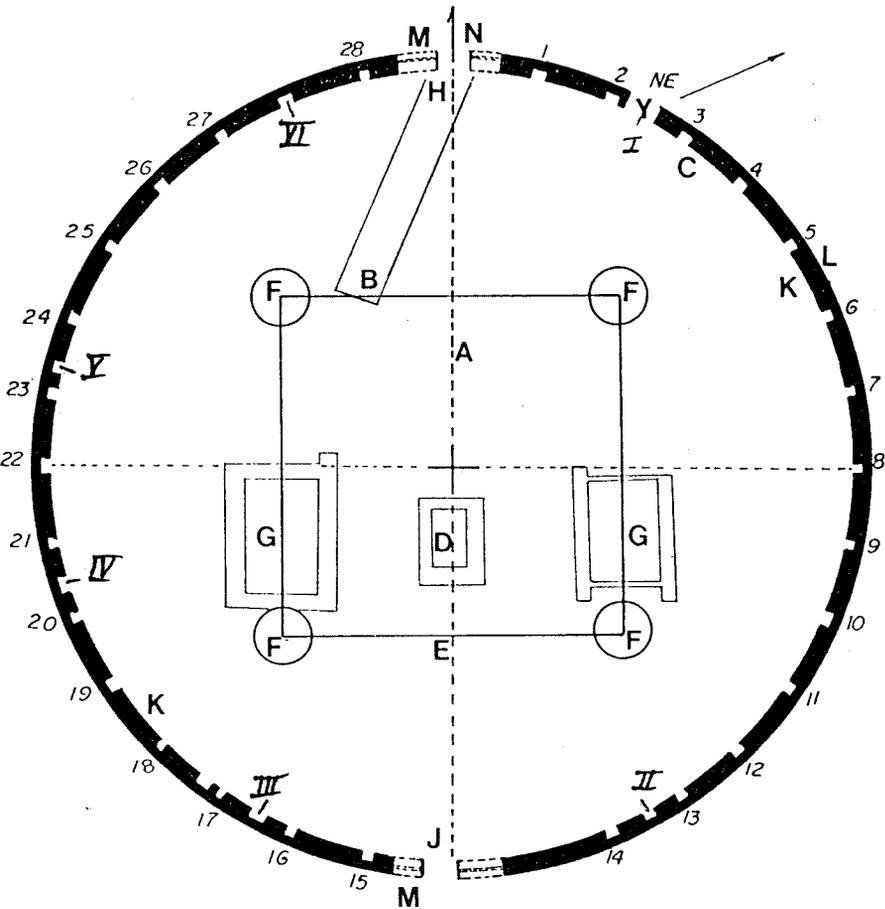


Fig. 4 Schematic plan of Casa Rinconada great kiva. Arabic numerals indicate the upper, regularly spaced niches. Roman numerals indicate the lower, irregularly spaced niches (Williamson, 1982, 211, slightly adapted).

Legend: A: principal axis; B: sipapuni; C: niches; D: fire box; E: fire screen; F: roof supports; G: vaults (foot drums); H: northern entrance; J: southern entrance; K: benches; L: kiva wall; M: peripheral rooms; N: altar; Y: window.

Plan du kiva de Casa Rinconada. Les chiffres arabes indiquent les niches supérieures, situées à espaces réguliers. Les chiffres romains indiquent les niches inférieures, séparées par des espaces irréguliers (légèrement adapté de Williamson, 1982, 211).

Légende: A: axe principal; B: sipapuni; C: niches; D: boîte à feu; E: écran pare-feu; F: supports du toit; G: coffres (tambours frappés avec les pieds); H: entrée nord; J: entrée sud; K: bancs; L: mur du kiva; M: pièces périphères; N: autel; Y: fenêtre.

3. Function of kivas

The function of all great kivas was undoubtedly ceremonial. Ritual objects have been found in them; each of the ten niches in the Chetro Ketl II (lower) great kiva in Chaco Canyon, for example, contained a turquoise necklace with beads and pendants (Hewett, 1936, 87-93). Archaeological investigation has found no evidence that they were ever occupied as living quarters, and the size and formal layout of the interior features strongly suggests that they were intended for ritual use by large groups of people; they could easily have accommodated hundreds. The circular bench in the average great

kiva might easily have seated a hundred individuals, but it is by no means clear that it had that purpose. It follows that a great kiva could not have been intended for use by a clan or small religious society. Scully (1975, 19) suggests that each great kiva belonged to a moiety, or half a pueblo's population. But few pueblos had more than one, and the bilateral symmetry of the great kiva implies provision for two balancing groups, i. e. both moieties in a village. Casa Rinconada is not near any large pueblo, and may have drawn participants from a wide segment of the densely populated floor of Chaco Canyon. It seems most likely that the ceremonies held in the typical great kiva were done for a whole pueblo, with visitors from outside also included. Adams (1991, 155) believes that great kiva ceremonies "were performed in public for all to see," a possibility that Scully also entertains.

It is possible to gain some understanding of the ritual use and meaning of the great kiva and its features, by examining its shape and orientation, and the layout of its internal and external features. But it is also necessary to seek comparisons with the structures and ceremonies of historic Pueblo Indians, who maintain a complex and vigorous tradition of dances and seasonal celebrations down to the present day, which undoubtedly offer useful analogies to the ritual life of their ancestors. It is more than likely that many of the modern ceremonies descended lineally from those once performed in the great kivas. Although the exact content of the ancient observances cannot be recovered, certain aspects of them can be made relatively clear.

3.1. *Importance of sun*

One element of the use of these buildings was astronomical; of this there can be little doubt. The circular shape itself is suggestive of this; it is interesting that at the same time in Mesoamerica, with which the Anasazi had cultural ties, circular temples were particularly associated with an astronomical deity, Quetzalcoatl-Tlahuizcalpantecuhtli, the god of the planet Venus (Ellis, 1975, 86). All great kivas are "south-facing;" none is on a north slope, and the entrance is almost always from the north. As in the standard plan of a Catholic church, the entrance is from the rear. The south sky is, of course, the theatre of most of the appearances of the sun, moon, and planets in the northern hemisphere. The principal axis of the great kiva (and two sides of the square formed by the roof supports) runs due north and south, and may well have been established by observation of the stars in the north sky. Due to the precession of the equinoxes, there was then no bright star within a degree of the celestial pole, as there is today, but the Pueblo astronomers could trace the circles described by it and other stars. The deviation of the principal axis from true north is extremely small in most of the great kivas that have been examined. Due east and due west, which are the rising and setting points of the Sun at the vernal and autumnal equinoxes, are marked by the roof support footings and sometimes by niches, as at Casa Rinconada (Fig. 5).

The path of the Sun through the sky at the winter and summer solstices was also marked at some points in great kivas. Sunlight entering a window high in the wall on one of these days falls directly on a niche on the opposite wall. This phenomenon has been observed, or inferred, in the great kiva at Aztec Ruins and in Casa Rinconada (Williamson, Fisher, & O'Flynn, 1977, 207-11; Williamson, 1982, 212; Gabriel, 1991, 84). In the case of the summer solstice at Casa Rinconada, the niche that is lighted is part of an irregularly spaced series of five that seem to have been placed exactly for this purpose. In addition, a spectacular astronomical event occurs at Casa

Rinconada at the equinoxes: the shadow of a vertical cliff to the east falls exactly across half of the great kiva at sunrise, and to an observer in the lighted half, it appears that the sun rises briefly just at the base of the cliff before it disappears again as it moves to the south. The builders of the great kiva must have placed it where it is to achieve that effect. Of course, this observation could not have been made from inside the kiva; one would have needed to stand on the roof, or beside the wall, to see it.

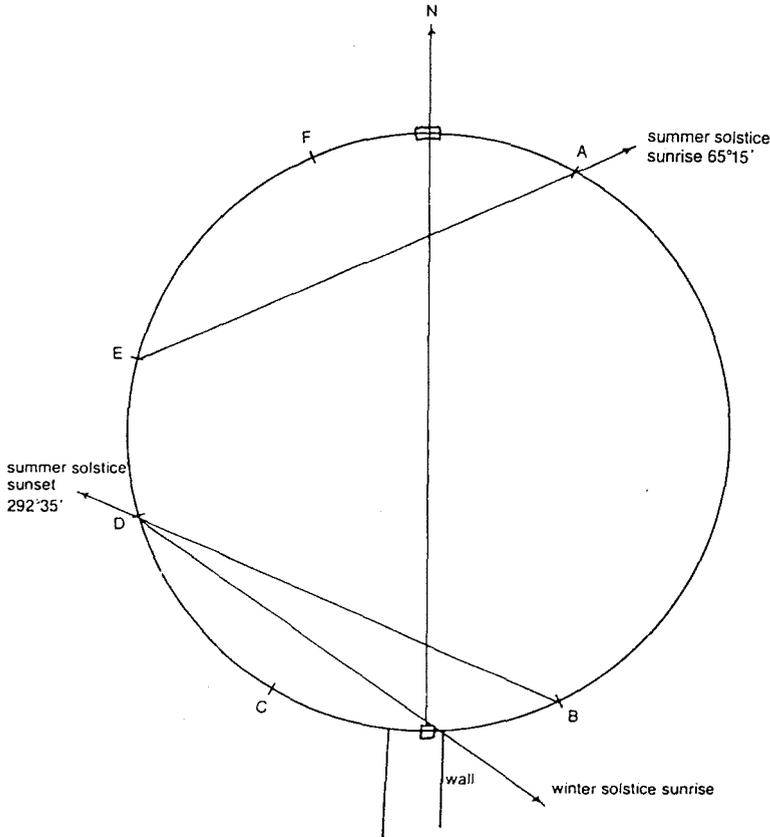


Fig. 5 Solstice alignments of the niches at Casa Rinconada great kiva (Williamson, Fisher, & O'Flynn, 1977, 209).

Les niches du kiva de Casa Rinconada sont alignées sur le solstice (Williamson, Fisher, & O'Flynn, 1977, 209).

Nevertheless, such alignments can scarcely have occurred by chance; the Pueblo Indians have historically been close followers of the Sun's movements, as is understandable for an agricultural people in an arid land with a short growing season. Each village had, and most still have, a sun watcher who climbed to one or two of certain fixed observation points each day to see where the Sun would emerge or disappear. In the pueblo of Zuni, the position of a solar ray is noted carefully at the time of the winter solstice in order to determine the time for a great annual ceremony, the Shalako. According to Cushing, "many are the houses at Zuni with scores on their [inner] walls or ancient plates embedded therein, while opposite, a convenient window or small porthole lets in the light of the rising sun, which shines but two mornings in the three hundred and sixty-five in the same spot" (Cushing, 1941, 29; Ellis, 1975, 77; Williamson, Fisher, and O'Flynn, 1977, 204).

It should be evident that an astronomical phenomenon may determine the layout of a structure even if it is not visible from within after construction. Some of the solar-ray alignments within great kivas would have been blocked by peripheral rooms or other buildings that may, in fact, have been added later, but as Williamson (1982, 205) remarks, a kiva nevertheless constituted "an earthly image of the celestial realm." An Acoma myth overtly makes this correspondence, comparing the circle of the "first kiva" with the sky and the roof with the Milky Way (Malville and Putnam 1989, 8). The central fire box could have been regarded as a symbol of the Sun. The great kivas were primarily ceremonial chambers, not observatories. Strictly speaking, the pueblo observatories were standing places for the sun watchers, often located high on cliffs that commanded a clear view of a horizon whose irregularities could be used to mark risings and/or settings. These places are sometimes distinguished by petroglyphs in the shape of suns, stars, crescent moons, and spirals. Williamson and others (1975, 53-56) have suggested, although they admit that the evidence is only circumstantial, that many of the petroglyphs showing a crescent moon in conjunction with a star may record the appearance of the Crab Nebula supernova in 1054 C.E. Ellis (1975, 59-61), however, adduces impressive ethnographic evidence to argue that these petroglyphs were not records of a unique astronomical event, but markers for sun watcher stations that were in regular use over long periods. It seems to the present author, who has examined some of these sites himself, that Ellis makes the stronger case. Yet all who have studied the matter agree that the ancient Anasazi were keen observers of the sky who timed their sacred days and located their buildings according to celestial events. The sun, moon, and stars are prominent decorations on certain masks and costumes of Pueblo kachina dancers that have been observed in modern times, and in recent kiva mural paintings. Great kivas undoubtedly had murals, too, but remains of these are lamentably fragmentary.

3.2. *Enigma of vaults*

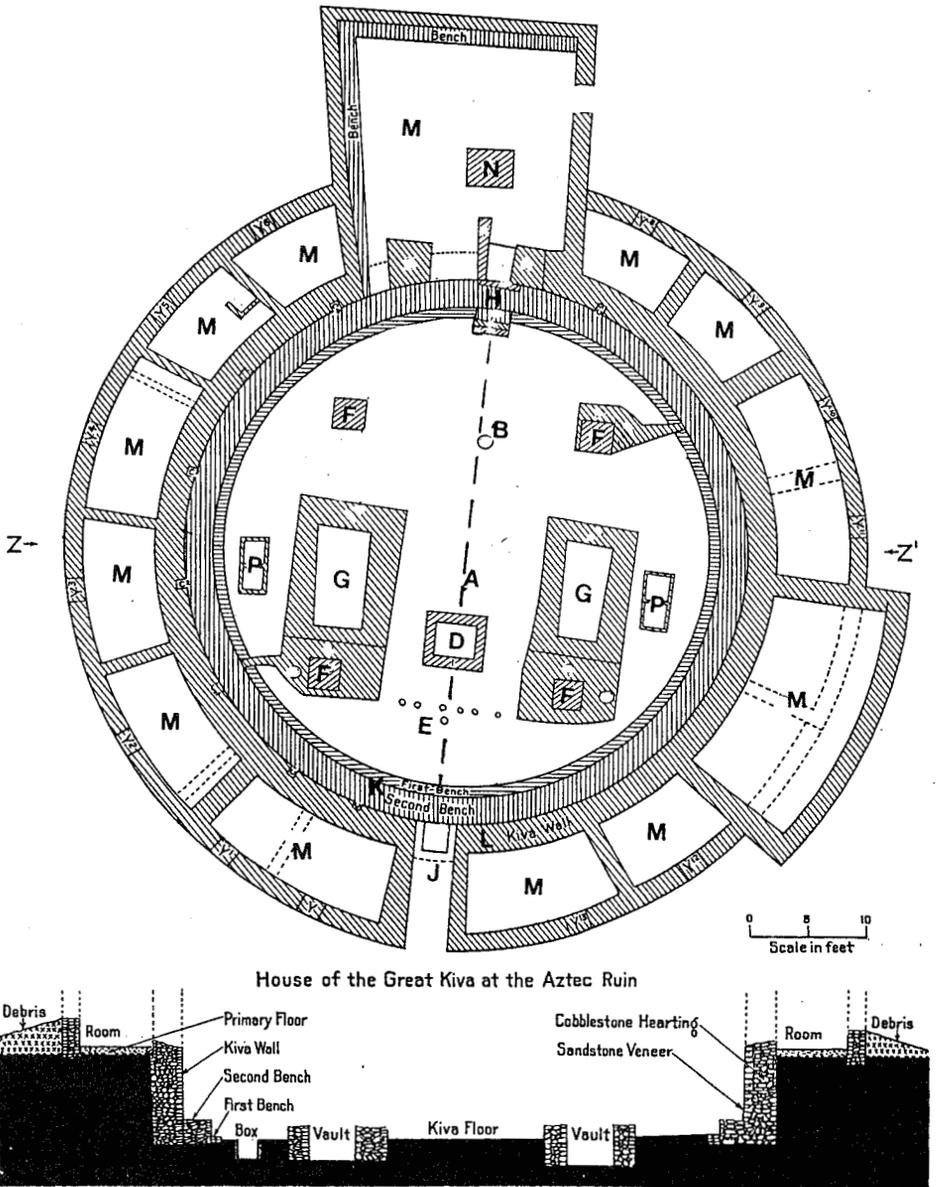
The large paired masonry vaults present an interesting enigma (e.g. fig. 6 & 7). They were not used for fire; there is almost never any trace of ashes or fire-marked stone in them. There is indeed an ash layer and fire-marked stones in vaults of the upper great kiva at Chetro Ketl (Vivian and Reiter, 1965, 41-42), but there the benches and walls also show signs of burning, indicating that the entire wooden portion of the structure was destroyed by a fire. The vaults could have been used for storage of ceremonial objects, but this was more likely the function of peripheral rooms and possibly some of the niches. Use as sweat baths, segregated for men and women, has been suggested, but since the depth of the vaults is only about 0.6 meter, seems unlikely. Another suggestion is that they were planters used to force the early sprouting and growth of corn and bean plants which would be used in ceremonies, perhaps as "first fruits" of the crops to be planted that year. While it was still too cold to begin the growing season outdoors, seeds could sprout in a kiva atmosphere kept warm by a constantly burning central fire. The Hopi Indians do this at the celebration of *Powamu* for the first sprouting of plants, and also to obtain green corn for use in the early summer *Niman* (homegoing) ceremony marking the return of the kachinas to their lodge on the San Francisco Peaks, Arizona (Titiev, 1944, 114-115; Ellis, 1975, 66-67).



Fig. 6 Photograph of exterior of restored great kiva at Aztec ruins (Lister and Lister, 1987; photograph courtesy National Park Service).

Vue extérieure du grand kiva restauré situé dans des ruines Aztec (Lister et Lister, 1987; reproduite avec l'autorisation du Service des Parcs Nationaux).

Most writers on the subject believe that the floor vaults were "foot drums." That is, they were covered with wooden boards, and the feet of dancers caused them to reverberate. The much smaller *sipapuni* holes of ordinary kivas are often treated in this way; dancers stamp on a cover board as if to let the people in the underworld know that their relatives above are performing ceremonies that merit their attention and cooperation. That dancing was a major ritual activity in great kivas seems almost undeniable. All public ceremonies of the Pueblo Indians in modern times involve group dancing of costumed participants, masked or unmasked. Adams (1991) argues that the Kachina cult, with its amazing variety of masked dancers, only began at the time the great kivas were abandoned in ca. 1300 C.E., but masked figures and masks are present in Olmec and Maya art, and elsewhere in the New World, from much earlier times. Anasazi petroglyphs from prehistoric times are hard to date closely, but they show many figures that resemble these dancers. It seems most reasonable to regard the great kivas as theatres within which great mythic events were enacted in dance and song for crowds of people who may have been considered as much participants as spectators. When asked what he thought the vaults were, one Acoma Pueblo Indian referred to a major incident in Pueblo myth (Vivian and Reiter, 1965, 92). He said that they represented the ovens into which the twin war gods were placed to prove whether or not they were actually the children of their father, the Sun. This may or may not have been the earlier symbolic meaning of the vaults, but more importantly the comment shows that a modern Pueblo Indian quite readily expects that a great kiva would have been used by his ancestors in the enactment of myth. The Acoma origin myth mentioned above states that the four supporting pillars stand for the four species of trees that helped the people climb to the *sipapuni* from below in order to enter this world.



Cross Section, House of the Great Kiva from Z to Z'

Fig. 7 Plan of great kiva at Aztec Ruins (Morris 1921; altered for clarity).

Legend: A: principal axis; B: sipapuni; C: niches; D: fire box; E: fire screen; F: roof supports; G: vaults (foot drums); H: northern entrance; J: southern entrance; K: benches; L: kiva wall; M: peripheral rooms; N: altar; Y: windows; Z-Z': cross section.

Plan du grand kiva situé dans des ruines Aztec (Morris 1921; modifié pour plus de clarté).

Légende: A: axe principal; B: sipapuni; C: niches; D: boîte à feu; E: écran pare-feu; F: supports du toit; G: coffres (tambours frappés avec les pieds); H: entrée nord; J: entrée sud; K: bancs; L: mur du kiva; M: pièces périphères; N: autel; Y: fenêtres; Z-Z': section transversale.

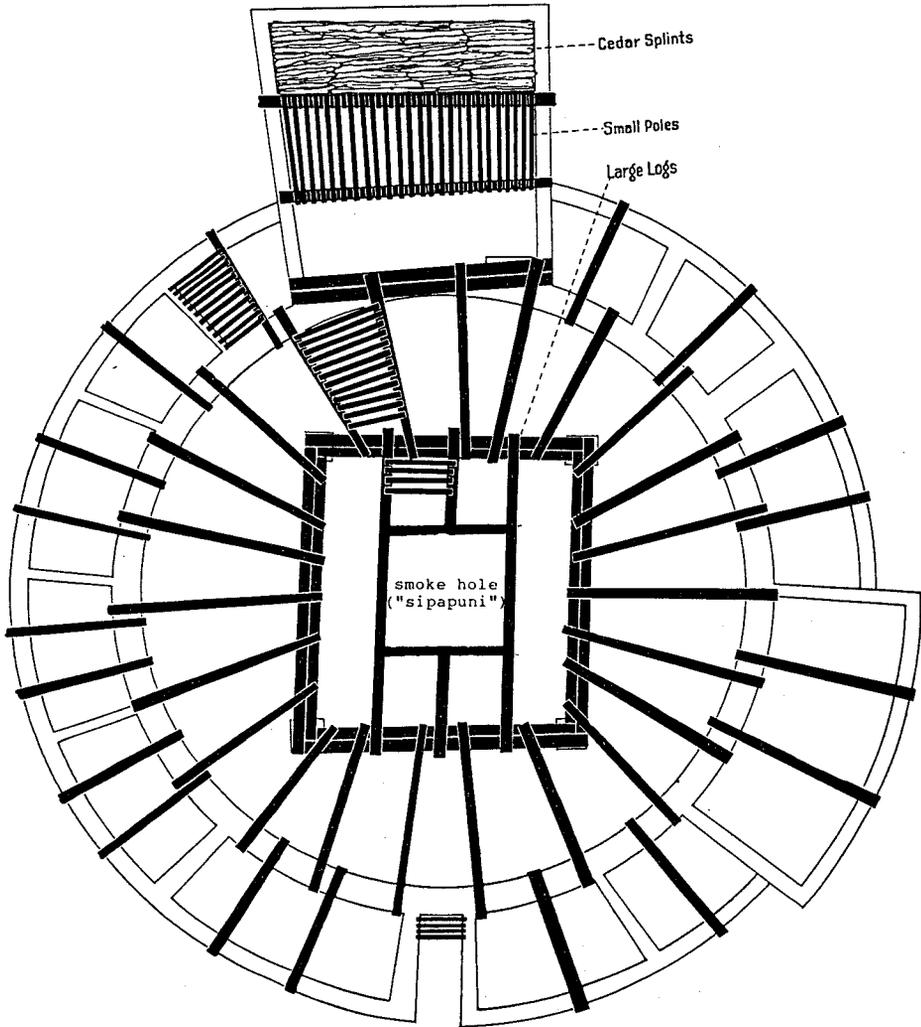


Fig. 8 Probable plan of roof, great kiva at Aztec Ruins (Morris 1921; altered to show smoke hole, or upper sipapuni).

Plan probable du toit du grand kiva situé dans des ruines Aztec (Morris 1921; modifié pour montrer le trou à fumée ou sipapuni supérieur).

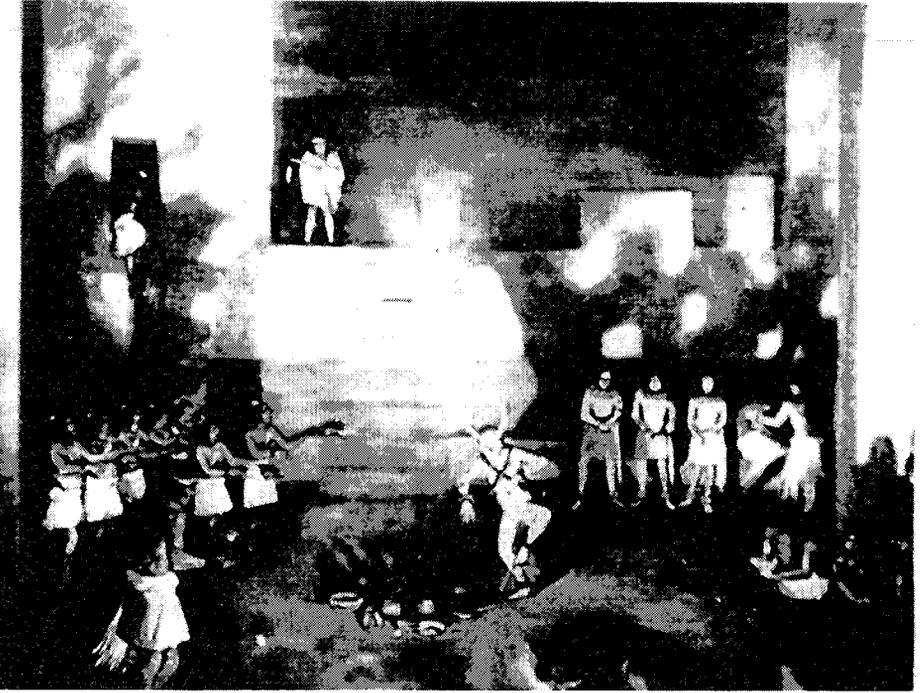


Fig. 8 Copy of painting by Paul Coze in 1951, depicting an imagined ceremony inside the great kiva at Aztec ruins (Lister and Lister, 1987; courtesy Southwest Parks and Monuments Association).

Copie d'un tableau de Paul Coze (1951) illustrant une cérémonie imaginaire se déroulant dans le kiva des ruines Aztec (Lister et Lister, 1987; publié avec l'autorisation de la Southwest Parks and Monuments Association).

In this regard the underground passageway at Casa Rinconada is most suggestive, since it would have allowed dancers to make their entrances and/or exits from beneath the floor near the centre of that great kiva. The Pueblo origin myth concerns the ascent of ancestral people, animals, and plants to this world from the underworld, actually from a series of underworlds one above the other like the storeys in a large pueblo, by means of an aperture called *sipapuni*. The number of worlds enumerated in the myths varies in different versions, but is usually four or five, rarely nine. Therefore each underworld except the very bottom one, and perhaps this upper world as well (there may be still more worlds above) has two *sipapunis*, one leading to it from below and the other ascending up to the next world (Fig. 8). A kiva also may be considered to have two *sipapunis*, the symbolic one in the floor and the opening in the roof. In smaller kivas, the roof opening ("smoke hole") is also the entrance. Although the great kiva had one or more entrances through peripheral rooms (most commonly the one on the north), it is certainly quite possible and even likely that there may also

have been a ladder leading up through the centre opening to the roof. Thus the kiva is built in the form of one of the worlds, specifically an underworld, and it may be for this reason that a great kiva is always at least partly underground. A *sipapuni* large enough to admit a costumed dancer would certainly have added to the dramatic quality of the enactment of the origin myth. It must be emphasized, however, that Casa Rinconada is the only kiva ever found with such a feature. Also there are great kivas in which even a small symbolic *sipapuni* was not found during excavation, particularly in most of those at Chaco Canyon.

The fire screen is another fascinating puzzle. A base for this feature is found on the south side of the fire box. As mentioned above, this is not a solid masonry deflector for air currents as in smaller kivas, and seems to have been a taller structure whose supports were wooden poles. It might be suggested here that this formed a painted, decorative "stage setting," a prop or background for the enactment of the myths. In the present-day Hopi kiva ceremony of *Palulukonti*, just such a screen is erected, and the tubular "body" of a plumed serpent is manipulated from behind it. Actors interact with it in front of the screen. At the very least, the great kiva screen could have borne painted symbols like those so commonly represented in Pueblo art: the Sun, rain clouds, etc.

4. Conclusion

This study has reached the conclusion that the layout of the great kiva was that of a large ceremonial theatre intended for the enactment of myths at various points in the annual cycle of the ancestral Pueblo Indians called the Anasazi. The form of the structure was intended to embody the shape of the world, including Underworld, Earth, and Sky, and the orientation of the building and its features were determined by astronomical alignments such as the celestial pole and the positions of the Sun at solstices and equinoxes. Various features of the great kiva such as the central fire box, foot drums ("vaults"), fire screen, *sipapuni* (when present), wall paintings, and the central opening in the roof that was undoubtedly present, provided the symbolic environment for the enactment and celebration of a mythic view of the world by dancers, at least some of whom were masked. Niches served as markers for solar alignments but also as places where masks and other ceremonial paraphernalia could be stored or displayed. Peripheral rooms constituted entranceways, vestries, and further storage facilities. Large numbers of spectators were accommodated, but they were considered to be participants by their presence and energy, not merely onlookers. The layout of the great kiva provided a way for these people to feel connected with the Earth, underworld, and sky, and to sense that the energies of their dance and their desire for rain, fertility, and the completion of the great cycles of life, would be carried outward and reciprocated by the powers on whom their lives depended.

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