

**SITE Bc236,
CHACO CANYON
NATIONAL MONUMENT
NEW MEXICO**



SITE Bc236, CHACO CANYON NATIONAL MONUMENT,
NEW MEXICO

by

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Z. A. B.

INTRODUCTION

The following report is the result of an archeological salvage project undertaken by the National Park Service at Chaco Canyon National Monument, New Mexico.

A special report from Chaco Canyon, submitted by the area staff to the Regional Director, National Park Service, Santa Fe, New Mexico, directed attention to the extremely precarious position of the ruin, Bc236, where it was directly on the edge of the bank of Chaco Wash. Flood waters had already destroyed part of the ruin, and it was determined that salvage excavations should be undertaken before further damage occurred.

The writer, assisted by four Navajo workmen, was assigned the project as part of his regular duties. Excavation was begun in September of 1958 on the pueblo of ten rooms and kiva, and the remains of a pithouse underlying the pueblo.

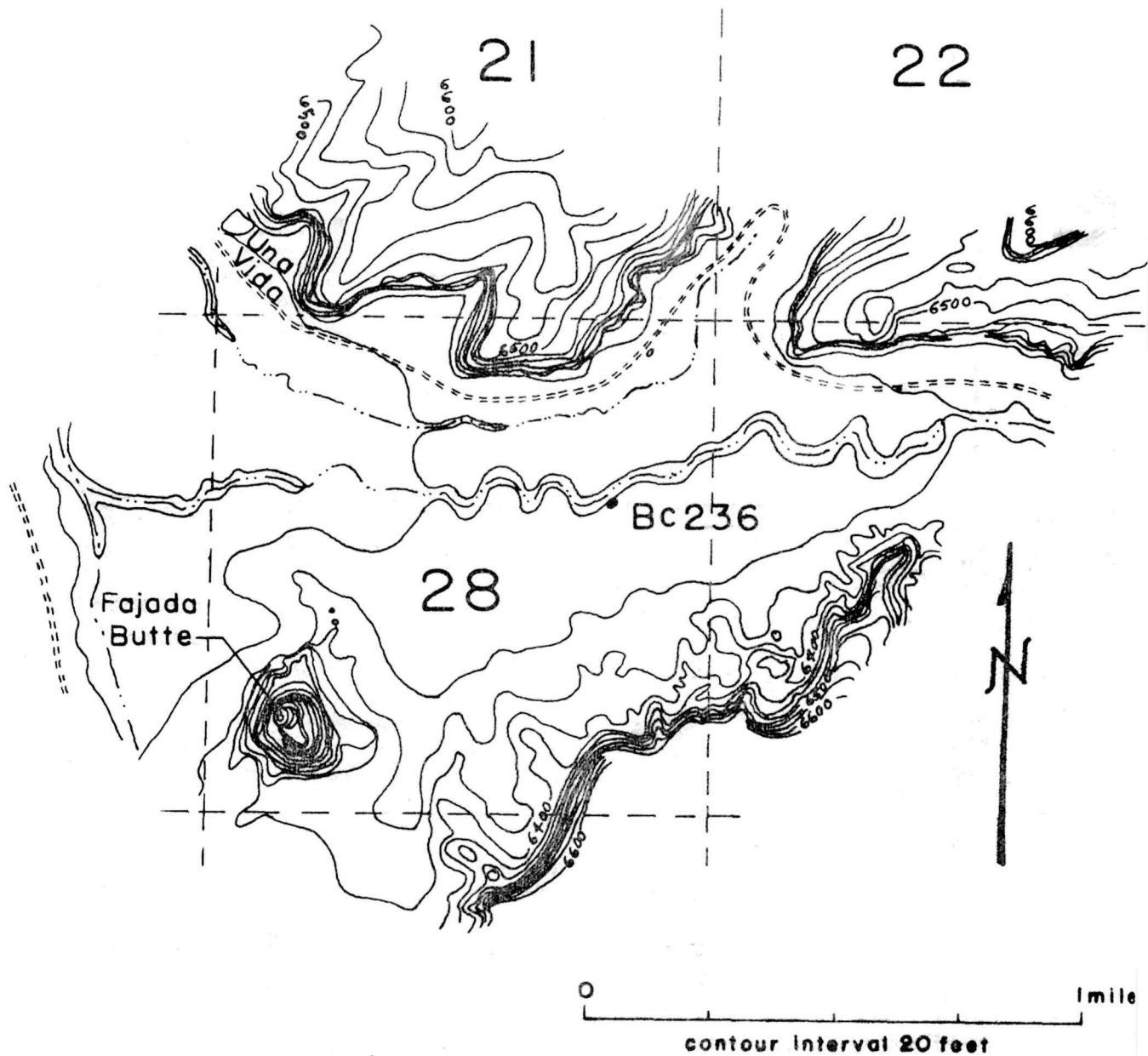


FIGURE 1--Location of Bc236 in Chaco Canyon National Monument.
 As a principal center of culture in the Southwest, the Chaco Canyon area embraces a number of great ruins and hundreds of smaller archeological sites similar to Site Bc236, the subject of this report. The aborigines that inhabited the area were excellent tool makers and weavers, but above all they were expert masons as evidenced by the remains of Bc236.

I THE PUEBLO

Location

Site Bc236 (survey number) is but one of several hundred archeological sites within the boundary of Chaco Canyon National Monument, located in the northwestern corner of New Mexico. The site is situated in the northeast quarter of Section 28, T21N, R10W (fig. 1). It lies on the south bank of the Chaco Wash at an elevation of about 6,320 feet.

The floor of the canyon at this point is almost 1 mile wide and is cut by the Chaco River as well as the Gallo Wash that enters the canyon from the northeast. Here the banks of Chaco Wash average 70 feet in width and 20 to 30 feet in height where intermittent floods have cut in the sandy alluvial fill of the canyon floor.

Chaco Canyon itself is cut into the Cliff House Sandstone, the uppermost member of the Mesaverde group. In this part of the canyon the sandstone walls rise approximately 300 feet.

The annual precipitation averages less than 9 inches in the canyon and results in a meager vegetational cover. Basically herbaceous, this cover consists primarily of greasewood (Sarcobatus vermiculatus), saltbush (Atriplex sp.) and sagebrush (Artemisia sp.) with Russian thistle (Salsola pestifer) and scattered clumps of grasses.

Recent stands of willow and an occasional small cottonwood grow within the wash. The canyon, therefore, is a marginal area falling somewhere between a desert and a steppe.

The Excavation

The site, number Bc236, falls into the University of New Mexico catalogue system, with the "B" denoting New Mexico and "c" the Chaco area. Although left unnumbered, Site Bc236 was included in a survey of the canyon made by Anderson for the National Geographic Society Pueblo Bonito Expedition in 1922. Since that time several other surveys have been initiated by the University of New Mexico, beginning with Wilson's work in 1932 (Dutton, 1938). The most recent work is that of Lloyd M. Pierson of the National Park Service in 1948.

The mound at Bc236 rose about 4 feet above the surrounding flat canyon floor. It was partially cut by the Chaco Wash on the north; on the south and west sides, small erosional channels, tributary to the Chaco, were cutting back into the ruin.

Scattered over the mound were shrubs typical of those on the canyon floor. A single row of aligned stone, indicative of a wall, was exposed when this cover was removed.

Excavation was begun by trenching along the small portion of exposed wall and continuing along exterior walls until the complete

site was outlined. An additional trench through a depression in the southwest corner produced evidence of a kiva.

The 10 rooms of the site were all constructed with masonry in the double-faced tradition. Many of the larger blocks in the walls had been shaped by pecking and smoothing.

The heights of wall remains ranged from 13 inches on the south side of Rooms 1, 2, and 3, where erosional wash down the slope of the mound destroyed the construction, to about 3 feet, 4 inches high in the central portion of the ruin where the walls were better protected.

Rooms were generally oriented with their long axes running north and south. Interior room dimensions ran from 12 by 5 feet 11 inches in Room 1, to 21 feet by 12 feet in Room 10, the largest in the village.

The arrangement of four post holes in Room 10 and the apparent similar arrangement in Room 2 were the only indications of a roofing method. With the exception of a quantity of hard chunks of adobe clay from Room 2, there was no evidence of roofing material.

Room 1

Two floor levels were uncovered in the room. The first level occurred at a depth of 26 inches (from the top of the north wall). The floor was composed of a well-compacted adobe, ca. two inches thick and nicely smoothed. Other than the firepit, described below, there was but one notable feature in the floor. This was a hole,

3½ inches in diameter by 4 inches deep, in the northwest corner of the room. Its use was not determined.

Small, thin patches of white plaster still clung to the rock and mortar along the base of the north and east walls.

The firepit at this level was located against the east wall, 56 inches from the southeast corner. Roughly rectangular and lined with sandstone slabs, it measured 26 by 20 inches with the long axis against the wall. The pit was 11 inches deep and was filled with a fine white ash. The wall was burned red and smoke blackened above the feature. A broken piece of flat sandstone metate and a fragment of broken sandstone mano were the only artifacts recovered from this level.

A second floor level, 4 inches below the first floor surface, consisted of the purposely leveled, original ground surface. An excavation had been made by the builders to prepare a level surface upon which to build; foundation stones were laid on this prior to wall construction. This occupation surface was probably used only while construction was in progress. A firepit, 23 by 28 inches, lined with thin sandstone slabs, had been placed against the west wall. The only artifact recovered was a bird-bone tube beside the firepit.

Room 2

A large quantity of hard chunks of adobe, 3 to 4 inches thick, lay on the floor in the northwest corner of Room 2, material that

at one time probably comprised a portion of the roof. A poorly packed layer of earth formed the floor. Two holes in the floor, 4 inches in diameter and of undetermined depth, were noted--one in the northwest corner, the other in the southeast. These are probably post or pole-holes and, although only the two were located, their opposite number may have been lost in the poorly packed dirt floor. Because of the large size of the room it would have been difficult to roof without using a four-post and rafter arrangement.

The hemispherical firepit was located against the south wall. Its long axis of 22 inches paralleled the wall; it was 18 inches in diameter and 12 inches deep.

A burial was located on the floor in the northwest corner. These infant remains had been disturbed and were accompanied by a single Mesa Verde Black-on-White bowl.

A flat, sandstone slab metate was recovered from the center of the room. The metate, two bone awls, an Olivella shell bead, and the bowl from the burial comprised the material items recovered.

Room 3

After removing the fill from Room 3, it was thought that at one time Rooms 1 and 3 may have been a single unit which was later divided. However, further work revealed that this was not the case; during the original leveling of the ground surface, the builders left a definite earth ridge on which the dividing wall was built.

The west wall of Room 3 contained a niche at floor level 9

inches from the northwest corner. This niche was floored with a thin piece of sandstone that extended into the room about 3 inches. Adobe plaster covered the interior and a rim of clay outlined the piece of sandstone where it extended into the room. The niche, found to be empty, was 12 inches deep and 6 inches high.

A well-packed adobe floor, from 1 to 2 inches thick, had been laid from wall to wall. In the northeast corner the clay extended to a height of 6 inches. There were no indication that the interior walls had been plastered.

A rectangular slab-lined firepit, measuring 11 by 13 inches and 9 inches deep, was located near the center of the room, which also contained three manos, three restorable pottery vessels, a bird bone tube, and an awl.

While testing for subfloor conditions, another use-level was discovered. This original ground surface was 6 inches deep along the north wall. A rectangular firepit built against the west wall indicates that this level may have been used while construction of the village was in progress. This slab-lined pit measured 20 by 30 inches and 6 inches deep.

Room 4

Three periods of use were defined in the fill of Room 4. At a depth of 10 inches in the southwest corner, a crude stone-lined firepit was built into the sterile, rather loose fill. There was no recognizable floor or occupation level.

A second level was found at a depth of 20 inches, and the occupants, forming their floor, leveled some 6 inches of fill, including collapsed roofing material. Floor features at this level consisted of one well-built firepit against the north wall and evidence of another against the south wall that had been broken down.

The firepit against the north wall, positioned 28 inches from the northeast corner, was 9 inches deep, 18 inches wide, and 26 inches long--the axis paralleling the wall. It was lined with sandstone slabs coated with burned clay on the interior.

Following the broken-down firepit, the excavation was carried to a third level used by the first occupants of the room. The floor at this level was from 4 to 6 inches below the roofing material that had formed the second level. The sandstone slabs lining this firepit had evidently protruded through the fill and had been broken down in an effort to smooth the floor. This third floor was one of well-compacted clay and contained no features other than the firepit mentioned above.

Subfloor conditions in Room 4 were quite like those encountered in rooms previously described. An excavation was started on the east and south, cutting into the low mound upon which the village was built. The rim of the excavation was then cut down to form an even shelf upon which to lay the wall. On the north end of the room this shelf was 8 inches below the old ground surface, as shown by later excavation in the courtyard to the north of the room.

Artifacts from the second level included an arrow point beside the firepit, an Olivella shell bead with a shell disk, and a jet disk bead jammed into its opening--probably all part of a string.

Room 5

The first level had a smooth clay floor with an unusual rectangular firepit in the center (pl. 1). The pit measured 20 inches long. The fire box was 9 inches deep and 15 inches wide. On the west side of the pit, an area 8 inches wide and the same length had been outlined on all but the south end with sandstone slabs set on edge. These slabs protruded above the floor level from $\frac{1}{4}$ to $\frac{1}{2}$ inch and was free of ash and evidence of burning, but the area undoubtedly served some function in the cooking process.

Another and earlier firepit against the south wall was also exposed. The central portion of the south wall was smoke stained and fire reddened. Projecting above the floor about $\frac{1}{4}$ inch were the tops of the sandstone slabs lining the firepit. It had probably been used by the more recent occupants of the room; however, they discontinued its use and filled it with floor clay.

Subfloor conditions were quite interesting. The original ground surface had been leveled, leaving a rim about 4 inches high around the excavation on all but the south side and upon which were placed the foundation stones for the walls. This floor served as the original occupation level.

Near the east wall was a circular depression, 27 inches in

diameter, that had been cut into the floor to a depth of about 3 inches. This appeared to have had very little use as a firepit.

In the south-central portion of the room were two in-place, flat-slab metates. These were set into a shallow depression dug into the floor and plastered in place (pl. 2). Another flat-slab metate was lying in a floor depression in the north end of the room, with a biface sandstone mano nearby; other broken pieces of mano were found throughout the fill. In addition, this room yielded a bird-bone tube and a bone awl.

The north wall extended 31 inches above the 4-inch-thick foundation stones which, in turn, had been placed on the 4-inch-high rim of the excavation, resulting in a total wall height of 39 inches (fig. 2).

Room 6

Room 6 was near the tip of the mound upon which the village had been built; evidently no excavation prior to construction was necessary. Furthermore, this room showed only one level of occupation. The floor consisted of well-packed adobe, and, as in a majority of the rooms, contained a firepit, the only floor feature. Centrally located, the firepit was rectangular, 20 inches long, 19 by 19 inches in diameter, and was filled with a fine, white ash. The slabs lining the pit were buried in the underlying soil and were also held in place by a thick plaster.

The south wall of the room, a continuation of the same wall that formed the separation between Rooms 4, 5, and 6 from Rooms 1,

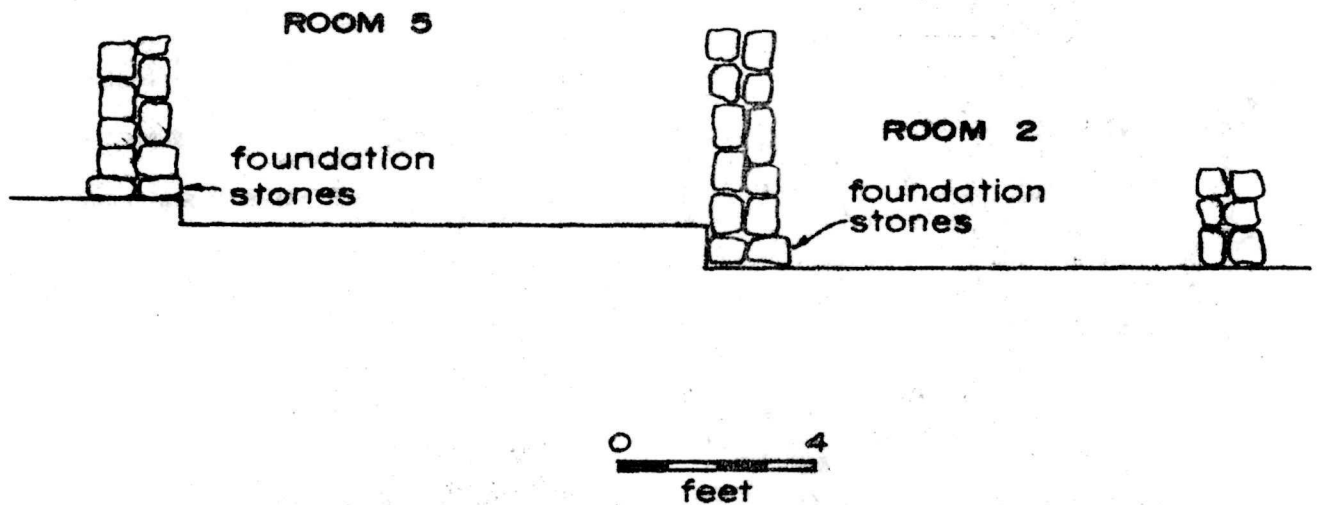


FIGURE 2--Section through Rooms 2 and 5, Bc236.

2, and 3, exhibited a somewhat different style of construction. This section of the wall is reminiscent of Hawley's Masonry Type 7 (Brand, D.D., et al., 1937), whereas the wall construction throughout the remaining rooms would fit her Masonry Type 8, including the opposite side of this double-faced construction.

Although used primarily in the central portion of the south wall, this use of blocks with bands of spalls does constitute another approach in the masonry of the site (pl. 3).

One other wall feature worth noting was a niche in the west wall of the room near the southwest corner, just above the floor. It measured 6 inches square by 9 inches deep, and was plastered and fixed with a clay collar around the inside at the mouth in such a way as to receive a small slab of stone as a cover (pl. 4). The cover was not found and the niche was empty. An excellent example

of a so-called "ceremonial" skinning knife or Tcamahia was found on the floor immediately below the niche.

A single subfloor feature was encountered against the north wall. This was a shallow, basin-shaped pit which contained a greasy, clay-like material which appeared to be disintegrated soapstone. There were no other indications that this level had been used.

Room 7

The first occupation level was encountered at a depth of 10 inches. A rough, irregular floor had been formed of compacted earth with some clay. A shallow basin, centrally located in the room, 29 inches in diameter by 6 inches deep, contained ash but exhibited very little use. The pit had been cut or scooped from the floor and was unlined.

At a depth of 20 inches, a second floor level appeared with a floor considerably better prepared than the first; it was plastered with a thick coating of clay.

A hexagonally shaped, slab-lined firepit was encountered near (but not against) the east wall. Its long axis, running east and west, measured 20 inches; it was 17 inches wide and 8½ inches deep.

After testing through the second floor level, excavation continued down along the south wall for an additional 20 inches through a loose, sterile fill composed mainly of sand, to a third floor level. This floor was also composed of smooth adobe but, with the exception of another firepit, there were no floor features.

This firepit, 4 inches deep, was slab lined and quite shallow compared to other rock-lined firepits in the site. It had been formed by walling off the southeast corner.

A sealed doorway in the east wall was noted while working at this level. It proved to be one of three doorways within the entire village. The sill of the door was plastered, and was located 11 inches above the floor. It was 27 inches wide and the sides extended upward 29 inches to the top of what remained of the east wall. It had probably been sealed during the time of the second occupation of the room. A fourth occupation level was encountered upon excavation through the clay floor of the third level down to the sterile soil. The fourth level, as in the other rooms, was that used by the builders of the room during the construction period, and was identified by a firepit on the north side of the room. The pit was basin shaped, 18 inches in diameter, 6 inches deep, and was clay lined. There was no clay rim around the basin, but it was deeply fire reddened, indicating considerable use.

No artifacts were recovered from the fourth level; a sandstone disk pot lid, three bone awls, and two metates were found on the third level.

Rooms 8-9

The first occupation level encountered in the room(s) came at a depth of 5 inches in the fill. The level extended across the full length of the room but was divided at the midpoint by a masonry

wall which later proved to be only three rows deep placed on the fill, resulting in a room size of 9 feet, 5 inches wide by 9 feet, 10½ inches long. The floor surface was irregular and was formed of a compacted earth. A slab-lined firepit beside the central portion of the south wall was 23 inches long, 13 inches wide, and 6 inches deep. Two metates were found. One, a flat slab, was still plastered into a bin. The bin sides were composed of sandstone slabs on the south and east; a rim of clay about three inches high formed the north side. The other, a small metate, was troughed and had evidently been propped on two stones rather than in a bin (pl. 5). This same floor level continued across Room 9 but no additional features were noted. The excavation was carried through 32 inches of sterile fill to an additional floor at the base of walls resting on the foundation stones. This was a poorly packed earthen floor with an unlined basin-shaped firepit near the center of the floor. The pit was 18 inches in diameter and 4 inches deep. The west wall of the room was thoroughly checked and, with the exception of three single rows of stone masonry on the surface, there was no indication that a wall of any type had been placed there.

In so-called Room 9 (the west half of this large room) the same conditions prevailed. The top level was encountered at about 5 inches; then 32 inches of fill to a floor that was an extension of the one encountered in Room 8. One additional firepit was uncovered in this section of the room. It was 12 inches deep and

18 inches in diameter. The pit was unlined and appeared to have been scooped out of the sterile soil forming the floor.

Artifacts recovered from the second level include two large, closed-end trough metates from the floor in the east end of the room, two bone awls, and a broken knife blade made of chert. The fill produced two flat-slab metates and ten mano fragments.

Evidence indicated that the room had burned; the second floor level was thin but covered with a quite noticeable layer of burned material. However, there were no charred logs or large pieces of charcoal evident, and it appeared that either the roof had not collapsed or the room had been fairly well cleaned after the fire--and perhaps re-roofed.

A sealed door was encountered in the north wall of the room. The three layers of stone masonry forming the wall between Rooms 8-9 joined the north wall at the center of this doorway. It is quite possible that the room had been sealed and deserted after it burned. The work may have been accomplished by the occupants of Room 10 adjoining.

Tests were made for subfloor conditions but there was no evidence that any occupation had taken place on the old ground surface as had occurred in the other rooms. Some leveling of the surface was noted and the walls were supported with foundations of large irregular stones.

Large patches of a brown adobe plaster still adhered to the

masonry along the base of the east and north walls (pl. 6).

Room 10

Room 10 was positioned directly on the bank of Chaco Wash which carried off a small portion on the north side. What remains still comprises the largest room in the pueblo. It is 21 feet long on the east-west axis and 12 feet wide. There were no indications of a dividing wall at any point, but the large size of the room can be partly explained by the discovery of the rotted remains of one post and three post holes. These indicated the necessary superstructure for a roof. The post remained at this writing and stood some 15 inches high, but it was so rotted that no tree-ring dating was possible. The post holes were ca. 9 inches in diameter and 6 inches deep; these were the only features noted in the irregular floor formed by the old ground level.

Firepits, if any, must have been in the northern portion of the room against the wall and were eroded away. It is also possible that those in the courtyard east of the room may have served the occupants.

The walls that remain are well constructed and of the same double-faced variety as in the other rooms. A third doorway in the east wall was also sealed. It led outward onto the east courtyard and, since there was no evidence of a secondary occupation in the room, it had probably been sealed by the original occupants. The sill of the doorway was 14 inches above the floor and the

opening was 23 inches wide. The post was located just inside the doorway, within the room.

Two partially restorable pottery vessels were recovered from this room.

Kiva

Within the houseblock of the pueblo, in the southwest corner of the site, was an exceptionally well-preserved kiva that showed two distinct periods of unrelated use. Trenching exposed the wall in the southeast portion of the kiva and excavation was begun. At bench level, 46 inches deep, a well-plastered, wall-to-wall clay floor was encountered. That the kiva had been used for other than ceremonial purposes at this period was readily apparent.

A firepit had been built on the bench on the south side of the kiva. It was rectangular and incorporated the west side of Pilaster No. 6 and the wall of the kiva as integral parts. Across the front of the bench and curving to the wall was a masonry rim of small rock about $7\frac{1}{2}$ inches high that had been plastered over. The firebox extended 32 inches along the bench and was 22 inches wide by 9 inches deep. A storage bin had also been built in the southern end of the kiva. This was constructed by building a rudely formed wall that curved out into the room from the outer edge of Pilaster No. 1. Its greatest arc was some 4 feet from the kiva wall, extending to form a doorway 20 inches from Pilaster No. 6. The greatest height of this wall was 33 inches where it attached to the pilaster.

It was built using a double row of stone that diminished to a single row near the doorway (pl. 7). Although the floor throughout the kiva was well constructed of packed adobe, it was made up on nothing more than the smoothed, sandy fill within the storage bin.

Several squash seeds were uncovered beside the wall within the bin but they disintegrated before they could be preserved. Other items recovered from this floor level were a turquoise ear bob and a selenite crystal pendant.

Carrying the excavation down to the original floor, the kiva proved to be 6 feet, 10 inches deep and averaged 16 feet in diameter. The kiva wall was nicely plastered from a few inches above the bench to the floor--preservation the result no doubt of the protection afforded by the secondary clay floor that had been placed at the top of the bench. Careful checking of the plaster revealed at least five rather thick (ca. 1/8th inch) coatings of brown adobe on the wall. There was no evidence of painted or incised decorations.

The kiva masonry was Chacoan and fell in Hawley's Type 9 for the Chaco, with a rubble core and a small slab facing.

The pilasters were quite evenly spaced around the wall and rose some 3 feet above the bench. They averaged 30 inches in length and usually came within 1 inch of being the same width as the bench. Each pilaster showed in its center an original and smaller element, indicating that each had been enlarged (pl. 9). After tearing out the enlargement, these smaller units, measuring approximately 15

inches in each dimension, proved to be similar to the pilaster found in other Chaco kivas--lacking only the log core common to the late Chaco pilaster.

The bench completely encircled the kiva and averaged almost 17 inches wide with the exception of the southeast side above the sub-floor ventilator. The exterior ventilator shaft was exceptionally well made. It was rock lined, with interior dimensions of 18 by 12 inches, and was built against the exterior wall of the kiva, incorporating this wall as a part of its construction.

The masonry ventilator trench, lined with two rows of stone, projected into the kiva. The floor of the trench was plastered and extended into the room for about 5 feet; the bottom of the trench inclined upward to meet the kiva floor. This trench was 17 inches wide and, at the wall of the kiva, 15 inches deep. Small poles had been placed across the trench and were covered with thin, split shakes, with a final thick clay cover forming the kiva floor. The opening was almost square at the mouth (17 by 18 inches) and its depth was 9 inches.

A rounded rim of clay, about 7 inches wide and 4 inches high, had been placed around the mouth of the vent with the exception of that portion immediately adjacent to the firepit, where it rose to 8 inches, forming a low fire screen between the vent and firepit (fig. 3).

The firepit was circular, 23 inches in diameter and 9 inches

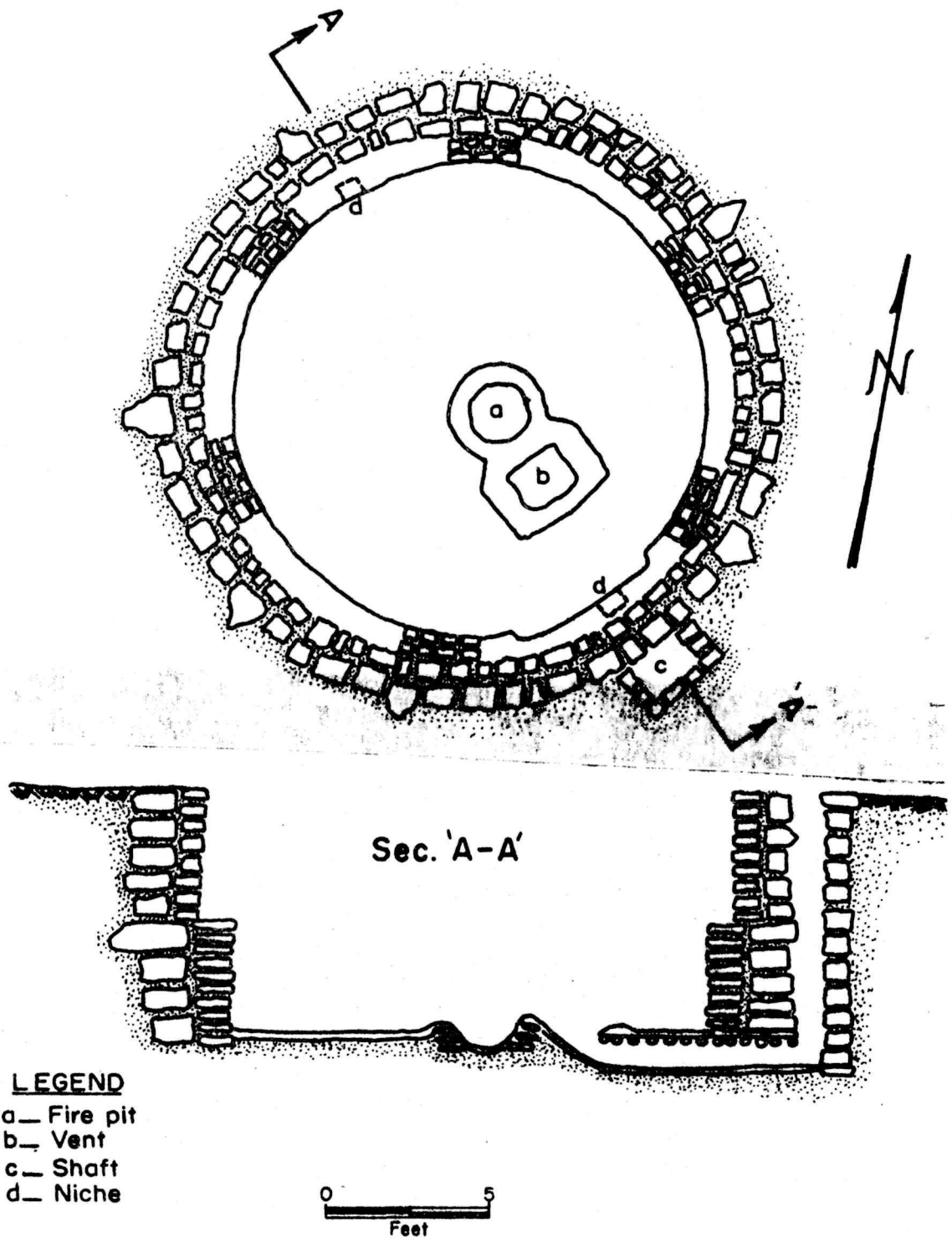


FIGURE 3--Top view plan of kiva and cross section, Bc236.

deep. It was rock lined and heavily plastered with a low rim of clay which blended into a similar rim around the vent (pl. 8).

A flat-slab metate which had been plastered into the floor even with the surface, was found beside the ventilator opening. Several other grinding stones were scattered over the floor nearby.

There was no sipapu. However, if some such opening had been necessary, a wall niche found in the north wall of the kiva and directly in line with the vent and firepit could have served. This niche was in the lower part of the bench, $9\frac{1}{2}$ inches above the floor, and was $8\frac{1}{4}$ inches wide, 7 inches high by 10 inches, floored with a thin sandstone slab collar of jamb at the mouth, which probably received a small door slab. A complete chert arrow point was found directly below this niche on the floor. After the wall plaster had been removed, yet another niche was discovered directly over the one below (pl. 10).

In the southern recess of the kiva, two niches were found after plaster had been removed, one above the bench and one in the bench at floor level. The lower niche was $4\frac{1}{2}$ by $5\frac{3}{4}$ inches high and 12 inches deep. The upper niche was $14\frac{1}{2}$ inches above the bench. It measured 5 inches square, 13 inches deep, and had a plastered clay floor.

There was no indication of the method used in roofing the kiva. With the original pilasters rising only 15 inches above the bench, it is rather difficult for one to visualize the builders putting in a

cribbed roof reaching to the top of the remaining 3 feet of wall. This was especially apparent when one considers that it would have cut down head room and that the 16-foot diameter of the kiva could have been spanned by the timbers available as evidenced by other Chaco kivas.

During the second period of use the roof was probably flat. The pilasters had been enlarged and now reached the top of the wall; a flat roof at this level would have resulted in an even plane across the building, forming an open court.

The kiva, typical for Chaco, was enclosed within a walled, rectangular area. The corner areas thus formed outside the kiva are seldom used, having been backfilled during construction. However, both the northeast and the southeast corners of the enclosure at Bc236 had been used, probably for storage purposes.

In the northeast corner, double-faced masonry walls had been built on the west and south sides to enclose the corner. There was no noticeable floor other than a somewhat compacted area at a depth of 27 inches, the level on which the enclosing walls had been started.

The southeast corner, although not walled off, was divided into sections by a curved wall just north of the corner junction. The wall ran from the west wall of Room 3 across the corner to the kiva. This crude masonry wall was 14 inches high and was composed of a single row of irregular stones. A floor, poorly defined, was made

up of the compacted fill. As in the northeast corner, there was no indication of the actual use of the area.

Courtyard

To the east of Rooms 7 and 10 was a rather large courtyard or work area which showed two distinct periods of use. The area was divided into a north and south section by a wing wall, a projection eastward of the north wall of Room 7. It extended into the court for a distance of 8 feet 4 inches. The excavation of the two areas was carried east only 2 feet beyond the eastern edge of Room 4.

The first work area level was encountered at a depth of 16 inches. This consisted primarily of compacted dirt and produced no interesting features. Sherds recovered consisted almost entirely of Mesa Verde White Ware.

A second work area was encountered at a depth of 26 inches, a level comparable to the floors in the adjacent rooms (pl. 11). Sherds recovered from this level were predominately of the Chaco varieties and Mesa Verde Ware.

Features of interest in the southern half of the plaza included three large basins, none of which were firepits. One basin, on the south side, was 25 inches in diameter and 6 inches deep. It was clay lined but showed no evidence of fire. To the north and in line with the wing wall was another basin, 15 inches in diameter and 5 inches deep, also clay lined and with a rim of clay some 2 inches high around it. There was no indication of its

having been burned. The third hole, in the west end, could have contained a post; it was 11 inches deep and $11\frac{1}{2}$ inches in diameter. The use of a post in this position is unknown, although it might have served as a support for a jacal-like structure that could have covered this part of the plaza. Such a structure, a brush shade perhaps, may also have covered the northern portion of the court. Here a series of small post holes, 3 inches in diameter and 4 inches deep, ran in a line northward from the northeast corner of Room 7 and possibly constitute the remains of another shade that covered the western section.

A basin-shaped firepit, 24 inches in diameter and 4 inches deep, was encountered in the northern half of the plaza beside the wing wall. It showed considerable use. A second pit in the western portion of the court was 18 inches in diameter and 3 inches deep. The firepit was filled with fine white ash and small bits of charcoal. A third firepit, also a basin, was found on the edge of the wash; a portion of it had eroded away. It had a diameter of 20 inches and was 4 inches deep. One or more of these firepits possibly served the occupants of Room 10.

The courtyard had been limited by a wall to the east, either a wing wall projecting from an eroded section of the village or, perhaps, simply a windbreak. However, only a small portion remained, most of the stone having been used for later construction.

Other Associated Features

Two unusual stone-lined pits were excavated near the pueblo site. Sherds from one pit, possibly a store room, provided evidence of its association with the pueblo ruin. The other structure, a deep firepit, contained no sherds or other material that definitely indicated its association; however, those few sherds recovered from the upper levels indicate an association with the pueblo.

Storage room-- To the east of the ruin and outlined on the surface, was a slab-lined, oval pit. Excavation showed the room to be 5 feet 9 inches long, 4 feet 2 inches wide, and 15 inches deep. It was slab lined for little more than half the circumference, the west end of which was formed by the earthen bank of the cut. The floor of the pit had been plastered with adobe. There were no floor features nor any evidence on the exterior indicative of a roof--a not unusual situation in sandy soil.

Half of a closed-end trough metate was found outside the wall on the southeast side lying against one of the slabs, the only artifact found in association.

The function of the pit is conjectural, but it may have been a granary or similar storage unit.

Deep firepit-- West of the ruin and situated on the bank of the wash was one of the most interesting features encountered at the site (fig. 4). Surface indications, at first glance, showed only a

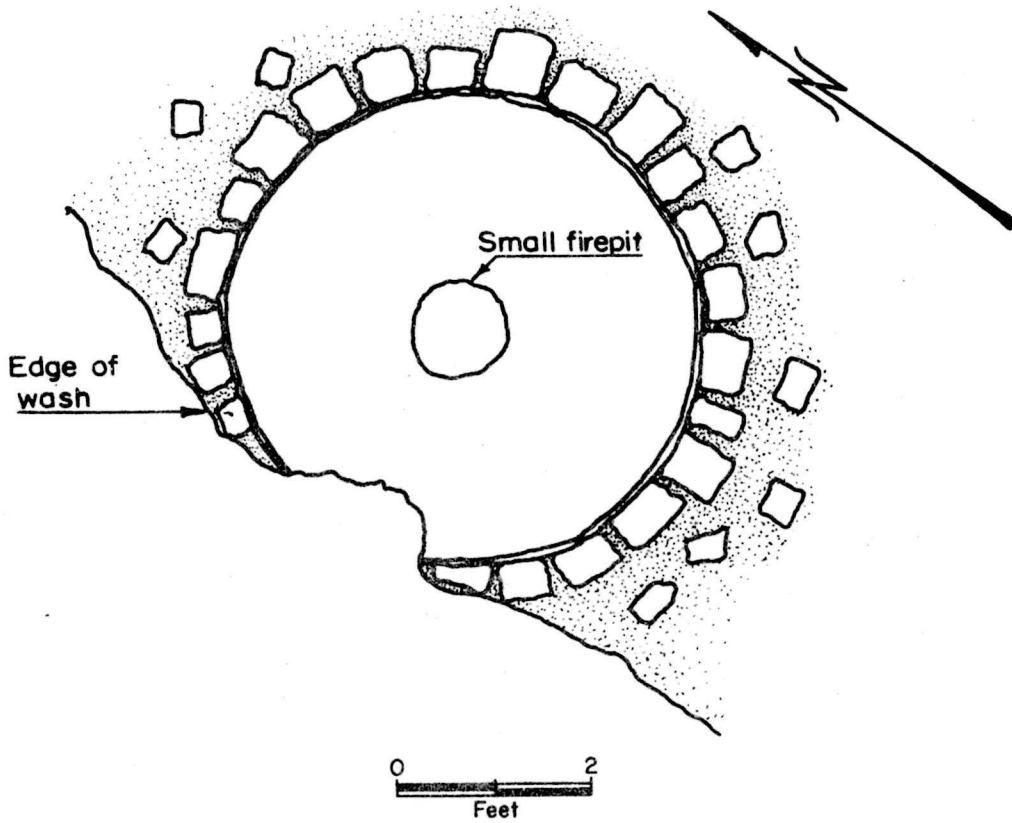
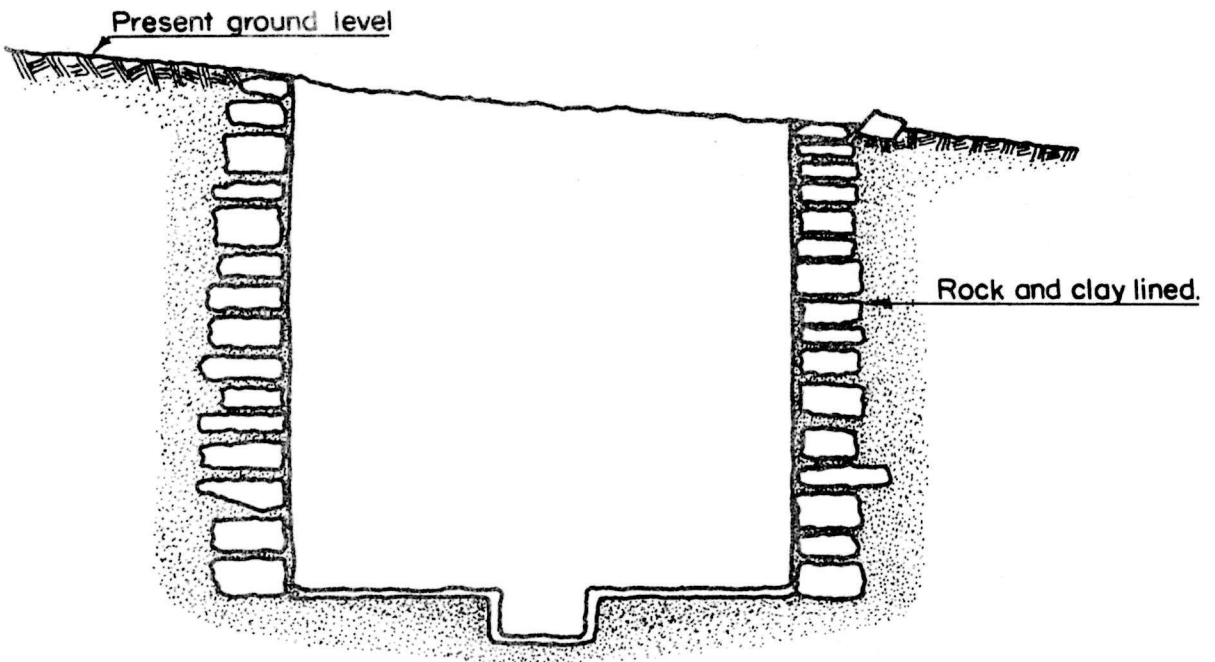


FIGURE 4--Deep firepit at Bc236.

rather large firepit rimmed with burned stone. A part of the northwest quadrant of the circle was missing and had eroded into the wash (pl. 12). Burned sandstone rock lining the pit had been exposed to a depth of 4 feet 9 inches where the wash had eaten into the structure. Neatly constructed, the pit had a diameter of 5 feet 1 inch, was lined with small sandstone rocks, and had been plastered--most of the plaster having fallen from the upper half of the wall (pl. 13).

The fill occurred in three main sections, which were almost equally divided through the height of the pit. Each section of fill was composed of the same materials, and the sections were separated by clay floors. The bottom layer, differing somewhat from the other two, contained a small, clay-lined, cylindrical-shaped firepit in the center of the adobe floor. The pit was 10 inches in diameter and 8 inches deep.

Several large, irregularly shaped rock fragments lay on the lowermost clay floor. They were included with a well-compacted, white ash matrix. On top of the rocks and ash was a layer of chunky charcoal intermixed with a somewhat loose sandy soil. The fill was topped with a thin layer of clean sandy soil.

The second and first levels of fill corresponded exactly to that in the third. The first and second levels produced the only sherds recovered from the pit. They were so few in number (probably washed in from the surface) that their analysis was meaningless, except that they indicated an association with the pueblo rather

than the pithouse described below. The only other material recovered from the pit was a group of turkey bones from the second level. These were not calcined and consisted of a back with articulated legs and a single, non-associated femur.

The pit certainly did not indicate constant use or the various levels would not have been sealed off with a sterile layer of dirt. Each level appears to have contained a single large fire. Possibly the stones were placed for better oxidation. A large fire allowed to burn for some time would generate a terrific heat within the stone-lined pit and, if the flames were dampered with dirt, as seems to be the case, the pit could have been used to roast meat. Literature on southwestern archeological areas has failed to produce an analogous structure.

At Nalakihi Ruin, Wupatki National Monument, Arizona, D. S. King (1949) uncovered 16 pits, which he has placed into three main classes; (1) jar-shaped, (2) pits with vertical sides, and (3) pit ovens similar to those of the Hopi Goishi.

None of these were stone or plaster lined, and fire hardening was not marked except in the ovens. Two of the Class 1 pits had a clay cover or roof, and showed impressions of corn cobs and yielded charred cobs--all of which is indicative of storage pits or ovens.

The Class 2 pits were all circular and ranged in depth from 14½ to 40 inches and had diameters of from 19 to 56 inches. These were not fire hardened.

Two pit ovens with flues comprised the third class. This type of oven is similar to those used by the present-day Hopi for baking sweet corn in the husk. These were about $3\frac{1}{2}$ feet deep, jar shaped, and with flues that angled upward to the surface.

J. C. McGregor (1941) describes an unusual pit uncovered at Winona, east of Flagstaff, Arizona. It was about a meter deep, roughly circular with vertical sides, and about $2\frac{1}{2}$ meters in diameter. It was neither stone nor plaster lined and showed no signs of having contained fire.

Describing two storage pits in the Group 3 structures at Kiatuthlanna, Roberts (1931) reports that the largest was oval in contour with plastered walls, and measured 7 feet on the long axis by 5 feet 8 inches wide, and was 3 feet 4 inches deep.

The second pit was smaller. It had a long diameter of 4 feet, was 3 feet 3 inches wide, and 2 feet 3 inches deep. Roberts states that these were storage pits and that they showed no indication of fire.

At Shabik'eshchee Village, Roberts (1929) uncovered another unusual pit. This is bin No. 7, which was oval in shape with a diameter of 7 by 8 feet. The average depth was only 2 feet, but the pit was plastered and had a ring of horizontally placed slabs around the top of the pit; however, it had not been burned.

In the Chino Valley, near Prescott, Arizona, at Kings Ruin, Spicer and Caywood (1936) reported several large pits. A circular,

stone-lined pit, 2 feet 10 inches in diameter and 2 feet deep, was found within Room 1. This pit is reported to have been used for roasting and was subjected to great heat.

Four other pits, also found in rooms at Kings Ruin, but not rock lined, occurred at Bc236. One, beside the east wall of Room 6, was 4 feet in diameter and 4 feet deep. It was unlined, showed no signs of heat, and probably served for storage in a manner similar to the remaining three smaller pits.

Small exterior firepit-- While trenching outside the east wall of Room 2, an outdoor firepit was encountered. It was constructed against the wall and was built up of chunks of sandstone embedded in considerable mortar. It was 19 inches wide and 25 inches long; the long axis paralleled the wall. The pit was 6 inches deep but a thin wall (a continuation of the pit's lining on the north side) rose above the firebox and the work area level some 12 inches. All rock in the pit and in the adjacent wall showed that considerable burning had taken place.

Architectural Summary

The pueblo seems to have been constructed as a unit and at one time. At least four parallel walls running east and west had been constructed, with the room dividers later built between them (fig. 5). The kiva in the southwest corner took up the space normally required for at least four rooms.

Walls were of excellent quality masonry that seemed to be more

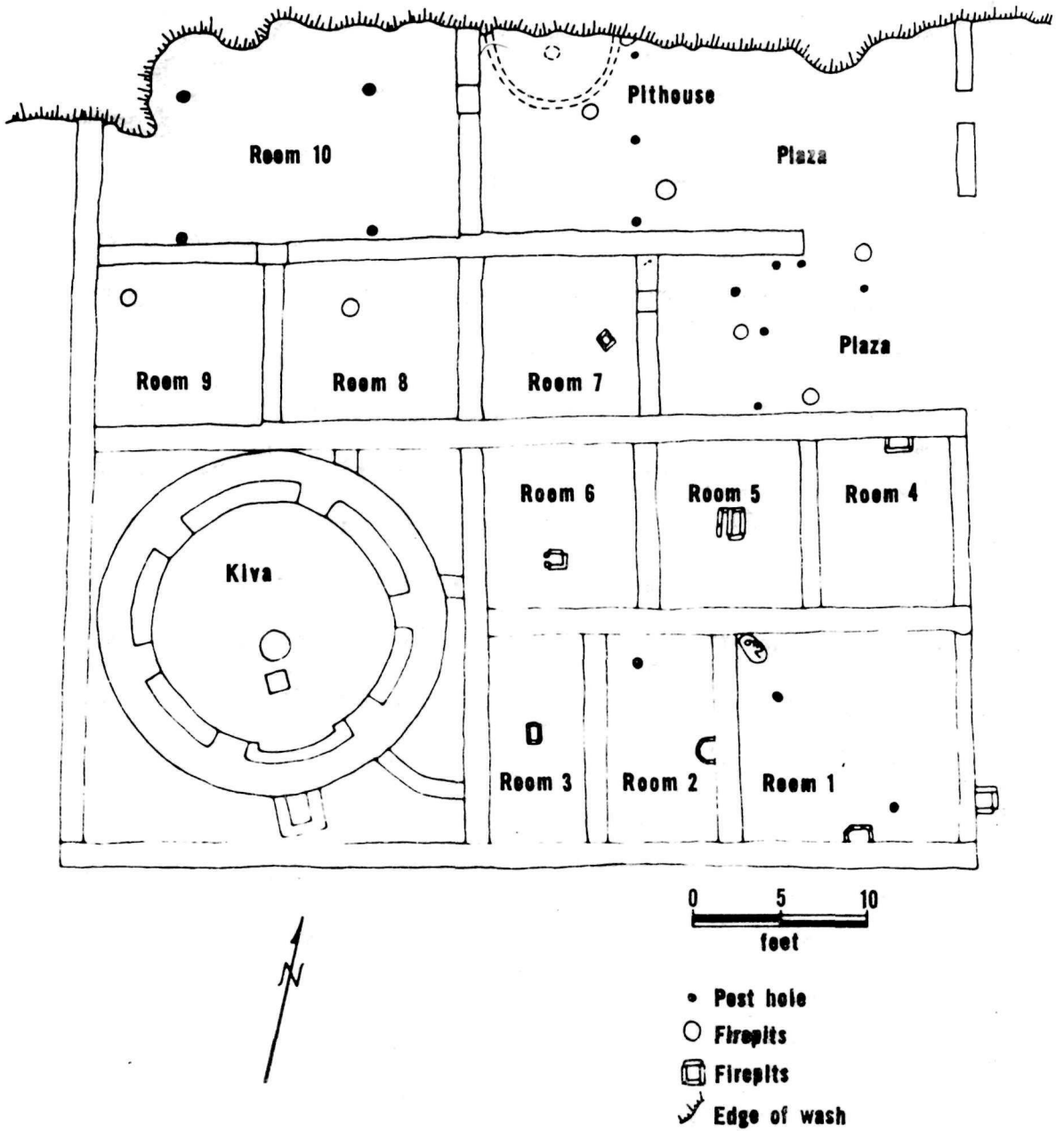


FIGURE 5--Floor plan, Bc236.

Mesa Verde in style than Chaco but could, in a general way, fall into the double-faced and rubble-cored Type 8 described by Hawley (Brand, D.D., et al., 1937). The only exception noted are the two secondary walls that enclosed the storage bins, one within the kiva and one in the southeast kiva triangle.

The bands of spalls in the south wall of Room 6 fit Hawley's Chaco Masonry Type 7, but this is so limited in extent that it suggests nothing more than an attempt by the mason to copy a prevalent Chaco style.

Kiva masonry falls into Hawley's Type 9 for the Chaco and is primarily Chaco in plan, but with a touch of Mesa Verde style showing up in the bench, where it had been modified to form a southern "keyhole."

Foundation stones were used under most walls and, in those instances where there were none, a ridge of earth above the excavated floor was used. The walls in the kiva were based on the floor of the excavation.

In almost all residential rooms the first floor levels proved to be the original ground surface of the surface that had been leveled before construction began. Rooms were then filled to the top of the foundation stones, where a new floor was laid and used for the remainder of the first period of occupation.

Throughout the village the floors were of good clay, packed wet adobe averaging 2 inches thick; whereas the floors indicative

of the secondary occupation were composed of the compacted fill in the rooms. The latter was not simply a continuation of the original occupation but was constructed after a period of rather prolonged abandonment, as indicated by the deep, sterile fill upon which the secondary floor levels were built.

There was no indication of exterior wall plaster on any of the rooms, but remnants of plaster still clung to many wall interiors. The plaster in the kiva was well preserved and almost completely intact from the floor to a few inches above the bench and had been renewed at least five times.

Room 10 produced the only conclusive evidence indicative of roofing methods. The four-post arrangement in this large room suggests a rafter support, a method probably used in Room 2. It is from wall to wall in the other rooms, all easily spanned by timbers available. Layers of packed roofing clay were encountered in several rooms.

The upper level of Rooms 8-9 probably constitutes a dwelling, but the masonry walls had not been raised more than a foot or two above their present height. During this second occupation, the room was probably covered with a jacal structure, as were the western portions of the courtyard. Only three doorways were found. Two opened into the courtyard and one into an interior passageway from Rooms 8-9 to Room 10.

Rooms 5 and 6 were entered through the roof, probably by way of

a hatchway located over their central firepits inasmuch as there were no openings in the high walls.

So little of the south walls of Rooms 1, 2, 3, and the east wall of Room 4 remained standing that it was impossible to determine the prior existence of doorways but, as in many unit pueblos, entry was probably through the roof.

Gladwin (1945) suggests that it was probably during the Kiatuthlanna Phase (ca. 800 to about 870 A.D.) that rectangular, slab-lined firepits replaced the clay-lined, basin type found in pithouse villages. However, both types were found in the Chaco at Bc50 and 51, at the Three-C Site (Vivian, 1949), and at Bc236.

At Bc236, three varieties of firepits were recorded: (1) unlined or clay-lined basins, (2) the half-round and rectangular, slab-lined firepits placed against walls, and (3) slab-lined pits located centrally in the rooms.

Significantly, 11 of the 18 interior firepits at Bc236 are built against the walls, a technique that seems at first glance to be a Mesa Verde trait.

In the brief description of the fireplaces in Cliff Palace, Mesa Verde National Park, Fewkes (1911b) states that there is a fireplace in the middle of the floor in Room 84, the only centrally located firepit he mentions. Furthermore, he states that, "Although fireplaces are ordinarily half-round, a square one occurs in the northwestern corner of Room 81. The sides of the walls above

the fireplaces are generally blackened with smoke." From this limited description, it can be assumed that a centrally located firepit was unusual; most were half-round and placed against the wall.

At Bc236, almost half of the firepits built against walls were half-round and all were in the lowermost occupation level. The unusual firepit in the center of Room 5, described above, is almost identical to the one described by Fewkes in the center of Room 84 at Cliff Palace.

Generally, the fireplaces within the rooms occupied by the Mesa Verde immigrants to the Tse-ta'a site in Canyon de Chelly were rectangular, and against walls or in corners, whereas others in the site were in central locations.

The situation was similar at Aztec Ruin, according to Earl Morris (1928). Chacoan rooms contained rectangular firepits in the room centers, but at the Aztec Annex, a series of rooms built by Mesa Verde peoples, the situation differed. Of the 11 firepits described for the Annex, two were in the floor center and the remainder against walls or in corners.

In the Kayenta area, centrally located firepits seem to be the rule. At Keet Seel, Fewkes (1911a) provides little description of fireplaces; however, in his breakdown of walled enclosures within the site he lists as Type 4, "large rooms with central fireplaces."

At Betatkin Ruin, also in Navajo National Monument, Judd (1930) describes 16 fireplaces; two of these are against a wall and only

one is a constructed pit.

Firepits in ruins of the Sinagua region, and particularly Wupatki Ruin in Wupatki National Monument, are central in location.

Reports on the later structures in Chaco Canyon are few in number. None carry detailed descriptions of firepit construction.

Three firepits are described for Tseh-So (Brand, 1937). All were centrally located. Six such pits are also reported for Bc51 by Kluckhohn and Reiter (1938).

Four unlined firepits described by Dutton (1938) at Leyit Kin were situated in corners.

Gordon Vivian (1949) describes six firepits at the Three-C site, all of which are centrally located, clay-lined basins.

Thus there are indications that firepits built against walls is a Mesa Verde trait.

II PITHOUSE AND RELATED STRUCTURE

Pithouse

A section of a pithouse structure underlay the pueblo ruin and was exposed on the face of the wash (fig.5). The floor of the house was 5 feet 2 inches below the courtyard level and the west wall of the pit rose to within a few inches of the east wall of Room 10 in the pueblo site. Excavation revealed that only a small portion of the structure remained. Most of it had been eroded away by Chaco Wash. The portion that did remain was semi-circular in plan and encompassed the southern part of the house. A bench, encircling the house at a height of 29 inches above the floor, was 4 inches wide. Four small post holes were located on the bench (fig. 6).

The greatest diameter of what remained of the floor was 6 feet 6 inches, east and west . At the top of the pithouse walls the diameter increased to 8 feet 2 inches. The greatest depth north and south was about 4 feet.

A heavy coating of brown adobe plaster some 4 inches thick covered the floor. A small hole on the east side of the pit, 4 inches in diameter and 6 inches deep, may have been a post hole.

A centrally located, basin-shaped firepit, 10 inches in diameter and 3 inches deep, was found under the plaster on the floor.

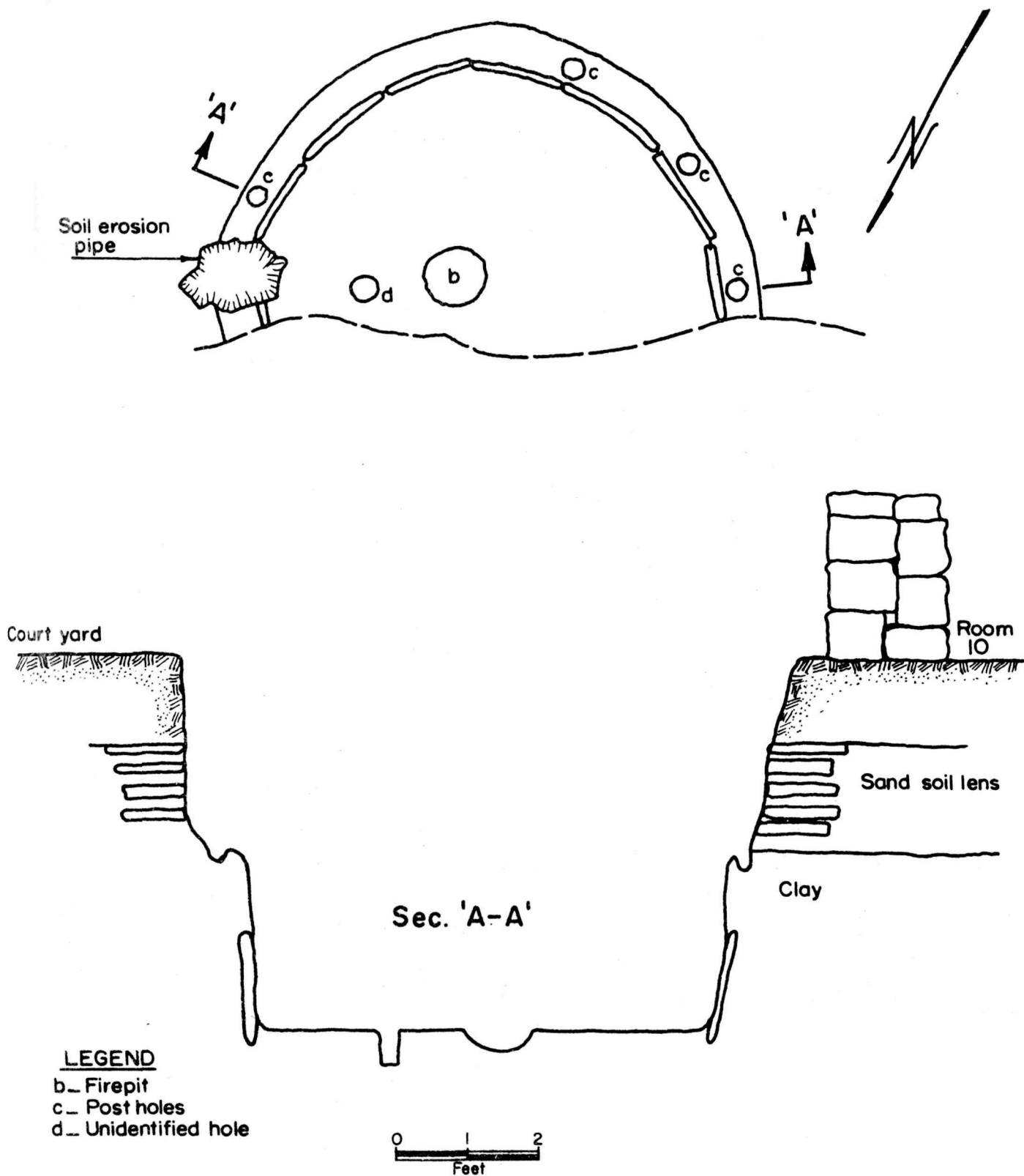


FIGURE 6-- Plan and section of pithouse, Bc236.

The house was slablined along the base of the bench and a thick, white plaster had been smeared over the slabs, up the wall, and over the bench. No evidence of a ventilator and post hole pattern for a roof was found. One possible post hole was encountered but not its opposite number.

It is possible that the ventilator had been built into the structure but was not oriented to the southeast, as is typical for this type of structure. On the east side of the house a soil pipe (an erosional feature of the Chaco country) had taken out a large section of the wall and part of the floor. The ventilator may have been near the eroded section and by the very nature of its construction contributed to the piping at that spot. An old firepit was covered when the floor was replastered and a new location for the fire had been chosen.

It is doubtful that this remaining portion of the pithouse was an antechamber; apparently they do not occur in the pithouses of the Chaco area.

Few items of material culture were recovered from the house. They include, from the fill, a fragment of turquoise pendant and a bone awl; and from the floor, two restorable neckbanded jars and an unfired clay jar stopper (pl. 14a).

Red Mesa Black-on-white sherds from both fill and floor formed the majority of the decorated sherds recovered. Neckbanded utility ware represented 96 percent of the undecorated sherds from the fill

and 50 percent from the floor (table 3).

The identified bone material recovered shows at least two individuals of the genus Canis and include the only dog or coyote remains recovered from Bc236. (See Appendix A for this and other mammal bone identifications from the pithouse.)

Although no burials were encountered within the pithouse structure, a fragment of a human left scapula was recovered from the fill.

Associated Structure

While trenching through the thin layer of sheet trash east of Bc236, a crude masonry structure, measuring 5 by 6 feet 7 inches and 14 inches deep, was discovered near the edge of the wash. The masonry wall of the pit was constructed of thin sandstone slabs laid in abundant mortar. This type of construction matches the Chaco Type 3 as described by Hawley. A somewhat compacted layer of soil at the base of the walls must have served as a floor.

The structure produced no evidence of a roof and probably served as a storage room. Its association with the pithouse rather than the pueblo was determined on the basis of sherds recovered from the structure. Of the decorated wares, Red Mesa Black-on-white constitute 44 percent of the total; 19 percent are Kiatuthlanna Black-on-white; neckbanded utility ware constituted 88 percent of the undecorated sherds.

TABLE 1--Major sherd percentages, Level 1

	Room 4	Room 4 Fill	Room 5 Fill	Room 5 Floor	Room 7 Fill and Floor	Room 8 Fill	Room 8 Floor	Kiva Fill and Floor	Courtyard Fill and Floor
Mesa Verde B/W.....	43	44		33	40	67		41	67
McElmo B/W.....	14	4	33	67	40	22	21	23	
Gallup-Chaco B/W.....	14	21	33		12	11	74	21	11
Escavada B/W.....		6							
Querino Polychrome.....		4						2.5	
St. Johns Polychrome....	21				4			10	22
Puerco B/R.....	7	21						2.5	

TABLE 2--Major sherd percentages, Level 2

	Room 7 Fill and Floor	Room 8 Fill and Floor	Room 9 Fill	Room 9 Floor	Room 10 Fill	Room 10 Floor	Kiva Fill	Kiva Floor	Courtyard Fill	Courtyard Floor
Mesa Verde B/W.....	44	10	18	20	18	28	23		51	6
McElmo B/W.....	12	30			16		23		18	25
Gallup-Chaco B/W.....	20	20	27		17	44	17	60	8	31
Escavada B/W.....	18	20	46		15		14	20		25
Querino Polychrome		10		20			3	20	8	
St. Johns Polychrome			9		1		9		3	
Citadel Polychrome					3					
Flagstaff B/W		1								
Puerco B/R	6						3		5	

TABLE 3--Sherd percentages, pithouse.

	Decorated	
	Fill	Floor
Red Mesa B/W.....	75	75
Kiatuthlanna B/W.....	7	25
La Plata B/W.....	6	
Escavada B/W.....	4	
Kana-A B/W.....	2	
	Undecorated	
	Fill	Floor
Neckbanded (rim sherds only).....	96	50
Indented Corrugated.....	4	37

Dating and Comparisons

The wood and charcoal specimens recovered from the pithouse were unsuitable for dating by the tree-ring method. Architectural features and pottery are determinants of the structure's age.

Gladwin (1945) has broken down the archeology of the Chaco Branch into several phases correlated with the period sequence of the Pecos Classification. He correlates his Kiatuthlanna Phase with Pueblo I and distinguishes it from other phases by these criteria:

1. Introduction of bench in the pithouse.
2. Elimination of partition found in BM III.
3. Surface structures with masonry foundations.
4. Change from basin to slablined firepits.
5. Specialization in pottery (Kiatuthlanna B/W).
6. Tree-ring dates of A.D. 800 to 870.

His next phase, Red Mesa, corresponds with early Pueblo II and is distinguished by the following:

1. Small houses on the surface rather than pithouses.
2. Indented corrugated utility ware rather than neckbanded.
3. Red Mesa Black-on-white decorated ware.
4. Tree-ring dates of A.D. 870 to 930.

Architecturally, the substructure at Bc236 would fit into the Kiatuthlanna Phase. It has a bench and a surface structure with

a masonry foundation in association. The pottery, however, is Red Mesa.

Whether the pit was a house or not is debatable. If the development of a bench around the pit structure is a step in the changes from a pithouse to a kiva, then this substructure may have been a "protokiva" and, as such, would fit into Red Mesa Phase times. If there were above-ground living quarters, they may have been situated to the north of the pit and were subsequently destroyed by the wash.

The pottery distribution is nearly as confusing. Red Mesa Black-on-white constitutes 75 percent of the decorated sherds from the floor, with Kiatuthlanna second in frequency. Of the utility ware, the neck-banded variety was in the majority followed by indented corrugated (table 1).

Thus the decorated pottery fits into Gladwin's Red Mesa Phase (early Pueblo II), which is close to Hawley's (1939) Pueblo I-II dating; but they both put the neckbanded ware into Pueblo I.

Taking all factors into consideration, the picture seems to be one of a site in a transitional stage. The substructure could have been converted into a "protokiva"--hence the heavy clay flooring overlying an earlier firepit. The neckbanded pottery gives the structure definite Pueblo I affiliations, and the Red Mesa Black-on-White dates it in Pueblo II. On these bases, the Bc236 substructure represents an early Red Mesa Phase site and can probably be tentatively dated between 870 and 900 A.D.

III ARTIFACTS AND BURIALS

Pottery

The description of ceramics from Bc236 is presented here primarily to explain the methods used by the writer to identify the various types and the reasons for grouping certain wares. Analysis as given here involves only those types commonly found at the Bc236 pithouse and pueblo.

Chaco White Wares--No attempt can be made here to bring order to the chaos involving Chaco and Mesa Verde black-on-white pottery. Most of the published descriptions of Chaco ceramics have been the work of either Gladwin or Hawley and all too often they disagree as to type nomenclature or time sequence.

Kiatuthlanna Black-on-white (pl. 15)--Gladwin and Hawley both follow the original description of Kiatuthlanna as presented by Roberts (1939) and according to whom this pottery is quite similar to Red Mesa Black-on-white. Gladwin's (1945) description perhaps is a little more inclusive and has been followed in identifying Kiatuthlanna material at Bc236.

The major characteristic of this type and the best means of separating it from the later Red Mesa B/W is the highly polished, clear white slip.

Design elements of parallel lines, interlocking scrolls, dotted lines and solid, dotted triangles are similar to those of Red Mesa, but are of a much finer technique and are embellished with

narrower line work.

Gladwin does not describe temper; Hawley states that the temper is sand. However, the sample from the pithouse at Bc236 contained sherd temper throughout with but an occasional inclusion of fine quartz sand. These inclusions were also noted by Vivian (1949).

Red Mesa Black-on-white (pl. 17)--The confusion between the two authors concerning Red Mesa (Roberts' "Transitional") is basically a matter of temporal placement. On the basis of the pottery complex at Bc 50-51, with Red Mesa associated with Lino Gray and Neckbanded, Hawley places Red Mesa Black-on-white in Pueblo I, while Gladwin, for the Red Mesa Valley sites, places it in Pueblo II, his reason being the larger amount of Indented Corrugated utility ware in association.

At Bc236 and at Vivian's Three-C site the utility ware with Red Mesa Black-on-white was neckbanded, thus one can only conclude that Red Mesa had its inception in PI times and extended into PII as indicated by its association at Gladwin's Coolidge Village. Attempts to place this type and many others into a strict period schema, such as the Pecos Classification, often are useless. Gladwin's statement that ". . . the clear, white, polished surfaces of Kiatuthlanna had given way to rather soft, porous looking surfaces covered with a white wash rather than a hard, white slip" is the best aid in separating Red Mesa from Kiatuthlanna.

Red Mesa designs are quite similar to Kiatuthlanna but exhibit heavier brush work. Solid triangles with dotted borders, interlocking scrolls, and barbed lines are all common and all are accomplished with a wide line technique.

Gladwin again makes no mention of temper; Hawley identifies the temper as sand, but in the sample from Vivian's Three-C site and the sample from Bc236 the tempering material was sherds.

Escavada Black-on-white (pl. 16)--Three black-on-white pottery types have been described from Chaco Canyon by Hawley. Escavada, Gallup, and Chaco Black-on-white were separated primarily on the basis of the degree of surface polish. Hawley presents Escavada as an unpolished PII type, Gallup as semi-or streakily polished PII-III type, and Chaco Black-on-white as well-polished and PIII.

The unpolished Escavada can be separated from the later Gallup and Chaco solely on the basis of polish, but this is not satisfactory for separating Escavada from Red Mesa. Nor is design an ideal means in itself for making this separation. Vivian's first reaction, as with many who have worked in the Chaco, was to include the sherds of Escavada with those of Red Mesa, but in his examination of entire vessels certain differences were noted. Gladwin evidently had the same reaction when he stated that his Red Mesa was probably the same as Hawley's Escavada Black-on-white.

Vivian, on the basis of his study, considers Escavada designs as the complete breakdown of Red Mesa designs. The sherds from Bc236 distinguished as Escavada showed little or none of the interlocking scrolls; dotted lines disappear or become heavy lines with heavy pendent triangles. Crude hatching is introduced as well as the technique of using broad lines and elongated triangles. All Escavada sherds showed less polishing than the earlier Red Mesa and considerably less polishing than the later Gallup Black-on-white.

Gallup-Chaco Black-on-white (pl. 18)--Gallup and Chaco Black-on-white can seldom be separated on the basis of their relative amount of polishing. Chaco is usually listed as the better polished. Both types can be distinguished from earlier wares by the almost overall fine line hatching. At Bc50-51 and in the various strata of the Chetro Kettle dump (Hawley, 1934) both Chaco and Gallup (Hawley's Polished and Semi-polished Black-on-white) are found contemporaneously and persist until about A.D. 1150. Chaco Black-on-white is probably a little later in time but never supersedes Gallup.

The Chaco Black-on-white from Bc236 exhibits no change in design style nor changes in vessel shapes from that in Gallup; gradation in polishing between the two is always slight.

For these reasons and because I can find no conclusive evidence at present that they were succeeding steps in the development of Chaco pottery, Gallup and Chaco Black-on-white have been grouped,

as Hawley suggests in the 1950 revision of her pottery manual, in all analyses in this report.

Mesa Verde White Ware--Problems involving decorated white ware from southwestern Colorado, unfortunately, has been no better resolved than that for Chaco.

Mancos Black-on-white was represented at Bc236 by a single, partially restorable bowl from Room 10 and by a total of four sherds from throughout the remainder of the site, so it is of little concern here.

Leland Abel (1955), using the pottery classification system of the Museum of Northern Arizona, has described Mesa Verde White Ware with stages of PIII and PIV which includes McElmo B/W dated in PIII from ca. A.D. 1130 to 1200 and Mesa Verde B/W, also PIII, and dated from ca. A.D. 1200 to 1300. He also sets up a new ware, San Juan White Ware, with stages of Basketmaker III through PII and includes in this ware Mancos B/W dated at ca. A.D. 950 to 1150 (PII and early PIII).

Reed (1958) considers La Plata Black-on-white (included by Colton in the Puerco Series of Cibola) as ancestral or basic to all eastern Anasazi black-on-whites and under Colton's Cibola White Ware he initiates a new series entitled Animas, under which he lists the iron paint Mancos and the carbon paint McElmo and Mesa Verde.

Reed has dated Mancos B/W from about A.D. 950 to around 1150, and he considers McElmo to be a design style rather than a type. He states that the "Transition between Mancos and Mesa Verde evidently was a rapid but irregular process. Possibly a McElmo stage could be separated off by sufficient study, . . ." and "There are many sherds which I tentatively listed as McElmo originally but almost all of them are perfectly good Mesa Verde, perhaps lacking exterior decoration and dotted rims or with poorly executed decoration. The various departures from Mesa Verde criteria do not seem to occur together . . . these can only be called intermediate, transitional or off brand Mancos or Mesa Verde."

Deric O'Bryan, in his report on excavations in Mesa Verde (1950), states that "undoubtedly, inferior Mesa Verde potters continued to make many McElmo vessels; however, the break from Mancos to Mesa Verde Black on White wares is great, and an intervening or bridging ware such as McElmo, is helpful in explaining Mesa Verde Black on White which is highly standardized in design and form." Other authors consider McElmo a separate type, but show no consistency in placing it in a temporal sequence. Gladwin (1942) dates the McElmo Phase at A.D. 1180 to 1230 and Mesa Verde (Montezuma Phase) from A.D. 1230 to 1280.

Of the Pueblo III sites on Alkali Ridge in southeastern Utah,

Brew (1946) says of the Mesa Verde Black-on-white that it ". . . was for the most part of the kind that could be called McElmo. However, the definitions of McElmo and the illustrated specimens labeled McElmo vary so that the safest procedure at present seems to be to call it early Mesa Verde. On most pieces mineral paint was used."

McElmo Black-on-white (pl. 20)--Excavations at Chaco Canyon have resulted in the recovery of McElmo Black-on-white made before A.D. 1100, especially in the Bc50 site, where it was associated with Sunset Red in the subfloor tests.

Reed, O'Bryan, Brew, and others have satisfactorily established that McElmo follows Mancos Black-on-white in the Mesa Verde region. Unresolved as yet is the question of whether or not McElmo is a true pottery type or merely reflects a design style. In some cases, at least, enough differences (basically in design) have been noted by various authors for them to proclaim McElmo a type intermediate between Mancos and Mesa Verde. That such a major change occurs (from iron paint in Mancos to carbon paint in Mesa Verde) plus the statements by Brew (1946) and Martin (Martin and Willis 1940) that some McElmo has both iron and carbon paint suggest to me that it does form a step between Mancos and Mesa Verde.

Sherds of McElmo Black-on-white from Bc236 exhibit no differences from Mesa Verde Black-on-white except in design. These design features involve less fine line design and lack of framing lines so common to Mesa Verde; wide stripes and large

concentric triangles common, with arrangements of large, solid triangles; little or no exterior designs on bowls. Rims are ticked, as are Mesa Verde Black-on-white sherds.

Mesa Verde Black-on-white (pl. 19)--Mesa Verde Black-on-white at Bc236 follows the generally accepted published descriptions. Design elements are well known; they differ from McElmo in that most of the designs are more complex, usually a repeated geometric theme set off between balanced framing lines. Exterior designs are more common and more complex than in McElmo and are also usually exhibited between framing lines. Mesa Verde Black-on-white can be dated as beginning about A.D. 1150 (Martin 1936; Morris 1939; others). Evidence at Bc236 also indicates a mid-1100 A.D. date for the Mesa Verde material.

Distribution of the six pottery types of Bc236 described and illustrated here are given by percentages for the two levels of the pueblo in tables 1 and 2, page 39.

Vegetable Material

Vegetable material is scarce in all open sites, and Bc236 is no exception. The materials recovered were food items, with the exception of a small, charred fragment of a yucca fiber sandal from the lower floor level of Room 8, a level that produced evidence of having burned.

A total of six charred corn cobs and two charred corn stems constitutes the major portion of the vegetable material collected. All were of the 8-row variety. A single pinyon nut hull recovered from Room 5 was the only indication of the use of this food in the diet of the inhabitants.

A quantity of small seeds was recovered beside the firepit in Level 1 of Room 4. It was submitted to Volney Jones at the Ethnobotanical Laboratory of the University of Michigan for identification. Mr. Jones' itemized description, Laboratory Number 4740, Report No. 389 is contained in Appendix B. The seed sample was composed of about 90 percent pigweed, Amaranthus sp., and about 10 percent goosefoot, Chenopodium sp. Both plants were gathered for food by most southwestern groups according to Jones, and Amaranthus was cultivated in Mexico and, to a limited extent, among the Pueblos.

There is no basis for suggesting that these seeds were derived from domesticated varieties, since the sample compares closely with seeds of wild plants. Mr. Jones does state, on the other hand, that ". . . it offers no good negative evidence, as seeds of domesticated forms show little increase in size."

Six squash or pumpkin seeds were recovered from the floor of the store room located within the kiva at Level 1. These seeds disintegrated almost immediately upon exposure to sun and wind and the one seed that was saved in the field did not survive the trip to the

laboratory.

Unfortunately, no vegetable material was recovered from the pithouse.

Mammal and Bird Remains

Mammal--During the excavation, 268 fragmentary and complete mammal bone specimens, none of which had been used as tools or ornaments, were recovered. This material was sent to the National Park Service's Southwestern Archeological Center at Globe, Arizona where Archeologist John F. Turney made the identifications. Turney did not list species names due to lack of sufficient comparative material for determination. That they are common species present today is likely, but this cannot be positively stated without further study.

The following eight animals were identified from the pueblo site and all constitute food types with the exception, perhaps, of the bobcat.

Jackrabbit	<u>Lepus</u> sp.
Cottontail	<u>Sylvilagus</u> sp.
Pronghorn	<u>Antilocapra americana</u>
Rock squirrel	<u>Citellus</u> sp.
Prairie dog	<u>Cynomys</u> sp.
Bobcat	<u>Lynx rufus</u>
Deer	<u>Odocoileus</u> sp.
Kangaroo rat	<u>Dipodomys</u> sp.

Cottontail and pronghorn remains were identified from the pithouse, as was an additional genus, Canis, which was represented

by two specimens. Concerning these dog and/or coyote remains, Turney explained that they seem to be Canis latrans but warned that more comparative material would be required to substantiate the identification. And of a series of incisor teeth from the floor of the pithouse, he suggests Canis familiaris, but again is unable to substantiate the identification.

Bird Bones--A collection of 57 bird bones, including artifacts, was also sent to the Southwestern Archeological Center, where the identifications were made by Mr. Lyndon L. Hargrave (Appendix A). Of this sample, 51 specimens were of turkey, Meleagris gallopavo. One group of 13 turkey bones came from a single individual, which was recovered from the second level in the deep firepit. These remains probably constitute a deliberate burial. The artifacts were all made from turkey bones and include four bone tubes and seven awls (pl. 21).

The seven bones of wild birds were representative of:

Scaled quail	<u>Callipepla squamata</u>
Great horned owl	<u>Bubo virginianus</u>
Horned lark	<u>Eremophila alpestris</u>
Common raven	<u>Corvus corax</u>
Prairie falcon	<u>Falco mexicanus</u>

Stone Artifacts

Ground Stone--A total of 36 manos and 19 large metates was recovered from the pueblo site, an average of almost two manos for

each metate. The manos can be divided into four main categories (table 4): biface and uniface rectangular, biface, wedges, and one-hand oval.

Of the uniface rectangular manos, three were small enough to have been used with one hand. The biface rectangular and the biface wedge manos were probably all used with two hands. None had side notches or finger-grips.

Two varieties of metate were recovered (table 5). These can be described as closed-end trough and flat-slab. Only three of the trough variety came from the ruin, all from the lowermost or sub-floor levels in the rooms. Only one flat-slab specimen of the 15 recovered, came from the lower levels. This suggests that the closed-end trough metate was in use earlier than, and was supplanted by, the flat-slab type. This is in keeping with Katharine Bartlett's (1933) thesis that the closed-end trough metate phased out in late PII or early PIII and was replaced by the flat-slab variety as shown at Betatakin, Aztec Ruin, Pueblo Bonito, and Pecos.

One flat metate was recovered in a slab-lined bin. It was located in the upper floor level of Room 8, and two other flat metates, although not enclosed in bins, were plastered into position in depressions in the floor of Room 5. Other metates were movable and, when in use, were probably propped up on stones, as evidenced by the second

TABLE 4--Mano types and provenience.

	Rectan- gular	Wedge	Oval	Biface	Uniface	One hand	Two Hand
Room 2, fill.....	2				2		2
Room 3, fill.....	2			1	1		2
Room 4, fill.....	1				1		1
Room 4, subfloor.....			1		1	1	
Room 5, fill.....	2				2	2	
Room 5, floor.....		1		1			1
Room 6, floor.....	1				1		1
Room 7, fill.....	2				2		2
Room 7, subfloor.....	1				1		1
Room 8, Floor 1.....	1				1		1
Room 8, Fill 2.....	2		1		2	1	2
Room 9, fill.....	1				1	1	
Room 10, fill.....	1				1	1	
Kiva, Fill 1.....	5				5		5
Kiva, Floor 1.....	1				1		1
Kiva, Fill 2.....	2				2		2
Kiva, Floor 2.....	4				4		4
Court, Fill 1.....	1				1		1
Court, Fill 2.....	1			1			1
Pithouse floor.....	1			1			1

TABLE 5--Metate types and provenience.

	Closed-end trough	Flat-slab	Miniature Closed-end	Miniature Flat-slab	In Bin or depression
Room 1, fill.....		1			
Room 2, floor.....		1			
Room 3, fill.....		1			
Room 4, floor.....		1			
Room 5, floor.....		3			3
Room 7, fill.....		1	1		
Room 7, floor.....		1			
Room 7, subfloor.....		1			
Room 8, floor 1.....		3			1
Room 8, fill 2.....				2	
Room 8, floor 2.....	2				
Room 10, subfloor....	1				
Kiva, floor 2.....				2	1
Court, fill.....		1			
Court, floor 2.....		2			

metate found in Level 1 of Room 8.

Two other types of grinders which, because of their small size are not included in the above compilation of metates, were found scattered through the pueblo site. These are miniatures, both troughed and flat, with maximum lengths of 10 inches; they averaged 8 inches in width. The troughed metates were of the closed-end type and the troughs were less than 4 inches wide.

Five of the flat, miniature metates were recorded. Of these, one had been plastered into the floor of the kiva beside the firepit, with its grinding surface level with the floor.

Woodbury (1954) considers these miniature metates toys and doubts that they had serious use. In this case, however, at least one, that placed in the kiva, probably served a purpose other than that of a toy.

Mortars and pestles were not recovered. However, a single example of a small, bowl-shaped sandstone concretion may be in this category. The specimen was picked up on the surface, measured 4 inches in diameter, and may have been a paint grinder, with a small pebble used as the pestle.

A large maul of petrified wood (pl. 14b), with two percussion faces and a natural groove for hafting, was also a surface find. Other percussion tools included a total of 15 hammerstones, all

igneous rock pebbles that had been shaped by use. None had finger-grips.

Polished Stone--The finest artifact recovered from the site was a plain, well-polished black slate tcamahia or ceremonial skinning knife (pl. 22b). This came from the floor of Room 6, directly below the niche in the west wall. It measured 5 3/4 inches long and had a maximum thickness of 3/8 inches. The bit was 2 3/4 inches wide and had not been ground to a sharp edge. It was shouldered at about 2 inches from the bit and from there tapered to a width of 1 1/2 inches at the butt, which was slightly chipped. There was no indication that it had been hafted.

Suggested uses for these instruments vary from that of agricultural tools to use in working leather. Morris (1919) states that similar specimens recovered from Aztec Ruin were grooved for hafting for a field usage, perhaps as a push hoe, and further explains that such items are even, today, placed on Hopi and Zuñi altars.

The specimen from Bc236 shows little or no usage; there is but a single chip in the highly polished bit. If this tool had a utilitarian function, it surely was for working relatively soft materials such as animal hides or, perhaps, peeling bark from roof logs. And, to use an overworked term, it may have been made for ceremonial purposes.

Another problematical object, a so-called "prayer stone" (pl. 22a), was recovered from the floor of Room 7. This highly polished cylinder was $2\frac{1}{2}$ inches long and had a diameter of $\frac{1}{2}$ inch at the center, which tapered to each end. The material from which it was made is thought to be a brown jasper. The use of such items is unknown, but usually a ceremonial connotation is suggested. On the basis of his work at Awatovi and in Arizona, Woodbury (1954) suggests that such cylinders may have been nose plugs.

Additional tools that can be considered here are two pot polishers, one each from the floor of Room 7 and Room 2. These were flat, river worn pebbles with oblong contours. The material in each case was a yellowish quartzite, and both had a high polish showing considerable usage but not to the extent that faceting had started. The larger specimen, that from Room 7, had a diameter of $2\frac{1}{2}$ inches.

Chipped Stone--Three projectile points, a crude knife blade, and a well-executed but incomplete knife tip comprise the total of the chipped stone artifacts.

Using Kidder's (1932) nomenclature for arrow points, the three specimens recovered can be described as Type 3a, slender stemmed points with narrow notches, with stems as wide or wider than the shoulder. The material used in each case was chert, and their size varied from $1\frac{1}{2}$ inches to $7/8$ inch in length.

Both knife blades are made from chalcedony, the complete specimen from material that is an opaque white and the broken blade from a light brown material. The complete blade is lanceolate in form with poor, heavy, secondary chipping around both sides. The finer, although broken, specimen is $2\frac{1}{2}$ inches long and $1\frac{1}{8}$ inches wide (pl. 22c). From what remains it is impossible to determine its original shape, but it was probably lanceolate, as indicated by other knives found in the Chaco.

Hibben (in Brand, 1937) states that lanceolate forms occur in fair quantities at Tseh So, in the PII rooms. The knives illustrated by Judd (1954) from Pueblo Bonito and Pueblo del Arroyo are leaf-shaped. In Pepper's report on Pueblo Bonito (1920) there are two illustrations of hafted knife blades, one of which is lanceolate, the other a side-notched variety that unfortunately is commonly called a 'spear point' in the Pueblo area. Of the blades described by Morris (1919) from Aztec Ruin, the majority are lanceolate in shape.

Ornaments

Beads and Pendants--Ornaments from Bc236 were made from turquoise, selenite (crystalline form of gypsum), jet, bone, and shell. Only a limited sample was recovered, and these ornaments were either beads or pendants. Classification of beads as opposed to pendants can only be arbitrary, and the division here is based on

Kidder's (1932) suggestion that beads are centrally drilled, pendants are perforated near the edge.

Large pendants of 1 inch or more in length probably hung around the neck, while the smaller ones were probably pendent from the ear or constituted part of a strand of beads. On the basis of this division, only two pendants were recovered, both from the floor of Level 1 in the kiva. One, of turquoise, was ovoid, quite small, and was possibly used as an ear bob. The other was also oval but was made from a thin slice of selenite and, being slightly over 1 inch in length, it probably hung around the neck of its owner.

Two turquoise bead fragments were found; both were disk shaped. One came from the fill of Room 8, the other from fill in the pithouse.

Part of a strand of beads was recovered from the floor of Room 4. This find consisted of a rather large Olivella shell bead which had a shell disk bead and a small jet disk bead jammed in its opening.

One other Olivella shell bead was found under the floor of Room 3 and two additional shell disk beads were recovered, one each from Room 5 and from under the floor of Room 4.

Rock and Mineral

Deposit Locations--Each room of the site produced a quantity of stone, either tools, reject cores, or discarded chips that, upon

identification, produced evidence of the areas where the materials were gathered.

Sandstone was abundant throughout the site. Fragments of turquoise, chalcedony, jasper, chert, and petrified wood were taken from the fill of the pithouse. In addition to the above, the pueblo rooms produced hornstone, quartzite, basalt, selenite, obsidian, ocher, and talc.

The following list of identified materials gives the probable location of the deposits used:

1. Basalt Along northern tributaries of the San Juan River and near Bluewater, about 50 miles south of Chaco.
2. Chalcedony Probably from local petrified wood or from pebbles in the Ojo Alamo, Puerco, and Torrejon formations, about 6 miles north of Chaco.
3. Chert Pebbles are found in local Morrison, Ojo Alamo, and Torrejon formations; but prehistoric quarries are known on the Cerro Pedernal in the Chama drainage.
4. Hornstone Morris (1939) suggests only known source as near the Four Corners, just south of the San Juan River.
5. Jasper From local petrified wood or the conglomeritic sandstone (Lewis sandstone) just north of Chaco.
6. Jet This is a variety of coal and probably came from the beds within the canyon.

- | | |
|-------------------|---|
| 7. Obsidian | Possibly obtained from the Cerro Pedernal area, along Obsidian Creek in the Jemez. |
| 8. Ocher | From the sandstone cliffs in the canyon. |
| 9. Petrified Wood | Fragments are found in the local Kirtland Shale. |
| 10. Quartzite | Probably from the Ojo Alamo Sandstone north of the canyon. |
| 11. Sandstone | The walls of the canyon are formed in the Cliffhouse Sandstone formation. |
| 12. Selenite | Crystals are found in the Menifee Shale underlying the Cliffhouse Sandstone. |
| 13. Talc | Possibly from the Garnet Ridge area of Rio Arriba County. |
| 14. Turquoise | Chaco is about equidistant from the Los Cerrillos mines near Santa Fe and those at La Jara, Colorado. |

Burials

Two quite fragmentary burials were found, one within Room 2 and the other in the refuse area southwest of the site.

The burial in Room 2 had been placed on the floor in the northwest corner of the room. The remains were very fragmentary and were disturbed by rodents. They were those of an infant, perhaps stillborn. A single, crude, Mesa Verde Black-on-white bowl accompanied the burial. The method of interment on, rather than below, the floor and the fact that fill above this level was sterile, windborne and water-washed

sand soil lying on collapsed roof material covering the body, indicate that the burial had been placed in a room that was still occupied up to the time the village was completely abandoned.

An adult burial was removed by Gordon Vivian during his preliminary investigation of the site in 1958. This burial (pl. 23) was eroding out of the refuse some 25 feet southwest of the ruin. The skull, lower extremities, and pelvis had washed away. The body was placed on its back, with the arms extended at the sides. There was no indication that the legs had been flexed, and if funerary offerings were placed in the grave they were missing when the burial was discovered.

IV SUMMARY AND DISCUSSION

The Place of Bc236 at Chaco

At no time during the excavation of the Bc236 pueblo were datable pieces of wood or charcoal recovered. Architectural styles and pottery analysis are thus the only means of placing the site in its proper perspective.

Architecturally, the site shows, in a general way, three of the masonry styles described by Hawley for the Chaco. The most prevalent style of masonry is her No. 8, which is found in all rooms. The south wall of Room 6 does show a central portion with a suggestion of Type 7 masonry, but this probably is nothing more than an attempt at a copy of a Chaco style by an interested inhabitant. It should be pointed out that Hawley's style 8 masonry is quite similar if not almost identical to the Mesa Verde masonry of the late 1100's and early 1200's A.D.

The kiva at Bc236 exhibits still another style of masonry, composed of small, unbanded slabs of sandstone, which fits Hawley's Type 9 description. All three of these styles have been dated, by cross correlation with tree rings, to the period, A.D. 1100 to 1116, and if this dating by Hawley is valid, perhaps these masonry types indicate the beginning dates of occupancy.

The occurrence of intrusive trade wares such as St. Johns Polychrome, dated by Reed (1955) at A.D. 1150 to 1250 and the presence of Citadel Polychrome and Flagstaff Black-on-white dated at A.D. 1115 to 1150 and A.D. 1195 to 1200, respectively, indicates an original occupation of the site about 1150.

That the site was abandoned and then reoccupied is shown by the second floor levels built upon sterile fill. This is particularly evident in Rooms 7, 8-9, and in the kiva. This abandonment coincides with the recognized decline in population in the Chaco area, which has been accepted by most authorities as having started about 1150 with the final abandonment by about 1200.

In the upper levels of the ruin, sherds occurring in the greatest percentages were McElmo and Mesa Verde Black-on-white, with Mesa Verde predominating. McElmo Black-on-white was still present, indicating that the reoccupation took place during the early 1200's. This was a period of climatic and other difficulties. Schulman (1947) shows that in the Mesa Verde region there was subnormal winter precipitation from 1191 to 1193 and 1205 to 1208, and a rather severe drouth between 1215 and 1218. Simultaneously, the people of Mesa Verde were abandoning their mesa-top homes and moving into cliff houses, which may indicate the beginnings of pressure from outside groups of nomadic peoples.

Discussion

H. S. Gladwin (1945) sees the Chaco as a cultural continuum beginning to the south in Basketmaker III in the White Mound Phase where, in the valley of the Rio Puerco, the people were influenced by traits that were to form the Chaco culture. These groups, rising through Kiatuthlanna, Red Mesa, and Wingate Phases, began moving northward and by Hosta Butte (Pueblo III) times Gladwin suggests that the population center had definitely moved to Chaco Canyon. Gladwin further suggests that in the following Bonito Phase there is a rapid movement and concentration of the population into the few large structures on the north side of the canyon.

Gladwin's views are diametrically opposed to the ideas produced earlier by Hawley (in Brand, 1937) and Kluckhohn and Reiter (1939) on Chaco development. Hawley sees the Chaco development as having taken place within Chaco Canyon itself and suggests, on the basis of tree-ring studies, that the large structures such as Pueblo Bonito, Chetro Kettle, etc., were contemporaneous with the smaller villages. She states, "Just as there were small villages characteristic of Pueblo II but some large ones being built at that time, so there were large ones characteristic of Pueblo III but some small ones being built contemporaneously."

Kluckhohn takes this idea and expands it somewhat by suggesting," . . . it does not seem to me altogether plausible, at the moment, that the people who lived in the sites on the south side of the canyon were carriers of precisely the same cultural traditions as the inhabitants of the great communal houses. The very circumstance that the 'small house sites' seem to be almost entirely on the south side of the canyon would itself appear to be significant."

In his manuscript on the Three-C site, Gordon Vivian (1949) agrees with Kluckhohn on three main points: (1) the masonry at the Bc50 and Bc51 sites is not ancestral to the highly decorative masonry styles in the classic sites; (2) the pottery of the Bc sites is ". . . strongly Mesa Verde, and many are contemporaneous with styles in use at the same time in the Classic sites;" and (3) kiva styles at the Bc50 and Bc51 sites are not ancestral to the classic site kivas.

In reviewing the literature on Chaco excavations, I feel that there is some merit in both the above expressed views.

An indigenous Basketmaker III culture in the Chaco is described in the report on Shabik'eshcee Village by Roberts (1929) and in that by Adams (1951) on Half House. Half House, which has been dated at A.D. 700 to 740 is probably somewhat later than Shabik'eshcee. The two sites contained comparable pottery types in their lower levels (Lino Gray and La Plata

Black-on-white), but Half House produced early Pueblo I, northern Anasazi influence in the sherds of Abajo Red-on-orange and La Plata Black-on-red, both recovered from the fill.

To the south of Chaco Canyon the Basketmaker III pottery is White Mound Black-on-white, a type with Little Colorado and Mogollon associations and which can be distinguished from La Plata Black-on-white by painted rims. This type extends from the Red Mesa Valley southward through White Mound and Kiatuthlanna to the Little Colorado.

For purposes of clarity in this discussion, Table 6 was prepared to better delineate the northern or eastern Anasazi wares from the southern wares as used herein. Elements of Colton's (1941) Cibola White Ware, Reed's (1958) Animas Series, and Abel's (1955) San Juan White Ware sequences have been incorporated in the chart.

The White Mound and Kiatuthlanna Black-on-white found in the upper levels of the fill at Half House are indications of trade from the southerly Cibola White Ware area. That this southern influence becomes increasingly important is evident at Judd's Pithouse No. 2, dated at A.D. 777 where a slipped black-on-white, (undoubtedly Kiatuthlanna Black-on-white from the description) and a corrugated gray ware make their first appearance, with Kiatuthlanna the predominant decorated type.

TABLE 6--Cibola and San Juan wares in Chaco Canyon

<u>Time</u>	<u>Cibola White Ware</u>	<u>San Juan White Ware</u>
	<u>Puerco Series</u>	<u>Animas Series</u>
BMIII.....	White Mound B/W	La Plata B/W Twin Trees (Abel 1955) Chapin (Abel 1955)
PI.....	Kiatuthlanna B/W	
PI.....	Red Mesa B/W	Piedra B/W (Reed 1958)
	<u>Cibola White Ware</u>	<u>San Juan White Ware</u>
	<u>Chaco Series</u>	<u>Mesa Verde Series</u>
PII.....	Escavada B/W	Mancos B/W
PIII.....	Gallup-Chaco B/W	McElmo B/W
PIII.....		Mesa Verde B/W

It is at this time also that sherd temper appears in the Chaco, introduced with the Cibola White Wares from the south and replacing the sand and crushed rock temper of the east and north.

By early PI times this southern influence is well established. An incompletely reported pithouse site at Bc50-51, excavated by Wesley Bliss and reported by Kluckhohn and Reiter (1939) gives the following percentages of floor sherds: Red Mesa, 25; Escavada, 4; Lino Gray, 52.

The substructure at Bc236, another Pueblo I structure reported herein, produced 75 percent Red Mesa in the fill and another 75 percent from the floor. Kiatuthlanna Black-on-white had second high percentages in both fill and floor and neck-banded utility ware was predominant in both levels. The only intrusive decorated ware from the north was La Plata Black-on-red, an almost negligible percentage of which was found in the fill.

Small house units reported on from Chaco include Leyit Kin, the Three-C site, and the Bc50-51 sites.

Composed of three units, Leyit Kin (Dutton, 1938) exhibits three major periods of occupation. Unit I has strong PI affiliation, dating about A.D. 900, and is one of the earlier Pueblo sites excavated in Chaco so far. Red Mesa Black-on-white and Kana-a Gray (neckbanded) are the principal pottery types of Unit I.

The Three-C site (Vivian, 1949) is probably contemporaneous with Unit I at Leyit Kin, although PII pottery types were found. Here the major decorated ware was again Red Mesa and the characteristic utility ware was the neckbanded Kana-a Gray. Escavada Black-on-white was present in small percentages, as was Exuberant Corrugated; none of the late PII Wingate Black-on-red was encountered.

Of the two kivas at the Three-C site, one exhibits what could be called an early Mesa Verde floor plan, the other is essentially Chaco. Other influence from the north, aside from the kiva, is negligible.

Unit II at Leyit Kin, built upon the mound formed after the abandonment and collapse of Unit I, is a Pueblo II occupation with tree-ring dates that run from about 1011 to about 1045. The predominant pottery types are Escavada B/W and Gallup B/W. The site did not have the San Juan White Ware one would expect to find if there were strong influences from that area. Mancos B/W is missing entirely, and not until the last occupation of the site does Mesa Verde White Ware begin to show up.

Unit III at Leyit Kin is an early Pueblo III occupation, a continuation of the Unit II settlement. This later occupation is indicated by the scattering of Pueblo III pottery types Chaco, McElmo, and Mesa Verde Black-on-white. At this time one can see a beginning of new and late northern influences in the Chaco, for, in addition to the McElmo and Mesa Verde sherds, there is a "keyhole"

kiva, the only late addition made to the site, suggesting a small group of Mesa Verde people moving in.

At Bc50 (Brand et. al., 1937) the superstructure was built upon the mound of an earlier structure, as was Unit II at Leyit Kin. Although poorly defined, this substructure seems to fall into Pueblo I times with Lino and Red Mesa Black-on-white the prevalent pottery types.

The superstructure, poorly dated at A.D. 922 by a single and incomplete tree-ring specimen, is plainly of Pueblo II and early Pueblo III occupation. Hibben (in Brand 1937) states that "Those wares found in especial abundance at Tseh-So are Escavada Black-on-White, Gallup Black-on-White, Chaco Black-on-White and Mesa Verde Black-on-White."

Here again in late Pueblo II, and increasingly so, we find evidence of infiltrating peoples and traits from the general Mesa Verde area. This is shown further in that two of the four kivas at Bc50 are of the "keyhole" style. McElmo and Mesa Verde Black-on-white, although forming minor percentages, are found sporadically throughout the fill and in floor and subfloor associations.

Much the same situation is reported for Bc51 (Kluckhohn and Reiter 1939). Only one of the six kivas excavated there is of the Mesa Verde style; but McElmo sherds were found in all levels of the superstructure, in fill, floor, and subfloor. Mesa Verde Black-on-

white is somewhat rare, occurring only in the fill of Kiva A and Room 4 in any significant numbers.

Tree-ring dates for Bc51, based on two specimens from Room 7, include a bark date of 1043 and a date of 1077. Kluckhohn further states that "In any case, however, the principal period of occupation of most of Bc51 superstructure rooms almost certainly falls materially later than 922. In Hawley's opinion, "sometime between 975 and 1045" would be a fair estimate as the building period for Bc51. Unless various supposedly trade pottery types (such as Sunset Red and McElmo) appear in the Chaco considerably earlier than in their putatively indigenous areas, Bc51 must have been extensively occupied at least as late as about 1000."

Sunset Red pottery was dated by Colton and Hargrave in 1937 at about 1050 to about 1200, but more recent work in the Flagstaff area has shown that Sunset Red was not produced until after the eruption of Sunset Crater. The eruption has now been dated by the Geochronology Laboratory at the University of Arizona as having occurred in the fall or winter of 1064-1065*.

Therefore, a rather large portion of Bc51 must have been still occupied at least as late as 1070-1077, as indicated by the tree-ring dates from Room 7 and the occurrence of Sunset Red pottery in three kivas and nine other rooms. Bc 236, by date and

* Official National Park Service correspondence with the University of Arizona. Files at Wupatki National Monument, Flagstaff, Arizona.

culture, falls logically into the next step of development. From the end of Basketmaker III through Pueblo II times there had apparently been little influence in the Chaco from the north. Pottery and architectural styles seem to have come primarily from the south through the Red Mesa Valley into the canyon. By late Pueblo II there is increasing evidence, not only in pottery but in kiva style, of influences from the north in the existing Hosta Butte Phase houses.

During the next phase, the Bonito, the large communal houses were built on the north side of the canyon. The small house units show a Mesa Verde occupation in part and, in at least one instance, at Bc236, there seems to be a complete Mesa Verde settlement.

Throughout the various levels at Bc236, sherds of McElmo and Mesa Verde Black-on-White are predominant or in almost equal distribution with other high percentages. This, plus the architectural style of the site, is good evidence for calling it a Mesa Verde village. The first period of occupation at Bc236, dated tentatively at about A.D. 1150, indicates that, during the closing phases of the Chaco occupation, more and more people from the north were moving into existing Hosta Butte sites and, in some instances, building their own.

At this same time the original Chacoans were leaving their Hosta Butte homes and gathering into the large communal centers. Whether the Mesa Verde newcomers were responsible for this movement remains to be seen, but it is highly improbable. That there was a peaceful coexistence can be seen in the following:

There has been for some time considerable trepidation in the minds of archeologists concerning the large houses such as Pueblo Bonito and Chetro Kettle, both of which were located on the north side of the canyon in contrast to the small house units on the south. Kluckhohn states that, "The very circumstance that the 'small house sites' seem to be almost entirely on the south side of the canyon would itself appear to be significant." Gladwin points out that ". . . upon reaching Chaco Canyon the people built their pueblos on the talus-mounds along the south side of the canyon, later moving across to the north side where they built the great pueblos of the Bonito Phase."

This idea is untenable in light of recent site survey work within the canyon. Lloyd Pierson (1949) listed 211 sites within the canyon. Of these, 151 are small house ruins of 3 or more rooms, 94 of which are on the south side of the canyon and 57 on the north. The count for the north side does not include those Hosta Butte sites that were eventually included in the larger communal dwellings. With these included, the total for the north side of the canyon may

be raised as high as a total of 70 sites. Thirty-one of the sites on the north side produced surface sherds representing McElmo and Mesa Verde Black-on-white, with 26 of the sites showing quantities of 10 percent or more, and probably reflecting a late PII or early PIII occupation, as do the excavated sites on the south side.

On the south side of the canyon, 50 of the 94 sites have sherds of McElmo and Mesa Verde Black-on-white in quantities of 10 percent or more, and two of these sites have a preponderance of Mesa Verde B/W: Bc180 with Mesa Verde Black-on-white at 75 percent, and BC176 with Mesa Verde at 57.1 percent. Neither of these sites produced Chaco B/W.

It is further noted that almost a third of the sites surveyed in Chaco Canyon fall within a 1-mile radius of Pueblo Bonito and Chetro Kettle. This rather heavy concentration of sites may in part be due to more intensive site survey in this area; but, nevertheless, the concentration shows a thriving community of both Chacoan and Mesa Verde peoples living close together during late PII and PIII times--an association that must have been peaceful.

APPENDIX A: MAMMAL AND BIRD BONE IDENTIFICATIONS

Mammal Bones

Bc236, Chaco Canyon National Monument

Identification by John F. Turney

Room 1, Fill:

Sylvilagus (Cottontail, 1 individual)

1 right scapula (incomplete)

Room 1, Subfloor:

Lepus (Jackrabbit, 1 individual)

1 proximal end of left tibia

Room 2, Fill:

Lepus (1 individual):

1 distal end of right femur

1 partial os innominatum (ilium missing)

Sylvilagus (3 individuals, 1 immature):

2 partial skulls

1 anterior portion of mandible

1 left ramus

4 partial ribs

3 lumbar vertebrae (1 incomplete)

1 right os innominatum (part of ischium missing)

1 right femur

1 distal end of right tibia

1 right radius (distal end missing)

2 left os innominata (1 has inferior ramus of pubis missing)

1 partial left scapula (glenoid fossa missing)

2 left tibiae (1 immature)

1 partial diaphysis of left tibia

1 left femur (immature)

1 left radius (immature)

1 left ulna (immature)
1 left metatarsal III

Antilocapra americana (Pronghorn, 1 individual)

1 thoracic vertebra (immature)

Citellus (Rock Squirrel) (1 young individual)

1 left femur (young adult)

Room 2, Floor:

Lepus (1 individual)

1 right ulna
1 proximal end of right radius
1 left scapula (incomplete)
1 left humerus
1 distal end of left tibia
1 left os innominatum

Sylvilagus (3 individuals)

1 rib
1 right tibia (immature)
1 proximal end of right tibia (immature)
2 right os innominata (both incomplete)
1 left os innominatum
1 distal end of left humerus
1 left metatarsal II
1 left metatarsal III
1 left metatarsal IV
2 intermediate phalanges
1 proximal phalange

(3 fragments unidentifiable)

Room 2, Floor, N.W. Corner:

Sylvilagus (3 individuals, 1 immature)

1 right scapula (incomplete)
1 right humerus
2 right calcanei
2 right tali or astragali
2 right cuboid bones
1 right navicular
1 right distal epiphysis of tibia

1 right proximal end of metatarsal II
1 right proximal end of metatarsal III
1 right metatarsal III (immature, epiphysis separate)
1 proximal end of right metatarsal IV
1 right metatarsal IV (immature, epiphysis separate)
1 right metatarsal V (immature, epiphysis missing)
1 left scapula (incomplete)
1 left metatarsal III
1 fragment of rib

Lepus (1 individual)

1 fragment of rib

Cynomys (Prairie dog)

1 right ramus

Room 2, Subfloor:

Sylvilagus (1 individual)

1 diaphysis (shaft) of right tibia
1 rib

Lepus (1 immature individual)

1 partial right os innominatum (immature)

Room 3, Floor:

Sylvilagus (1 individual)

1 diaphysis of right femur

Antilocapra (1 individual)

1 proximal (or primary) phalange

Room 3, Subfloor:

Lepus (3 individuals)

1 partial left ramus
1 proximal end of left ulna

1 proximal end of left tibia
1 left metatarsal II
1 right ulna
1 distal end of right tibia
1 fragment of proximal end of right femur
2 distal ends of right femurs
2 fragments of left tibiae
1 fragment of right tibia

Sylvilagus (2 individuals, 1 immature)

1 partial left os innominatum
1 left tibia (immature)
1 left ramus
1 fragment of right ramus
1 partial maxilla (teeth intact)
1 right ulna

Antilocapra (1 individual)

1 fragment of a right rib

Room 4, Fill:

Lepus (1 individual)

1 partial left os innominatum

Room 4, Subfloor:

Lepus (4 individuals)

1 distal end of right femur
2 fragments of right ramus (same individual)
1 left scapula
2 left ulnae (1 immature)
1 left radius
1 left humerus (proximal end broken off)
1 fragment (splinter) of tibia
2 partial os innominata

Sylvilagus (3 individuals)

1 distal end of right tibia
1 distal end of right femur (immature)

1 right os innominatum
1 fragment of right maxilla
1 left femur (immature)
1 left tibia
1 left os innominatum
1 distal end of left humerus

Cynomys

1 left ramus
1 left ulna
1 left tibia (proximal end missing)

Lynx rufus (1 individual)

1 fragment of left parietal bone of skull

Room 5, Floor:

Ruminant mammals (Deer, antelope type, 2 individuals, 1 immature)

1 humerus (incomplete, juvenile individual)
1 fragment from shaft of ulna

Room 5, Subfloor:

Lepus (2 individuals)

1 partial right os innominatum (immature)
1 partial right ramus
1 right metatarsal IV
1 left calcaneum
1 left diaphysis of femur

Sylvalagus (2 individuals)

1 partial right scapula
1 right diaphysis of femur
1 left ramus
1 distal end of left humerus
2 proximal ends of left tibiae (1 immature)

Ruminants (Deer or Antelope, 1 individual)

1 partial rib
1 fragment of long bone

Room 6, Fill:

Antilocapra (1 individual)

1 distal end of left scapula (glenoid fossa intact)

Ruminants (immature, 2 individuals)

1 partial left scapula (glenoid fossa missing)

1 ilium of right os innominatum

1 fragment of skull

1 fragment of leg bone

(All but fragment of leg bone from a juvenile individual, probably small Antelope)

1 fragment of rib

Room 7, Level 1, Floor:

Lepus (1 immature individual)

1 left femur (incomplete, immature)

Sylvilagus (2 individuals, 1 immature)

1 left humerus (immature)

1 partial left horizontal ramus

Antilocapra (1 individual, immature)

1 lower left premolar (immature individual)

Room 7, Level 2:

Lynx rufus (1 individual)

1 glenoid fossa of right scapula

Sylvilagus (1 immature individual)

1 left ulna (immature)

(1 fragment of rib unidentifiable)

Room 8, Floor, Level 2:

Sylvilagus (1 individual)

1 right tibia

Room 9, Floor, Level 2:

Odocoileus (Deer, 1 individual)

1 splinter of metacarpal

Room 10, Fill:

Lepus (2 individuals)

1 right ramus (incisor missing, young adult)

1 left femur

Antilocapra (1 immature individual)

1 thoracic vertebra (immature)

Odocoileus (1 individual)

1 proximal end of right metatarsal

1 fragment of leg bone

Ruminant (probably deer, 1 individual)

1 partial rib, right 2

Room 10, First Floor:

Lepus (1 individual)

1 distal end of left humerus

Citellus (1 immature individual)

1 right radius (distal epiphysis missing, immature)

Antilocapra (1 individual)

1 epiphysis of thoracic vertebra
(Fits vertebra from fill of Room 10)

Ruminant (1 individual)

1 small splinter of scapula

(1 unidentifiable splinter)

Ruminant (probably deer, 1 individual)

1 partial rib, left 6

Courtyard Fill, Level 1:

Lepus (2 individuals, both young adults)

2 right os innominata (inferior ramus of pubis, and portion
of ilium and ishium missing on both)
1 proximal end of left tibia
1 distal end of left tibia
1 fragment from above tibia (glued on)
1 left calcaneum
1 partial mandible (left horizontal ramus with anterior portion
of right horizontal ramus attached)
1 left metatarsal II
1 left metatarsal III
1 left metatarsal IV

Sylvilagus (1 individual)

1 partial right ramus (part of ascending ramus missing)
1 partial right os innominatum (parts of ischium, ilium, and
inferior ramus of pubis missing)
1 diaphysis of right femur
1 right metatarsal II
1 right metatarsal III

Antilocapra (1 individual)

1 proximal end of right humerus

Courtyard East of Room 7, Fill, Level 2:

Lepus (5 individuals)

2 partial left scapulae
1 distal end of left tibia
1 distal end of left femur
1 partial left os innominatum
2 diaphysis of left humeri (2 immature individuals)
1 left alveolar process and zygomatic process of maxilla

1 right alveolar and zygomatic process of maxilla
1 right side of maxilla, right and left premaxilla, both
incisors intact
3 right rami (2 incomplete)
2 scapulae (1 incomplete)
1 proximal end of right tibia
1 fragment of diaphysis of right tibia
1 partial right os innominatum
1 distal end of right metatarsal IV
1 proximal phalange
1 intermediate phalange

Sylvilagus (3 individuals)

2 left os innominat~~a~~
1 right os innominatum (incomplete)
1 right radius (incomplete)
1 distal end of right femur

Antilocapra (probably same individual)

1 left magnum
1 base of neural spine of thoracic vertebra

Courtyard East of Room 7, Floor, Level 2

Dipodomys (Kangaroo Rat, 1 individual)

1 partial skull
1 left tibia
(3 fragments unidentifiable)

Courtyard East of Room 10, Fill, Level 2:

Lepus (probably 3 individuals)

1 proximal end of right femur
1 fragment of left horizontal ramus
1 fragment of right tibia diaphysis (immature)

Sylvilagus (1 immature individual)

1 partial left humerus (immature)

Odocoileus (1 individual)

1 fragment of diaphysis of metatarsal

Kiva Fill, Level 1:

Lepus (1 individual)

1 right humerus (proximal end missing)

1 left ramus (incomplete)

1 diaphysis of left tibia

1 left os innominatum (part of inferior ramus of pubis missing)

Sylvilagus (3 individuals, 1 immature)

1 distal end of right femur

1 right humerus (proximal end missing)

1 right scapula (incomplete)

1 left humerus (proximal end missing)

1 distal end of left diaphysis of femur (immature)

1 ischium of left os innominatum

1 portion of maxilla with left and right cheek teeth,
zygomatic and palatine process present

1 portion of right side of maxilla (cheek teeth missing)

Cynomys (1 individual)

1 right os innominatum

1 lower right third molar

Kiva Fill, Level 2:

Lepus (2 individuals, 1 immature)

1 partial right radius (immature)

1 fragment of diaphysis of right tibia

Sylvilagus (1 individual)

1 partial left femur (proximal end missing)

1 distal end of left humerus (proximal end missing)

Cynomys (1 immature individual)

1 partial skull

Odocoileus (1 large individual)

1 distal end of left tibia

Kiva Floor, Level 1:

Sylvilagus (1 individual)

1 partial skull

1 partial left os innominatum

Kiva, Fill, Level 2:

Lepus (1 individual)

1 fragment of left os innominatum (acetabulum and ilium)

Ruminant (1 individual)

1 small fragment of leg bone (unknown element)

Kiva, Level 2, Floor:

Lepus (1 individual)

1 partial right ramus (part of horizontal ramus missing)

1 distal end of left tibia

1 diaphysis of left femur

1 left metacarpal II

Sylvilagus (1 individual)

1 left horizontal ramus (from angle to incisor)

Kiva Subfloor:

Lepus (2 individuals, 1 immature)

1 right horizontal ramus

1 proximal end of right tibia (immature)

1 fragment of diaphysis of above tibia

1 fragment of left metatarsal II

1 left metatarsal III

1 left metatarsal IV

1 left metatarsal V

Sylvilagus (1 individual)

- 1 partial left ramus
- 1 left scapula (incomplete)
- 1 fragment of diaphysis of left tibia
- 1 partial left maxilla and zygomatic (of skull)

Cynomys (1 individual)

- 1 left ramus

Pithouse, Fill:

Sylvilagus (1 individual)

- 1 right diaphysis of femur (immature)

Canis (2 individuals, 1 immature)

- 1 proximal end of right radius (this does seem to be Canis latrans but would require more comparative material to substantiate)
- 1 lateral incisor (upper right #2 - milk tooth)
- 1 upper left #3 (13) - milk tooth
- 1 upper left #3 incisor - milk tooth
(The teeth are probably from Canis familiaris about 6 months old. Same reasons as above.)

Antilocapra (2 individuals)

- 1 right metatarsal (young adult)
- 1 right rib, proximal end, No. 6
- 1 right naviculo-cuboid (young adult)
- 1 right mid-lateral cuneiform (adult)
- 1 fragment, medial portion, proximal end of left radius (probably young adult)

Homo Sapiens (1 individual)

- 1 fragment of left scapula (glenoid and subscapular spinous fossae and spine missing, as is coracoid process; portion of acromion present)

Pithouse, Floor:

Canis (1 individual)

1 lumbar vertebra

Bird Bones

Bc-236, Chaco Canyon National Monument

Identification by Lyndon L. Hargrave

The bird bones listed herein were recovered by Archeologist Zorro Bradley from a small pueblo site, Bc236, on Chaco Arroyo, near Mesa Fahada, Chaco Canyon National Monument, New Mexico.

Artifacts

All eleven artifacts recovered were made from bones of the Turkey (Meleagris gallopavo). These are listed herein by their field catalog number, but a study number also has been assigned each artifact to conform to the system of filing species identification cards, which will carry both identification numbers.

No. 35 (C6)--Central section of left ulna. Room 5.

No. 36 (C7)--Section cut from proximal half of a right tibiotarsus.

From fill in Room 1. Nos. 36 and 38 appear to have been cut from the same tibiotarsus and may be considered as processed for later use in manufacture.

No. 35 may be in this category also.

No. 37 (C8)--Broken central section cut from a right radius.

Room 1.

No. 38 (C9)--Cut section of distal half of a right tibiotarsus. Room 1. See comment under "No. 36."

No. 39 (C10)-Awl made from left tibiotarsus. Proximal end broken off. From Room 8.

No. 40 (C11)-Awl made from right radius. Proximal end sharpened. From Room 5.

No. 41 (C12)-Pointed section of a broken awl made from a right radius. Not a part of No. 37. Room 1.

No. 42 (C13)-Awl made from distal end of right tibiotarsus. Proximal end sharpened. From Room 1.

No. 44 (C14)-Awl (point broken) made from distal end of left tibiotarsus. Proximal end sharpened. Room 7.

No. 48 (C15)-Awl from an anterior section (sliver) of a left tarsometatarsus with the anterior metatarsal groove artificially deepened. From Room 9.

(C16)-Awl (point broken) made from distal end of a right tibiotarsus. Proximal end sharpened. No field catalog number. Kiva fill, Level 2.

Miscellaneous Bones

Turkeys: A total of 45 bird bones recovered from various locations appear to be normal refuse, with the exception of No. C44.

The preponderance of turkey bones and the fact that the turkey is recognized as a domestic animal of the Anasazi of this cultural period seems sufficient reason to consider that these bones are from the domestic strain and were raised here.

In the following list, each turkey bone is listed, although a study catalog number has been assigned only to those bones that might later contribute to other studies. Unnumbered bones have been boxed and filed for future study, if necessary. Turkey bones recovered are as follows:

Room 1

C17--right femur
C18--left radius

C19--left carpo~~met~~metacarpus
C20--right carpo~~met~~metacarpus

All from fill.

Room 2

C21--left ulna, floor, NW corner
C22--right radius, floor, NW corner
C23--right femur, floor
C24--left tibiotarsus, floor

C25--sternum (part), floor
C26--left ulna, floor
C27--right carpo~~met~~metacarpus, floor

Room 3

C28--left humerus, distal end from subfloor.

Room 4

C29--left humerus, proximal end
C30--right femur

C31--right tibiotarsus, distal
end

All from subfloor

Room 5

C32--right coracoid

Room 6

C33--left humerus (distal end) from fill
C34--left femur (proximal end) from fill

Room 7

C35--sternum (part) from Level 2
C36--cervical vertebra from Level 2

Room 10

C37--right carpometacarpus from fill

Kiva

C38--skull from fill of Level 1	C41--left carpometacarpus from Level 2
C39--cervical vertebra from Level 2	C42--left fibula from subfloor
C40--left ulna from Level 2	

Pit, West Side of Ruin

C43--right femur	C44g-right tibiotarsus
C44a-pelvis	C44h-left tibiotarsus
C44b-pubis	C44i-right tarsometatarsus
C44c-caudal vertebrae	C44j-left tarsometatarsus
C44d-right femur	C44k-left fibula
C44c-left femur	C44l-phalanx
C44f-patella	C44m-phalanx

Splints from tibiotarsi and tarsometatarsi were not saved.

Nos. C44a-m are all rear parts of the same turkey which may (or may not) have been a deliberate burial.

Wild Birds

C45--Quail (Odontophorinae)-distal 4/5 of right tibiotarsus. Not identifiable to species. From floor in northwest corner of Room 2.

- C46-Scaled Quail (Callipepla squamata) --left humerus from "Court yard fill East Room 7."
- C47-Scaled Quail (Callipepla squamata) --right radius from "Court yard fill East Room 7." I have not been able to distinguish the radii of the Scaled (Callipepla) and Gambel's (Lophortyx gambelii) quails but I assigned this radius to the Scaled Quail because it was associated with the Scaled Quail (C46).
- C48-Great Horned Owl (Bubo virginianus) --central section of left ulna. From floor of Room 5.
- C49-Horned Lark (Eremophila alpestris) --right ulna from "Sub-floor Room 5." See McGregor, M.N.A., Bulletin 18, p. 258, for other occurrences.
- C50-Common Raven (Corvus corax) --distal end of right tibiotarsus. Unusually large. From "Pithouse fill."
- C52-Prairie Falcon (Falco mexicanus) --left humerus. Room 4, subfloor.

APPENDIX B: ETHNOBOTANICAL
REPORT

Submitted by Mr. Volney H. Jones

University of Michigan
Museum of Anthropology
Ethnobotanical Laboratory
Report No. 398
Lab No. 4740
Date of issue 1/2/59

Geographical data: Chaco Canyon National Monument, New Mexico

Site: Bc236

Association: From firepit in Room 4, Level 1; room level with
late A.D. 1200 occupation by Mesa Verde people.

Nature and condition of material: non-carbonized, moderate
disintegration.

Original catalog number: 54

Identified Descriptions

Approximately 1 tablespoon of small seeds submitted. The
sample contained some debris of sand and extraneous plant material.
Two kinds of seeds are represented in quantity, about 90 percent
pigweed (Amaranthus sp.) and 10 percent goosefoot (Chenopodium sp.)
Various species of both genera were gathered for food, not only by
most Southwestern groups, but also throughout most of temperate
North America. Species of both genera were cultivated in Mexico

and, Amaranthus to a limited extent, among the Pueblo peoples.

The Amaranthus seeds are rather uniform, about 1.5 mm. in diameter; the Chenopodium seeds are about 2 mm, in diameter. The dimensions compare closely with the usual dimensions of seeds of wild plants and offer no basis for a suggestion of domestication. However, the comparison offers no negative evidence, since the seeds of these domesticated forms exhibit little increase in size.

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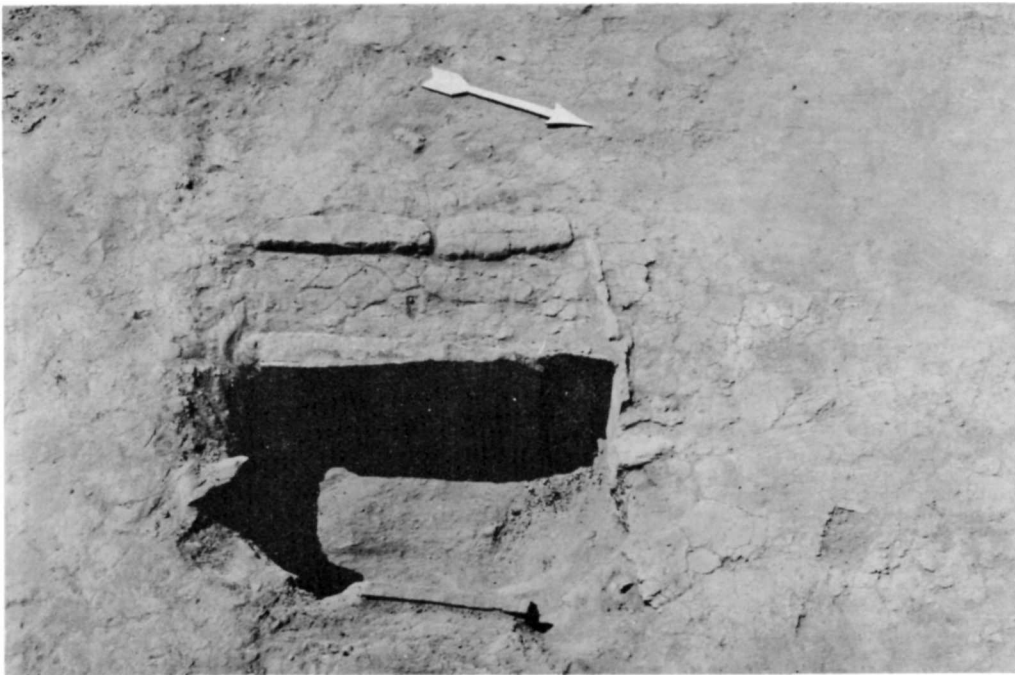


PLATE 1--Unusual firepit in Room 5, Level 1.



PLATE 2--In-place, flat-slab metates on subfloor, Room 5. Note wall foundation on left, and firepit that served the second floor level.

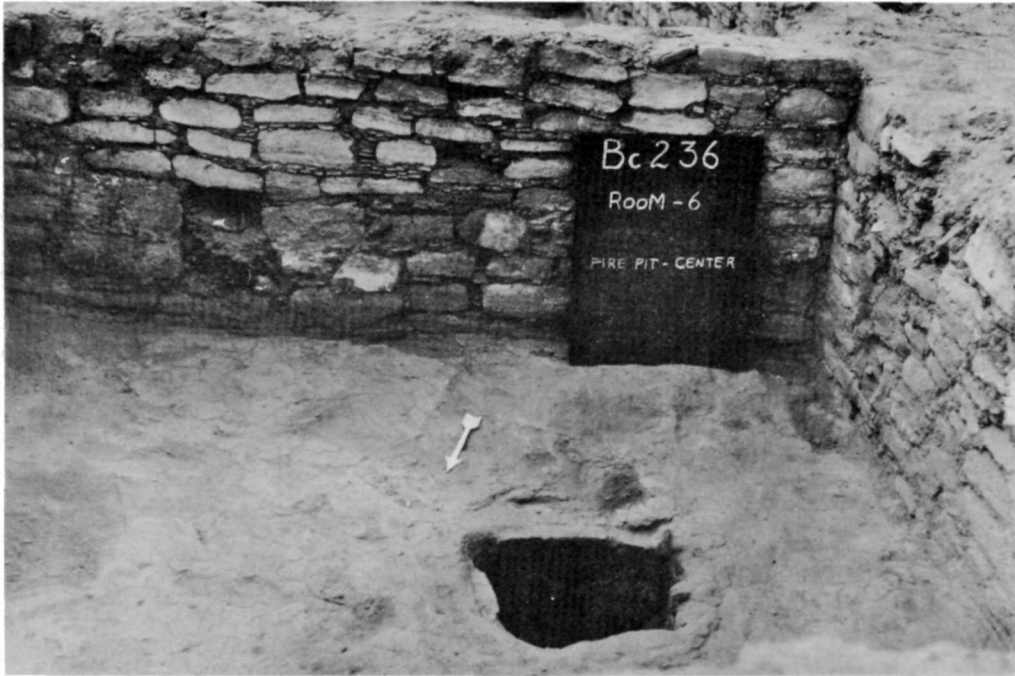


PLATE 3--South wall of Room 6 with spalled masonry section.



PLATE 4--Niche with clay jamb in west wall of Room 6.

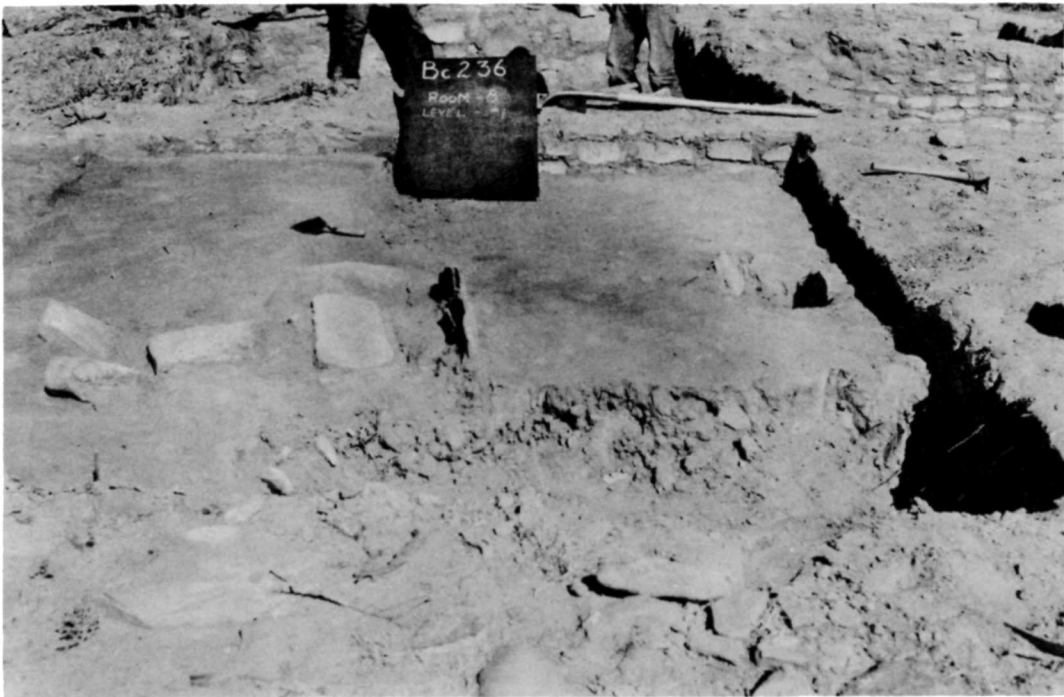


PLATE 5--Level 1, Rooms 8-9. Note metate in a bin and firepit.

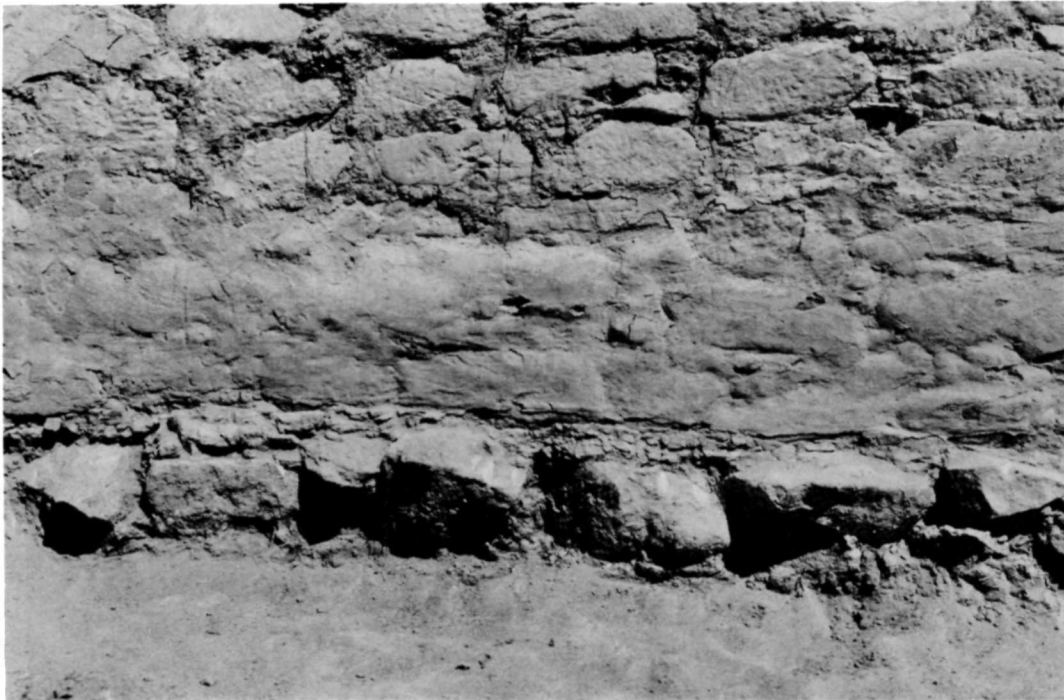


PLATE 6--Base of wall in Room 8. Note foundation stones and remains of plaster.

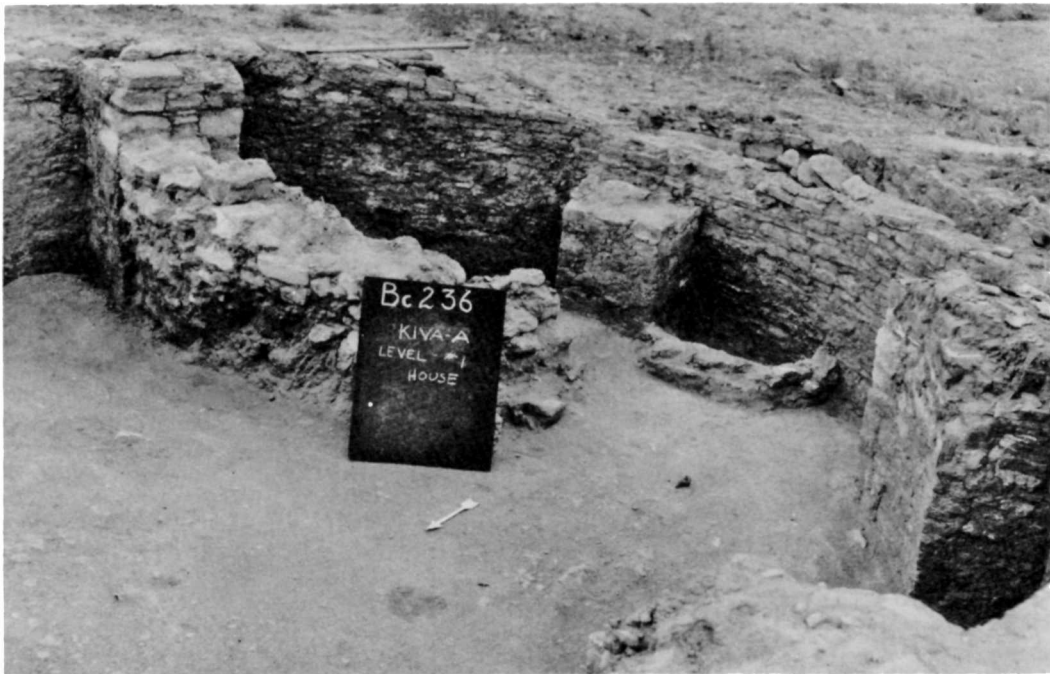


PLATE 7--Storage bin and firepit, Level 1, kiva.



PLATE 8--Modified southern recess, vent and firepit of kiva. To the left of the vent are small metates, one plastered into the floor.



PLATE 9--Kiva pilaster exhibiting small original element at base center.

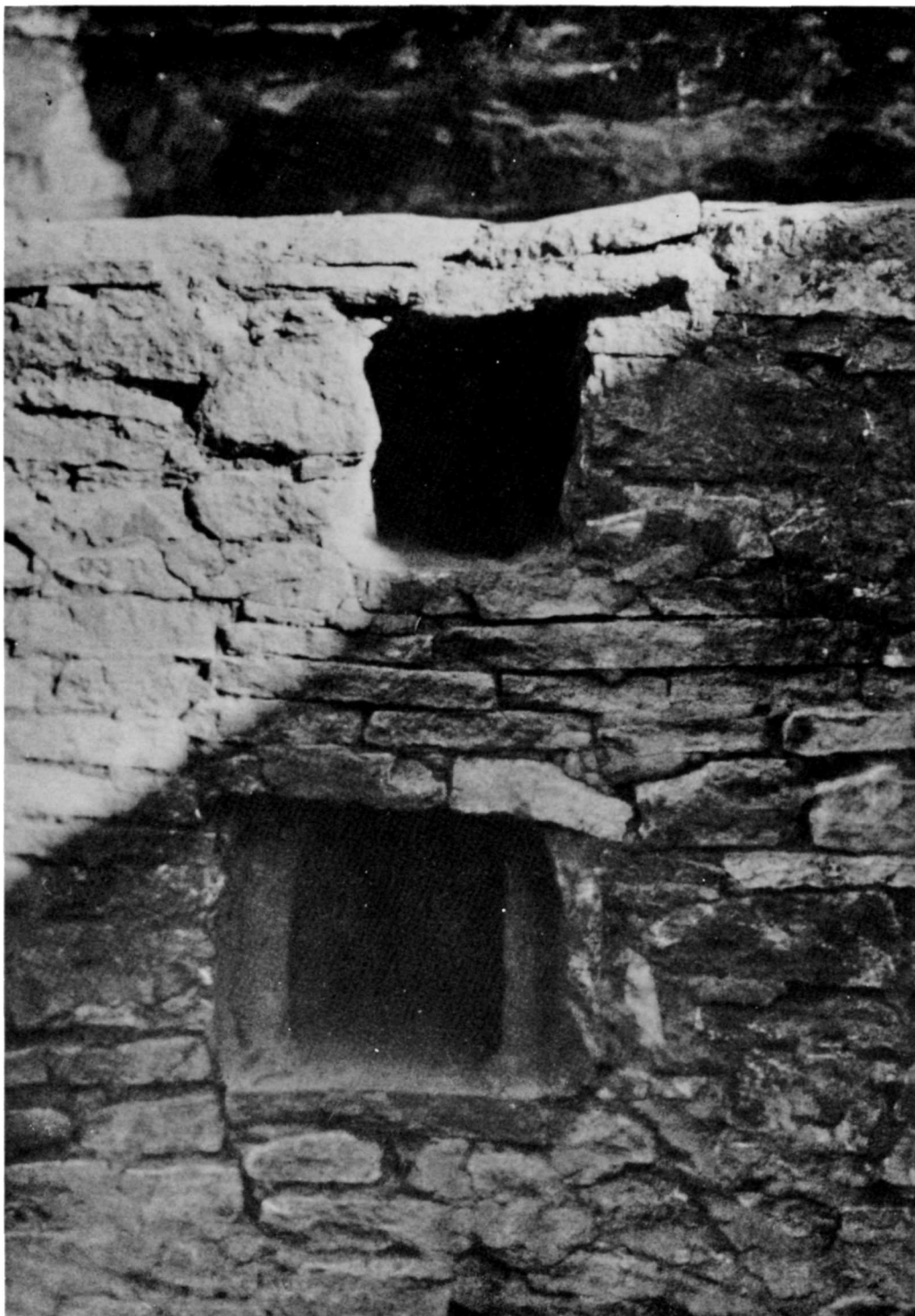


PLATE 10--Niches in bench, north side of kiva.



PLATE 11--View of plaza to west. Note two distinct work levels.



PLATE 12--Deep firepit west of ruin, before excavation.



PLATE 13--View into deep firepit; note secondary pit at center.

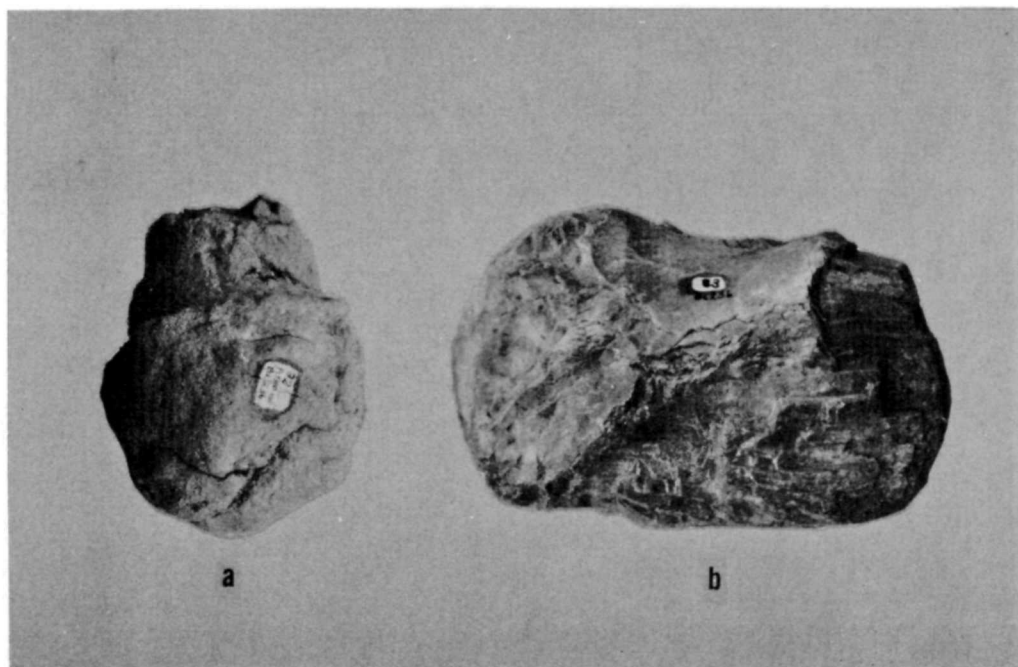


PLATE 14--Unfired clay jar stopper, a; and maul of petrified wood, b.

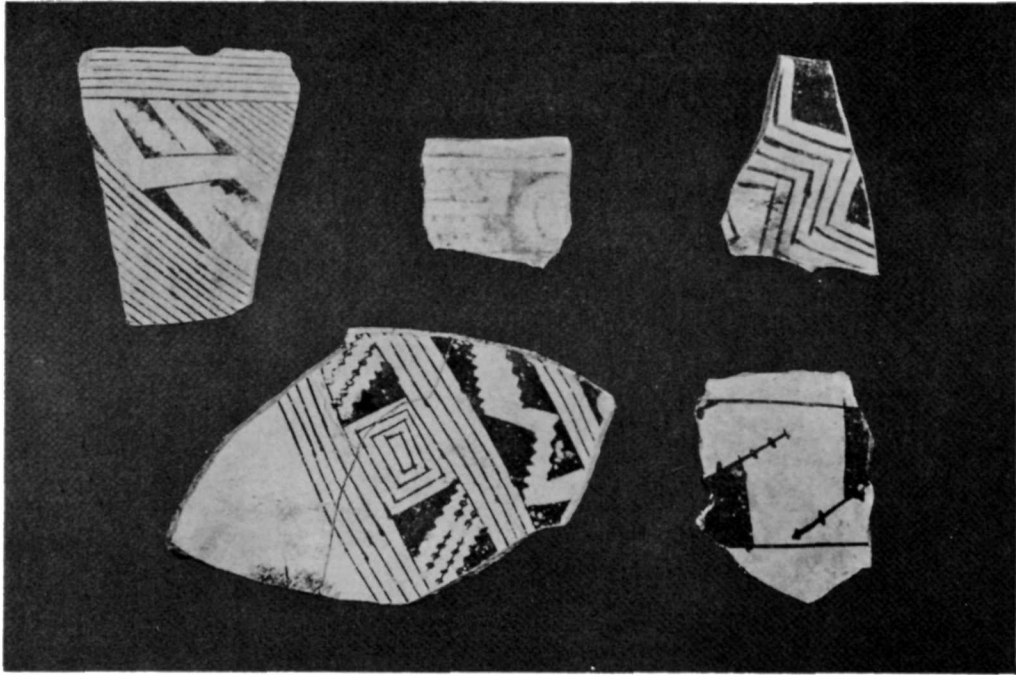


PLATE 15--Kiatuthlanna Black-on-white sherds.

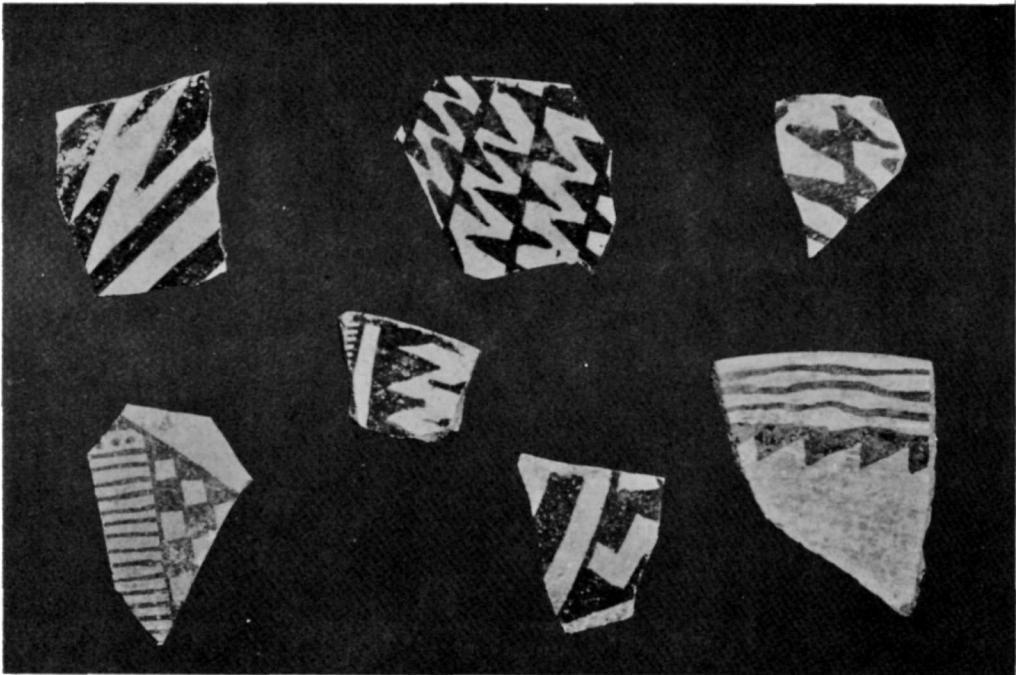


PLATE 16--Escavda Black-on-white sherds.

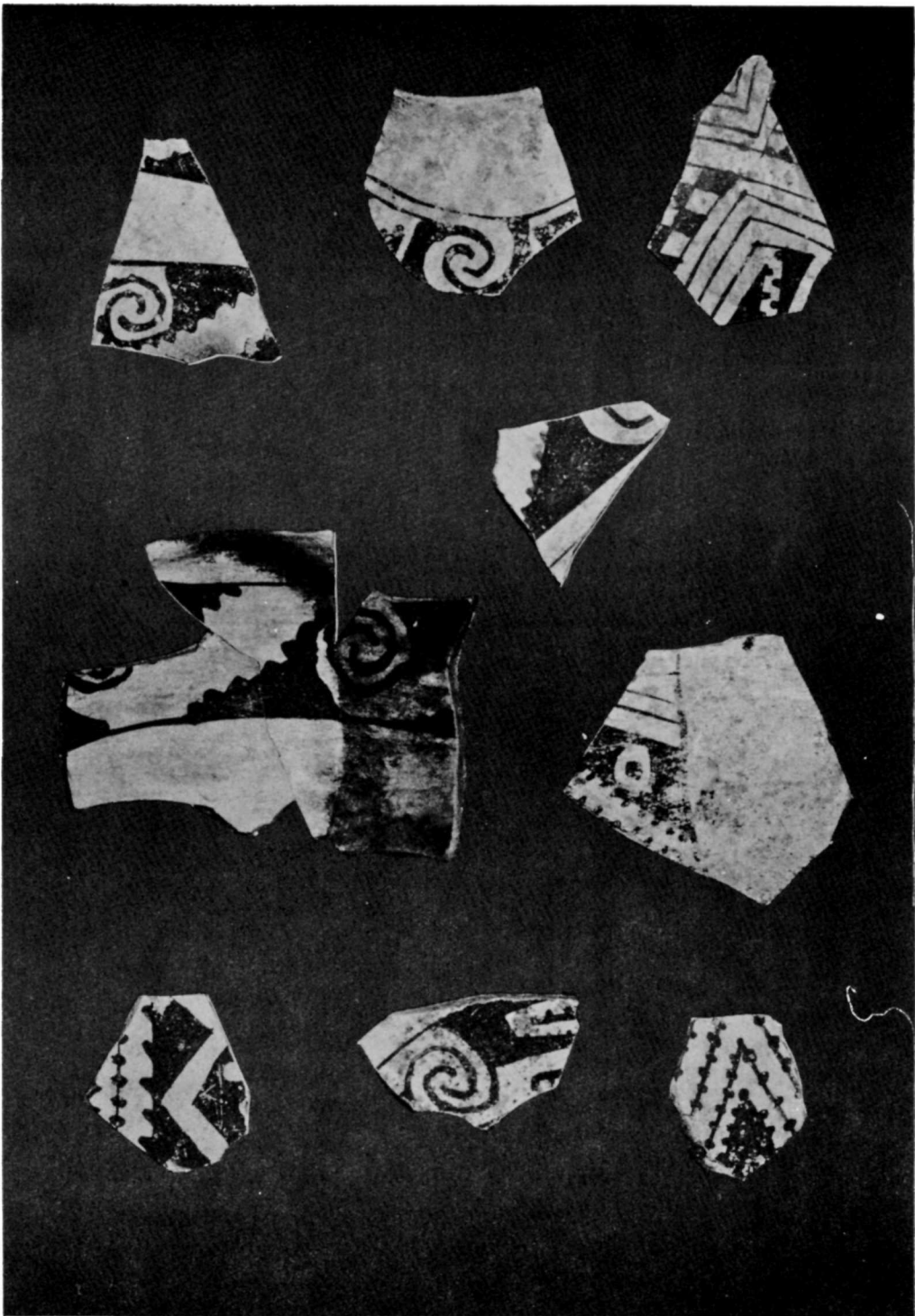


PLATE 17--Red Mesa Black-on-white sherds.

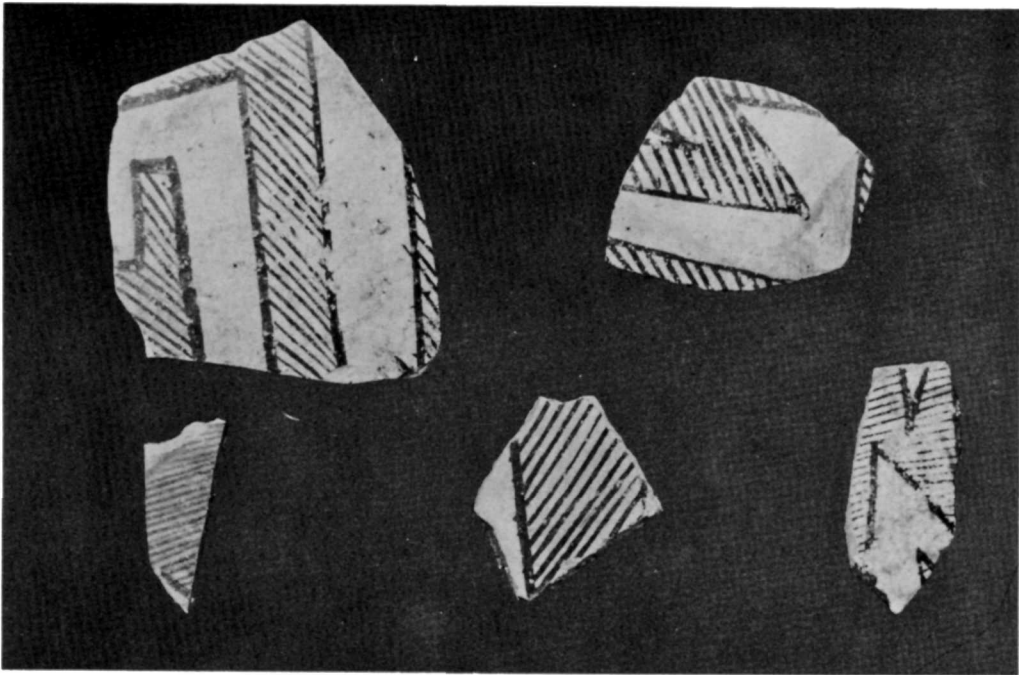


PLATE 18--Gallup-Chaco Black-on-white sherds.

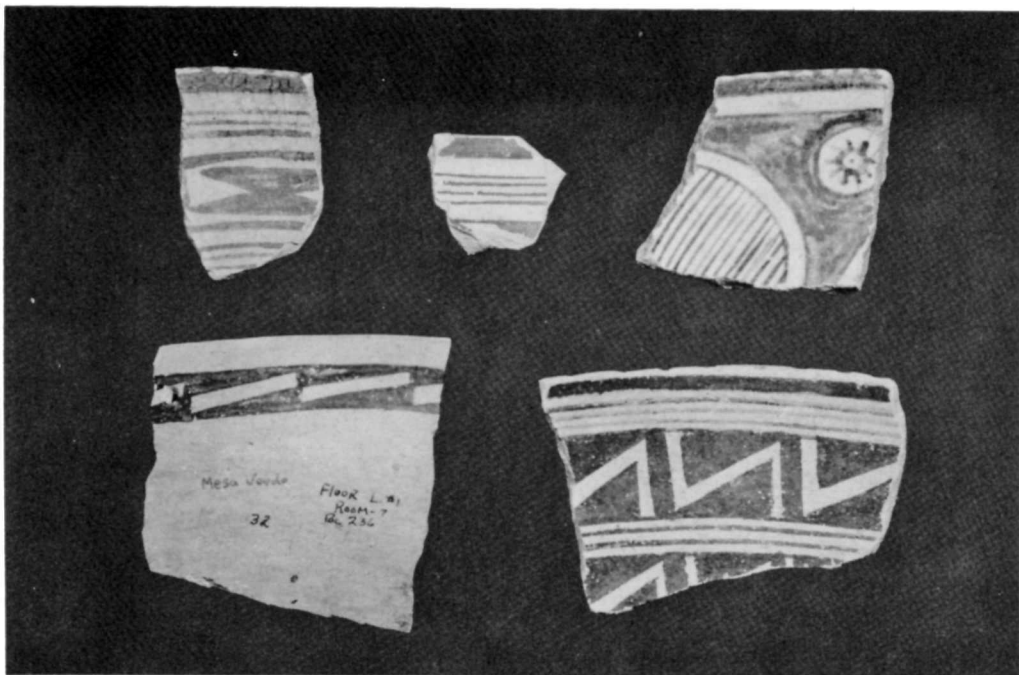


PLATE 19--Mesa Verde Black-on-white sherds.

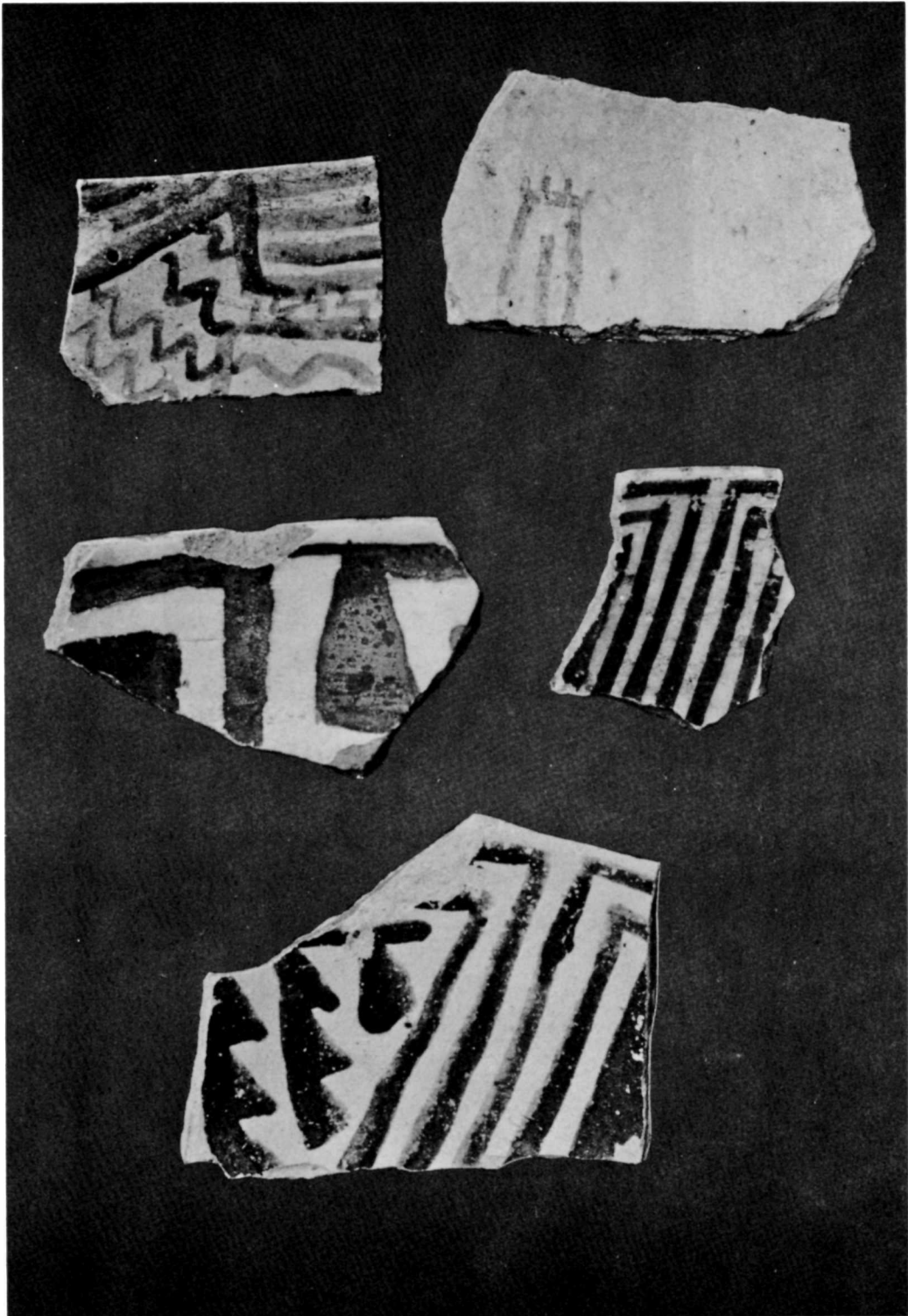


PLATE 20--McElmo Black-on-white sherds.

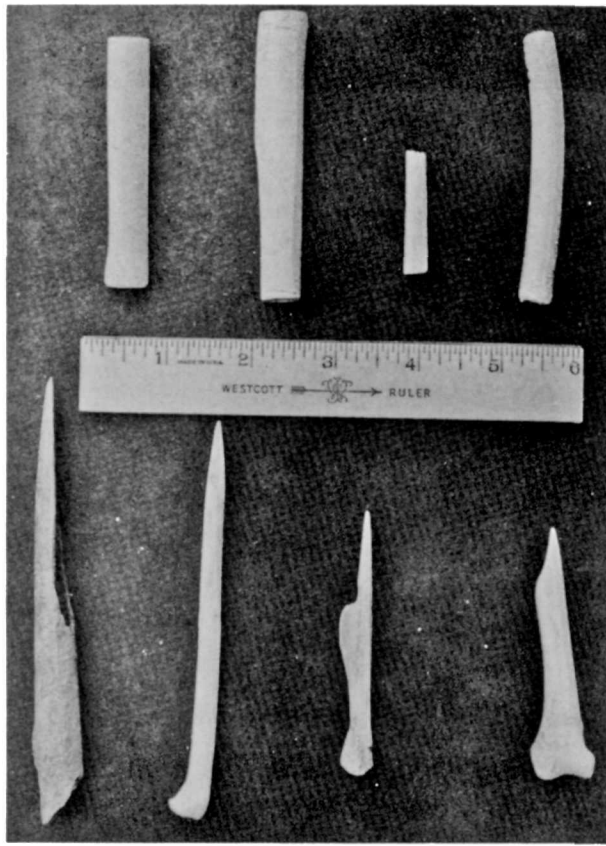


PLATE 21--Bird bone artifacts from Bc236.



PLATE 23--Exposed burial excavated in the trash area.

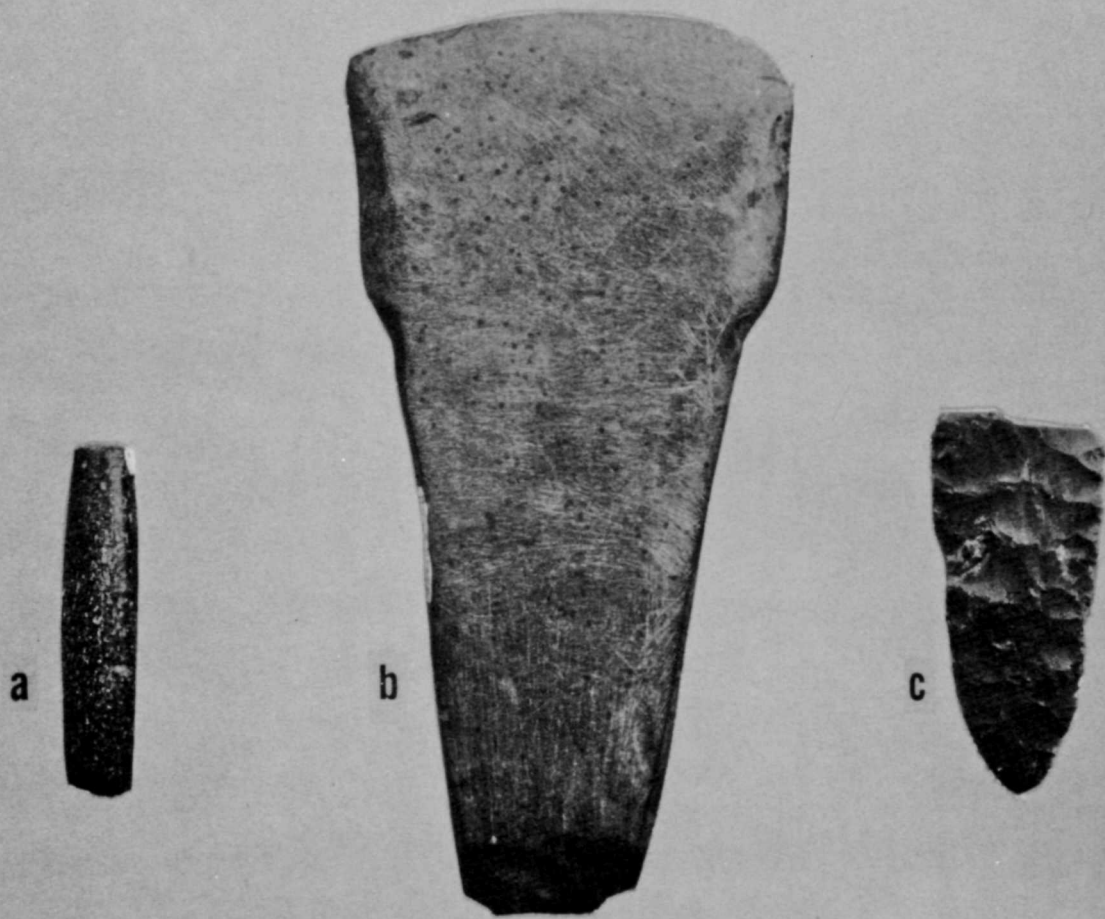


PLATE 22--Prayer on medicine stone, a; tcamahia or ceremonial skinning knife, b; and section of knife blade, c.

