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Badger House Community


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Badger House Community





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MESA VERDE NATIONAL PARK

Alden C. Hayes and James A. Lancaster



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Frontispiece. Excavated and stabilized portion of house block and of tower at Badger House (Site 1452), looking southwest.

Foreword

From 1958 through 1965, the National Park Service, with generous support from the National Geographic Society, conducted a comprehensive field study of the archeology and ecology of Wetherill Mesa, in Mesa Verde National Park. As research and plans for interpretation continue, the park is being developed so that increasing numbers of visitors will be able to observe the evolution of a prehistoric culture, both on Wetherill and in the nearby and more familiar section of the park known as Chapin Mesa.

It is a pleasure to present the fifth monograph of the Wetherill

Mesa series. This report on Badger House Community is the result of excavations conducted at three adjacent mesa-top sites. It interprets the findings as representing the cultural and physical remains of a community of simple Indian farmers during a span of over 600 years, from roughly the mid-7th through the mid-13th centuries, A.D.

At Badger House Community, as at other National Park Service sites, our archeologists and other professionals continue to uncover secrets of the past for present and future generations.

Gary Everhardt
Director
National Park Service

Acknowledgments

It is impossible to thank everyone, paid or unpaid, who directly or indirectly contributed to the excavation, recording and analysis which resulted in this report. Our first indebtedness is to the men who moved the dirt, catalogued the field specimens, and helped with the mapping and photography in the summers of 1961 through 1963. The makeup of the crews varied, but the cadres consisted of the following: in 1961, F. Jerome Melbye, foreman, William B. Fountain, Mark Hadley, Robert E. Lee, Willie Claw Nez, and Daniel Wolfman; in 1962, Robert E. Lee, foreman, Mark Hadley, Richard Lee, Donald E. Smith, and Jon N. Young; and in 1963, Robert E. Barnes, foreman, Douglas L. Anderson, Frank Bluehorse, George King, Richard Lee, Kee C. Nez, Fred Slowman, and Paul Willie.

We are grateful to Richard H. Yeomans, camp foreman, and his assistant, William Burnett, who attended to the details of logistics and camp operation, and to David A. Decker, foreman of the crew that stabilized and protected the excavated sites. The fidelity of these men relieved us of concern for such matters, and allowed us to devote most of our time to archeology.

Though many people aided us in the project laboratory, we are particularly indebted to Ruth E. Chappell who, with unflagging interest, handled thousands of potsherds several times over in the laborious tasks of sorting them and fitting many of them together, and to Fred D. Mang, Jr., staff photographer, who believes that anything short of perfection is unacceptable. Jean Lee assisted with the pottery, and also prepared sketches, graphs, and tables. Pauline Goff did most of the recording in connection with analysis of the

stone artifacts and compiled the list of bone scraps. Bernard S. Katz and Gretchen Hayes gave us useful editorial advice in preparing the manuscript.

Tree-ring dating was done at the University of Arizona by Thomas P. Harlan under the supervision of Bryant Bannister. Thomas W. Mathews and Lyndon L. Hargrave, of the Southwest Archeological Center at Globe, Ariz., provided identifications of the mammal bones and bird bones, respectively. Charles Merbs supplied data on the Badger House burials, and Kenneth A. Bennett did the same for the burials from Site 1676. James S. Miles, M.D., furnished comments on the pathology of the human bones. Renderings of the field maps were executed by George A. King, architect, of Durango, Colo. The contributions of these men are greatly appreciated.

Discussions with our colleagues in the field and in the laboratory were of incalculable value. Advice in the study of the stone artifacts was given by Richard P. Wheeler, laboratory supervisor, and the administrative and professional guidance of Douglas Osborne, supervisor of the Wetherill Mesa Project, was very helpful. We also wish to express our appreciation to Superintendent Chester A. Thomas and Vincent Ellis, Assistant Superintendent, for their support.

Archeological investigations in the Mesa Verde area have not ceased since this report was written, and the authors are painfully aware that the discussions of trait distribution and the comparisons drawn are somewhat dated. We hope the readers will bear in mind that this is how things looked to us when our work was completed in June 1965.

A. C. H. and J. A. L.
March 1974

Publications in Archeology

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2. Archeological Excavations in Mesa Verde National Park, Colorado, 1950, by James A. Lancaster *et al.* 1954. (PB 177 062)*
3. Archeology of the Funeral Mound, Ocmulgee National Monument, Georgia, by Charles H. Fairbanks. 1956. (PB 177 063)*
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- 7B. Environment of Mesa Verde, Colorado, by James A. Erdman *et al.* 1969.
- 7C. Big Juniper House, Mesa Verde National Park, Colorado, by Jervis D. Swannack, Jr. 1969.
- 7D. Mug House, Mesa Verde National Park, Colorado, by Arthur H. Rohn. 1971.
- 7E. Badger House Community, Mesa Verde National Park, Colorado, by Alden C. Hayes and James A. Lancaster. 1975.
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* These publications are no longer available from the Superintendent of Documents, but may be ordered by title and parenthetical code number by writing to: National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, Virginia, 22151.

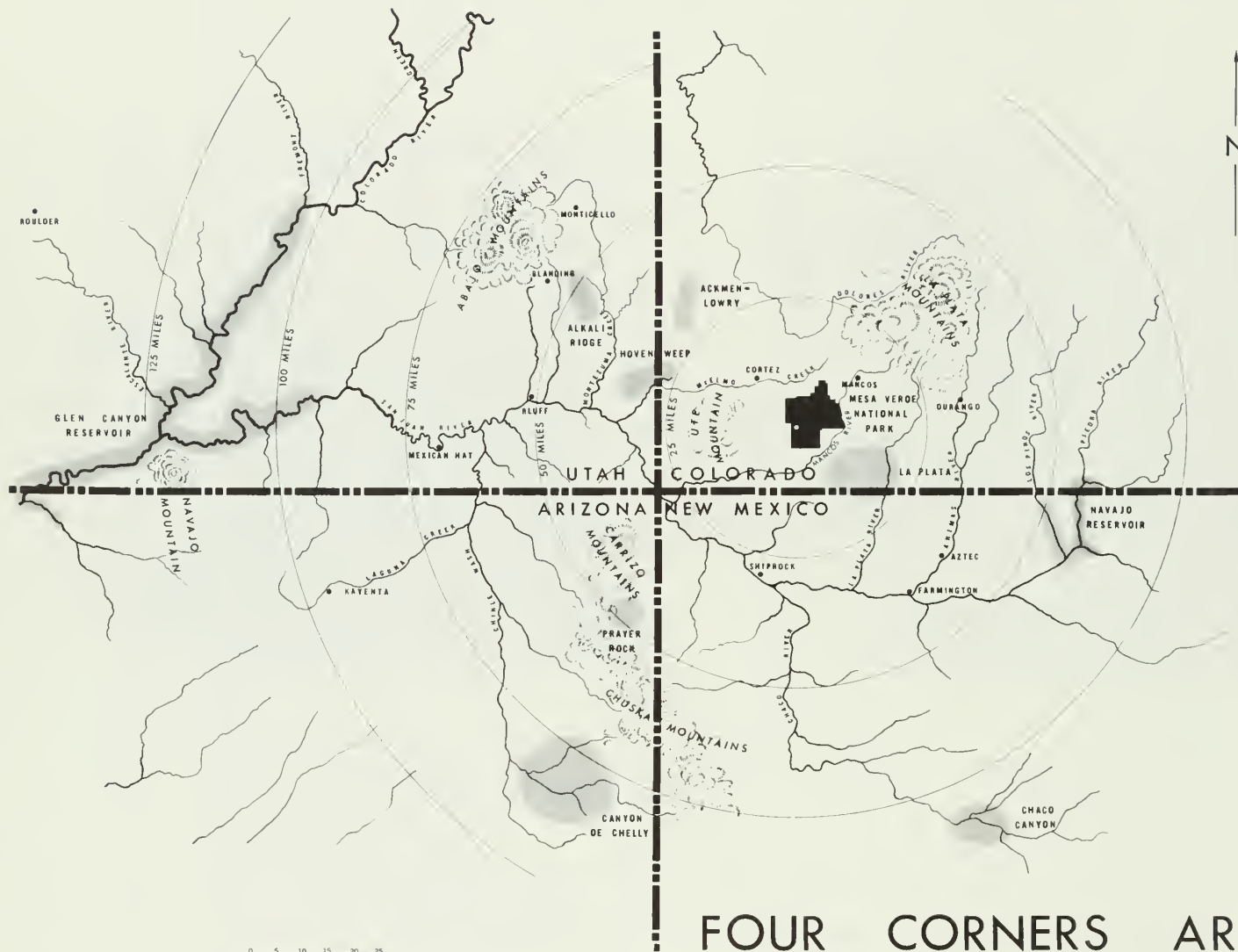
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FOUR CORNERS AREA

SOME WELL KNOWN SITE CONCENTRATIONS

1

Introduction

PROBLEMS AND PROCEDURES

The Wetherill Mesa Archeological Project had as part of its mission the development of a series of sites that could illustrate to the park visitor the various phases of Anasazi culture represented there. A survey of the archeological resources of the mesa prior to any excavation on the mesa top showed us that a compact cluster of sites, exemplifying the entire range of development from Basketmaker III through Pueblo III, could be found in three acceptable locations. The location chosen as being ideal from the standpoint of traffic control and orientation of the visitor was one near Big Juniper House, midway between Mug House and Long House (fig. 1).

It was the hope that a component representative of a single phase could be isolated for exhibit at each site in this area. Such a ruin is obviously more easily interpreted than a complex site with much superposition of structures. However, it is just such a mound with a long history of remodeling or rebuilding and with stratified trash deposits which tells us more about changing material culture.

Few excavations in the Mesa Verde area have failed to reveal some changes of style within a continuous occupation or in the resettlement of an older location, but also rare are excavations with evidence of more than two phases of cultural development. Site 16 on Chapin Mesa in the park, with an estimated span from A.D. 900 to 1100, furnished the longest continuous record available when the project got underway in 1958 (Lancaster and Pinkley, 1954).

Enough progress had been made toward the project's objectives by the spring of 1961 so that it was possible to budget time and money for the excavation of a site solely for what could be learned from it. Site 1452 in the vicinity of Long House and a mile south of the proposed mesa-top development had looked promising to us since it was surveyed in the summer of 1959. A collection of sherds from the surface of the trash mound contained a good sample of every local pottery type from the early Chapin Black-on-white to the classic Mesa Verde Black-on-white. The trash mound was of particular interest. It appeared to be about 100 feet long and an estimated 3 feet deep. Stable trash deposits deep enough to show undisturbed stratigraphy are rare on Mesa Verde, and none had been excavated. The two-century accumulation at Site 16 had unfortunately been thoroughly riddled by early explorers. There was no evidence at Site 1452 that it had been visited by man in the past several hundred years, although badgers had done some burrowing and at least one was still in residence. It was this animal which prompted our Navajo workmen to name the ruin Kin Náaschiti, or Badger House.

The ceramic typology for Mesa Verde had, to a large extent, been based on surface collections and the sequence of types was in part conjectural, and though dated at both ends of the range by tree rings, the proposed dates for those types in the middle were largely inferred. At Badger House, the stratified dump appeared likely to

produce the series types in their proper order, associated with artifacts of stone and bone, and correlated with datable houses.

Work on the site was started in June 1961, and after shutting down in the fall, the fieldwork was resumed the following summer. A total of 6 months was spent excavating the entire trash mound, a pithouse, three kivas, a tower, and about half of the house mound. Most of this time was spent unraveling the layered trash. In some respects, the results were better than hoped for; in other respects, disappointing. The trash turned out to be deeper than expected and covered a greater area. The stratigraphy throughout much of it was clear and the span of time represented was longer than at any excavated site on the mesa, yet there was a gap in the record of one or more generations followed by a reoccupation. Association of trash deposits with structures was not ideal and the earlier houses had been all but destroyed by later builders.

The only tree-ring dates were from a kiva of the already well-dated Mesa Verde Phase. An unexpected bonus was a Late Pueblo III house overlying an earlier masonry structure in such a way that exhibit and interpretation of both houses are possible. The situation is not so complex as to confuse any lay visitor and could be a good illustration of the continued or repeated use of a single site.

Only half of the house was excavated. It seemed unlikely that opening more rooms would provide as much additional information as time and labor used at another site. Further, the undisturbed mound at one end of the excavated rooms could serve as an interpretive device. Visitors would be able to see the mound as it first appeared to the archeologists as well as a sample of what lies below the surface.

While it was becoming apparent in the summer of 1962, that Badger House would make an interesting exhibit, it was also becoming evident that Big Juniper House (Swannack, 1969), the prime site in the chosen area to the north, though engaging to an archeologist, would be difficult to interpret to the public because of its complexity, and even more difficult to stabilize for exhibit. Badger House lay in the midst of one of the other possible locations for a series of exhibits and, after testing the other sites in the vicinity, it was decided to retain Badger House as an example of a Late Pueblo III mesa-top ruin and to develop three more sites nearby. These include Two Raven House, a Pueblo II village about 1,200 feet north, and Site 1676 on the crest of the ridge 200 feet west of Badger House, where the surface indications were those of a large Pueblo I village. A hole drilled with a 3-inch soil auger at Site 1644, 1,100 feet northwest of Badger House, in the fall of 1961, brought up a 3-foot column of charcoal. This seemed to be a good prospect for a Basketmaker III pithouse. A test pit quickly confirmed it and the site was excavated in the fall of 1962.

In the spring of 1963 we started excavations at Site 1676. When initially surveyed, this site was thought to consist of two long arcs of about 30 rooms, a possible great kiva, and a trash dump of some

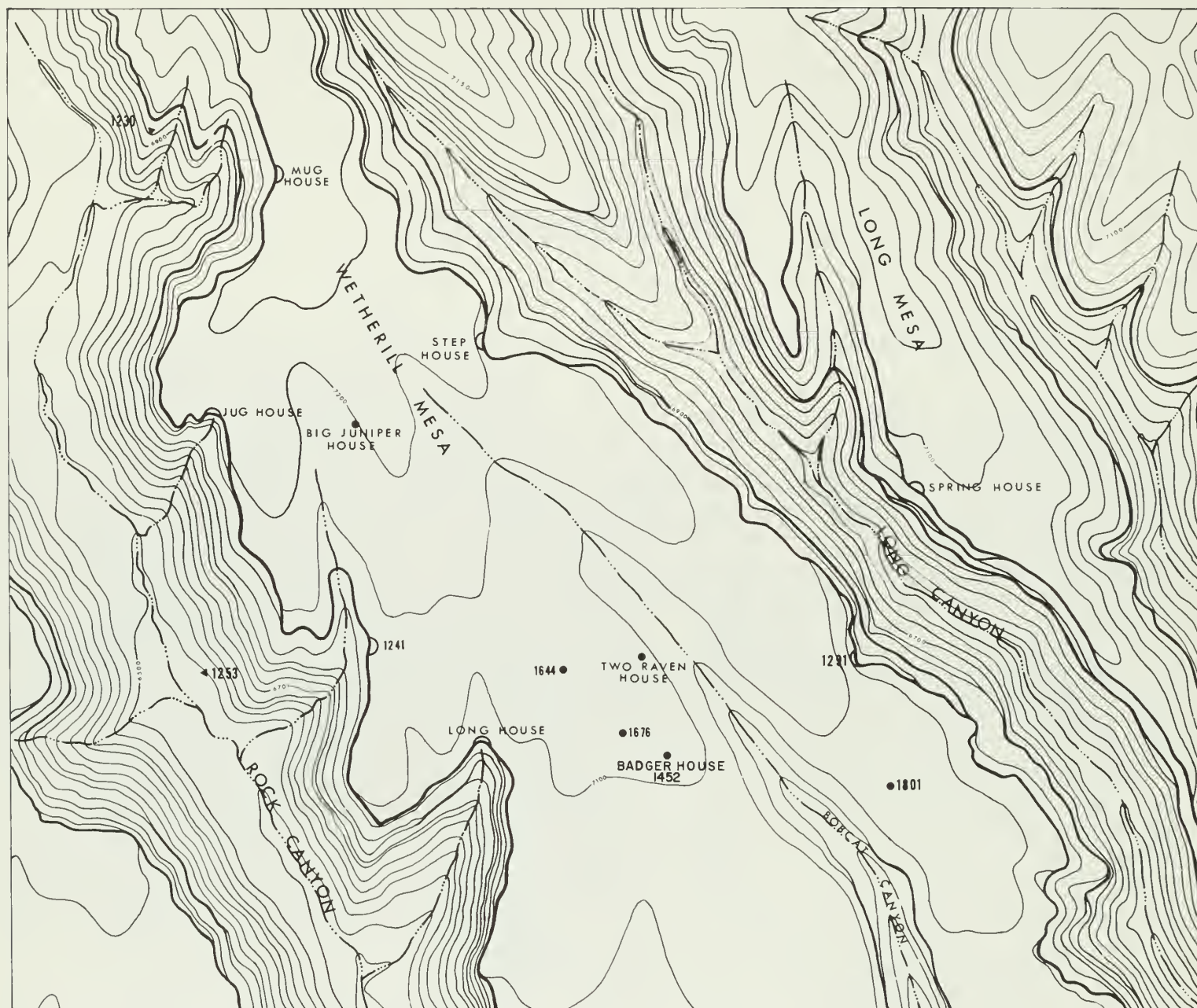


Figure 1. *The central section of Wetherill Mesa.*

depth. By the end of the summer of 1963 we had excavated all or parts of nine surveyed sites—up to and including Site 1644, 1,100 feet from the first trench cut into Site 1676. Although the sites absorbed by the spreading excavation were not renumbered in the survey record, for the purposes of the excavation record and this report, they are considered to be parts of Site 1676. The locations of the survey stakes marking all the sites involved are shown in figure 2. Sites 1646 and 1648, for example, are shown at each side of a small house at the left of the map, but the house was excavated as House 8 of Site 1676.

Our objective of associating dated architecture with other pertinent items of material culture dictated the concentration of our efforts at house sites. Thus, work in the intervening areas was limited to exploratory trenches and cores and to the stripping of relatively narrow borders immediately in front of some of the houses. By this limitation we unquestionably missed hearths, baking pits, and other small features in these plaza-like areas which must have seen much

use in the people's day-to-day activity. But time and funds expanded in the inter-house areas promised comparatively little return. Our tests showed that culturally impregnated soil was shallow, carried scant refuse, and what little trash there was could seldom be associated with a specific house within the closely spaced array of houses.

Comparison of the survey estimates of the settlement of the ridge with what the shovel revealed is a basis for an evaluation of the validity of the survey's conclusions (Hayes, 1964). This area was suspected to be the location of a series of related houses, but the practice was to stake and number every spot showing cultural debris that from surface indications seemed discrete, and where trash from one area could be distinguished from that of another staked site. Though many site numbers were assigned, the probable relationships were noted.

To estimate the number of rooms, the average size of Pueblo I rooms excavated at other sites was matched with what appeared to be the extent of the house. Our figure was far too conservative. The



survey estimate for the total size of all the related sites was from 78 to 91 or more rooms. A re-estimation after the season of excavation was 148 rooms.

In the matter of suggesting the cultural stage represented, the survey did much better. All of these were listed as Pueblo I on the Site Survey Record, with the addition of a small Pueblo II room at one end of Site 1676. Because of the deep cover over the known Basketmaker III sites on the Mesa Verde, none were so called from surface indications alone. Their presence was suspected, but if anything showed it was tagged Pueblo I or later, as a matter of policy. The results of the digging showed the policy to be sound and all houses were Pueblo I. A Basketmaker III pithouse was found at 1676 partly covered by a Pueblo I room. After excavation, the survey's great kiva was revealed to be an ordinary and isolated Pueblo III kiva, but a true great kiva of early date was found under one of a string of Pueblo I rooms. The trash mound was shallower than it appeared and overlay a burned-out Pueblo I house, the presence of

which was unsuspected. At 1644 nothing was found near the staked area of few sherds and burned spalls of rock, but Pithouse A lay under clean ground some 50 feet northwest. The surface indications in this case had drifted down the slope and the house site was covered with alluvium from above. We found the same situation at four of the houses excavated at Site 1676. When no wall outlines were visible, there was often an indistinct line of small rubble which the survey took to be a house location. In most cases, the house actually lay under what appeared to be undisturbed ground from 10 to 20 feet up the very gentle slope to the north.

Another of the survey's conclusions was a sequence of phases of cultural development on Mesa Verde based on the data collected plus that available in previously published reports. The phase names and their characteristics were based on those suggested by Gila Pueblo (Gladwin, H. S. and W., 1934) and modified by Reed (1958). Because frequent references will be made to these phases, it will be useful to list them here opposite the periods in the more familiar Pecos Classification with which they are roughly equivalent. They are:

La Plata Phase	Basketmaker III
Piedra Phase	Pueblo I
Ackmen Phase	Early Pueblo II
Mancos Phase	Late Pueblo II
McElmo Phase	Early Pueblo III
Mesa Verde Phase	Late Pueblo III

The division of Mesa Verde's prehistory was made partly for the convenience of reporting the work of the survey but also as a calculated prediction. We knew that much intensive excavation was to follow and it seemed a good opportunity for comparing results. The information from the sites in the Badger House vicinity indicates that, with minor adjustments, the survey's phases can stand as read. The adjustments and the comparisons will be discussed in our final summary.

Until the last season's fieldwork was partly digested, it was planned that each site would be reported separately, but when it became apparent that this area of a little less than 7 acres held a single settlement, continuously occupied for centuries and quite probably by the same line of people, the plan was changed. The treatment of the three sites as one makes, with a few missing details, a compact example of ancient life on Mesa Verde.

During the excavations of the three sites, Badger House, 1644, and 1676, each was treated as a separate site with its own series of room, feature and burial numbers and its own catalog. Consequently, there are several rooms carrying the same number. There is a Pithouse B, and a Kiva B—all deep, subsurface structures bear lettered designations regardless of their character. When the decision was made to include all the excavations in one volume, it was too late to renumber the features without great expense, risk of errors in transcription, and possibly greater confusion. We have tried to make it clear in the following pages which Room 3 and which Pit C, for example, we are referring to. We will discuss the various sites, as closely as feasible, according to their own chronology, rather than in the order in which they were excavated.

We have included details which will be of little interest to many readers. We have done this in the belief that much that may seem irrelevant today may, in the light of future discoveries, provide a clue. We have tried to re-create the history of the sites and to interpret their relationships with their human and geographic surroundings, but we have conceived the following primarily as a job of reporting and recording—even as a catalog to be used for re-interpretation by others. Those who wish to use this volume in that way will find that the inventories of artifacts included in the descrip-

tions of architectural features are listed in the same order as they are later described in the chapters on pottery, stone, bone, etc.

Collections were as thorough as they could be made without screening and, except for construction stone, all artifacts and refuse were brought in. The inventories of collections are complete except for unused flakes and rejects, but absence of some class will not always be noted. When there is no list of unworked animal bone, it is because there was no refuse bone. All wood specimens holding any promise of rendering a date were wrapped in the field and submitted to the Tree-Ring Laboratory where all were inspected and dated if possible. Even undated specimens were identified as to species.

We hope the more casual reader can get the general picture by reading the introductory and summary paragraphs of each section, skipping the tedium of dimensions, numbers, and materials.

Although this is a joint effort, the authors were not in each others pockets at all times and did not have equal shares in each task. During the first two seasons, Lancaster was supervising the digging at Long House, Mug House, Step House, Big Juniper House, and Two Raven House, so the responsibility for Badger House fell largely on Hayes. Lancaster managed to make brief daily visits to the site and was available for consultation. Other operations had diminished in size by the time Site 1644 was dug, and Lancaster was able to spend an hour or two a day at the pithouses. During the following summer at Site 1676, we were both there full time and shared all but very minor decisions. We each have our specialties—the delineation and interpretation of architecture are largely Lancaster's and the description of pottery is mostly Hayes'—but we both see the story of the six-century occupation of these 7 acres from the same perch.

THE SETTING

Wetherill Mesa is one of a series of long, peninsular projections which make up the uplifted sandstone cuesta of Mesa Verde. Steep, narrow canyons, averaging 650 feet in depth, border each of these "sub-mesas" and drain into the Mancos River to the southeast. At its northern and higher end, Wetherill Mesa is little more than a narrow ridge, but at its southern half it broadens to form a relatively level plain. The Badger House community lies $5\frac{1}{2}$ miles south of the high northern crest of Mesa Verde, near the center of Wetherill Mesa and close to its greatest width of about five-eighths of a mile. The earlier houses of the settlement were on top of a ridge where the drainage is split between the canyons on each side. To the southwest, there is a fall of about 6 feet in 100 feet to the edge of the perpendicular cliff of Rock Canyon, 300 yards away. The ground between the ridgetop and the canyon is broken by several small arroyos, the soil is shallow, and bedrock is exposed in several places. To the northeast, it is an equal distance to the broad, shallow draw above the pour-off into Bobcat Canyon. Bobcat is a short tributary draining the central section of Wetherill Mesa and debouching into Long Canyon, which runs along the east side of the mesa. The slope on the east side is gentler, about 3 feet in 100. The soil of the eastern slope and the crest itself is a deep, red loess. To the southwest, down the ridge, the ground is almost level, dropping only 2 feet in 100.

The present vegetation is a moderately heavy stand of juniper and pinyon, with an understory of bitterbrush and sagebrush. At Badger House, the forest growth was light and the trash mound was treeless but covered with big sagebrush.

There were three sources of domestic water in the vicinity. The closest was a seep below the upper of two pour-offs in Bobcat Canyon a quarter of a mile to the southeast. It was only a little farther to the spring in the back of Long House cave, due west in Rock Canyon, but the trip involved a 100-foot descent of the cliff. The low pour-off into Bobcat Canyon was farther away, but probably the major source of water. A one-way trip to this spring involved traveling a mile of the mesa top and descending 250 feet into the canyon.

Sandstone for building material and for grinding stones was available at ledges near the cliff edge. Shaly pottery clay was taken from beds exposed on the talus below the cliff. Denser stone for percussion tools and flakes was $3\frac{1}{2}$ miles away, in an intrusive igneous dike and a boss near the southern tip of the mesa. Ignecious gravel in the Mancos River bed, almost 8 miles south, was a source of a better quality stone for tools. Cobbles were also available in the Pleistocene bed of the Mancos at the southern end of Chaparral Mesa. This source was only 6 miles away, but it involved crossing Navajo Canyon.

Good soil for farming lay all around. The easy slope into the draw above Bobcat Canyon and the bottom of the draw itself seemed particularly suitable. The mesas and canyons afforded ideal habitat for mule deer, bighorn sheep, and turkey, as well as smaller game. Within 10 miles—a reasonable hunting range—was bison and antelope country at the mouth of Mancos Canyon and in Spring Creek Valley to the west. A like distance to the north, in the Montezuma Valley, elk probably existed before they were forced into the mountains by recent pressures.

Sixty-nine other sites were recorded within one-quarter of a mile of the perimeter of the Badger House settlement. Seven of these are agricultural terrace systems, comprising 31 discernible check dams, and one is a modern summer hogan, either Ute or Navaho. The remainder are Anasazi ruins. Only five of them show evidence of being contemporaneous with the last occupation of Badger House, and only one of these, Long House, was a dwelling site.

The mesa-top situation at an elevation of 7,100 feet provided optimum conditions for dry-farming. The 40-year weather record (1923-62) kept at Park headquarters, $2\frac{1}{2}$ miles to the east and in a similar environment, is applicable to Badger House. Average annual precipitation has been 18.21 inches, with a minimum of 9.46 inches and a maximum of 33.34. Generally, precipitation is almost evenly divided between summer and winter. Spring and autumn are usually dry. Most winter precipitation, in the form of snow, averages 7 inches annually. Snowfall has varied during this period from 2 to 151.3 inches. Average mean annual temperature is 50.2° F., with a minimum of -15° F. and a maximum of 102° F. Frost-free periods recorded in 35 of the 40 years averaged 158 days. The shortest growing season was 134 days in 1928.

Climatic conditions would thus seem to be favorable. A variety of corn grown by the Hopi in an environment somewhat drier and with a shorter season than the one here, requires 100 days to mature (Hack, 1942). At Zuni, the common bean, *Phaseolus vulgaris*, the species found at Mesa Verde, reaches maturity in about 135 days (Bohrer, 1960). If all years were average, there would never be a failure of these two staple crops. But one can expect at least half of the years would be below average in one or more factors: growing season, total precipitation, or snowfall. Snow is important to dry farming in this area since germination and growth must depend on residual moisture from melted snow. Relying on summer rainfall for germination would not, in an average growing season, have time to mature. Though late spring frosts seldom kill young corn plants, temperatures of at least 50° F. are required for germination and growth (Jenkins, 1941). An abnormally cool spring could so retard growth that yield would

reduced. In 1934 a longer than average frost-free season of 162 days ended in a total crop failure at the experimental cornfield on Chapin Mesa. This was due to scanty snowfall the preceding winter and a droughty summer (Franke and Watson, 1936).

The combination of short seasons and little rainfall must have occurred fairly frequently, but the situation at the Badger House locality was more favorable than at any other in the surrounding country. Farther south on the mesa, soil is poorer and rainfall is less, and at the northern end of the mesa, available ground is less extensive and the soil is shallower. The bottoms of the local canyons and the Montezuma Valley are colder and, in the latter case, also drier. The upper Mancos Valley is moist but much colder, and the lower valley is both drier and colder. Further details on the environment of Mesa Verde may be found in Erdman, Douglas, and Marr (1969).

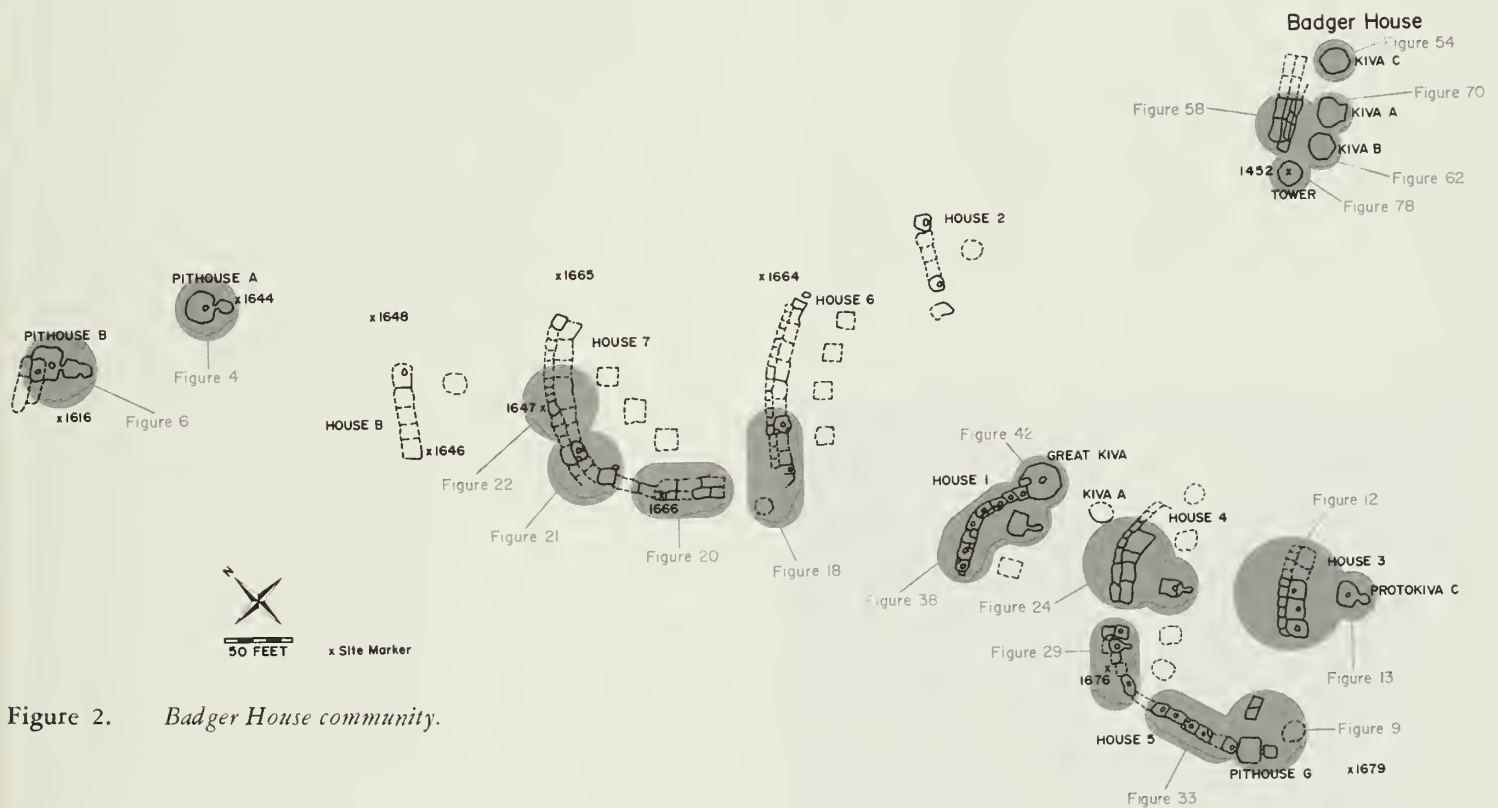


Figure 2. *Badger House community.*

2

Site 1644

Surface indications at Site 1644 were scant. About 90 feet east of the top of the gentle grade into Bobcat Canyon was an area 35 by 10 feet, with a scattering of burned sandstone spalls and sherds. There was no mound. Most of the 65 pottery sherds collected during the survey in 1960 were Chapin Gray, but the presence of five banded-neck sherds, and the spalls led us to identify the site as Pueblo I. However, the area seemed like a possible location for a shallow pithouse, and 25 to 30 holes were drilled here with a soil auger. From two of these, 18 and 28 feet upslope, above the limits of debris, 3-foot columns of charcoal were obtained. Sterile soil was normally reached about 1 foot below the surface. Test pits at these locations were enlarged to expose a typical Basketmaker III pithouse, designated Pithouse A (fig. 3). The ground surface above the structure was entirely devoid of any evidence, and now it appears that the indications we had for staking Site 1644 were probably sheet trash from Site 1616, a Pueblo I site, 100 feet to the west.



Figure 3. *Pithouse A, looking southeast.*

PITHOUSE A

(La Plata Phase, ca. A.D. 650)

The main chamber of this pithouse is a somewhat bean-shaped room facing southeast. At floor level it measures 15.5 feet along the main axis and 18.2 feet at the widest spot. The ground here slopes to the east with the result that the floor level is 3.5 feet below the surface at the west side but only 2.9 feet at the east. When the house was originally built, the ground was nearly level and the excavation for it was a uniform 0.9 foot to the bench. The present

surface at the east side is about what it was, while on the west it has been built up about a foot. The north wall and the two sidewalls curve gently outward with sharper curves at the corners, while the south wall is convex and bulges 0.8 foot into the room at the point where an entrance exists. A bench, averaging 2 feet high and from 1.6 to 2.1 feet wide, lines the rear wall and the two sides. Its edge was slightly rounded and the surface rose about 0.2 foot from the inside to the back.

The upper fill was trash-laden alluvium from the surface to the top of the bench and to within 1 foot of the floor near the middle of the pit. The lower fill was burned adobe, broken charcoal, and charred timbers. This fill was removed in one block from the surface to within 0.2 foot of the floor. Specimens definitely associated with the roof were cataloged as such. The floor was clearly separately.

Four roof-support posts had been placed in the floor, from 2 to 3 feet in from the corners (fig. 4). The post holes are from 0.3 to 0.5 foot in diameter and average 0.7 foot deep. The two northern

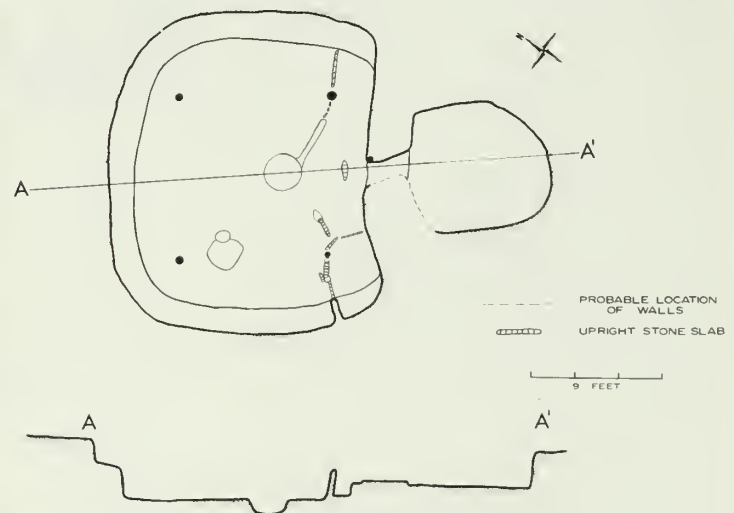


Figure 4. *Pithouse A.*

posts were identified as juniper, the southeast post was missing, and the southwest post (species unidentified) is incorporated in a low wingwall and stands 0.7 foot above the floor.

The four posts in the floor and the remains of 12 poles lying at right angles to the bench, with their butts on the inner edge of the bench, are clues to the roofing of the house. The four central posts were connected by plates which formed a rectangle above the floor. Smaller poles were slanted from the bench to the plate at intervals of 1.4 feet. Where these poles rounded the corners of the room, their butts were spaced up to 2.5 feet apart. The butts were

not set into the clay bench but merely rested on its surface. The sidewall poles and similar poles crossing the room from plate to plate made a framework to support the roof of brush covered with clay. The fire that destroyed the house blackened the edge of the bench, showing that the sidewall poles were placed an average of 0.4 foot back from the edge. The usable shelf between the poles was about 0.8 foot deep. No bench had been built along the south wall. Although some charred timber was found along this wall near the floor, it made no pattern. Probably poles from the south plate sloped directly to the ground surface.

Near the center of the south wall is the passageway into an antechamber. Raised 0.8 foot above the floor of the main room, the entry is 1.2 feet wide at its floor level and almost 2 feet wide at the ground surface, 2 feet above. At the east corner of the entry is a juniper post, 0.3 foot in diameter, that was built into the wall and covered at the top with mud plaster. This is the only surviving evidence of plaster on the walls. The passageway is 3.9 feet long and drops 0.4 foot to the floor of the antechamber. Because it leaves the main room a bit west of the center of the south wall and the antechamber lies a little to the east of the axis of the main room, the passageway joins each at a sharp angle.

The antechamber is somewhat D-shaped, with a rounded south wall, and measures 9.7 by 8.6 feet. The floor is a foot above that of the main room. The antechamber did not burn, and there is no evidence of how its superstructure was built. If the roof of the main room extended all the way to the south wall of the antechamber, the passageway was a corridor through which one could walk erect. If, on the other hand, each room was roofed separately, the passageway was merely a low crawlway.

Near the center of the floor of the main room is a round firepit, 2.4 feet in diameter and 0.3 foot deep, with gently sloping sides and a flat bottom which were burned. It contained no ash or charcoal and must have been cleaned just before the destructive fire. Originally 1 foot deep, with fire-reddened walls, it had been packed with adobe to form the present shallow pit. A low adobe collar bordered the eastern half of the firepit.

The southern one-quarter of the main room is marked off by east and west partitions or wingwalls. The east wingwall runs from a point on the east wall, 2.5 feet north of the southeast corner, to the south side of the firepit. Incorporating the southeast roof-support post, this wingwall consists of a thin rectangular slab of sandstone with chipped edges, 2.0 feet across and standing 1.7 feet high, next to the east wall of the room; three thin, unshaped spalls of sandstone buried in the floor and standing from 0.3 to 0.5 foot high; and a low ridge of clay, 0.5 foot wide and 0.1 foot high, which joins the clay rim of the firepit.

A bin measuring 3.1 by 3.7 feet was built into the southwest corner of the room. The walls of the bin were formed by slabs encased in adobe, standing to a maximum height of 2.7 feet. The north wall of the bin was continued over the top of the bench by a low wall of adobe. The outside of the bin was plastered and from its inner rounding corner, a short wingwall, composed of one slab and much adobe, extended 2.3 feet toward the firepit.

Cold air from the entrance was deflected from the fire by a crudely spalled sandstone slab, 2.0 feet high by 1.3 feet wide by 0.4 foot thick, placed 1.1 feet in front of the entrance to the antechamber.

The floor is hard-packed earth. Under a few stones, which lay on the floor when the house burned, is a skift, or thin coating, of fine yellow sand, indicating a possible floor covering.

There were two pits in the floor of the main room between the northwest posthole and the firepit. One pit was an irregular oval, averaging 2.1 feet in diameter and 0.6 foot deep. The sides

and bottom were baked, and seven unshaped, thoroughly burned pieces of sandstone lay at the bottom. The pit had been filled with yellow sand and floored over with adobe. The other pit, 0.8 foot in diameter and 0.3 foot deep, had been dug into the rim and fill of the first. It was open, and there was 1 inch of ash in the bottom. Both were probably warming pits, where a few coals would keep a pot of cooked food warm. In figure 3, the later pit is shown cleaned out, and the lighter colored fill of the earlier pit contrasts with the darker colored earth of the room floor.

The sherds from Pithouse A are listed by type and provenience in table 1. The types are described in chapter 5. Ten restorable vessels were found. Two of these in the fill above the floor may have been on the roof of the pithouse or may have been dislodged from the bench when the roof collapsed. They were a steep-sided Chapin Black-on-white bowl (fig. 110b) and a medium-size Chapin Gray jar with a wide mouth and short neck. The bowl, painted on the interior with two stylized birds, was almost certainly the product of the same potter who made the bowl with three similar birds which was found on the north bench (fig. 109a). Also on the north bench near the west end was a small Chapin Gray jar with a wide mouth and short neck (fig. 83a). Near the middle of the west bench, next to the butt of one of the sidewall poles, was a large egg-shaped squash pot of plain ware, with the narrow end at the top, and a constricted mouth. Its capacity is almost 3½ quarts. Near the middle of the west bench was a miniature Chapin Gray jar, 6.3 cm. in diameter.

Table 1. Sherds from Pithouse A, Site 1644

Type	Fill	Roof	Floor	Antechamber	Totals
Chapin Gray	350	—	80	17	447
Moccasin Gray	1	—	—	—	1
Chapin B/w	23	—	6	5	34
Piedra B/w	3	—	—	—	3
Mesa Verde B/w	1	—	—	—	1
San Juan Red	1	—	—	—	1
Unfired	—	5	1	—	6
Unclassified	1	—	—	—	1
Totals	380	5	87	22	494

On the floor, 2.5 feet south of the northeast post, was a large Chapin Gray jar, or olla, with a capacity of 4 gallons. The exterior is semipolished and has a wash of fugitive red paint (figs. 83e and 84a). Between the olla and the roof support post was a dish or plate made from the base of a Chapin Black-on-white bowl. Another plain squash pot with round loop handles lay on the floor at the east edge of the firepit (figs. 83k and 84f). A Chapin Black-on-white bowl, with fugitive red on the exterior and a dark organic stain in the bottom, was on the floor north of the small warming pit (figs. 107b and 110a).

A complete pottery pipe was found on the west bench next to the large squash pot mentioned above. Of the straight, "cloud-blower" type, 6.2 cm. long, the pipe has three modeled bands and is highly polished (fig. 170b).

Objects of stone found in the fill, probably associated with the pithouse but possibly, in some cases, representing refuse from the later Piedra Phase jacal structure up the slope, were:

- 1 used flake: claystone.
- 3 projectile points: two corner notched with wide bases, one unclassified fragment; all chalcedony.
- 1 knife: flake of quartzite.
- 8 hammerstones: claystone and quartzite (fig. 187b).
- 1 mano: complete, trough type, sandstone, 20.6 cm. long.
- 1 polishing stone: fragment of tablet, with both faces and one edge polished, claystone, 7.2 cm. long.
- 2 concretions: one small geode and one possible female effigy (fig. 208i).
- 1 indeterminate object: trapezoidal, local onyx, 6.6 cm. long by 2.3 cm. wide at the base, with a hole 1.3 cm. deep drilled into the wide end.

The only stone tool definitely associated with the roof material was a complete corner-notched projectile point of quartzite (fig. 179i).

The following stone artifacts were on the floor, lying where they were left when the house burned:

- 1 chopper: quartzite cobble (in corner bin).
- 1 hammerstone: (in corner bin).
- 1 metate: complete, trough type with broad pecked shelf, re-sharpened (behind west wingwall).
- 3 manos: bifacial fragment (south of west wingfall); two complete, trough type, quartzite and sandstone (one north and one south of west wingwall).
- 1 polishing stone: egg-shaped, one face polished, quartzite.
- 1 rubbing stone: flat, oval, quartzite cobble with some pecking at ends, faces polished (in corner bin).
- 3 lapstones: flat cobbles; two with scattered pecking on one face, quartzite (near east wall and in northwest corner); one polished from handling and with dark red hematite on one face, diorite (in northwest corner).
- 1 fetish: unmodified calcite crystal.
- 1 unmodified cobble: quartzite (near northwest corner).

The following bone and antler artifacts or worked fragments were found in the fill above the collapsed roofing:

- 2 awls: split metatarsals—one fragmentary, mule deer; one complete, deer, 5.5 cm. long, with short tip on a blunt point.
- 2 ornaments: one small disk of gray fox cranium, perforated at center (fig. 222i); one tube bead of tibia of unknown mammal, decorated by notching at one end (fig. 222).
- 3 worked fragments: two pieces of cut antler; one split and polished metapodial of unknown artiodactyl.

The following bone and antler tools were found on the bench and floor of the pithouse:

- 3 awls: fragmentary, spit metapodials—two definitely mule deer, one probably mule deer.
- 2 spatulate tools: ribs, split and ground on face and edges; one fragmentary, of unknown mammal (on the bench); one complete, spoonlike, *Bovidae*, probably bison (fig. 220e) (on the floor).
- 3 worked fragments: one piece of ground tibia (on bench above corner bin), two split and polished metapodials (on bench and floor), of unknown artiodactyls.

Refuse bone:

- artiodactyl: two charred metapodials (fill).
- bighorn sheep: skull of large ram (on burned roofing in the bin).
- cottontail: one skull fragment (on floor).
- southern pocket gopher: skull fragments of two individuals (on floor).
- dog: fragment of cranium of large male (on floor of the bin).

Thirteen pieces of charred wood—juniper (8), pinyon (3), and Douglas-fir (2)—were sent to the Laboratory of Tree-Ring Research, University of Arizona, Tucson. Two pieces of juniper and one of Douglas-fir were dated.

Specimen ¹	Provenience	Date A.D. ²	
		Inside	Outside
MV-1824	in roof clay above floor	556p	649vv
MV-1828	roofing debris on floor	589p	641vv
MV-1833	floor behind west wingwall	613p	648vv

¹ Specimen numbers were assigned by the Laboratory of Tree-Ring Research, University of Arizona.

² Key to symbols: p—pith ring present; vv—outer ring eroded and very variable.

The architecture, other aspects of the material culture, and the dates place Pithouse A in the Basketmaker III La Plata Phase.

Narrow trenches were dug to subsoil across the area between the pithouse and points on an arc about 30 feet to the northwest, to determine if any small storage room could be located. No traces of any other structures were found.

PITHOUSE B

(La Plata Phase, ca. A.D. 650)

While Pithouse A was being excavated, additional holes were drilled in the vicinity, in search of another pithouse. Paydirt was struck at the west edge of a dirt road some 75 feet northwest. A core revealed over 3 feet of concentrated charcoal and burned adobe from what proved to be the antechamber of another pithouse destroyed by fire. The prospect hole was only 50 feet east of the survey stake marking Site 1616, but the ensuing excavation was continued as part of Site 1644. Nearly all the pithouse except the extreme northwest corner lay under the roadway. We were relieved of the necessity of removing pinyon and juniper trees that encumber most mesa-top excavations at Mesa Verde, but this task would have been preferable to breaking up the roadbed, which had been packed hard by truck traffic.

First the antechamber and then the subrectangular dwelling room behind it were excavated. When the latter was cleaned up, the outlines of an opening in the northwest wall were seen in an area of broken chunks of fire-reddened adobe. Suspecting that this was the opening to a storage cist, or perhaps a rear entrance leading to the ground level, it was cleaned out. When the opening widened out behind the wall, we realized that Pithouse B was a duplex (figs. 5 and 6). The first dwelling room was labeled Room 1 and the second Room 2, although they were not built in this order. The three rooms are oriented in a northwest-southeast axis, with the antechamber southeast of Room 1.

In removing the fill from the north corner of Room 2 in Pithouse B, we inadvertently destroyed the east end of a later structure (see fig. 2). Further work on the pithouse was deferred until the intrusive house had been examined and removed. It was a room of jacal construction—an eastern extension of the house surveyed as Site 1616 but considered, in the excavation records, as part of Site 1644. It was labeled the "Jacal" to avoid confusion with room designations of the pithouse.

Room 2, the principal room of the structure, was built in a pit originally about 4 feet deep but now 5.2 feet from the present surface to the floor. Like Pithouse A, this pithouse was somewhat D-shaped, but lacked the convex south wall. The north and west corners at the rear were rounded and those to the south and east were angular. Measuring 21.8 feet in both maximum length and



Figure 5. Pithouse B, looking north-northwest, Rooms 1 (foreground) and 2.

maximum width at the floor, it is among the largest Basketmaker III rooms excavated so far. The rear wall and the two sidewalls are concave in outline, and are lined with a continuous bench, 1.5 feet high and averaging about 1.8 feet wide (fig. 7).

On the top of the bench, placed an average of 1.1 feet back from the edge, is a line of shallow postholes about 0.3 foot deep and spaced at intervals of 1.6 feet. Of the probable 33 sidewall postholes, 30 were found. The majority of them held butts of these sloping poles and eight were preserved well enough to remove for possible dating. All but one, of Douglas-fir, were juniper, 0.3 to 0.5 foot wide. The face and the top of the bench back to the line of poles bear a single coat of plaster, 0.3 foot thick. It had been smoothed almost to a trowel finish, but light striations show that it had probably been rubbed with a handful of grass.

The nearly straight southeast wall, which forms the partition between the two rooms, stands 3 feet high and slopes backward 1 foot. It has no bench. Embedded in the wall at each end and at both sides of the doorway are small perpendicular posts very nearly covered with the thin plaster that coats the entire wall. The top of the wall, which does not reach the height of the original ground surface for 5 feet on either side of the door, was covered with charcoal and large chunks of baked clay. It may have been open, but more probably it was closed by wattle-and-daub construction. The upright poles embedded in the wall and the presence of three small burned poles lying across the southeast section of the wall lend some support to this notion. Near the east end of the wall and 2 feet above the floor, a small niche was carved into the earthen wall. It is 2 feet long and 0.6 foot deep.

The doorway into Room 1 is slightly west of the center of the southeast wall. The tread, 1 foot wide, is 0.7 foot above the floor. The doorway is 1.3 feet wide at the sill but widens to 2.0 feet at the top of the wall. Near the top of the burned fill in the door was a complete trough metate, which may have served as a lintel or may have fallen from the roof.

The floor, of packed native earth, is level and exhibits the same features as the floor of Pithouse A. The southeast end of the room was separated from the rest of the space by wingwalls oriented to the firepit. The east wingwall, 6.6 feet long and 2.0 feet high, was composed of thin, upright slabs and adobe. The shorter west wingwall consisted of a single slab, 3.5 feet long and 1.8 feet high, which

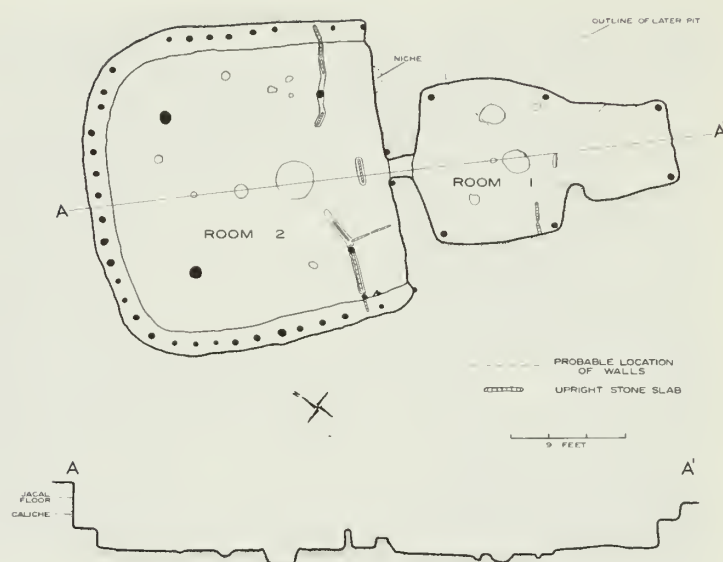


Figure 6. Pithouse B.

also served as the north wall of a bin in the south corner of the room. From the outer corner of the bin a low radial of slablike spalls and adobe projected toward the firepit. Both wingwalls were continued over the bench. Their sides were covered with a heavy coat of polished plaster tempered with corn tassels. Two rolls of clay were applied along the tops of the wingwalls, giving them a bulged "bead".

The circular firepit, almost 3 feet across and a little more than 1 foot deep, was bordered by an adobe collar, 0.4 foot wide and a scant 0.1 foot high. Like the firepit in Pithouse A, it had been rebuilt. One-half foot of ashes in the bottom was covered by a layer of adobe and the pit was re-used. The second version, only 0.3 foot deep, showed evidence of fire but was free of ash. A deflector, 1.5 feet high, consisted of a single stone slab which was plastered to a rounded top with the same tassel-tempered clay that covered the wingwalls.

Two small pits in the floor between the firepit and the rear wall may have been sipapus. One of these, 1.0 foot in diameter and 0.5 foot deep, was 2 feet north of the firepit near the center of the room. It had been filled with yellow sand and then closed with clay. On the same axis, but midway between firepit and rear wall, was an open pit only 0.4 foot wide by 0.2 foot deep.

Six lesser pits were dish-shaped and averaged about 0.2 foot deep. The pit nearest the northeast wall contained a bowl. The others, containing sand, were probably also pot supports. Four large postholes, two still holding the stubs of roof support posts, were carefully spaced in from the four corners of the room. The two southernmost were incorporated in the wingwalls. The east corner post was left in place to avoid damage to the surrounding adobe wall. The south post was juniper, and was planted butt up, perhaps so that one of its roots could serve as a crotch on which to rest a stringer. The north posthole was burned out, but the remains of the post, which had fallen on the floor, were identified as Douglas-fir. The three postholes, cleaned out, averaged 0.8 foot in diameter and 2 feet deep. Each was lined with shaly coal to set the posts.

Evidence of the construction method in the superstructure is plentiful. As in Pithouse A, the four posts in the floor supported a rectangular frame of stringers on which rested the tips of the sidewall poles, extending inward from the bench. The frame also carried

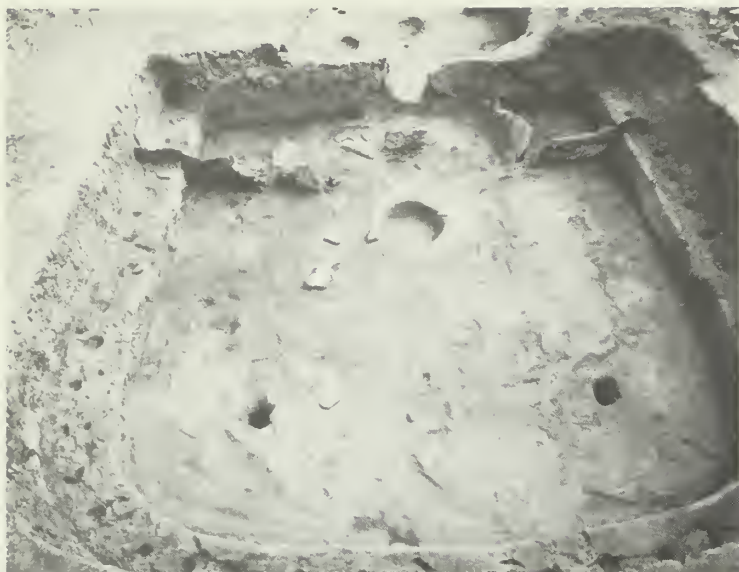


Figure 7. Room 2, Pitthouse B, looking southeast.

similarly space horizontal poles (on centers of 1.5 feet) across the middle of the room. The angles of the butts of the burned poles on the bench, if projected to a line drawn between two of the main postholes, allow us to estimate that the height of the ceiling was between 6.4 and 6.8 feet. The southeast end of the room was probably covered by poles sloping to the ground level. These rafters were covered with juniper bark and sagebrush, much of which we found charred on the floor, and about 0.7 foot of adobe mixed with corn husks and leaves.

Room 1, smaller than Room 2, has an antechamber (fig. 8). All three rooms may have been constructed at the same time, but the shape of Room 1 indicates that it was built as an antechamber to Room 2, and that it was later converted to a living room and was provided with an antechamber on the southeast. There is no bench in Room 1—a lack that is characteristic of antechambers. The pit is only 3.3 feet below the early ground surface, but, since this surface slopes to the southeast, the floor is at the same level as that in Room 2. The room is subrectangular, with rounded corners and somewhat concave walls, and measures 12 feet long by 12.9 feet wide.

Four roof support postholes are close to the corners. They average 0.4 foot wide by 0.5 foot deep, and three still held the butts of juniper posts. An oval bowl-like firepit, 2.3 foot long and 0.5 foot deep, was ash-free. It is surrounded, like that in Room 2, by an adobe collar. Lying across the firepit was a thin, unworked sandstone slab which may have been a hatch cover fallen from the roof. In that place where the deflector is normally situated, there is a narrow slot or trench, 1.1 feet long by 0.3 foot wide by 0.2 foot deep. A small spall of sandstone buried at one side of the slot was probably a shim to help hold up a slab deflector, now missing.

A sipapu, 0.3 foot in diameter by 0.4 foot deep and filled with clean sand, is close to the north edge of the firepit. In the middle of the east half of the floor is an oval pit, 2.1 feet long by 0.8 foot deep, with fire-reddened sides and floor. A fist-size sandstone spall lay in its bottom. The pit was filled with soft, yellow sand, imported for the purpose from decomposed sandstone at the face of a cliff. On the opposite side of the firepit is a smaller sand-filled pit . . . probably a pot rest.

A short wingwall in the south corner was built of two slabs covered with plaster. An irregular pit, filled with burned sandstone



Figure 8. Antechamber and Room 1, Pitthouse B, looking northwest.

spalls, started under the middle of the wingwall and ran to the south of it. This is additional evidence that the original structure was altered.

The antechamber, like the larger rooms, is subrectangular, with a shorter southeast wall, and measures 7.2 feet wide by 8.4 feet long. The walls are nearly straight and perpendicular and have no bench. The floor is about 0.6 foot higher than the floors of Rooms 1 and 2. The only floor features are postholes in the south and east corners, about 0.5 foot in diameter and 0.3 foot deep. The hole in the south corner held a burned juniper post, 2.0 feet high.

After Pitthouse B had burned and refilled, a more or less rectangular pit was dug at the east side and into Room 1 and the antechamber. Its outlines are shown by dashed lines in figure 6. The pit penetrated to the floors of these features through the soft fill, destroying the wall between Room 1 and the antechamber, but it did not go as deep in the native soil outside Room 1. The pit, probably dug by the occupants of a Piedra Phase house built on the fill of Room 2, was not completed. Possibly, its excavators did not want to intrude on an ancestral hearth. The outlines of the part of it lying outside the pithouse can be dimly seen at the right in figure 8.

Fifty-four charred specimens of juniper (31), Douglas-fir (21), and pinyon (2) obtained from Rooms 1 and 2 were preserved. The following 19 pieces of Douglas-fir were datable:

Specimen	Provenience	Date A.D. ¹	
		Inside	Outside
MV-1848	Room 1, roof material on floor	581p	650vv
MV-1856	Room 1, roof timber, floor north corner	601p	667vv
MV-1867	Room 2, above floor, south of east wingwall	601p	638vv
MV-1868	Room 2, above floor, south of east wingwall	576p	622vv
MV-1871	Room 2, above floor, south of west wingwall	581p	630vv
MV-1873	Room 2, sidewall pole, southwest bench	551	623vv
MV-1874	Room 2, sidewall pole, southwest bench	594p	649vv

MV-1880	Room 2, west roof support post, floor	572p	626vv
MV-1882	Room 2, floor, near northwest wall	583p	636vv
MV-1884	Room 2, above floor, near west corner	614	649vv
MV-1885	Room 2, above floor, near west corner	591	630vv
MV-1886	Room 2, above floor, near west corner	580	643vv
MV-1887	Room 2, above floor, near west corner	551p	645vv
MV-1888	Room 2, above floor, near west corner	609	650vv
MV-1889	Room 2, floor, near west corner	579p	628vv
MV-1891	Room 2, floor, near west corner	577p	645vv
MV-1892	Room 2, floor, near west corner	585p	632vv
MV-1893	Room 2, floor, near west corner	587p	635 ± vv
MV-1897	Room 2, floor, near north corner	576p	630vv

¹ Key to symbols: p—pith ring present; vv—outer ring eroded and very variable.

Although no bark rings are present in this series of timbers, the dates fall into a cluster that leads us to conclude that Pithouse B was built in, or shortly after, A.D. 650, probably at the same time Pithouse A was constructed. The date of A.D. 667 from a timber definitely associated with Room 1 indicates, as does other evidence previously discussed, that this room probably started out as an antechamber and was later converted to a living room.

The sherds from Pithouse B are listed by type and provenience in table 2. The sherds found in Room 1 and the antechamber were bagged according to "fill" (extending from the surface down to the burned clay of the roof) and "roof and floor." With the discovery of the later intrusive pit, it became impossible to tell which sherds originated with the occupation of Room 1 and the antechamber and which originated with the later jacal, except for the few specimens known to be on the floors of these rooms or outside the influence of the aboriginal, but post-Basketmaker, digging. The sherds from the "fill" of Room 2 are also mixed, but those from the "bench and floor" of this room belong unquestionably to the La Plata Phase.

Seven restorable vessels were found, six contemporary with the use of the pithouse. About half of a globular Chapin Gray squash pot was assembled from sherds on the floor of Room 2. It has a diameter of 23.9 cm., and the exterior surface is semipolished. A slightly smaller, complete squash pot of the same type lay on the southeast bench just north of the wingwall. Although the rim was broken, it was used after the break. Its capacity of 5.1 quarts is little less than it was before the rim was broken. A small (14.1 cm. high) Chapin Gray jar with a short neck and flared rim was found on the bench midway between the south and west corners of the room. About half of a restorable Moccasin Gray jar came from the bottom of the intrusive pit in Room 1.

In the small pit in the floor near the northeast wall of Room 2, mentioned earlier with the floor features, was a Chapin Black-on-white bowl (fig. 107e). It undoubtedly needed the basin in order to stand upright, since the bottom had been warped before firing. About half of a small but deep Chapin Gray bowl, only 12.1 cm. in diameter, was found in the baked clay of the collapsed roof just north of the east wingwall. It probably was on the roof before the house burned. On the floor at the north side of the deflector and against its base was a third Chapin Gray bowl, 19.0 cm. in diameter. All three of the decorated vessels are painted with mineral paint, scraped smooth on the exterior, and polished on the interior.

A worked sherd disk, 5.0 cm. wide, was found in the burned roof at the bottom of the fill of Room 1. It is plain gray, with the edges burned.

Three straight-shank pottery pipes were on the floor of Room 2. A tapered pipe (fig. 170a) has a polished gray surface and a small bowl, 1.6 by 1.6 cm., lined with a cake of tar. It lay near the north roof support post. A bullet-shaped pipe (fig. 170c) is unpolished and has a shallow bowl with a flat bottom, which appears to have been made by forming clay over the end of a cut stick or cornstalk. It was near the west corner. A bell-mouthed pipe (fig. 170d), also unpolished, lay between the north support post and the north corner of the room.

The stone artifacts from the fill of the three rooms may include some Basketmaker material but most are probably from the Pueblo I jacal. In any case, the precise period of their manufacture and use is uncertain.

- 2 used flakes: both quartzite.
- 1 projectile point: corner notched, expanded base, serrate edges, white chalcedony (fig. 179I).
- 2 choppers: cores of quartzite and claystone.
- 13 hammerstones
- 4 metate fragments: trough type.
- 3 mano fragments: two used in trough metates; two sandstone, one quartzite.
- 1 rubbing stone: fragment, with one face polished, granite.
- 1 handstone: oval, with two ground faces, pecked perimeter, sandstone.
- 1 whetstone: block with concave (ax grinding) surface, pecked edges, sandstone.
- 7 slab fragments: bifacially spalled edges, sandstone.
- 1 palette: slab, 18.0 cm. long, ground flat and smooth, sandstone.
- 1 paint stone: small piece of hematite with one rubbed surface.
- 5 concretions: sandstone; one worked to an hourglass shape (fig. 208m), one fragment of conical ammonite.
- 2 amulets (?): one flake of unworked onyx, one small calcite crystal.

The stone objects listed below were in definite association with the pithouse and their use was contemporary with its occupation.

- 1 projectile point: corner notched with wide, tanged base, quartzite (fig. 179k); wedged above sidewall pole *in situ* on the northwest bench (third from west corner); perhaps tip of an arrow placed in the ceiling for safekeeping.
- 2 scrapers: flakes of claystone (on floor of Room 2), and outside flake from quartzite cobble (on bench near north corner).
- 6 hammerstones: all from Room 2, one on bench under sidewall pole mentioned above, one behind east wingwall.
- 3 metates: one with deep trough and pecked shelf (in passage between Rooms 1 and 2), two with shallow troughs on thin slabs (one from behind the east wingwall in Room 2, other just east of the deflector).
- 3 manos: two of trough type with polished ends (one of quartzite on bench, other of sandstone by deflector, fits the metate at same location); and one "biscuit" type with both faces pecked and ground (south of west wingwall, Room 2).
- 1 mano blank: sandstone fragment (on floor of Room 2).
- 1 crusher: perimeter and both faces pecked, 21.9 cm. long, sandstone (bench in north corner).
- 1 rubbing stone: quartzite cobble with one face polished (northwest bench near west corner).
- 1 grooved abrader: large irregular block of sandstone with two grooves, sandstone (floor of Room 2, just north of bin).
- 2 slabs: both sandstone; irregular in outline, edges unworked, faces

ground smooth and blackened; possibly "griddles" (one near fire-pit, other leaning against northeast wall, of Room 2).

2 lapstones: lightly pecked cobble (floor of bin, Room 2); unmodified cobble (near north corner post, Room 2).

1 mortar: large, rough block with basin 22.0 cm. long by 18.0 cm. wide by 2.0 cm. deep, pecked in one face, lightly ground, sandstone (floor, between firepit and southeast wall, Room 2).

The only bone artifact found in Pithouse B was the splinter of a split humerus of unknown artiodactyl. The edge was ground but the type of tool, if it was one, is unknown.

Refuse bone from the pithouse was also scarce:

dog: tibia fragment of adult (floor, Room 2).

Canis sp.: dog or coyote, three fragments of left and right femurs, immature (floor of bin, Room 2).

bighorn sheep: astragalus of adult (upper fill).

unknown artiodactyl: femur fragment (upper fill).

JACAL

(Piedra Phase, ca. A.D. 860)

The single room excavated in this structure overlying Pithouse B was a long living room fronting two smaller rooms, probably used for storage. The ground plan resembled those encountered frequently at Site 1676 the following year. It was 9.8 feet wide by at least 14.5 feet long. The northeast wall was not found. The floor lay less than 1 foot below the present ground surface. The southeast wall lay directly over the southeast bench of the pithouse and was indicated only by an excavation about 0.6 foot into the older ground level. At one spot the earth bank was lined with two standing slabs of sandstone. The southeast, or front wall was still in place at the westerly end and consisted of a row of large slabs standing to a height of 0.9 foot. The rest of the wall could be located only by the line at which the hard-packed floor ceased. The northwest, or rear, wall lay over the northwest bench of the pithouse and almost 3 feet above it. This was a partition of adobe filled with many small sandstone spalls. It was built from the floor level, indicating that the original shallow excavation was made across the entire width of the house and not separately for each room.

The lower 0.2 to 0.5 foot of fill was mostly charcoal and burned adobe. The wood included many pieces of small juniper twigs. Several pieces of adobe showed the impressions of poles about 0.2 foot in diameter placed side by side on 0.3 foot centers. One piece also has the impression of a small crosspiece and tie. Probably the rear wall carried a superstructure of plastered wattle above the base of slabs and adobe.

Such light construction could not carry any weight and the roof was supported at this point by posts set into the floor just inside the wall. Two postholes, 0.5 foot in diameter and 0.5 foot in depth, were close together, 0.6 foot from the walls. A slightly larger post was set a little deeper near the wall, 8.0 foot to the northeast. It had been wedged in place with spalls of sandstone driven around its base.

Seven charred pieces of wood—pinyon (1), oak (2), and juniper (4)—were sufficiently intact to save for dating. The four pieces of dated juniper were as follows:

Specimen	Provenience	Date A.D. ¹	
		Inside	Outside
MV-1859	In burned adobe on floor	734p	825vv

MV-1863	Roof support post, <i>in situ</i> , west corner	711±p	860vv
MV-1864	Roof support post, <i>in situ</i> , northwest wall	722p	802vv
MV-1865	Floor, west corner	736p	815r

¹ Key to symbols: p—pith ring present; vv—outside shows extreme erosion. outermost ring very variable; r—outer ring constant over much of the circumference.

Near the middle of the floor was a round firepit, 2.0 feet in diameter and 0.3 feet deep, bordered by a low collar of adobe. A thin, perpendicular slab was embedded in the adobe at one side. The firepit was nearly filled with ashes and over it lay a thin, unworked slab propped up by two rough stones in the firepit and, at one edge, by the adobe collar. On this "stove lid" were two Moccasin Gray jars.

Fourteen pottery vessels were on the floor when the house burned, and six more were just outside the front of the house. Except for the two above the firepit and one lying on the burned roof and wall material, those in the room were arranged around the base of the walls.

There were two pieces of unrestorable Chapin Gray ollas. The more complete one had a tall, narrow neck and was approximately 34.0 cm. high. A complete Chapin Gray pitcher with a strap handle sat against the southwest wall (figs. 83i and 84d). Another of the same size and shape lay next to the northeast wall, and a miniature plain gray pitcher, only 6.0 cm. in diameter, was just outside the house. An undecorated bowl with polished interior was near the west corner. Its base had been molded in a coiled basket, the impressions of which had not been obliterated. About 8 feet south of the house, but at the same level as the upper fill of Pithouse B, was a sand-tempered Chapin Gray ladle with a rounded, down-raking handle (fig. 86b).

Of the 10 Moccasin Gray jars found, all but one were complete or restorable. Two were narrow-necked ollas with all but the two top fillets rubbed out. One of these, not restorable, was in the north corner next to the Chapin Gray bowl. The other, also from the floor and illustrated in figure 88a, is complete. The two whole jars over the firepit had capacities of 2 and 6 quarts. The bands at the neck of the larger pot had been smoothed by dragging a finger lightly around them, and the breaks between the coils were accentuated by incising. Four other Moccasin Gray jars against the walls range from 16.6 to 25.3 cm. in height and hold from 2 to 7 quarts. Outside the southeast wall were two large banded-neck jars, 23.5 and 25.5 cm. high. The smaller one has three neck fillets, which were flattened and smoothed to make them just barely discernible.

Three decorated pieces were recovered, none from the floor itself. About half of a miniature Piedra Black-on-white pitcher, 6.2 cm. high, was probably on the roof. It has a round handle and is unpolished. A shallow Chapin Black-on-white bowl, badly warped before firing, sat just outside the house with the jars mentioned above. Both surfaces were scraped but not polished. It was decorated with mineral paint (fig. 109b). A fragmentary dipper with a hollow handle, probably Chapin Black-on-white, was found under the floor in the west corner (fig. 111).

The sherds from fill and floor are listed in table 2.

Stone artifacts from the jacal were:

- 1 scraper-plane: claystone (from near surface in front of room).
- 1 chopper: sandstone spall, circumference bifacially flaked (floor).
- 5 hammerstones: two in fill, three on floor.
- 1 metate fragment: trough type (floor west of firepit).

- 6 manos: all used in trough metates; two fragmentary, of sandstone and quartzite; four complete, one of quartzite, three of sandstone (all on floor).
- 5 rubbing stones: two unifacial, three bifacial; one of latter has polished edge; two quartzite, one each of porphyry, granite, and claystone (all on floor).

There were no bone tools, and only one piece of unworked bone—the fragment of a badger ulna.

Table 2. Sherds from Pithouse B, and the jacal, Site 1644

Type	Room 1 and antechamber		Room 2		Jacal	Totals
	Fill	Roof and floor	Fill	Bench and floor	Fill and floor	
Chapin Gray	322	235	480	89	190	1,316
Moccasin Gray	20	22	9	—	4	55
Mancos Corrug.	2	—	—	—	—	2
? corrug.	—	—	1	—	—	1
Chapin B/w	13	4	24	11	1	53
? PI b/w	—	4	—	—	2	6
Piedra B/w	3	4	7	—	5	19
Cortez B/w	1	—	—	—	1	2
Bluff B/r	—	3	5	—	—	8
San Juan Red	3	3	7	—	6	19
Unclassified	1	1	1	—	—	3
Unfired	—	—	—	1	—	1
Totals	365	276	534	101	209	1,485

3

Site 1676

Excavation of Site 1676, carried out in the summer of 1963, was initiated at four spots simultaneously. A room, one of a long string, which had been partially excavated in a survey test trench the season before, was the starting place for digging House 1. We needed a large area of open ground on which to concentrate spoil dirt removed in cleaning out the rooms and pit structures, and such a place was selected to the northeast of House 1. Extensive trenching was done in this area before dumping in order to be sure we were not covering archeological features. House 2 was discovered during the course of this work. A third excavation was started with a pit sunk into a wide depression that we suspected was a great kiva. Two parallel trenches were dug in a fourth location at the south end of a large expanse of trash about 250 feet south of House 1. Under the trash we found House 3.

Each arc of rooms was labeled a "house" and was numbered in the order in which it was identified, and each house was assigned a separate series of room numbers. Rooms were numbered as they were dug rather than according to their pattern within a house. Pit structures were lettered at the time work started on them. In describing the architectural features of Site 1676, we will follow the chronology of their construction and use rather than the sequence of their excavation. Pithouse G, the oldest structure at the site, was next to the last habitation to be excavated.

PITHOUSE G

(La Plata Phase, ca. A.D. 620)

Pithouse G was discovered in the exploration of the area outside the walls of Room 6 of House 5 (fig. 2). The ground was stripped to subsoil, 2 feet below the surface, revealing that the southeast corner of the room was built over trashy fill, 1.2 feet above the back bench of a Basketmeter III pithouse (figs. 9 and 10).

The main room was excavated in three stages: "overburden," to the level of the bench; "fill," to within 0.3 foot of the floor; and floor and bench, cleaned together. The antechamber was excavated in one operation from the surface to the floor. Articles lying on the floor were so recorded.

The floor of the pithouse was 2.7 feet below the original surface. Shallower and smaller (14.6 feet wide by 12.3 feet long) than the two pithouses at Site 1644, it is nevertheless quite similar in shape and general arrangement. The rear wall and sidewalls are slightly concave and lined with a continuous bench, and the front wall is convex. The bench is 1.9 feet above the floor and averages 2.2 feet deep. It is edged with a low collar or "bead" of adobe which is plastered over the bead and down the lower wall of the pithouse.

Set back 1.3 feet from the edges of the bench is a series of shallow postholes, or sockets, for the butts of sidewall poles. Twenty-

five sockets are visible, but if the average placement at intervals of from 1.2 to 1.5 feet was constant, there were 30 poles originally. Most of the sockets contained charred remains of the poles. In the east and south corners of the room, slabs had been set in the bench to slope over the two corner bins, to reach the sidewall poles and create small niches above the bins.

The floor has essentially the same features as the two pithouses described earlier, except that there is a bin in the east corner as well as in the south corner, and there is no sipapu. The circular firepit is 2 feet in diameter and 0.6 foot deep. A slab deflector between the firepit and the passage to the antechamber is broken off and stands less than half a foot high. A low radial of adobe runs from the southeast wall to the rim of the firepit, and a similar one from the corner of the south bin stops about 1 foot short of the firepit. Near the bin this radial consists of a large slab. The bin, with walls of plaster-covered slabs and adobe, stands to the height of the bench. The east corner bin was probably open to the north. Except for the low radial on the north side, a single plastered slab on the west is all that remains of this enclosure. On the floor just west of the east bin lay a long piece of adobe with an impression of a stick along the top edge. The adobe was covered with smooth plaster and was not in its original position. It may have been the upper rim of the east bin, but more likely it was one of the four sides of a rectangular hatchway which had fallen intact from the roof.

Four roof-support posts are set in from the corners. The two southernmost are placed at the junctions of the bins and the wingwalls. All of the posts had completely burned. A fifth post near the middle of the northeast wall, but not in line with the two corner posts at that side of the room, was probably used to prop a sagging sidewall pole. Two shallow pits in the floor near the north and the west postholes were probably pot rests.

The southeast wall of the room has a deep bench or shelf on each side of the passageway. This is not continuous with the bench lining the other three walls and was not used as a resting place for the sidewalls. At the back of the shelf is a wall of native soil that forms a partial partition between the main room and the antechamber. This was probably open at the top. The passageway, 1.6 feet wide and 4 feet long, is raised 1 foot above the floor of the main room and is partly blocked at the north end by a roll of adobe, 0.4 foot high, which was added after the initial construction.

The floor of the subrectangular antechamber is about 0.2 foot higher than that of the main room. Small roof-support posts were set into the north and west corners, but, like those in the main room, were burned out. Bins of slabs and adobe enclosed the posts (fig. 11).

This pithouse had also burned, and numerous pieces of household equipment were found on the floor and bench where they had been at the time of the fire.

Two metates, propped on stone spalls and cemented in place

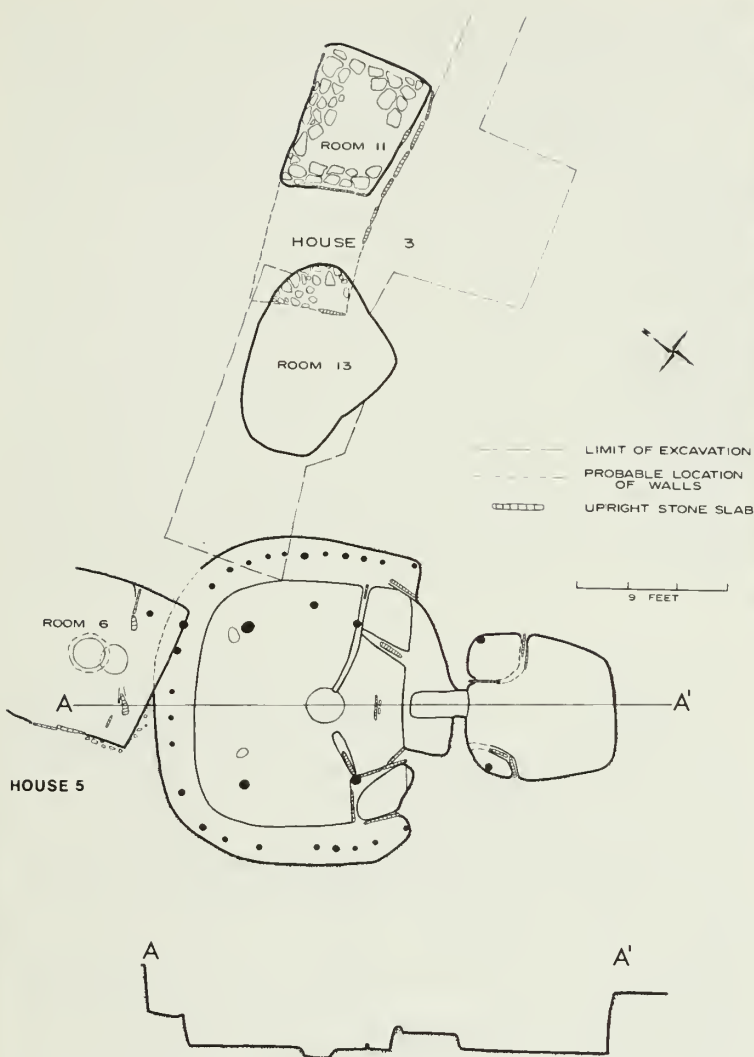


Figure 9. Pitthouse G and Room 6, House 5; Rooms 11 and 13, House 3, Site 1676.

with adobe plaster, were between the firepit and the southwest wall. On or near the metates were manos, rubbing stones, three jars, a lapstone, and several slabs.

Twenty-one pieces of charred timbers were collected from the floor and bench. Seven were identified as Douglas-fir, two as pinyon, and 12 as juniper. One piece of pinyon and five of Douglas-fir were dated as follows:

Specimen	Provenience	Date A.D. ¹	
		Inside	Outside
MV-2317	North end of northwest bench	434p	567+ vv
MV-2319	North end of northwest bench	567	631vv
MV-2320	Bench level near northeast wall	478p	613vv
MV-2323	Level 2, near northeast wall	483p	581+ vv
MV-2326	Level 2, near southeast wall	438p	581vv
MV-2329	Near floor at northeast wall	498p	556vv

¹ Key to symbols: p—pith ring present; vv—outer ring eroded and very variable.

Though none of the specimens necessarily show an actual cutting date, they are all probably quite close. The pitthouse was certainly occupied as late as A.D. 631, but the four dates falling between 556 and 581+ may indicate a construction date in the 580's. The fifth roof-support post, oddly placed, is evidence of some reconstruction and the two dates in the 7th century may reflect this.



Figure 10. Pitthouse G, looking southeast.

Pitthouse G was probably built before either of the two at Site 1644, but the occupation may have overlapped.

The sherds from Pitthouse G are listed by type and provenience in table 3. It will be noted that three sherds of Moccasin Gray, Bluff Black-on-red, and unclassified San Juan Red—all later types—were obtained from the bench or floor. These sherds were probably intruded when a post above the west corner of the pitthouse was let down from the surface to the level of the bench of the filled pitthouse at the time of the occupation of overlying Room 6. In the excavation of the pitthouse, no attempt was made to keep separate the sherds from the bench and from the floor.

Thirteen complete or restorable pottery vessels were found on the bench or floor. Ten of these were Chapin Gray. A globular squash pot (fig. 84e) with a capacity of 2½ quarts was on the floor between the north and west roof-support posts, and a similar pot, slightly larger, lay in the east corner of the antechamber (fig. 83j). Three large, narrow-necked ollas with capacities of from 4 to 6 gallons sat next to the west bin in the antechamber, on the west rim of the firepit (this one with a fugitive red exterior), and on one of the metates near the southwest wall (fig. 83g). Four of the vessels were smaller jars with wide mouths, short necks, and somewhat flaring rims, holding about 1 gallon each. Two of these were behind the northernmost of the two metates (one is shown in fig. 83b). A third was on the floor in the south corner of the antechamber, and a fourth, with a polished exterior, was on the bench behind the east bin. Among the sherds from bench and floor was a miniature dipper with a round, down-raked handle. It had been molded crudely in the palm and was tempered with rock from one of the mesa's igneous intrusions. Small flecks of felsite are conspicuous on the surface.

Three shallow, hemispherical Chapin Black-on-white bowls were decorated with dots or Z's between zigzag framing lines, using mineral paint. All were polished on the interior and two also on the outside. All were tempered with crushed rock, and one also contained some sand. One lay against the southeast wall between the passage and the bin in the south corner, and two were on the bench behind the east bin.

Clay artifacts, other than fired pottery, included two unfired vessels. A large sherd of a clay liner for a coiled basket came from the fill of the antechamber (fig. 177), and an unfired miniature squash pot, 4.0 cm. wide and 2.7 cm. high, was among the sherds from the floor and bench.



Figure 11. Antechamber, Pithouse G, looking northwest.

Stone artifacts found in the overburden of the main room of Pithouse G and the fill of the antechamber were:

- 2 utilized flakes.
- 3 scrapers: claystone and quartzite cores; one was originally a hammerstone.
- 1 chopper: small quartzite core.
- 8 hammerstones: five of quartzite and one each of claystone, sandstone, and diorite; the last is a re-used rubbing stone.
- 1 slab: discoidal, 34.7 cm. in diameter, with one ground face.
- 1 ball: ground, sandstone, 3.8 cm. in diameter.
- 1 dish: open sandstone geode, 6.9 cm. in diameter, base ground.

Only one stone tool was found in the lower fill, a sandstone mano fragment with a canted, polished end.

On the floor or bench were the following stone objects:

- 1 chopper: small porphyry core.
- 1 hammerstone: large, claystone (at southeast wall next to bin in south corner).
- 2 metates: trough style, with shelf at proximal end; one a thin slab, wider than long (in position between south and west corner posts).
- 3 manos: all sandstone, canted and polished ends; one with grip at leading edge and one with grip at trailing edge (one on the southernmost metate, one under it—both fit the metate's trough; one, on floor next to the thin slab metate, fits it).
- 1 mano blank: sandstone (used as prop under northernmost metate).
- 2 polishing stones: claystone.
- 3 rubbing stones: all quartzite, with both faces polished; one discoidal, 8.0 cm. in diameter (at foot of northernmost metate); one oval, 8.8 cm. long, with one end pecked (north side of east wingwall); one loaf-shaped, 13.2 cm. long (at the west end of the deflector).
- 6 slabs: all sandstone; one discoidal, 33.3 cm. in diameter, with one face lightly ground (in east corner); one irregular, 34.0 cm. long, with one face pecked and polished (north side of east wingwall); one three-quarter fragment, oval, 41.9 cm. long (on bench north of east bin); and three irregular fragments (leaning against wall behind the southern metate).
- 1 lapstone: flat quartzite cobble, 18.3 cm. long (in corner formed by the south bin and the southwest wall).

Table 3. Sherds from Pithouse G, Site 1676

Type	Overburden	Fill (Level 2)	Bench and floor	Antechamber fill and floor	Totals
Chapin Gray	756	82	72	251	1,161
Moccasin Gray	32	3	1	12	48
Mancos Corrug.	4	—	—	—	4
? corrug.	3	—	—	1	4
Chapin B/w	16	4	5	14	39
? PI b/w	13	—	—	3	16
Piedra B/w	9	—	—	—	9
Cortez B/w	2	1	—	—	3
Mancos B/w	5	—	—	—	5
Mesa Verde B/w	—	—	—	1	1
Bluff B/r	7	1	1	8	17
San Juan Red	26	—	1	5	32
Unclassified	4	—	—	1	5
Totals	877	91	80	296	1,344

1 unmodified cobble: granite (used as prop under northern metate).

No bone tools were found. The one object of antler was a wrench, 32.5 cm. long, perforated at the tine fork (fig. 223). It lay on the bench above the south bin.

Unworked bones in the overburden were:

dog: right dentary of a small adult, probably female; and fragment of the right radius of a large adult, probably male.
turkey: scapula of a large adult.

Two fragmentary unworked bones were from the bench behind the east bin:

dog: fragment of the radius of large adult female.
mule deer: fragment of a right ulna.

Three fragments of human bone, probably from the same individual, were in the antechamber fill. No other evidence of a burial was found in the immediate vicinity.

The later building in the area during the Piedra Phase may have obscured any surface structures connected with Pithouse G. The possibility that there were such structures is discussed under Houses 3 and 5. An auger hole, 15 feet east of the antechamber, revealed the presence of another pit of the same depth as Pithouse G. This may have been a contemporary pithouse, but no more excavation was done.

Pithouse G was left open for exhibit purposes.

HOUSE 3 AND PROTOKIVA C

(La Plata and Piedra Phases, ca. 725)

The next structures to be built were House 3 and its accompanying Protokiva C (figs. 2, 12, and 13). Their chronological placement is established by tree-ring dates and is borne out by their transitional style of architecture. The house consists of five three-room apartments forming a southeast-facing arc, 70 feet long. About 20 feet in front of the center apartment was a single pit structure. The area for 50 feet in front of the house was drilled with a soil auger at intervals of 10 feet, but no other pits were found. The house had burned while still in use, and the area was used as a



Figure 12. Rooms 1-10, House 3.

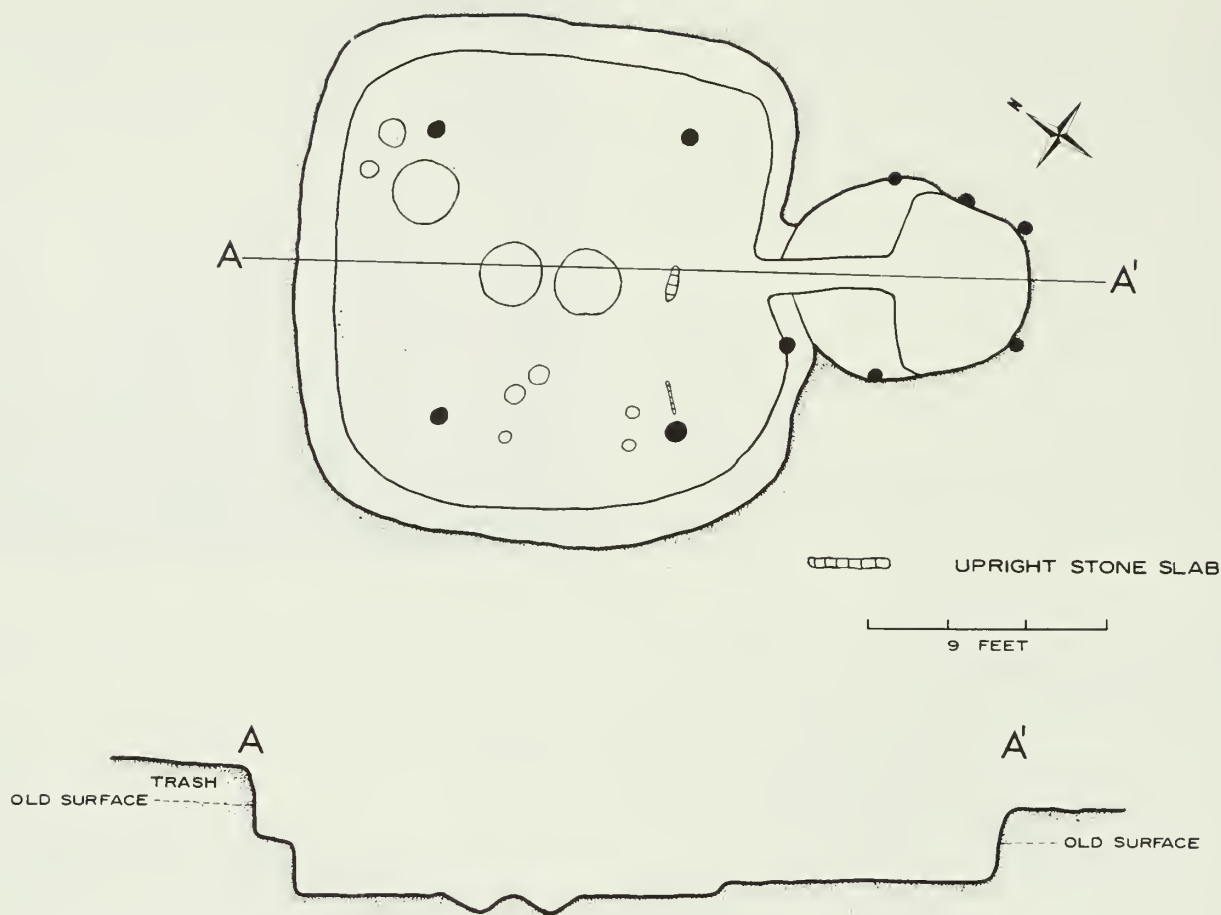


Figure 13. *Protokiva C*.

trash dump by a later house to the north. Test trenches dug to explore that dump led to the discovery of the earlier house.

Three of the five apartments of House 3 were excavated, and the location and eastern extent of the other two were traced by trenching. Each of the apartments consisted of two small adjacent rooms, probably used for storage, fronted by a larger one which was the living and working area.

A line of three more rooms, starting 20 feet west of House 3 (fig. 9), were thought during the course of excavation to be a part of this house, and field notes and the catalog refer to them as Rooms 11, 12, and 13 of House 3. However, later analysis of the excavated materials, plans, and notes convinced us that they were separate rooms, more likely associated with House 5, of later date.

Rooms 1, 2, and 3

Room 1 was entered by Test Trench I advancing from the south. The trashy overburden of much of Rooms 1, 2, and 3 was removed at one time before the partitions separating Rooms 2 and 3, small storage rooms, from Room 1, a large living room, were discovered (fig. 14).

Room 2 was built first by digging a pit 0.5 foot into subsoil, lining the cut with small slabs, and setting larger, adobe-enclosed slabs upright on the bank. There were no postholes or other evidence of how Room 2 was roofed, and the floor was unburned and relatively little used. The only distinguishing feature was a round bin, 3 feet across, projecting out from the east corner of the room. The bin

was lined with slabs and had a flagged floor. In the opening between the room and the bin lay a miniature Chapin Gray jar.

Room 3, another store room, about 7 by 7 feet, was lined, like Room 2, with upright, adobe-enclosed slabs on shoulders, but it lacked the inner liner of small slabs. The missing half of the east wall may have been the doorway into Room 1. There were no posts, but the room had burned and three roofing poles, each about 0.4 foot in diameter, lay parallel and evenly spaced on the well-defined floor. One was pinyon, another was juniper, and the third was unidentified. Five pots lay on the floor, near the center of the room.

Room 1, about 15 feet square, was in front of Rooms 2 and 3. Its two sidewalls were placed directly on sterile soil and were built haphazardly of slabs, jacal poles, and "turtlebacks" of adobe between the poles. These were rolls of clay about the thickness of a man's arm, cut long enough to reach from pole to pole and laid in courses. They were perhaps allowed to set a little before another was added. The bottom of each was concave to fit the convex top of the brick below. Slabs and a shallow excavated shoulder were found at each end of the front wall; the center section of this wall may have been open. Two postholes were discovered near the middle northwest and southeast walls. A long rooftree between these two posts would have supported the butts of shorter rafters. The room was thoroughly burned, and there was much baked adobe and charred timber on the floor. A large rectangular, worked slab lay just above the charred material on the floor, and a trough metate on top of it. Between the firepit and the northeast wall, and above the burned debris, was another large but unworked slab, four smaller ones, and one-third

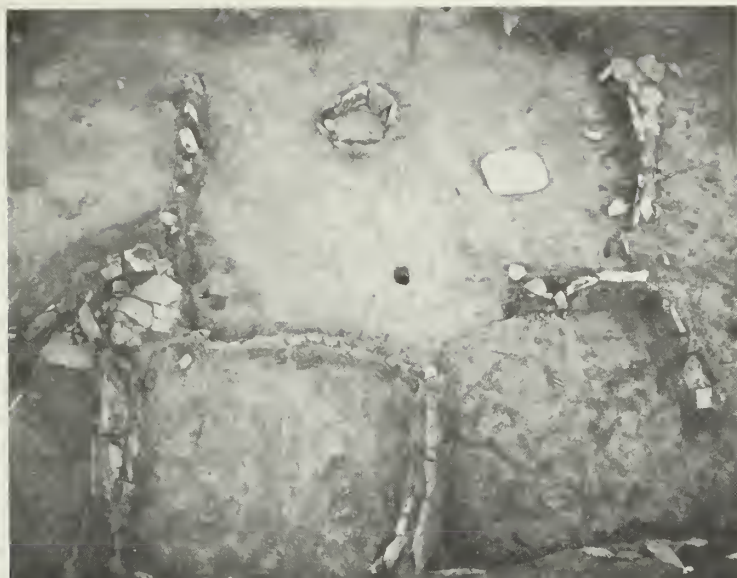


Figure 14. A three-room apartment, Rooms 1-3, House 3, looking south-southeast.

of a trough metate. All this material must originally have been on the roof.

The central feature of the floor of Room 1 was a D-shaped firepit lined and flagged with slabs. The bottom was 0.2 foot below the floor level and the sides stood 0.6 foot above it.

Under the north corner of the room and extending under parts of the adjacent rooms (2, 6, and 9) was a subrectangular pit about 7 feet long and 0.3 foot deep. The pit was filled with charcoal and burned adobe containing corn-tassel impressions like those found in Pithouse B, Site 1644. The outlines of the unexcavated pit can be dimly seen in the left center of figure 14. This was probably a storage room associated with Pithouse G or with an earlier use of Protokiva C.

The sherds from the three rooms are listed in table 4. Those tabulated under "fill" were probably mostly from House 4 and House 5 trash, and the much later Room 10.

Nine complete or restorable pieces of pottery came from the floors of the three rooms. They were:

- Chapin Gray jar: wide-mouthed specimen, with short neck (Room 3).
- Chapin Gray pitcher: 11.2 cm. high, rounded strap handle (fig. 85a) (Room 3).
- Chapin Gray jar: miniature, with constricted throat (fig. 85d) (Room 2).
- Chapin Gray canteen: narrow-mouthed, with perforated lugs below rim, fugitive red (fig. 83d) (Room 3).
- Chapin Gray bowl: steep sides, fugitive red (fig. 83m) (Room 3).
- Chapin Gray jar sherd used as bowl: original diameter 22.0 cm. (Room 1).
- Chapin Black-on-white bowl: mineral paint (fig. 107a) (Room 3).
- Chapin Black-on-white bowl: carbon paint, fugitive red (fig. 110d) (Room 1).
- Pueblo I Black-on-white squash pot: vertically perforated long lugs below rim, mineral paint on rim is only decoration (Room 1).

Other than pottery, the only artifact of clay was an irregular sphere of unfired clay, 1.8 cm. in diameter, found on the floor of Room 1.

Stone tools from the fill of Rooms 1, 2, and 3—for the most part refuse from later houses—were:

Table 4. Sherds from Rooms 1, 2, and 3 of House 3, Site 1676

	Rooms 1-3	Room 1		Room 2		Room 3		
Type	Fill	Fill	Floor	Fill	Floor	Fill	Floor	Totals
Chapin Gray	325	273	86	46	13	65	64	872
Moccasin Gray	10	6	2	—	—	—	1	19
? corrug.	9	4	1	1	—	—	—	15
Chapin B/w	5	11	2	1	—	—	—	19
Piedra B/w	7	1	1	—	—	1	—	10
PI b/w	6	7	1	—	—	—	2	16
Mancos B/w	4	2	1	1	1	—	—	9
McElmo B/w	—	1	—	—	—	—	—	1
Mesa Verde B/w	2	—	1	—	—	—	—	3
Bluff B/r	15	10	2	1	1	1	2	32
San Juan Red	4	12	—	1	—	1	1	19
Unclassified	10	2	1	—	—	1	—	14
Totals	397	329	98	51	15	69	70	1,029

4 used flakes.

2 projectile points: one corner notched, chert; one unnotched, quartzite (fig. 179n).

2 knives: chalcedony flakes.

1 scraper: quartzite flake.

5 hammerstones.

2 mano fragments: one trough type, one slab type, of sandstone.

1 mano blank: faces pecked but unused, sandstone.

3 rubbing stones: one quartzite and one diorite with one face polished; and one basalt with entire surface polished.

1 slab fragment: worked corner fragment, sandstone.

1 tablet: rectangular, 10.4 cm. long, one face ground, sandstone.

1 concretion: discoidal, unworked sandstone.

Stone objects from the floors were:

2 used flakes: (Room 3).

1 projectile point: unnotched, banded siltstone (fig. 179o) (Room 3).

1 drill: chert (Room 3).

1 hammerstone: diorite (Room 1).

2 metates: one fragment of deep trough type, one complete trough type with shelf, both sandstone (roof material, Room 1).

1 mano: trough type, sandstone (Room 1).

1 pitted rubbing stone: pits in all six faces, quartzite (Room 1).

1 slab: rectangular, edges spalled, 65.0 by 57.9 by 3.9 cm., sandstone (roof material, Room 1).

1 concretion: subcylindrical with bulbous end, 22.2 cm. long, unmodified sandstone (Room 1).

No bone or antler tools were found in or above the rooms, but in the fill were three long bone fragments of an unknown artiodactyl which showed some working, possibly butchering marks. Unworked bones in the fill were:

jackrabbit: two fragments of tibia and femur.

prairie dog: humerus fragment.

dog: dentary fragment.

dog or coyote: two fragments of ulna and rib.

gray fox: dentary fragment.

Fragmentary refuse bones on the floors of Rooms 1 and 3 were:

yellow-bellied marmot: radius (Room 1).

Mustelidae sp.: immature, probably skunk (Room 1).

gray fox: ulna (Room 3).

bighorn sheep: radius and metacarpal (Room 3).

The placement of Rooms 1, 2, and 3 behind Protokiva C, the tree-ring dates (which will be listed later), and the wall abutments of the rooms on each side indicate that this apartment constituted the first and principal living area of House 3.

Rooms 4, 5, and 7

A family unit consisting of Rooms 4, 5, and 7 was similar to that described above (fig. 12). Inasmuch as Rooms 4 and 7 abutted Rooms 1 and 3 on the west, this second apartment was erected somewhat later than the first, but the two may have gone up as a single operation.

Room 5, at the west corner of the house, was a small storage room about 6 feet square. The outer walls were cut a foot below the original ground level and were lined with large slabs, up to 3 feet high, which supported an adobe wall. The wall between Rooms 5 and 7 had one large slab at the south end, but the rest of it was unsupported adobe, 0.5 foot thick, which had melted down, leaving only a low ridge. The wall between Rooms 5 and 4 was the same but could not be traced at its center. It may have just melted away, or there may have been a passageway into the larger living room. There were no postholes or other floor features in Room 5. The room had burned, but the charcoal on the floor had disintegrated. There were no artifacts on the floor.

Room 7, the second storage room, was somewhat larger, 7 by 8 feet, but was in poor condition. The northwest wall was indicated only by three slabs, one of which was 3.2 feet high. The southeast wall, common to Room 4, was indicated by only one slab and a faint line of adobe. There was no evidence of fire, and there was nothing on the floor.

Room 4, a large working or living space fronting the two storage rooms, measured 14 by 16 feet. The southwest, or outer, wall was discernible only in its northern half, where a slab-lined adobe wall stood 1.2 feet high. Two slabs at the south end indicate a rounded corner. The southeast or front wall, like that of adjacent Room 1, could be found only at each end. Whether the center was open or totally destroyed is not known. There were no postholes other than those in the wall separating Rooms 4 and 1, and there was no evidence of the method of roofing. Evidence of fire was plentiful on the floor, and it is doubtful whether an unroofed patio could have burned so thoroughly and left so much charcoal. The single floor feature was a circular, unlined, bowl-shaped firepit in the middle of the room. The pit was 2.7 feet wide and 0.7 foot deep. An extension to the east, 0.3 foot deep, may have been for warming dishes on coals beside the fire. The floor yielded only a few stone artifacts.

Two subfloor pits, about 5 feet across and 0.6 to 0.7 foot deep, ran under the two outside walls of Room 4. They predate the room and were probably contemporary with the pit under Room 1. The two pits were not sealed and consequently the floor of Room 4 was rough and uneven.

Sherds from the three rooms are shown by type and provenience in table 5. The only pottery vessel from the unit is about half of a stirrup-shaped, tubular-bodied canteen of Chapin Gray (fig. 83u). Its sherds were in the fill and on the floors of Rooms 4 and 7. Two vertical lugs at opposite sides of the mouth were made by pinching

Table 5. Sherds from Rooms 4, 5, and 7 of House 3, Site 1676

Type	Room 4		Room 5		Room 7		Totals
	Fill	Floor	Fill	Floor	Fill	Floor	
Chapin Gray	856	222	56	7	133	19	1,293
Moccasin Gray	23	3	—	—	2	—	28
Mancos Corrug.	1	—	—	—	—	—	1
? corrug.	3	2	1	—	3	—	9
Chapin B/w	20	12	2	—	3	1	38
Piedra B/w	2	—	—	—	1	—	3
PI b/w	25	3	—	1	3	—	32
Cortez B/w	1	—	—	—	—	—	1
Mancos B/w	4	—	—	—	—	—	4
McElmo B/w	1	—	—	—	—	—	1
Bluff B/r	22	2	1	—	5	—	30
San Juan Red	18	4	—	—	3	1	26
Unclassified	8	—	—	1	2	—	11
Totals	984	248	60	9	155	21	1,477

the wet clay. The exterior is rough and was painted with a fugitive red wash. The temper is crushed rock, sparse and coarse. The vessel may have fallen from the roofs of Rooms 4 and 7, or from the roof of Room 1 or Room 3, but it could equally well have been a broken pot in later trash.

A plain gray sherd, ground to a disk 3.2 cm. in diameter, came from the fill of Room 7.

Stone objects from the fill of the three rooms were:

4 used flakes.

1 chopper: small chert core.

13 hammerstones

1 pitted rubbing stone: cuboidal, with two faces and two sides pecked, quartzite.

1 ball: 3.0 cm. in diameter, ground.

1 weight: subcylindrical, with groove pecked around middle, sandstone.

Stone artifacts were found on the floor of Room 4 only. They were few in number, as follows:

1 projectile point: corner notched, with broad straight stem, chalcidony.

2 choppers: one made from a mano fragment of quartzite, the other a claystone flake.

2 hammerstones

1 polishing stone: granite pebble with one polished face.

1 mano: trough type, face resharpened, sandstone.

The only worked bone found in the unit was a split and polished long bone fragment of an unknown mammal, from the fill above the floor of Room 7.

Refuse bones in the fill were:

mule deer: two cranium fragments.

bighorn sheep: two metacarpals.

unknown artiodactyl: humerus fragment.

turkey: three bones of two individuals.

On the floor of Room 4 was the unidentifiable bone of an unknown large wild bird—not turkey.

The absence of furnishings in Rooms 4, 5, and 7 and the poor condition of the outer walls suggest that the apartment was abandoned before Rooms 1, 2, and 3, and was not lived in at the time of the fire.

Rooms 6, 8, and 9

A third apartment was built adjacent to, and northeast of, the first unit of House 3 (fig. 12). Tree-ring dates indicate that it may have been built nearly 50 years later. The total floor space was less than that of the others. Storage Rooms 6 and 8 were each roughly 6 feet square, and working or living Room 9, in front, was 12 by 14 feet.

Room 6 was built next to Room 2 of the first unit, and also partly covered the earlier subfloor pit, the outlines of which are visible at the right center of figure 15. The rear wall was indicated only by two slabs and a low bank of sterile soil. The northeast wall, common to the other storage room, was adobe on a footing of native soil 0.5 foot wide, and was lined with standing slabs. The partition between Rooms 6 and 9 was crude masonry, in part, and was also built on a raised footing of native soil. On the Room 9 side, opposite, were several stones nested against the wall as though pushed there by the falling roof. There was not enough stone to raise the wall more than about 2 feet. Fitted into the south corner was a worked slab on an earthen platform raised 0.2 foot above the floor level. The slab, covered with approximately 0.2 foot of soft white ash, may have been a hearth, but the slab and the walls at the corner did not show evidence of extreme or continued heat. There was no other evidence of fire in the room and nothing on the floor.

Room 8, the other storage room of the unit, was similar to Room 6. The partition between the two rooms was not lined with slabs on the Room 8 side. The northwest wall was indicated only by a bank of sterile earth. The northeast wall was slab-lined, and the partition between Rooms 8 and 9 was probably an extension of the one between the latter and Room 6. At its east end the wall could not be traced, and this space was probably a passageway. There was no evidence of burning. The floor contained no features and yielded no material except sherds.

The front wall of Room 9 was suggested only by two small slabs. The southwest wall has already been described under Room 1. The northeast wall of Room 9 was adobe with many inclusions of small sandstone spalls—a sort of "protomasonry." It was destroyed at the south end by the pit dug for intrusive Room 10. The only floor feature in Room 9 was an irregular, unlined fire basin near the west corner. The room had burned and there was much charred wood and burned adobe covering the floor.

The three rooms were nearly devoid of artifacts and probably these, like Rooms 4, 5, and 7, were abandoned prior to the fire.

The sherds from the fill and the floors of Rooms 6, 8, and 9 are listed by type and provenience in table 6.

Two restorable pieces of pottery found in the upper fill of Room 9 were probably discarded by occupants of House 4 or House 5. One is half of a miniature Chapin Gray jar, only 8.0 cm. high; it has opposing perforations through the neck. The other is one fourth of a Chapin Black-on-white bowl decorated with a maltese cross in carbon paint. Near the base of the exterior is the impression of the top coil of a basket tray.

Objects of stone found in the fill were:

- 2 used flakes.
- 2 choppers: a small core and a flake, both of claystone.
- 9 hammerstones.
- 1 mano: "biscuit" type with perimeter pecked, one face ground, quartzite.
- 1 rubbing stone: perimeter pecked, one face polished, quartzite.
- 1 ball: shaped by grinding, 1.8 cm. in diameter.
- 2 conical fetishes: sandstone; one, flat, tapered, replaced ammonite with faces ground; other, oval cross section, 6.9 cm. long, ground to shape.

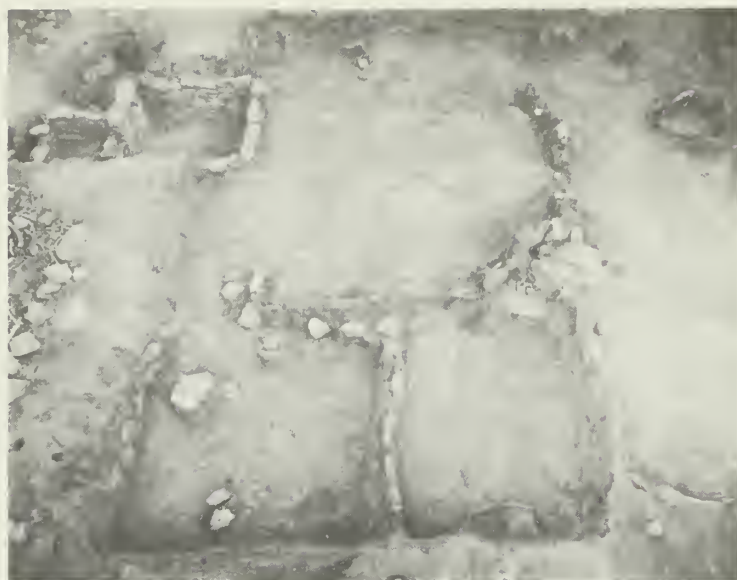


Figure 15. Apartment composed of Rooms 6, 8, and 9, with intrusive Room 10 at upper left, House 3, looking south-southeast.

1 pendant blank: subrectangular, edges and faces ground, red shale.

Stone artifacts from the floor of Room 9 were:

8 used flakes.

1 projectile point: fragment of triangular, stemless, unnotched point of petrified wood.

4 hammerstones.

2 manos: trough type, one fragment, one complete, sandstone.

1 lapstone: fragment of diorite cobble with polished faces.

The only bone tools found were two awls—split metapodials of mule deer—10.2 cm. and 5.7 cm. long. The first is from fill, and the second is from the floor, of Room 9.

Four fragmentary refuse bones in the fill were:

cottontail: scapula.

yellow-bellied marmot: cranium.

dog: radius.

turkey: carpometacarpus.

Table 6. Sherds from Rooms 6, 8, and 9 of House 3, Site 1676

Type	Room 6		Room 8		Room 9		Totals
	Fill and floor	Fill	Fill	Floor	Fill	Floor	
Chapin Gray	77	77	9	603	418		1,184
Moccasin Gray	3	2	—	7	7		19
? corrug.	3	6	1	8	4		22
Chapin B/w	—	7	—	13	8		28
Piedra B/w	—	2	—	6	2		10
PI b/w	—	3	—	20	4		27
Cortez B/w	—	—	—	—	1		1
Mancos B/w	—	—	—	7	—		7
McElmo B/w	1	2	—	3	—		6
Mesa Verde B/w	1	2	—	2	—		5
Bluff B/r	3	1	1	32	11		48
San Juan Red	1	2	—	12	8		23
Unclassified	—	4	1	15	3		23
Totals	89	108	12	728	466		1,403

Test Trench IV

Evidence of two more large living rooms to the east of Room 9 was uncovered in a test trench which was dug beyond the limits of Room 9 (fig. 12). They were not numbered. The one directly east of Room 9 was only 8 feet wide where it was intersected by the trench. It was apparently wedge-shaped and widened toward the north. In its east corner was a slab bin, 2.5 by 4 feet, with a single posthole in the center. The more easterly room was 15 feet wide and had slab-lined walls. In the east-west center of the room was a firepit like the one in Room 1. Built on native soil, it had slab sides extending 0.4 feet above the floor level. The fill above both rooms indicated that they had burned. Associated with the floor of the eastern room was a wide-mouthed Chapin Gray jar with a short neck. The east end of the trench entered a sterile, unoccupied zone.

Protokiva C

In front of House 3 was a single shallow pit structure, designated Protokiva C (fig. 16), with architectural features similar to those seen in Pithouses A, B, and G. The antechamber had burned but most of the main room had not; tracing its walls and finding the floor were difficult. The fill was removed in two levels. Level 1 extended from the surface to within about 1 foot of the floor, where a few large stones and some burned adobe were encountered. Level 2, the last foot of fill, had been removed before we realized we were on the floor, so no separation of material on the floor itself was made. As it turned out, this was not serious. The structure had been abandoned and razed, and it was subsequently filled by erosion with debris from the ruins of House 3 and with later trash.

The original excavation was 3.3 feet below the old surface at the deepest point, near the west corner, and shallower toward the east, where the ground sloped down sharply. The main room was nearly rectangular, with rounded corners. The southeast wall toward the antechamber was convex. A banquette, 2 feet high, lined all the walls; it was 1.5 feet wide on three sides of the room and pinched



Figure 16. Protokiva C, looking north-northeast.

down to 0.6 foot at the southeast side. There were no traces of sidewall poles on the bench, but a posthole west of the entrance to the antechamber went down through the edge of the bench to a depth of 1.8 feet.

Four postholes for roof-support posts were set in from the corners. They were from 0.6 to 0.8 foot wide and from 0.7 to 1.9 feet deep. They contained no wood.

There were two firepits near the middle of the room in line with the main axis. They were unlined, basin-shaped pits of the same size—2.4 feet across and 0.6 foot deep—and were apparently open at the same time (fig. 16). The southern pit contained 0.2 foot of soft, white ash, and both firepits were filled with the mixture of alluvial soil and light trash that filled the rest of the room. There was no deflector, but a slot 0.4 foot deep indicated where one had stood. A large, unworked slab, standing 0.4 foot high in the floor, was all that was left of a west wingwall.

Eight shallow pits, ranging from 0.1 to 0.5 foot deep and from 0.5 to 2.4 feet wide, were scattered on the floor. The smaller pits were probably pot rests. Burned spalls and sand in the three larger ones suggest they were used as warming pits.

The antechamber, 9 feet long by 7 feet wide, lay to the south-east. There was no bench, but two triangular shelves 1.1 feet above the floor flanked the passageway. Holes for roof-support posts were placed in the four corners; the two northern ones were on the shelves. The antechamber had burned, and the passageway and the south corner of the main room show some evidence of fire. The fill in the passageway contained burned adobe, fragments of rock slabs, and the section of a collar of plastered adobe similar to one on the floor of Pithouse G.

The sherds from Protokiva C are tabulated by type and provenience in table 7. Those in the upper fill are from the same trash that covered House 3. In fact, some sherds found here and in the overburden of Room 1 belonged to the same vessels. Most of the material in the lower fill was probably washed in from House 3 itself.

A nearly restorable, short-necked, wide-mouth Chapin Gray jar, about one-half of a small pitcher with a round handle, and a section of a Chapin Black-on-white bowl were found in the upper fill. The last was decorated with a glaze paint and had a fugitive red exterior.

The stone artifacts, all from the upper level, were:

- 1 scraper: claystone flake.
- 1 chopper: re-used hammerstone fragment, claystone.
- 2 hammerstones.
- 1 polishing stone: lozenge-shape, one face ground flat.
- 3 manos: one worn fragment, and one complete specimen of "biscuit" type, of sandstone; and one complete, trough type with grip in leading edge, of quartzite.
- 1 ball: pecked and ground, 4.1 cm. in diameter, sandstone.

There were no bone artifacts, but the following fragmentary refuse bones were found in Level 1, above the bench:

- prairie dog: humerus.
- jackrabbit: two pieces of a scapula.
- mule deer: metatarsal.
- turkey: six pieces of a humerus.

A human burial found in the overburden, Burial 2, was probably associated with a later occupation.

The lack of timber and the missing deflector and wingwalls indicate that Protokiva C was damaged by the fire in the antechamber and then razed. The timbers and stone slabs were probably removed for re-use elsewhere.

No dates were obtained for the protokiva, but 16 wood specimens were taken from the contemporary rooms of House 3. Ten were juniper, four pinyon, and two Douglas-fir. Eight of these were dated, as follows:

Specimen	Provenience	Date A.D. ¹	
		Inside	Outside
MV-2209	Room 1, jacal pole <i>in situ</i>	612p	671vv
MV-2210	Room 1, jacal pole <i>in situ</i>	639p	707vv
MV-2213	Room 9, floor near firepit	552p	743vv
MV-2214	Room 9, floor near firepit	676p	736vv
MV-2215	Room 9, floor near firepit	566p	698vv
MV-2217	Room 9, floor near firepit	668p	752vv
MV-2221	Room 9, floor near firepit	666p	750v
MV-2222	Unnumbered room east of Room 9, post <i>in situ</i> , slab bin	690	750v

¹ Key to symbols: p—pith ring present; v—outside ring eroded and variable; vv—outside ring extremely eroded and very variable.

The dates, combined with the architectural evidence, make it possible to reconstruct the history of this small settlement. The protokiva probably started as a late La Plata Phase pithouse, serving as a dwelling for one family. It may have been partly contemporary with Pithouse G, or may possibly have been built by the occupants of Pithouse G after that pithouse burned. About A.D. 700, probably not much later than the 707 date for Room 1, the adobe and jacal quarters, Rooms 1, 2, and 3, were constructed. Perhaps, as some have suggested, these first rooms on top of the ground were for storage only, with ramadas added later in front for summer use, the family retiring to the pithouse in colder weather. By A.D. 752 or later, the four adjacent apartments were built and the pithouse became the kiva for five families. Though the semisubterranean structures of this period are most often called "pithouses," the authors have adopted Morris' term "protokiva." The typical kiva form had not yet developed, but the structure functioned as a kiva. By the middle of the 8th century, House 3 reached its peak in population. Then it was gradually abandoned, and only original Rooms 1, 2, and 3 were occupied when the house was destroyed by fire about A.D. 800.

Table 7. Sherds from Protokiva C, Site 1676

Type	Main room		Antechamber		Totals
	Upper fill	Lower fill	Upper fill	Lower fill	
Chapin Gray	1,634	303	96	118	2,151
Moccasin Gray	66	3	1	—	70
Mancos Corrug.	6	—	2	—	8
? corrug.	11	1	—	—	12
Chapin B/w	27	10	6	2	45
Piedra B/w	19	6	2	—	27
PI b/w	31	9	3	1	44
Cortez B/w	3	—	—	—	3
Mancos B/w	12	—	—	—	12
McElmo B/w	4	—	—	—	4
Mesa Verde B/w	9	1	—	—	10
Bluff B/r	38	2	1	—	41
San Juan Red	12	—	1	—	43
Kana'a B/w	1	—	—	—	1
Unclassified	4	—	—	1	5
Totals	1,907	335	112	122	2,476

Room 10

Room 10 was a much later masonry structure built on the trash-covered remains of House 3 (fig. 12). The room, about 4.5 feet square, was built in a pit, excavated to subsoil, which destroyed part of the wall separating Room 9 from the unnumbered room to the east. The coursed masonry consisted of a mixture of pecked stone, scabbled stone, and selected unworked stone laid in mortar (fig. 15, upper left). The northwest wall rested on a footing of native soil 1 foot high; the northeast wall incorporated part of the slab wall of the bin in the earlier unnumbered room exposed in Test Trench IV. The floor was hard-packed native earth. In the west corner was a subfloor cist, 0.9 foot in diameter and 1.0 foot deep, covered with a subcircular slab.

Beyond the northeast wall of Room 10, the corner of another coursed masonry room was partly exposed.

The combination of scabbled and pecked stones and the high proportion of McElmo Black-on-white in the sherds from the overburden of House 3 indicate that these rooms were probably early Pueblo III. Kiva A of Site 1676 was possibly contemporaneous with them. If this conjecture is correct, these are the only McElmo Phase structures in the immediate vicinity of Badger House.

The paucity of fallen building stones around Room 10 suggests that most of the stones standing above the ground surface were removed. They may have been re-used in the late Pueblo III rooms of Badger House.

Room 10 was excavated from the surface to the floor in one operation. The only artifacts found in the room—a used flake, a hammerstone, and the sherds listed in table 8—were probably washed into the open hole when the structure was razed.

Rooms 11 and 12

West of Room 4, and in line with House 3, were three or four rooms which at the time of excavation were thought to be a part of that house. We now believe, however, that they were contemporary with House 5, built about 100 years later. Two of these, Rooms 11 and 12, and part of an unnumbered room were excavated (fig. 9).

Room 11 was somewhat trapezoidal in shape and measured roughly 6 by 8 feet (fig. 17). The walls were slab-lined adobe, and

Table 8. Sherds from Rooms 10-13 of House 3, Site 1676¹

Type	Room 10	Room 11	Room 12	Room 13	Totals
Chapin Gray	62	54	330	34	480
Moccasin Gray	—	—	7	1	8
Mancos Gray	1	—	—	—	1
? corrug.	3	—	—	—	3
Chapin B/w	—	3	7	1	11
Piedra B/w	—	—	4	—	4
PI b/w	—	—	6	—	6
Cortez B/w	—	—	1	—	1
Mancos B/w	2	—	—	—	2
Mesa Verde B/w	7	—	—	—	7
Bluff B/r	—	3	7	—	10
San Juan Red	3	—	5	—	8
Tusayan Polychrome	1	—	—	—	1
Unclassified	1	—	—	—	1
Totals	80	60	367	36	543

¹ Provenience: all in fill from surface to floor.

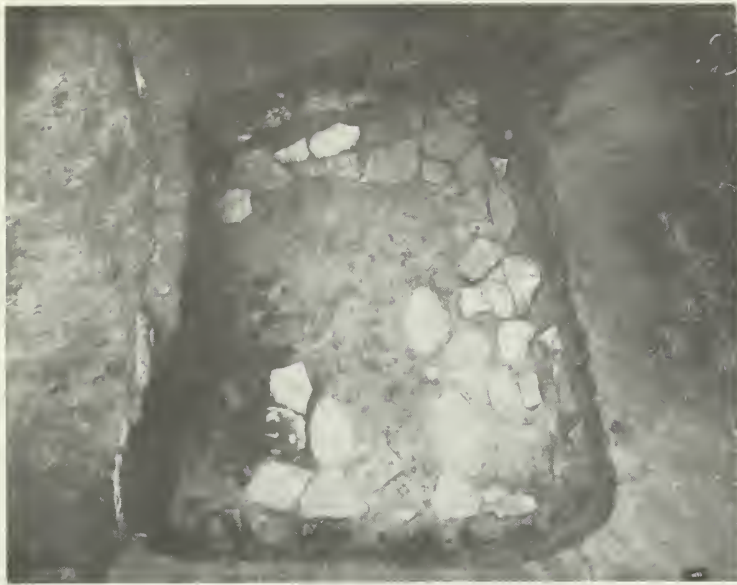


Figure 17. Room 11, House 3, looking northeast.

the slightly dished floor was almost completely covered with flagstones. The latter were broken, chipped-edge slabs, many of which had been burned before they were set in place. There were no floor features, and no artifacts were found on the floor.

The sherds from the fill are listed in table 8. A fragmentary Chapin Black-on-white bowl in the room fill had a fugitive red exterior.

Directly west of Room 11 was a similar room which was not excavated. Its south wall, a continuation of the south wall of Room 11, was outlined in the excavation fronting both of the rooms, and its southwest corner was exposed in the excavation of Room 13. Here the floor was also covered with flagstones. The area to the south was stripped in the search for a large living area fronting the two rooms, but none was found.

Ten feet east of Room 11, a line of postholes and traces of an indistinct floor were designated Room 12, though no other walls were found. About 5 feet east of the 11-foot wall indicated by the postholes were the badly disintegrated bones of Burial 7.

Sherds from the exploratory digging in this area are listed in table 8. About half of a narrow-necked Chapin Gray olla, 18.2 cm. high, and the round, tapered handle of a Chapin Gray dipper were found in the fill. On the floor was one-third of a large Chapin Gray jar, 31.8 cm. in diameter. It has a flattened base and a short neck. Also on the floor were two small eccentric vessels of Chapin Gray. One is a miniature squash pot, 7.1 cm. wide and 6.0 cm. high, with a very small mouth. The second vessel, 8.2 cm. high, is a rudimentary bird effigy with a missing tail (fig. 85g).

The stone artifacts from Room 12 were:

- 1 used flake.
- 1 ax: one notch in each side and one at the poll, of porphyry (floor).
- 1 hammerstone: large quartzite cobble battered at one end.
- 1 polishing stone: both faces polished, claystone.
- 1 pitted rubbing stone: perimeter pecked, both faces polished and pitted, quartzite.
- 2 manos: trough type, one with two finger-grips, both sandstone (floor).
- 1 indeterminate object: cylindrical bar of travertine, pecked, groove around middle.

The single bone tool is the split femur of an unknown artiodactyl, 13.1 cm. in length, with two worn spatulate ends (fig. 220g).

Room 13

Lying partly under the unnumbered room west of Room 11 was a pit room with an irregular outline (fig. 9). Maximum dimensions were 8.5 by 11.5 feet. Though at the time of excavation the floor was 2.5 feet below the surface, at the time of use it lay only 1.1 feet below ground level. After abandonment, but before the building of Room 11 and the rooms associated with it, Room 13 was filled and the old ground surface was covered to the depth of 1.0 foot, with trashy alluvium from Houses 4 and 5 up the slope.

The pit was a simple excavation with no slabs used to line it and nothing on the floor but four pieces of charred juniper, possibly wall or roofing timbers. They were not dated. From its shape and position, we infer that the room was a separate storage area, similar to those found below the Piedra Phase rooms to the east and possibly associated with the occupation of Pithouse G.

Room 13 was excavated in two levels: the upper fill extended to a depth of 1.5 feet, and the lower fill was the remaining 1.0 foot. The floor was not discovered until it was too late to separate the sherds. The sherds from both levels are listed together in table 8.

Stone objects from the upper level were:

- 1 used flake.
- 1 whetstone: sandstone, 9.7 cm. long, with one concave face ground.
- 1 gizzard stone.

The lower fill contained the following:

- 1 knife: basal section, chalcedony.
- 2 metates: both fragmentary, trough type, sandstone.
- 1 jar lid: sandstone, 13.4 cm. in diameter.
- 1 concretion: sandstone, "grape-cluster" (fig. 208j).

There were no bone artifacts and only two pieces of unworked bone—fragments of one bighorn sheep humerus.

HOUSE 2

(Piedra Phase, ca. 775)

No other house seems to have been contemporary with House 3, but if our deductions are correct, House 2 was probably built soon afterward. This house was small, and not much was learned about it since our excavations were little more than extensive testing. To be consistent with the announced aim of describing the houses according to their chronology, House 2 should be discussed here for the record. A more complete picture of the next architectural stage is to be found in House 6.

House 2 was a southeast-facing arc consisting of perhaps five rooms (fig. 2). A single pit structure was found with a soil auger 20 feet in front of the center of the house. Another room, which may have been associated with it, lay a short distance to the west of the house. Two rooms were completely excavated and two were partly dug. These were moderately large living rooms, smaller than those fronting House 3 but similar to those in Houses 1, 5, and 7. To be described more fully later. There were no rear storage rooms.

Room 1

This room, of rectangular shape with rounded corners, was at the west end of the row of contiguous rooms. Built in a pit about 0.8 foot below the surface, it measured 8.0 by 11.0 feet. No trace of walls was found other than the cut into native soil and two postholes just outside the southeast wall. One of these was at the south corner and the other was near the middle of one side. They measured 0.5 foot across and 0.8 foot and 1.1 feet deep. South and east of the

center of the room was a D-shaped, slab-lined firepit, 0.5 foot deep, which contained no ash.

The house had burned, and baked adobe and charcoal covered the floor to a depth of about 0.5 foot. Sagebrush was identified in the charcoal and two timber specimens, juniper and pinyon, were saved but could not be dated.

The fact that several artifacts were found on the floor of Room 1 suggests that the room was used up to the time of the fire. Sherds from all rooms in House 2 are listed by type and provenience in table 9.

Pottery

- 1 plain gray jar: the base of specimen possibly re-used as a dish; 12.1 cm. in maximum diameter (fill).

Stone artifacts

- 1 used flake: fill.
1 projectile point: corner notched, brown chert (fig. 179m) (fill).
2 notched hammers: one basalt, partly grooved on one side (fill); one sandstone, single notch, possibly ceremonial (fig. 185o) (floor, in north corner behind a leaning slab).
1 metate: fragmentary, trough type, sandstone (fill).
1 mano: trough type, canted ends, sandstone (west quarter of floor).
1 pitted rubbing stone: "biscuit" type with both faces pitted, quartzite (west quarter of floor).
1 rubbing stone: end and edge pecked, both faces polished, granite (fill).
3 slabs: sandstone, with worked edges (two fragments in south corner of floor; one complete, leaning in north corner of floor).
1 lapstone: quartzite cobble with scattered pecking on both faces (floor).

Table 9. Sherds from House 2, Site 1676

Type	Room 1	Room 2	Room 3	Room 4	Totals
Chapin Gray	20	54	79	19	172
Moccasin Gray	1	2	11	4	18
Chapin B/w	1	—	1	—	2
Piedra B/w	—	—	3	—	3
PI b/w	—	—	4	—	4
Cortez B/w	—	1	—	—	1
Bluff B/r	—	2	2	—	4
San Juan Red	—	1	3	—	4
Unclassified	—	1	—	—	1
Totals	22	61	103	23	209

Room 3

This room, at the eastern end of the house row, was also rectangular. The south wall was represented by a bank of native soil about 0.5 foot deep. Slabs marked the southwest and northwest corners, and the west wall, a partition between Rooms 3 and 4, was adobe with a few unshaped stones. Two small posts stood in the northwest corner. One, charred at floor level, was incorporated in the wall, and the other was represented only by a mold in the floor, 0.3 foot deep. The east wall may have been indicated by a single slab standing 8.7 feet east of the west wall, but trashy fill continued 1.5 feet beyond it. Here the ground slopes sharply away and the east end of the floor may have been eroded away. After vegetation

was re-established, the soil was stabilized and the area of the east wall was re-covered with soil. The probable room dimensions were about 10 by 11 feet.

A round firepit, 1.0 foot in diameter and 0.6 foot deep, was south of the center of the floor. The steep sides were unlined, but the pit had a low collar of adobe.

Four specimens of charred wood were collected: a juniper post from the northwest corner, and three pieces of pinyon from the fill. One piece of pinyon was dated:

Specimen	Provenience	Date A.D. ¹	
		Inside	Outside
MV-2207	Fill	718p	776vv

¹ Key to symbols: p—pith ring present; vv—outside ring extremely eroded and very variable.

This is the only date for House 2, and its reliability requires additional support. In our discussion of red pottery in ch. 4, we point out the increasing importance of red ware from A.D. 750 to 860. Figure 165 in that chapter shows that the percentage of red sherds in House 2 is greater than in House 3 (A.D. 750) but less than in Houses 6 and 7 (A.D. 815). The house plan—moderately large living rooms without a line of small storage rooms—seems to fit well into this time span. The single date for House 2 may thus be quite close to the mark.

One nearly complete jar and a few stone artifacts were found in the room, but no precise proveniences were recorded.

Pottery

- 1 Moccasin Gray jar: 19.3 cm. high; some incompletely obliterated coils show below the shoulder.

Stone objects

- 1 hammerstone.
2 metates: fragments of trough type, sandstone.
4 manos: all trough type; three of sandstone, one with finger-grip; one of quartzite.
1 crusher: entire surface pecked, pit on back, convex face ground, sandstone.
1 pestle: conical, 7.3 cm. high, 6.7 cm. in diameter at battered base, sandstone.
1 rubbing stone: ends pecked, sides pitted, one face polished, quartzite.
1 pitted rubbing stone: ends pecked, faces and sides pitted, quartzite.
2 slabs: both sandstone, with worked edges; one complete, 26.9 cm. long, with lightly ground face; other fragmentary.

Room 4

Room 4 was immediately west of Room 3. Excavation here was limited to a 10-foot trench along the east wall. The front wall was adobe with small, rough sandstone spalls mixed in the mud, and the north wall was defined only by a bank of native soil about 0.2 foot high. The floor of Room 4 was 0.5 feet higher than that of adjacent Room 3.

In the fill between ground surface and floor were some burned adobe, pottery sherds (table 9), and the following stone specimens:

- 1 hammerstone.
3 manos: all trough type, of sandstone; one was a reworked metate fragment.

Some 25 feet of unprobed ground lay between the trench in Room 4 and the east wall of Room 1. There were probably two more rooms in this area.

Room 2

This room lay 7.0 feet west of the western end of the contiguous rooms and at an angle, facing south rather than southeast. It may not have been part of House 2. There was no evidence of whether it was earlier or later. It was a subrectangular room, measuring 10.8 by 7.7 feet, in a pit 0.5 foot deep. There was an outward bulging of the wall at the southeast corner. A standing slab along the south wall near the southwest corner was the only evidence of wall construction other than the pit itself.

There was no firepit, and the only feature on the floor was a subfloor cist in the southeast corner. It was 0.8 foot wide at floor level, 0.9 foot deep, and somewhat wider at the bottom than at the mouth. It was covered with a rectangular worked slab.

Hardpacked or polished adobe, carried in, made an earlier floor 0.9 foot below the floor of Room 2 and, like the latter, was covered with charcoal and large chunks of burned adobe. The extent of the earlier floor was not traced out. All sherds (table 9) and other specimens were from the fill of Room 2, between surface and floor.

Pottery

- 1 Chapin Gray olla: about one-fifth of narrow-necked specimen, with an estimated diameter of 31.5 cm.

Stone artifacts

- 1 utilized flake.
- 2 hammerstones.
- 1 metate: complete, Utah type, of sandstone.
- 2 manos: one with finger-grip, of quartzite; and one fragment, of sandstone.
- 1 abrader: flat, oval spall with both faces ground, sandstone.
- 1 slab: sandstone, with worked edges; covered cist in southeast corner.
- 2 miscellaneous: unworked sections of ammonite replaced with sandstone.

HOUSE 6

(Piedra Phase, ca. 800)

The next stage in the development of architecture is represented by Houses 4 through 7, which form three arcs of rooms. On the basis of four dated timbers, House 6 was probably the earliest. It was a slightly arced row of rooms, 150 feet long, facing southeast (fig. 2). Excavations here were made late in the season, when time was short, and House 6 was only tested in order to determine its extent and the arrangement of its rooms. There were an estimated 30 rooms grouped into perhaps 10 apartments similar to those of House 3. The western end of the house had burned. Auger holes drilled in the area in front of the house located four protokivas about 20 feet distant.

Room 1

Room 1 was the only one in House 6 that was completely excavated. It was a rectangular living room measuring 10 by 12 feet in a pit over 1 foot deep (fig. 18). The northeast and southeast walls were slab lined to a height of 2.2 feet, and probably made of adobe. The only evidence of the southwest wall was a bank of native earth. The northwest wall formed a partition between Room 1 and two smaller storage rooms behind it, and was built as two walls, one for each room. Its northern half was rough masonry, and the southern end was slab-lined native earth. Near the middle of the wall was an opening into Room 7.

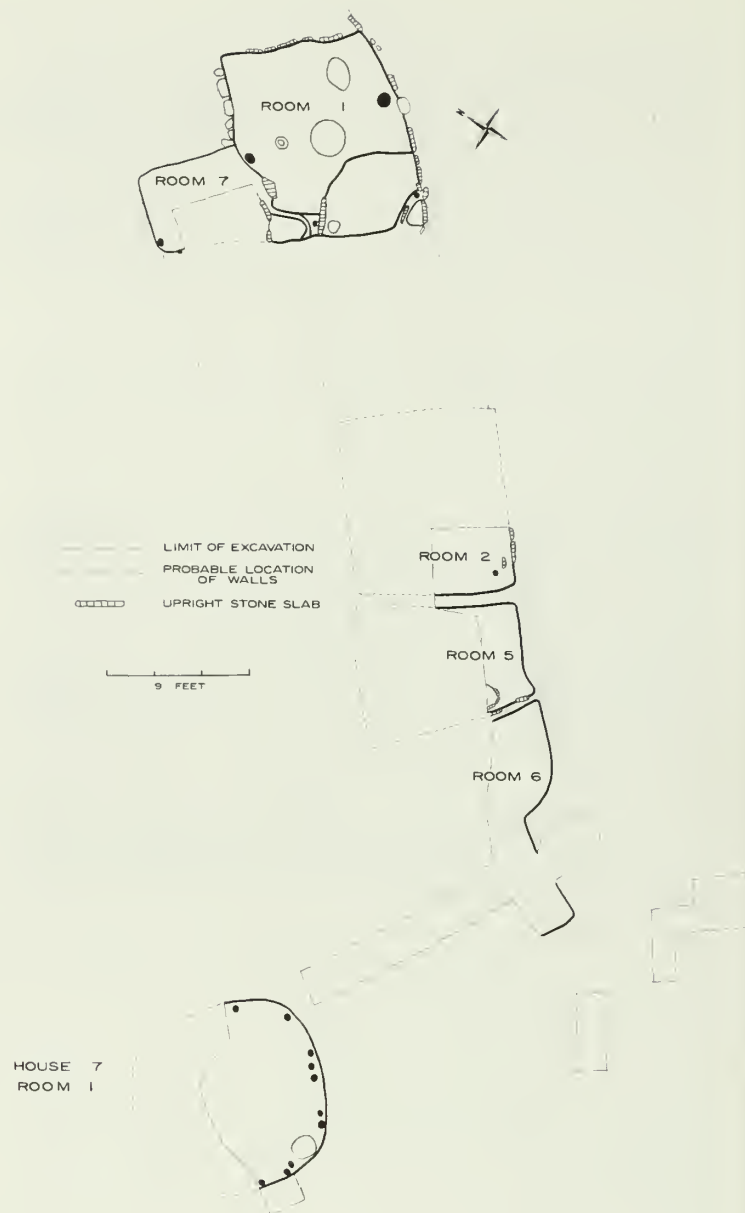


Figure 18. West end of House 6 and Room 1, House 7.

Two postholes in the floor, one just inside the opening into Room 7 and the other near the middle of the southeast wall, were 1.2 and 1.7 feet deep and 0.6 and 0.7 foot wide. They probably supported a roof-tree which spanned the room. Two smaller postholes, one inside the southwest wall and the other near the south corner, may have held supplementary roof supports. Also in the floor, in line between the two larger postholes, was a shallow basin, 0.25 foot deep and 0.8 foot in diameter with a thin, flat spall of sandstone at the bottom. This possibly held the butt of an auxiliary post installed to help hold up the main joist after the house was built.

Near the center of the room was an unusually deep, bowl-shaped firepit, 2.2 feet wide and 1.0 foot deep. Between the firepit and the east corner of the room was an oval pit like those found in the pithouses. Measuring 2.2 feet long and 0.7 foot deep, it was filled with yellow sand.

The western part of Room 1 consisted of platforms and bins. A large upright slab near the middle of the southwest wall projected toward the center of the room. South of the slab and to the corner

was a platform, 0.5 foot above the floor level, which took up nearly a quarter of the floor space of the room. Its outer edge formed an arc as shown in figure 18. At the west corner of the platform was a subfloor cist, 0.8 foot in diameter and 0.6 foot deep. The south corner of the platform, and of the room, was enclosed by a small bin wall of adobe supported by a slab at one end and enclosing a small post at the other. It contained a Chapin Gray jar with a stone lid. In the west corner of the room, north of a dividing slab, a narrower platform of native earth stood 0.6 foot above the floor. This raised level supported a bin enclosed by a collar of adobe with a rounded top, 0.7 foot high.

Room 1 had burned thoroughly and the fill was a jumble of charcoal, burned adobe, and small burned rock from the fallen roof and walls. The rock in the fill and the raised platforms along the southwest wall made determination of the floor level difficult. Sherds and other artifacts removed were not labeled as coming from the floor unless we were certain—and we could not be certain until nearly half the room had been cleared. Many of the items listed as fill were probably actually from the floor.

The sherds from Room 1 are listed in table 10. Three restorable vessels were found in this room. A Chapin Gray jar, 31.0 cm. in diameter, sat in the bin in the south corner. A sandstone jar lid beside it evidently once covered the mouth. A miniature bird effigy jar of plain gray was boxed with the sherds from the fill (fig. 83r). A Moccasin Gray jar, 27.0 cm. high and badly warped before firing, was on the floor in the north corner of the room.

Stone artifacts from Room 1 were numerous. Except where otherwise noted, all specimens were from room fill.

- 4 used flakes.
- 2 choppers: one core and one flake, claystone.
- 2 notched axes: both fragmentary, of diorite and granite.
- 2 notched hammers: one complete, of quartzite; one fragmentary, of felsitic basalt.
- 19 hammerstones.
- 13 metates: one complete, sandstone, of Utah type with spalled shelf (on floor near southwest platform); others fragmentary, sandstone, trough type probably used as building stones.
- 12 manos: sandstone, trough type; one made of a metate fragment; eight on floor, three matching the complete metate (see above).
- 1 mano blank: fragment, sandstone, perimeter pecked, face very lightly ground.
- 1 crusher: sandstone block, unmodified except for two convex ground faces.

- 2 pitted rubbing stones: both quartzite; one with both faces pitted, one with one pitted face and one polished face.
- 2 polishing stones: quartzite pebbles.
- 3 large rubbing or polishing stones: quartzite; one re-used as hammerstone.
- 1 slab: sandstone, complete, 67.4 by 48.0 cm., 18 kg.; a doorslab.
- 1 jar lid: sandstone (in bin, south corner).
- 3 balls: sandstone; ground surfaces, 1.8 to 3.3 cm. in diameter.

Animal remains were scant:

- mule deer: piece of worked antler.
- black-tailed jackrabbit: tibia and femur of two individuals.
- dog: dentary fragment.

Six charred juniper timbers and one piece of pinyon were collected from the floor. Four of the juniper specimens were dated:

Specimen	Provenience	Date A.D. ¹	
		Inside	Outside
MV-2283	Floor, north of firepit	711	795vv
MV-2284	Floor, north of firepit	720p	784vv
MV-2285	Floor, from west corner to doorway	708p	800v
MV-2286	Floor, east corner	732p	815B

¹ Key to symbols: p—pith ring present; v—outer ring variable; vv—outer ring eroded and very variable; B—bark present on outside.

These were the only dates from House 6. The date of A.D. 815 probably represents the approximate year of construction.

Room 7

The doorway in the northwest wall of Room 1 led into Room 7, a storage room measuring 5 by 7 feet. It was one of a pair of such rooms associated with the apartment. A trench to the floor followed the northeast wall from the opening to the north corner and thence to the west corner, and only about half of the room fill was removed. The rear wall was made of adobe laid directly on the cut shelf of native soil. The northeast wall, a partition between Room 7 and the unexcavated storage room to the east, was also adobe, but was footed on subsoil at floor level, indicating that the original excavation of the pit for both rooms was done in one operation. The floor level in Room 7 was 1 foot higher than that in Room 1.

Table 10. Sherds from House 6, Site 1676

Type	Room 1		Room 2	Room 3	Room 4	Room 5	Room 6	Room 7	Rooms 8 & 9	Totals
	Fill	Floor								
Chapin Gray	264	25	56	40	12	53	75	43	49	617
Moccasin Gray	31	7	3	6	1	4	2	4	4	62
Mancos Gray	—	—	—	—	—	1	—	—	—	1
Mancos Corrug.	—	1	—	—	—	—	—	—	—	1
? corrug.	—	1	—	—	—	—	—	—	—	1
Chapin B/w	—	—	2	1	—	1	4	—	—	8
Piedra B/w	11	1	—	—	—	3	1	—	1	17
PI b/w	2	—	—	3	—	—	2	—	1	8
Bluff B/r	9	—	2	—	—	1	4	2	—	18
San Juan Red	3	—	3	1	3	4	2	4	—	20
Unclassified	2	—	—	—	—	—	—	—	2	4
Totals	322	35	66	51	16	67	90	53	57	757

A posthole containing some rotted wood was in the west corner. One foot to the south, incorporated in the southwest wall, was a small jacal pole.

Room 7 had burned at the same time as Room 1 and the fill was composed mostly of charcoal and burned adobe. Except for a few sherds (table 10), the only artifacts found were a Moccasin Gray jar, 13.2 cm. high, on the floor and, in the fill, a rectangular worked slab which probably fell from the roof. There was also an unworked jackrabbit tibia in the fill.

Room 2

Twenty-five feet southwest of Room 1, the southwest corner of another large living room, designated Room 2, was located by a test pit. The southeast wall was slab lined, but only a bank of native soil indicated the presence of the southwest wall. A posthole, 0.4 foot in diameter, was just inside the south corner. The room had burned.

On the floor in the corner was a shallow Bluff Black-on-red bowl, 23.9 cm. wide by 7.0 cm. high (fig. 166a).

Sherds from the fill of Room 2 are listed in table 10. Stone artifacts were recorded as coming from "surface to floor." They were:

- 1 hammerstone.
- 1 mano: sandstone, trough type (probably on floor).
- 1 mano blank: sandstone, face spalled, unused.
- 1 crusher: sandstone, perimeter pecked, one edge and one end ground (probably from floor) (fig. 196, bottom).
- 1 polishing stone: quartzite, one face polished.
- 1 rubbing stone: quartzite, both ends pecked, both faces polished.
- 2 slabs: sandstone, fragmentary, over 50.0 cm. long, edges spalled, the face of one partly pecked.

Room 5

The pit in the corner of Room 2 was continued to the southwest as a trench which exposed the front wall and the southeast portion of the floor of Room 5, another living room, 6.5 feet wide. The southeast, or front, wall was apparently of adobe based on the surface of the old ground level, 0.4 foot above the floor. The southwest wall was made of trash-laden adobe built from the floor level and lined with slabs, one of which was a broken trough metate. Next to this wall, and 2 feet from the corner, was a circular firepit, 1.4 feet wide. It was 0.7 foot deep and slab lined, with the tops of the slabs extending about 0.1 foot above the floor.

Aside from the sherds listed in table 10, the only artifacts were these:

- 1 rubbing stone: quartzite, one face polished (floor, east corner).
- 2 slabs: both sandstone; one large, rectangular, with chipped edge (leaning against wall in east corner); one irregular, with unworked edge and slightly concave face (on floor below the first).
- 1 ball: sandstone, ground, 3.1 cm. in diameter (fill).

The rubbing stone lay next to the smaller ground slab; they may have been used together for breaking up some soft material. Neither showed excessive abrasion.

The firepit and the position of Room 5 at the front of the house indicate that it was a living and working space, but it is narrower than other similar rooms.

Room 6

An extension of the trench crossing Room 5 followed the floor and front wall of Room 6. The wall was no more than the cut bank

of native soil, 0.4 foot high. A short section of the southwest wall was the same. A cross trench running to the northwest reached Room 1 of House 7 without encountering the north wall of Room 6. Though its exact nature and size were not learned, it measured 13 feet wide—probably a living room—and was at the western end of the house. The front of the room had burned and there were charred timbers in the fill. One piece of juniper was saved but could not be dated.

The only feature in the section of floor of Room 6 that was uncovered was a slab-lined subfloor cist with a flagstone floor in the east corner (fig. 19). It was subrectangular, averaged 1.4 feet wide and was 0.5 foot deep. A large mano lay in the bottom of it.



Figure 19. Subfloor cist in Room 6, House 6, looking northeast.

Sherds from the fill of Room 6 are listed in table 10. Unless otherwise noted, the following stone artifacts were recorded as "surface to floor":

- 1 notched ax: double-bitted, of granite (fig. 185a).
- 1 notched hammer: notches deeply worn, of granite.
- 1 maul: full-grooved, of quartzite (fig. 186, left).
- 6 hammerstones
- 2 manos: one bifacial, trough type, sandstone (in subfloor cist); one "biscuit" type, entire surface pecked, both faces ground, quartzite.
- 1 pitted rubbing stone: entire surface pecked, one face ground, quartzite.
- 1 large rubbing stone: one face polished, broken, then trimmed and re-used, granite.
- 1 concretion: sandstone, ground surface.

Rooms 8 and 9

In searching for the east end of the arc of rooms of House 6, a north-south trench was dug 25 feet east of Room 1. The trench crossed the front and back walls of Room 8, a living room 10 feet long. The walls were rough masonry, from 0.7 to 1.0 foot wide, and were similar to the one in Room 1. Behind Room 8 was Room 9, a storage room 6 feet long. Its northwest wall was also of rough masonry. Both rooms were set in a pit averaging 0.6 foot deep, and the partition wall was footed at the floor level. There was no evidence of fire, and the only artifacts were the few sherds listed in table 10.

Room 3

This room was at the eastern end of the contiguous rooms. It was in line with the living rooms that fronted the house, but it was smaller and was not backed by a storage room. The room had not burned, and no trace of walls could be found other than the bank of native earth at the edges of the original pit, which had been cut 0.5 foot into the ground. The room was approximately 7 feet wide by 9 feet long. About three-fourths of the floor was uncovered and the only feature found there was a large posthole in the west corner.

The fill was washed down from House 7 and contained, in addition to 51 sherds (table 10), only three artifacts:

2 hammerstones
1 mano: fragment, trough type, sandstone.

The intrusive burial of a male dog, a 5- to 6-month-old puppy, was found 0.4 foot above the floor and 0.6 foot below the surface near the northwest wall. Other animal bones in the fill were:

dog: dentary fragment; probably not the same individual as the burial.
mule deer: one metacarpal and one innominate.

Room 4

Separated by 2 feet of open ground from Room 3, but probably associated with it, was a small room, the easternmost room in the arc. Its short front wall, only 4 feet long, was in line with the front wall of Room 3. The northeast wall was 7 feet long. Only enough of Room 4 was excavated to determine the dimensions. It was possibly a storage room, placed at one side rather than at the rear of Room 3, where one would ordinarily expect to find it (fig. 2). Room 4 was also unburned, and the only evidence of its construction was the bank of the pit and a single slab in the south corner.

Other than several sherds (table 10), the only artifact was:

1 mano: fragment, trough style, sandstone.

The mano and the sherds were from the fill and, like the material from Room 3, probably pertain to House 7 rather than the occupation of the rooms of House 6.

HOUSE 7

(Piedra Phase, ca. 800)

Upslope and northwest of House 6 was the larger House 7 (fig. 2). This house was probably first built as a shallow arc of rooms, facing southeast and about 145 feet behind House 6. Rooms were added at the west end, and this extension swung to the south almost as far as the west end of House 6. In its final form, House 7 was a great bow, measuring 150 feet across the open front and 250 feet around the curved back. Like the work at House 6, the excavation here was only of an exploratory nature, for the purpose of obtaining data in order to compare this house with others more completely dug to determine the physical extent and time span of the entire community. We estimate that there were at least 28 rooms making up from 12 to 15 apartments. Three protokivas were located by means of a soil auger in the plaza to the east of House 7.

Work was carried out at six locations almost simultaneously, and rooms were numbered as they were located. They will be discussed, however, by starting at the south end of the arc and moving to the north and east. Except in a few instances, materials in the fill and on the floor of the rooms were not separated. There

can be little doubt that most of it originates in House 7. The nature of the terrain above all but the easternmost of the rooms precludes the possibility that sherds or other artifacts could have drifted in from another source.

The similar architecture and the clustering of dates from Houses 6 and 7 are evidence that both houses were built at about the same time.

Room 1

Room 1 was an isolated structure, somewhat nearer House 6 than House 7. It was subrectangular with rounded corners, about 12 feet square, built in a pit 1.3 feet deep (fig. 18). A series of posts around the perimeter of the floor supported the roof and perhaps also the walls. A little more than half of the south side of the floor area was excavated, but no firepit was found. There was an oval pit, 1.6 feet long and 0.7 foot deep, in the south corner of the floor.

The room had not burned. No rotted wood remained in the postholes, and apparently the timbers had been re-used elsewhere. Thereafter, the pit was used as a dump. The trash contained a high concentration of ash and organic soil, and it produced more sherds for the amount of earth moved than any other spot in either Houses 6 or 7. After the pit was filled, the surrounding original ground level was covered with another foot of trash.

Although Room 1 may have been associated with either House 6 or House 7 in their earlier stages of occupation—or both, as they were contemporary—it was abandoned before House 7, which is the probable source of the trash that filled it. It also may have preceded either house.

The sherds found in the fill of this room and the others of House 7 are listed by type in table 11. About half of a nearly restorable Moccasin Gray jar was in the trash. It is 18.1 cm. high and its vertical neck is composed of three fillets, 1.6 cm. wide. There was also a small piece of unfired clay with two earlike appendages—a possible effigy.

Only three stone artifacts were found:

1 hammerstone.
1 ball: sandstone, surface ground, 3.3 cm. in diameter.
1 concretion: a piece of magnetite rind from a sandstone geode, edge ground.

The single bone tool found in Room 1 fill is an awl made from a mule deer metatarsal. The shaft is polished and the point is blunt.

Unworked bones were:

dog: dentary of small adult.
mule deer: fragment of a radius.
unknown artiodactyl: fragment of unidentified long bone.

Room 9

The southernmost set of quarters in House 7 faced to the northeast because of the curve of the house. Room 9, the front living room, measured 8 by 16 feet and its floor was 0.5 foot below the old ground surface (fig. 20). Our only excavations were a trench along the length of the northwest wall and a small pit in the south corner. The southwest wall, dividing the living area from the two rear storage rooms, was slab-lined adobe. Only two short sections of it were exposed in the two corners. At the south end, the wall was 0.4 foot thick, with the slabs lining the Room 9 side; in the west corner, it was 1.0 foot thick and the slabs were on the back, or Room 2, side of the wall. The short sections of the other three walls were marked only by the bank of native soil.

Other than several sherds (table 11), the only artifacts from the exploratory digging were:

2 manos: both trough type; one complete, of sandstone, and one fragmentary, of quartzite.

Room 8

Room 8 was the southernmost of the two storage rooms behind Room 9 (fig. 20). Our excavation was limited to a trench following the inside of the southeast and southwest walls, which were built of slab-lined adobe containing a few small, unshaped stones. The room measuring 6.5 by 9.0 feet, had been constructed on the old ground surface rather than in a pit, and thus the floor was 0.5 foot higher than that of Room 9. The only features found on the floor were two postholes, 0.3 foot deep, in the south and east corners. The latter had a sandstone spall in the bottom. Except for sherds (table 11), the only artifacts recovered were:

1 notched ax or hammer: fragment, of quartzite, re-used as hammer-stone.

2 manos: both fragmentary, trough type, of quartzite.

Room 2

North of Room 8, and behind the northern end of Room 9, was Room 2 (fig. 20). Measuring 6.5 feet wide by 15.1 feet long, it was unusually large for a storage room. Its northern end projected beyond the limits of Room 9 and lay behind an unexcavated and unnumbered living room. It may have been shared by two families. Although it was completely excavated except for a balk near the center, Room 2 had none of the floor furnishings characteristic of living or working spaces.

The walls, like those of Room 8, were set upon the old ground surface. They were built of stone scattered in an adobe matrix and were lined with slabs. A posthole in the west corner was 0.4 foot deep, with a shim of sandstone at the bottom. There was no evidence of burning in this or the other two rooms at this end of House 7.

Sherds found in the fill of Room 2 are listed in table 11. With the one exception noted, the stone artifacts were from the fill, as follows:

1 notched hammer: two worn faces, of quartzite (fig. 185h).

2 hammerstones.

2 manos: both sandstone, with canted ends; one with fingergrips; one with worn face (on floor).

1 whetstone: large unshaped block of sandstone, with ax-sharpening groove in one face.

Room 4

Sixteen feet to the north of Room 9, and with an unexcavated room between, was living Room 4. It was trenched along the southeast wall and toward the center (fig. 20). Dimensions were estimated to be about 9 by 15 feet. The portions of walls uncovered at the south end of the room were slab-lined adobe. The southwest wall, forming the partition between Room 4 and storage Room 3, was 1.4 feet thick and was lined on both sides. In the south corner was a bin, 3 feet square, with walls of adobe-encased slabs. A smaller bin was created when the east corner was closed off by a single standing slab of sandstone. No firepit was found in the center of the room but one may have existed in the unexplored north end.

The room had burned, but no pieces of charcoal large enough for dating were found.

The sherds taken from Room 4 are listed in table 11. A restor-

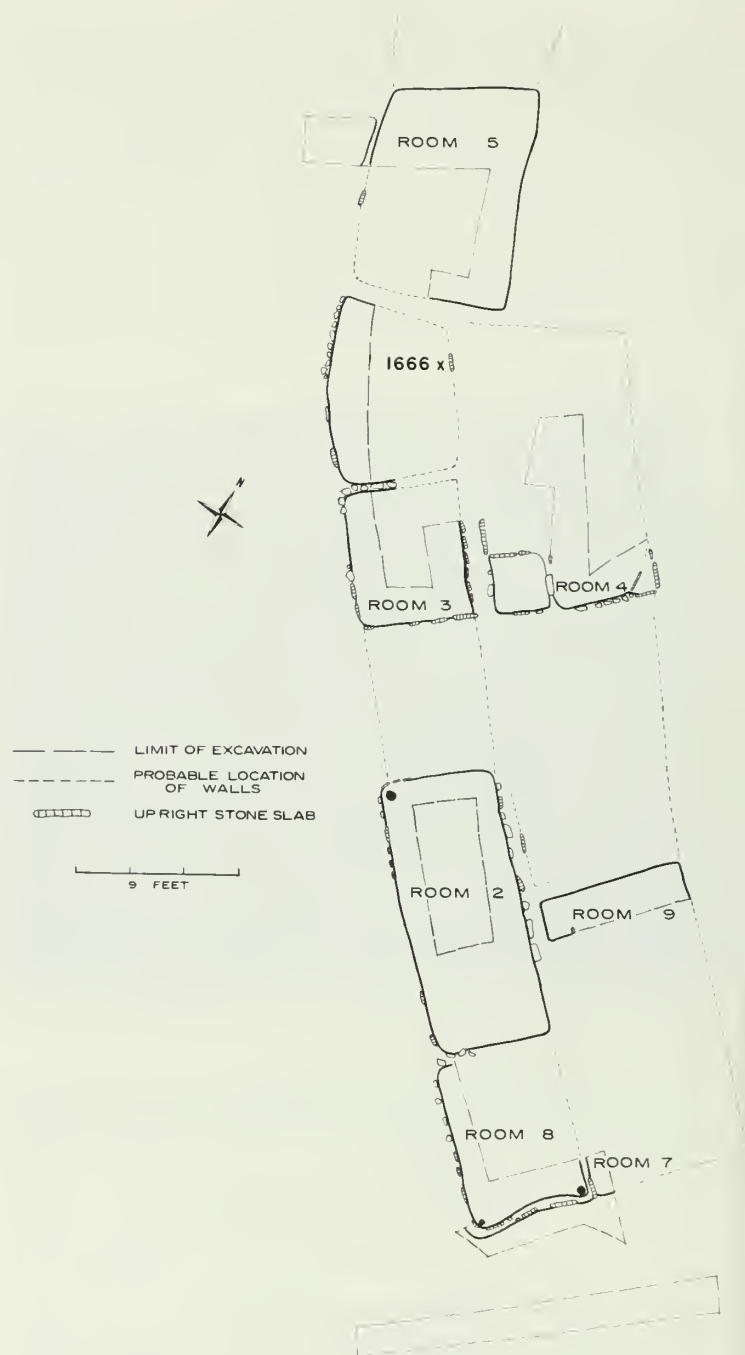


Figure 20. South end of House 7.

able Chapin Gray jar was scattered all along the southeast wall. It has a wide mouth with a slightly flared rim and a rather pointed bottom. It is estimated to be 25.0 cm. in height and 25.6 cm. in diameter. About half of a black-on-white bowl, probably Piedra, was found in the room. It was polished inside and out and decorated with anthropomorphic figures in mineral paint (fig. 114a). Two figures, of the probable four that quartered the field, have large hair knots at each side of the head. One appears to wear a sash.

Stone artifacts from Room 4 were:

1 hammerstone.

1 pitted rubbing stone: loaf-shaped, of quartzite; the entire surface was pecked and the two broadest faces were pitted.

1 slab: pear-shaped, of sandstone, 54.6 cm. long, weighing 11.3 kg.

Table 11. Sherds from House 7, Site 1676

Type	Rooms ¹														Totals
	1	2	3	4	5	6	7	8	9	10 & 12	11	13	14	15	
Chapin Gray	543	20	44	77	124	178	126	62	28	37	85	12	95	42	1,473
Moccasin Gray	17	—	1	6	14	9	24	4	2	5	3	—	10	—	95
Mancos Corrug.	—	—	—	—	—	—	—	—	—	2	—	—	—	—	2
Chapin B/w	6	—	2	1	1	2	1	—	—	1	—	—	2	—	16
Piedra B/w	11	—	—	—	2	3	6	2	—	3	—	—	2	—	29
PI b/w	—	—	—	—	4	6	3	—	—	—	—	—	2	1	16
Cortez B/w	1	—	—	—	—	—	3	—	—	—	—	2	—	—	6
Mancos B/w	—	—	—	—	—	—	—	—	—	—	—	1	—	—	1
Bluff B/r	21	1	2	2	4	4	7	1	1	—	1	1	4	1	50
San Juan Red	6	—	4	3	4	3	5	1	—	—	2	—	2	—	30
Unclassified	—	—	—	—	—	1	—	1	—	—	—	—	—	—	2
Totals	605	21	53	89	153	206	175	71	31	48	91	16	117	44	1,720

¹ Provenience: all from surface to floor.

1 worked building stone: block of sandstone, with pit, 4.8 cm. in diameter and 2.0 cm. deep, pecked in one face.

1 worked cobble: quartzite, oval, with perimeter pecked.

Room 3

There were two storage rooms behind Room 4. The southernmost, Room 3, measured about 6 by 7.5 feet. The rear wall was a lining of slabs set against a bank of native soil, 0.6 foot deep. The adobe wall common to Room 4 was based on the floor, which was 0.4 foot higher than that of Room 4. The northwest wall was rough masonry with many spalls in the mortar, and was footed on a low shelf of subsoil at the edge of the pit. The room was cleaned out except for the north corner and a block in the center. No postholes, pits, or other features were found in the floor. The room had burned. One piece of a juniper pole was saved, but it was not datable.

The other storage room, to the north of Room 3, was not numbered. A narrow trench was dug along the rear wall, which was slab lined at one end and rough masonry at the other. This room measured about 7 by 9 feet.

Though a considerable amount of earth was removed from Room 3, there was little in it. In addition to a few sherds (table 11), these items were in the fill:

Clay

1 sherd disk: plain gray, chipped edge, 4.8 cm. in diameter.

Stone

1 scraper: quartzite flake.

1 mano: fragment, of sandstone, with canted ends.

1 small tablet: sandstone rectangle with rounded corners, pecked and ground, 10.6 by 6.5 by 4.3 cm.

Bone

1 awl: tibia splinter, mule deer; 7.4 cm. long, with blunt point.

Room 5

The distance between the last-described cluster of rooms and the west end of the probable original arc of House 7 was 45 feet. This space was taken up by a single row of an estimated four rooms. Smaller than front rooms and larger than storage rooms, these

separate rooms were probably complete family dwelling units. We worked in only two and just traced the inside of their walls. One of these, Room 5, measured 8.5 by 12.0 feet and lay just to the north of the unnumbered storage room mentioned above. The room had been built in a pit, 0.7 foot deep. There was no evidence of walls other than the sharp edge of the pit and a single slab at the rear wall. Only about half of the fill was removed. It contained these stone artifacts:

1 chopper: claystone core.

1 notched ax: fragment, of basalt; bit bifacially spalled but not ground.

2 hammerstones.

1 pitted rubbing stone: quartzite disk; entire surface pecked, both faces ground and pitted.

1 polishing stone: porphyry, two faces polished.

Room 6

This room, about 10 feet square, was also used without added rooms to front or rear (fig. 21). It was only partly excavated by a

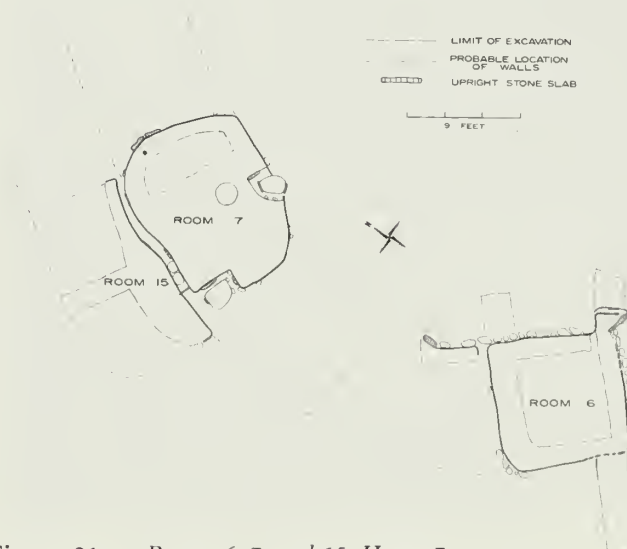


Figure 21. Rooms 6, 7, and 15, House 7.

trench around the inside of the walls. The southeast and southwest walls were lined with small slabs at the base, 0.5 to 0.7 foot high—the depth of the initial excavation. On the shelf of undisturbed soil above the slabs were masonry walls of rough stones about 1 foot long. The same kind of masonry made up the northeast, or front, wall and appeared in the west corner.

Stone artifacts from the fill were:

- 1 used flake.
- 3 scrapers: two of chert and one of quartzite.
- 1 chopper: small core of chert.
- 6 hammerstones.
- 2 manos: sandstone fragments; one with two finger-grips.
- 1 ball: sandstone concretion, spalled and pecked, 6.7 cm. in diameter.
- 1 fetish: sandstone concretion, carved or ground to represent a phallus (fig. 210).

One refuse bone was found:

dog: ulna fragment.

Room 7

Immediately to the north of Room 6 were the southeast-facing rooms of the arc, probably the first of those in House 7 to be built. These rooms paralleled the arc of House 6 and consisted of rooms of the same type.

Room 7 of this southeast-facing arc was 20 feet north of Room 6. Two rooms may have existed in the space between them (fig. 21). It was a living space, 10 by 14 feet, which was fully excavated except for a small block near the northeast wall. All four walls were adobe, with inclusions of small sandstone spalls, and were footed on the bank of an excavation, 0.8 foot deep. At the south end of the northwest wall was a doorway leading into Room 15. A slab formed a jamb at one side and two flat stones paved a sill, 0.7 foot above the floor. The floor was somewhat basin shaped and was 0.4 foot lower at the center than at the walls. There was a single posthole in the north corner. Two bins of slab-supported adobe were built against the walls. One, in the west corner, was built up from the floor level. The other, at the center of the southeast wall, was built on a platform of native soil, 0.7 foot high. A round unlined firepit, 1.8 feet wide and 0.5 foot deep, was near the front center of the room.

The room had been thoroughly burned, and the fill was a jumble of charcoal, fired adobe, the sherds of several restorable vessels, and other artifacts. Many of the latter may have rested on the roof, while others may have been dislodged from the tops of the two bins by falling timbers.

We found the shattered remains of 18 pots that were evidently in the room when it burned. Most of them were restorable.

- 5 Chapin Gray ollas: one complete, capacity 15 quarts, (fig. 83g); large pieces of four represented by large sections (in fill).
- 2 Chapin Gray wide mouth jars: one complete (fig. 83c) (floor, north corner); about one-half of one, approximately 24.5 cm. high (fill).
- 1 Chapin Gray pitcher: unrestorable, with round strap handle, 16.0 cm. in diameter (fill).
- 1 Chapin Gray cup: complete miniature, 5.8 cm. in diameter and height (fill).
- 5 Moccasin Gray jars: complete or restorable, from 17.6 cm. to 22.3 cm. high (one on floor of north corner, others in fill).
- 1 Chapin Black-on-white bowl: one-half of bowl with broken edges ground for re-use as shallow dish, mineral paint (fill).
- 1 Chapin Black-on-white eccentric jar: loaf-shaped, with two vertical

spouts connected at rims by handle, mineral paint (fig. 107g) (fill).

- 1 Piedra Black-on-white bowl: 21.0 cm. in diameter and 6.2 cm. in height (fill).
- 1 Bluff Black-on-red bowl: (fig. 169a) (fill).

The only artifact of clay other than pottery is a small pellet of unfired clay containing crushed rock temper. It is probably the end of a strand of potter's clay pinched off in the coiling.

Stone artifacts were quite numerous. Jumbled metates and manos were leaning against the northeast wall. In digging the room, they were encountered before the floor was reached and were at first thought to be in the fill. Later it was possible to arrive at more precise proveniences, but some of the objects listed as coming from "fill" may have been part of this melange.

- 1 projectile point: fragment, of obsidian (floor, north corner).
- 1 chopper: granite cobble (west bin).
- 2 notched axes: one fragment with broken, polished bit reflaked bifacially, of granite; one complete with notched poll, bit re-sharpened by flaking, of quartzite (fill).
- 1 notched hammer: complete, with two striking faces, possibly re-used as hammerstone, of quartzite.
- 8 hammerstones.
- 9 metates: all of trough type; seven fragments, probably used as building stones (fill); two complete, Utah type, 59 and 98 pounds (probably against northeast wall).
- 15 manos: one "biscuit" type, bifacial, of quartzite; all others trough type with canted ends, three of quartzite and others of sandstone, four with finger-grips (one in west bin, seven on or near floor next to northeast wall, others in fill).
- 1 mano blank: sandstone fragment, perimeter pecked (near northeast wall).
- 3 pitted rubbing stones: one of granite, entire surface pecked, pits in both faces, both ends, and both sides; one of quartzite, surface pecked, pits in both faces and both ends; one of quartzite, "biscuit" type, with pits in both ground faces (all in fill).
- 2 polishing stones: one rectangular, with all facets polished, of travertine; one discoidal, with part of one face polished, of diorite (fill).
- 1 rubbing stone: discoidal cobble, of quartzite, 10.0 cm. in diameter, one end pecked, both faces polished (fill).
- 2 hand abraders: sandstone spalls with one ground face (fill near northeast wall).
- 4 slabs: all sandstone; two rectangular, with worked edges, 14.1 and 26.5 cm. long (larger one, with one face lightly ground, leaning against northeast wall); two fragments, one highly polished and carbonized—possible *comal* (fill).
- 2 lapstones: large flat cobbles smoothed as though from handling; one of quartzite (on floor, north center); one of diorite with concave faces (fill).
- 1 paint stone: bar of hematite, not ground (fill near northeast wall).
- 1 ball: sandstone, ground surface, 3.3 cm. in diameter (fill).
- 1 dish: one-half of open geode, sandstone, unmodified, 14.5 cm. long (fill).

Three pieces of worked bone came from Room 7:

- 2 awls: fragmentary, metapodials of unknown artiodactyl (one from floor, one in fill).
- 1 miscellaneous worked bone: metatarsal of mule deer, split and polished.

One refuse bone was:

rabbit (sp.?): fragment of femur.

Quantities of charred timber came from the fill and floor. Ten specimens were saved and identified as pinyon (2) and juniper (8). Four of these were dated—the first is pinyon and the rest are juniper.

Specimen	Provenience	Date A.D. ¹	
		Inside	Outside
MV-2291	Across east corner, floor	672p	804vv
MV-2292	Across east corner, floor	666p	776+vv
MV-2294	In north corner, floor	718p	816B
MV-2298	In north corner, floor	685p	814vv

¹ Key to symbols: p—pith ring present; vv—outer ring eroded and very variable; B—bark present on outside.

Room 15

Running the full length of Room 7 and behind it was an unusually long storage chamber, measuring 8.5 by 14.6 feet (fig. 21). It was built over a shallow excavation, but its floor level was 0.4 foot higher than that of front Room 7. The digging here was confined to a trench along the inside of the southeast wall and a

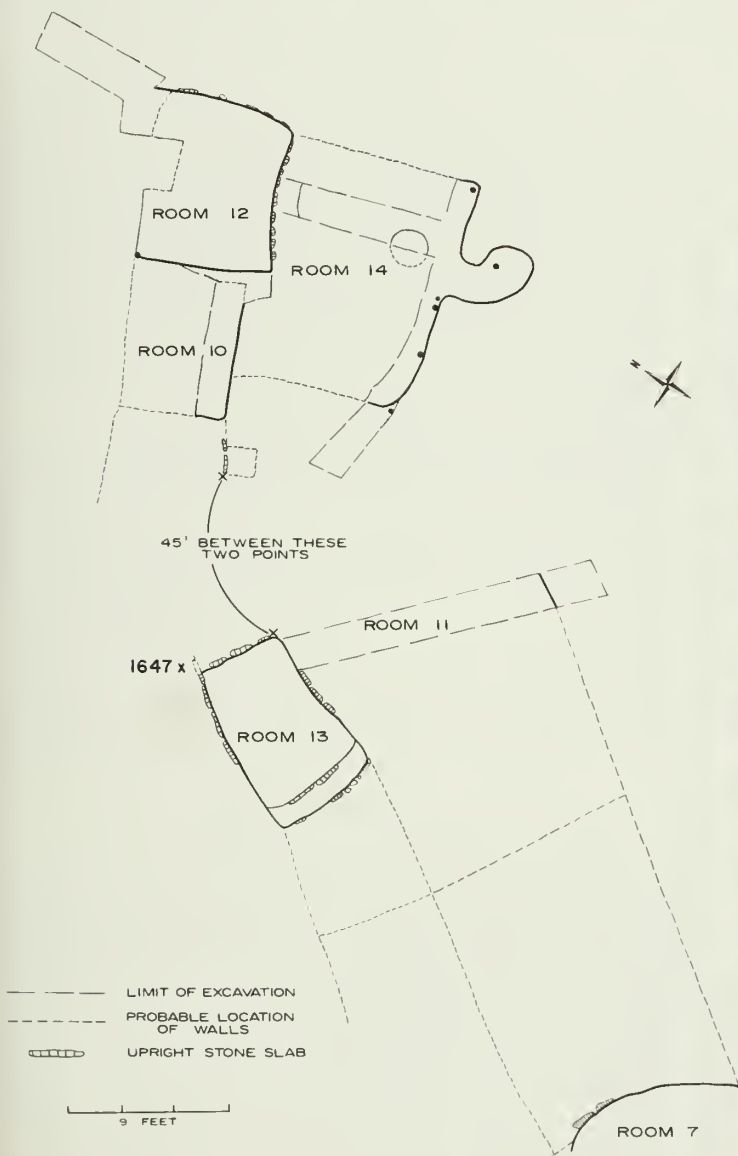


Figure 22. East end of House 7.

lateral trench to the rear wall. The wall common to Room 7 has been described. The others were indicated only by the edge of the pit. The room had burned. Burial 9 lay near the south corner; it was not damaged by the fire and was apparently a later inhumation in the burned rubble.

Other than the sherds listed in table 11, the only pottery found in Room 15 was a Chapin Gray ladle (fig. 83p), which lay near the thigh of Burial 9 and was probably associated with it.

The only other artifact from the room was:

1 scraper-plane: quartzite.

Room 13

Room 13, a rear storage room 22 feet northeast of Room 15, was the only room in House 7 that was completely excavated. It measured 9.6 by 5.8 feet (fig. 22). The floor, 0.7 foot below the old ground surface, was a little lower at the center than at the walls. The northwest and southeast walls were lined with slabs up to 2.0 feet high, and were probably adobe above the cut bank of the pit. The southwest wall was slab-lined adobe, starting at the ground level. Along this wall was a bench, 1.2 feet wide and 0.7 foot high, which was also lined with slabs—one standing 0.5 foot above the level of the earth bench (fig. 23). The southeast wall, common to front Room 11, was built from the floor level of trash-filled adobe with a slab lining. There were no pits in the floor. The only artifact found was:

1 scraper: chert flake, 8.2 cm. long (fill).



Figure 23. Room 13, House 7, looking northeast.

The room had burned with a hot fire, which reddened the floor and walls. The blaze was evidently fueled by stored corn. The northern two-thirds of the floor was covered with charred cobs to a depth of 0.8 foot. These were predominantly 12- and 14-row varieties, but 8-, 10-, and 16-row corn was also present. This is in contrast to the dominance of 8- and 10-row corn from Pueblo II and III sources at Badger House and other late ruins on Wetherill Mesa. Charred beans, *Phaseolus vulgaris*, were also found on the floor.

Three specimens of charcoal from the floor, identified as pinyon (1) and juniper (2), were not datable.

Room 11

This living room in front of Room 13, explored only by a trench, was found to be 12.8 feet from front to back (fig. 22). In the fill of the trench were found sherds (table 11) and the following objects:

Pottery

1 Chapin Gray jar: about half of a high-necked olla.

Stone

1 utilized flake.

1 notched ax or hammer: fragment of claystone.

4 hammerstones.

1 metate: complete, sandstone, trough type; lateral borders and shelf ground, small pecked depression on reverse face; probably from roof.

Room 14

At the eastern end of House 7 was another set of quarters, composed of a front living room and two smaller storage rooms (fig. 22). A series of test pits to the east were sterile. Room 14, the front room, was trenched along the front, or south, wall and across the room from front to back. The room was a pit, cut 1.5 feet into subsoil, and its walls were indicated only by the banks of the pit and three shallow postholes near the middle of the south wall. In the southeast and southwest corners were single posts, 1.0 and 1.5 feet deep. The latter was incorporated in the wall, having been sunk from the ground level outside of the pit. An opening in the south wall, 1.9 feet wide, led to a curved ramp, nearly 4 feet long, running up to the old ground surface. Near the middle of the ramp was a single posthole, 0.4 foot deep. In the southeast quarter of the floor was a round unlined firepit, 2.1 feet wide and 0.6 foot deep.

The room had burned thoroughly, and there was much charcoal and burned adobe in the fill. In addition to the sherds listed in table 11, the following specimens were found:

Stone

1 scraper: claystone flake.

1 chopper: claystone flake, struck from same core as the scraper above.

1 hammerstone.

1 rubbing stone: discoidal, ends pecked, both faces polished, of quartzite.

Refuse bone

rabbit (sp.?): fragment of humerus.

Three wood specimens were identified as pinyon (1) and juniper (2). The juniper pieces were dated:

MV-2308 Fill

682p 780vv

¹Key to symbols: p—pith ring present; vv—outer ring eroded and very variable.

Room 12

Room 12, the eastern room of the two storage rooms at the rear of Room 14, measured about 7 by 9 feet. It was built in a shallow pit, and its floor was 0.9 foot higher than the floor in Room 14. Except for a small block at the north wall, the room was completely excavated (fig. 22). The south and east walls were slab lined, but the north and west walls—ashy adobe footed on the low shelf of native soil—were difficult to find. The fact that the room had not burned added to this difficulty and, without the shallow pit, we probably would have missed these walls. The floor was somewhat higher at the corners. The only floor feature was a posthole, 0.6 foot deep, in the northwest corner. It still held the rotted butt of a post.

The fill contained light trash, some of which may have drifted in from the later House 8 up the slope. The fill of Room 12 and of Room 10, its companion storage room, was removed in one operation. The sherds from the two rooms are listed together in table 11, and the few stone tools are listed under the description of Room 10.

Room 10

This storage room measured about 6 by 8 feet. Our only excavation here was a trench along the south wall, which was indicated by the builder's cut into subsoil (fig. 22). Quantities of charcoal and fired adobe in the fill indicated that the room had burned. About half of a Piedra Black-on-white bowl and two-thirds of a Chapin Gray olla, 29.0 cm. wide, were found in the trench. The olla has upturned, round loop handles.

The fill of Rooms 10 and 12 and pits in the vicinity yielded the following stone tools:

1 used flake.

1 chopper: small core of quartzite.

3 manos: two of sandstone and one of quartzite; all have canted ends.

Tree-ring specimens of juniper (2) and pinyon (1) were collected from Room 10. One of the juniper specimens was dated:

Specimen Provenience

Date A.D.¹

Inside Outside

MV-2300 Fill

664p 784vv

¹Key to symbols: p—pith ring present; vv—outer ring eroded and very variable.

HOUSE 4 AND PROTOKIVA E

(Piedra Phase, ca. 860)

Another arc of Pueblo I rooms, designated House 4, was found 110 feet up the ridge from House 3. It lay parallel to House 3 and was the source of the trash that covered the earlier house.

House 4 was similar to Houses 6 and 7, with living rooms of moderate size in front of smaller storage rooms. Like House 7, it was originally a south-facing row of nine sets of quarters about 150 feet long. Later, another row of east-facing rooms was added to run south from the west end of the house (fig. 2). This row we called House 5 and we assigned a separate series of room numbers to it. But we now believe that Houses 4 and 5 were occupied simultaneously as one house. At their final stage of construction, the two

Specimen	Provenience	Date A.D. ¹	
		Inside	Outside
MV-2307	Fill	708	778vv

houses formed a single arc, 180 feet across the front and 257 feet around the back. There were an estimated 28 rooms, or 17 sets of family quarters. In the plaza formed by the ends of the house were five pit structures located by the soil auger. They were probably all protokivas. One of these, Protokiva E, was excavated.

The original structure, House 4, had an estimated 19 rooms, 14 of which were excavated. Ten of these, Rooms 1 through 10, were left open for permanent exhibit. The digging started at what was later revealed to be a little east of the center of the house, and an apartment made up of four rooms was excavated. A living and working area, Room 5, was backed by three smaller storage rooms, Rooms 1, 2, and 3 (fig. 24). Room 1 lay partly behind Room 5 and partly behind an unnumbered and unexcavated room to the east; it may have been associated with the latter rather than with Room 5. Test Trench VII, running from Room 5 to a point 25 feet east, crossed burned debris and two walls before running out into sterile soil.

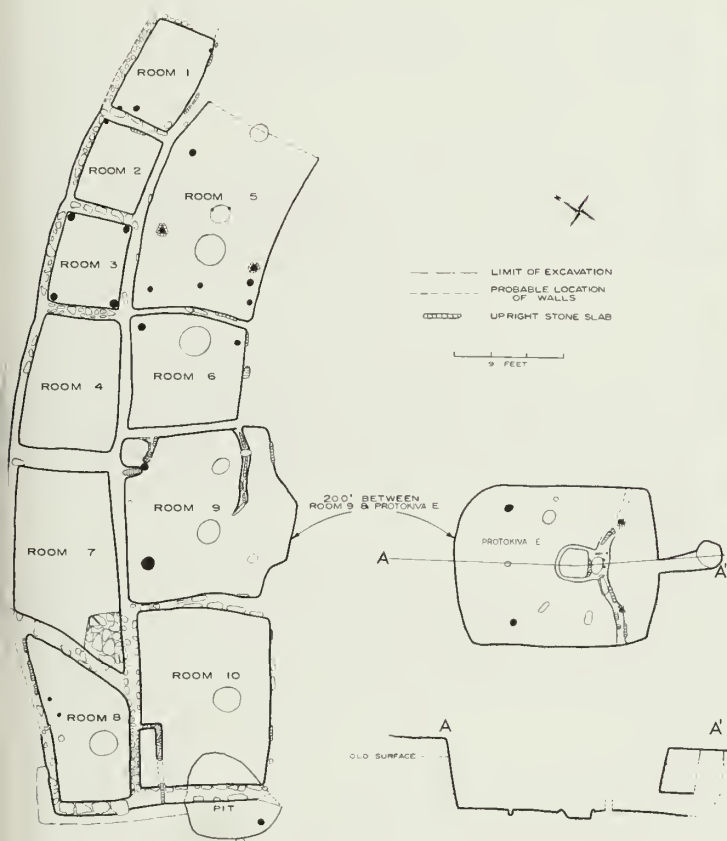


Figure 24. House 4 and Protokiva E.

Room 1

The first room excavated in House 4 was a rectangle 5.6 by 8.4 feet, built in a shallow pit about 0.6 foot deep. The south wall rises from floor level and was made of adobe supported by three large slabs—one of these a broken trough metate. Small poles were incorporated at each end. The north and east walls were a mixture of adobe and small broken spalls of sandstone. The west wall is typical of Pueblo I construction. The bulk of the wall is adobe, but it holds courses of tabular, unworked field stone, selected for shape—a masonry wall in which mortar makes up more of the rise than the stone.

Three posts were set in from the west wall, one in each corner and one near the center of the wall. These stood directly on the floor, though two of them are shown as postholes on the map. The molds

of two were clearly visible in the fill, and the middle one, charred pinyon, was still in position. The post in the southwest corner rested on the fragment of a worked stone slab. None of these posts were buried in the floor and all were along one wall—facts that suggest they were inserted as shoring for a sagging roof after the initial construction of the house.

The room had burned and three specimens of charcoal, one pinyon and two juniper, were saved for dating. Only the pinyon post gave us a date:

Specimen	Provenience	Date A.D. ¹	
		Inside	Outside
MV-2230	Post near middle of west wall	792	837vv

¹ Key to symbol: vv—outer ring eroded and very variable.

The room was dug in two levels. The upper level included material from the present surface to within 0.6 feet of the floor. In



Figure 25. Rooms 2 and 3 (bottom to top, at right) and Room 5 (left), House 4, looking west.

table 12 it will be noted that some corrugated and late decorated pottery sherds occurred in the upper fill of the room. These are accounted for by the presence of Kiva A, a Pueblo III structure only 15 feet behind Rooms 1 and 2. The material in the table and in the following list of stone artifacts, whose provenience is given as "floor," were found on the floor and in the fill up to 0.6 foot above it.

4 used flakes: (floor).

1 scraper: claystone flake (fill).

1 notched ax: diorite (floor).

3 manos: all sandstone, trough type; two are fragmentary (floor).

2 polishing stones: one quartz and one claystone with quartz veins (fill).

2 slabs: fragmentary, sandstone (floor; one beneath southwest corner post).

Two refuse bones were found on the floor:

Canis (sp.?): rib of dog or coyote.

rabbit (sp.?): dentary fragment.

Room 2

This storage room is directly behind living Room 5 and was unquestionably associated with it (fig. 25). Room 2, measuring 5.4

Table 12. Sherds from Rooms 1, 2, 3, and 5 of House 4, Site 1676

Type	Room 1		Room 2		Room 3	Room 5		Totals
	Upper fill	Floor	Upper fill	Floor	Surface to floor	Upper fill	Floor	
Chapin Gray	196	23	74	21	115	594	57	1,080
Moccasin Gray	6	2	7	—	5	35	—	55
Mancos Gray	1	—	—	—	—	—	—	1
? corrug.	3	2	—	—	2	2	—	9
Chapin B/w	2	—	—	—	—	3	—	5
Piedra B/w	3	1	1	1	—	7	—	13
PI b/w	11	—	—	—	—	16	—	27
Mancos B/w	—	—	—	—	—	3	—	3
McElmo B/w	—	1	—	—	—	—	—	1
Mesa Verde B/w	—	—	1	—	1	1	—	3
Bluff B/r	10	2	2	3	2	12	1	32
San Juan Red	7	—	1	1	1	16	—	26
Unclassified	1	—	1	—	—	4	1	7
Totals	240	31	87	26	126	693	59	1,262

by 6.5 feet, was built over a shallow pit with its floor level the same as that of Room 1. The four walls average 0.7 foot thick and are of coursed masonry of rough stone with a great deal of mortar, similar to the west wall of Room 1. The latter, which is also the east wall of Room 2, has no stones exposed on the Room 2 side. A charred post was in place in a hole, 1.3 feet deep, in the northeast corner.

Room 2 had also burned, and the fill contained charcoal and fired mortar. A juniper pole, 2.0 feet long, lay in the fill a foot above the floor, near the northwest corner. There has been much burrowing by small animals in the fill and the center of the floor was destroyed and difficult to trace. The fill was removed in two levels: to within 0.4 foot of the floor, and from this point to the floor. Sherds are listed in table 12.

Stone artifacts from Room 2 were:

- 1 mano: sandstone, canted ends, finger-grip at leading edge (fill).
- 1 rubbing stone: quartzite, one edge polished, 15.1 cm. long (floor).
- 2 slabs: one rectangular with chipped edges, 21.5 cm. long (leaning against center of east wall); one discoidal, 30.6 cm. in diameter (floor).

One unworked bone was in the fill:

dog: ulna of large adult, probably male.

Room 3

The third storage room of the apartment was built on the old ground surface with its floor 0.6 foot higher than the floors of Rooms 1 and 2. It is nearly rectangular and measures 5.8 by 7.4 feet. All four walls are adobe, with widely spaced courses of rough stone. Postholes in the four corners are from 0.5 to 0.7 foot wide and from 0.6 to 0.9 foot deep.

Room 3 was excavated from the surface to the floor in one level. Sherds are listed in table 12. Unless otherwise noted, all the following artifacts were in the fill:

Pottery

- 1 dish or scoop: reworked jar sherd with ground edges, 10.6 cm. long.
- 1 pendant blank: Chapin Gray sherd with chipped and ground edges.

Stone

- 1 used flake: fragment of notched ax (see below), used for cutting or scraping

1 notched ax: claystone.

1 chopper: large core of porphyry.

1 mano: sandstone, trough type (floor).

1 rubbing stone: quartzite cobble with one polished face.

2 slabs: both sandstone; one corner fragment (in fill); one nearly complete, one face ground smooth, 18.8 cm. long (floor).

Room 5

Room 5 is a large living room in front of Rooms 1, 2, and 3 (figs. 24 and 25). It is an irregular, curved room about 16 feet long by 10.5 feet wide, built in an excavation about 1 foot deep. Its floor level is a little below that of Rooms 1 and 2. The rear wall of adobe and random stones, common to the storage rooms, was burned enough to trace easily.

The other walls were more difficult to make out. The west wall is of trashy soil enclosing three widely spaced slabs—one a large trough metate fragment. The earth used at the north end of this wall is the white caliche that occurs on the mesa from 3 to 5 feet below the surface. It is probably spoil from the excavation of one of the protokivas. The east wall—if indeed we found it—is red soil containing some ash. The front, or south, wall was indicated only by the bank of native soil at the edge of the builder's excavation.

Seven postholes, lining the north and west walls and the west end of the south wall, are from 0.4 to 0.5 foot in diameter and from 0.3 to 0.9 foot deep. They probably held roof-support posts.

The floor is hard-packed and burned in the northwest two-thirds of the room, but indistinct in the southeast third where the fire did not burn. In the west center of the floor is a large bowl-shaped, unlined firepit, 2.2 feet wide and 0.5 foot deep. A similar firepit near the middle of the room is 1.5 feet in diameter and 0.3 foot deep. Two postmolds 0.2 foot wide and about as deep, were found at the north and southeast edges of this hearth. A third firepit, oval in shape and also unlined, is 1.4 feet long and 0.3 foot deep and partly underlies the east wall. Its outline appeared about 0.3 foot below the level of the other floor features, and thus we believe it antedates the Room 5 floor.

It may be that our indistinct east wall was farther east than we thought. Eye and trowel failed us here.

The upper level of the fill in Room 5 was rich in potsherds (table 12). We noted above that the remaining parts of the east, south, and west walls were made up of trash-laden soil. The collapsed

Table 13. Sherds from Rooms 4 and 6 of House 4, Site 1676

Type	Room 4	Room 6	Totals
	Surface to floor	Surface to floor	
Chapin Gray	271	131	402
Moccasin Gray	16	10	26
Mancos Corrug.	2	—	2
? corrug.	2	—	2
Chapin B/w	2	2	4
Piedra B/w	—	1	1
PI b/w	—	1	1
Mancos B/w	1	—	1
Bluff B/r	4	6	10
San Juan Red	3	—	3
Totals	301	151	452

upper parts of these walls may be the source of this unusual abundance of sherds. Most of the other specimens, listed below, were from the floor.

Stone

- 11 used flakes: (all in fill).
- 1 hammerstone: quartzite (fill).
- 2 metates: sandstone, fragments of Utah type, one-half and seven-eighths complete (floor).
- 1 mano: quartzite, with canted ends (floor).
- 1 pitted rubbing stone: irregular flat granite cobble, one face and both edges pitted (floor).
- 1 rubbing stone: oval quartzite cobble, with one end pecked, one face polished (floor).
- 1 polishing stone: quartzite pebble, with part of one face polished (floor).
- 1 jar lid: sandstone disk, 11.6 cm. in diameter (floor).

Refuse bone

- Canis* (sp.): radius of dog or coyote.
- unknown mammal: fragment of long bone.

Sections of two charred juniper timbers were collected from just above the floor, near the north wall, but neither was dated.

Room 4

Immediately west of Rooms 3 and 5 is a two-room apartment composed of a larger-than-average storage room, Room 4, and a rather small work or living space, Room 6. Room 4 is wider at the west end than at the east, but averages about 7.4 by 11.0 feet. The floor lies 1 foot below the old ground level. The north and east walls are of rough masonry and adobe, and are footed on the bank of the excavation for the pit. The south and west walls are of adobe only. There are no postholes or other features on the floor, but sections of two juniper poles, about 0.4 foot thick, lay on the floor. They were not datable.

The room had burned and the floor was covered with several inches of charcoal and burned adobe—the remains of the roof. Piled on this burned material against the east wall were four pots which presumably had been stored on the roof:

- 1 Chapin Gray jar: tall, narrow neck, broken handles at the shoulder, 26.4 cm. in diameter.
- 1 Chapin Gray jar: similar to the above but with round handles above shoulder, unrestorable.

- 1 Moccasin Gray jar: wide mouth, 24.2 cm. high.
- 1 Piedra Black-on-white pitcher: gourd-shaped, complete except for handle, 17.6 cm. in diameter and 18.8 cm. high (fig. 115b).

Scattered through the fill of Rooms 4 and 6 were the sherds of another vessel which may have been on the roof near the partition wall:

- 1 Chapin Black-on-white bowl: mineral paint, 19.2 cm. wide (fig. 110e).

The sherds from both rooms (table 13), and the artifacts from Room 4 listed below, were recorded only as "surface to floor."

- 5 used flakes.
- 3 hammerstones.
- 4 manos: two of sandstone and one of quartzite are trough type, one of former with finger-grip in leading edge; one of sandstone, of undetermined type, face lightly ground, uneven, probably little used.
- 4 polishing stones: one of claystone with end and edges polished, one of quartzite with two polished faces, and two of quartzite with one polished face; range from 5.1 to 5.8 cm. in length.

A single bone tool was found in Room 4:

- 1 awl: split metatarsal of mule deer, 9.2 cm. long.

Four dogs were in Room 4 when it caught fire, and were unable to escape. Their skeletons, with some of the bones slightly burned, lay in the four quarters of the floor. All were adult; three were medium size and one was small. Two were probably male, one probably female. The sex of the fourth, represented only by the skull, could not be determined. The only other unworked bone was: yellow-bellied marmot: fragment of a femur.

Room 6

Room 6 measures about 9 by 9 feet. It has an irregular outline narrower at the front wall, to adjust to the curve of the arc of rooms, and was built in a shallow pit (fig. 24). The floor level is the same as that in Room 5 to the east. All four walls are of adobe. The east wall, described as the west wall of Room 5, has three slabs, but the other walls are apparently not reinforced. The south wall is defined by the bank of native soil and two standing slabs. The north wall is solid earth and was easily found, but the west wall was a trashy mixture of ash and earth, like the one on the east side of the room, and was inadvertently removed. Its outline appeared on the troweled floor.

Postholes in the northeast and southeast corners are from 0.4 to 0.6 foot in diameter and from 0.3 to 0.6 foot deep. Near the east wall is a circular, unlined firepit, 2.3 feet wide and 0.5 foot deep.

No artifacts were found in Room 6 except the sherds listed in table 13, pieces of the black-on-white bowl mentioned under Room 4, and the following stone objects:

- 10 hammerstones: (eight in the fill, two on the floor).
- 1 metate: fragment, of Utah type, resharpened (floor near south wall).
- 1 mano: trough type, resharpened (floor).
- 2 slabs: one rectangular fragment (floor in northwest corner); one subcircular disk, 29.4 cm. in diameter, with rounded bottom, heavily burned; probably a *comal* (floor at east edge of firepit).

There was one piece of unworked bone:

- bighorn sheep: fragment of tibia (fill).

Room 7

Room 7, together with Room 9 in front of it, constituted another two-room apartment (figs. 24 and 26, upper left). Room 7 was built over a pit, excavated 1.0 foot into subsoil, and has average dimensions of 7 by 13 feet. The excavation for Rooms 8 and 10 to the west was probably made at the same time, and then partition walls were erected in the pit. All three floors are at the same level. The north and east walls and most of the south wall are built of adobe only. The west end of the south wall—the part that separates Rooms 7 and 10—is a continuation of the south wall of Room 8 and contains a course of small, rough stones. The west wall is mostly of adobe, with many random spall inclusions. The north and east walls are footed on the bank of the pit, but the others are built from the floor level. The odd angle of the west wall, which gives the room a wedge shape (fig. 27), seems to be the result of remodeling. It can be seen on the plan (fig. 24) that the north abutment of the west wall is in line with the partition between Rooms 9 and 10. The wall may have been moved to include the only feature on the floor, a flagged area about 3.0 by 4.0 feet, in the southwest corner. This area, 0.2 foot below the rest of the floor, is similar to shallow pits in the corners of rooms in House 1.

Room 7, unlike most of the house, had not burned. In addition to the sherds listed in table 14, the following stone objects were found in it:

- 2 used flakes: (fill).
- 2 hammerstones: (one from the fill and one from the floor).
- 1 mano: trough type, with two finger-grips (fill).
- 1 polishing stone: oval quartzite pebble, both faces polished (fill).
- 1 pendant blank: red shale, edges and faces ground (fill).
- 2 paint stones: one of limonite, with hematite rind, one facet rubbed (fill); one of hematite, with three ground facets (floor).

Refuse bones were:

- mule deer: rib fragment (floor).
- unknown artiodactyl: rib and humerus fragments (fill).

Room 9

This room is unusual in construction and was most productive of artifacts. Fronting Room 7, it averages 13 by 13 feet with its floor level about 0.8 foot lower than that of the rooms around it. It was used for cooking and corn grinding, and equipment associated with both activities lay in profusion on the floor under the wreckage of the burned roof. The fill was full of charcoal and burned adobe.

North and east walls are both adobe. The west wall is of rough masonry and abundant adobe. The south wall was marked only by a slab standing against native soil at the east end, and by a flat stone embedded in adobe at the west. The middle section of the wall makes a curious bulge to the south which possibly represents a ramp leading up to the ground surface, but the exact nature of the wall was not determined. It may have remained open as a three-sided *ramada* (fig. 28).

Evidences of the roof structure were two large postholes and several timbers, from 0.2 to 0.5 foot thick, lying east and west near the middle of the floor. Many small charred twigs on the floor were evidently the remains of a layer of brush above the larger poles. The postholes near the northwest and northeast corners were 0.7 and 1.0 foot wide and 1.3 and 1.9 feet deep. One was incorporated in the wall of a bin in the northeast corner and still contained the butt of a badly decayed juniper post. Sixteen charred wood specimens were saved for possible dating. They were identified as nine juniper, one pinyon, and six Douglas-fir—the largest number of Douglas-



Figure 26. Rooms 7-10 (top to bottom and left to right), House 4, looking northeast.



Figure 27. Room 7, House 4, looking south-southeast.

fir specimens from any post-Basketmaker structure at the combined sites. All the specimens except two pieces of Douglas-fir were dated, as follows:

Specimen	Provenience	Date A.D. ¹	
		Inside	Outside
MV-2236	Fill, southwest corner	769 ± p	857vv
MV-2237	Fill, southwest corner	738p	853vv
MV-2238	Floor, near center of room	684p	789vv
MV-2239	Floor, near center of room	758 ± p	860r

Table 14. Sherds from Rooms 7 and 9 of House 4, Site 1676

Type	Room 7		Room 9		Totals
	Upper fill	Floor	Upper fill	Floor	
Chapin Gray	22 i	54	215	646	1,139
Moccasin Gray	17	4	7	31	59
? corrug.	3	—	3	—	6
Chapin B/w	5	3	4	1	13
Piedra B/w	1	—	—	3	4
PI b/w	2	—	7	5	14
Mancos B/w	2	—	—	—	2
Bluff B/r	2	3	1	11	17
San Juan Red	8	—	4	6	18
Unclassified	2	—	—	1	3
Totals	266	64	241	704	1,275



Figure 28. Room 9, House 4, with artifacts in situ, looking north.

MV-2241	Floor, near center of room	684p	754 + vv
MV-2242	Floor, near center of room	759p	804vv
MV-2243	Floor, near center of room	770	816vv
MV-2244	Floor, near center of room	760p	842vv
MV-2245	Floor, near center of room	759p	846vv
MV-2246	Floor, near center of room	767 ± p	860vv
MV-2248	Floor, near center of room	795p	853vv
MV-2249	Floor, near center of room	753 ± p	860vv
MV-2250	Floor, near center of room	763	860r
MV-2251	Floor, northwest corner	710	857 + vv

¹ Key to symbols: p—pith ring present; vv—outer ring eroded and very variable; r—outer ring constant over significant amount of the circumference.

The dominant floor feature, an unusual one in surface rooms, is a curved wingwall running from near the south end of the east wall almost to the firepit. It was made of standing, adobe-encased slabs. The one next to the east wall is a chipped-edge slab, 0.1 foot thick, standing 1.2 feet above the floor. The outermost slab is a broken trough metate. Leaning against the inside of the wingwall were two complete metates, and on the floor on both sides of the wingwall were several manos and other stone implements.

A bin about 2 feet square, built of slabs and adobe, occupies the northeast corner. Its outer corner incorporated the northeast roof-support post. Just to the south of the bin, a metate was propped on three small stones in position for use. One mano lay in the trough and 11 more were on the floor around it.

A round, unlined firepit in the center of the floor is 1.9 feet in diameter and 0.5 foot deep. About 0.1 foot of sand covered the bottom and it was filled to the brim with white ash. The base of a broken plain ware jar sat on the north rim of the firepit.

There are four other pits in the floor. An oval warming pit, north of the wingwall, is 1.5 feet in maximum diameter and 0.6 foot deep. About 0.1 foot of charcoal on the bottom was covered by 0.2 foot of yellow sand. This was overlaid by more charcoal and a layer of sand up to the floor level. Next to the north wall is a sipapu, 0.3 foot wide and 1.0 foot deep, which was filled with sand. A thin, shallow trough metate, which lay above burned roof material over the sipapu, probably fell from a leaning position against the wall. A small, bell-shaped pit, in the southwest corner, is 0.8 foot wide at the top and 1.0 foot wide at the bottom, 0.8 foot below the floor. It was covered by a thin, rectangular, chipped-edge slab. A pit in a break in the wingwall is 0.8 foot in diameter and 1.7 foot deep. A layer of white ash, 0.5 foot thick, lay at the bottom, and above this was the same burned fill that covered the floor of the room. The pit may have been used as an ashpit in conjunction with the warming pit nearby. The bell-shaped pit and the pit in the wingwall may originally have held roof-support posts which for some reason were pulled out and no longer used.

At least 14 pottery vessels sat on the floor of Room 9. Several of these were more or less intact; the others, smashed and scattered, were pieced together from the large collection of sherds found on the floor (table 14). They are described as follows:

- 1 Chapin Gray jar: wide mouth, 26.4 cm. high; complete, reconstructed from scattered sherds.
- 3 Chapin Gray dishes: bases of plain ware jars, reconstructed from scattered sherds.
- 2 Chapin Gray bowls: one base of plain jar, 15.7 cm. wide (north rim of firepit); one bowl, 20.0 cm. wide, with slipped and polished interior, unpainted, reconstructed from scattered sherds.
- 1 Chapin Gray effigy: crude bird (?) effigy (fig. 83s).
- 6 Moccasin Gray jars: three, ranging from 18.1 cm. to 20.8 cm. wide, one of which has a single rim fillet: all reconstructed from scattered sherds; one with four fillets (fig. 88e) and one with two fillets, 22.5 cm. high (outside northeast bin next to posthole); one with small curved applique across fillets (in southwest corner).
- 1 Piedra Black-on-white dipper: half-gourd shape, basalt temper, nested chevron design in mineral paint.

The only other object of clay is a worked sherd—a plain ware disk, 7.2 cm. wide, with chipped edge.

Most of the stone artifacts from Room 9, listed below, were found on the floor.

- 1 notched hammer: quartzite (floor next to metate *in situ*).
- 3 hammerstones: (two in fill, one on floor).
- 4 metates: all complete (two leaning against wingwall, one over sipapu, one *in situ* in northeast corner).
- 23 manos: fourteen of sandstone, nine of quartzite, all trough type; one bifacial, eight with finger-grips (one "biscuit" type, of quartzite, with one pecked and ground face, near northwest post-hole; others around metate near bin, on both sides of wingwall, at north wall, and in southwest corner).
- 2 mano blanks: sandstone (near wingwall).

- 3 crushers: sandstone; one, weighing 14 pounds, standing north of the west end of the wingwall (figs. 28 and 196, top), one behind the wingwall; one, with a ground concave face, in southwest corner.
- 2 pitted rubbing stones: one of quartzite, loaf-shaped, with pits in one ground face, one edge, and one end (floor, southwest corner); other of quartzite, discoidal, ends pecked and faces ground, with pit in one face (floor, behind metate *in situ*).
- 3 rubbing or polishing stones: one diorite cobble with perimeter pecked and both faces polished (lower fill); one diorite cobble with edges and faces polished (floor near northwest posthole); one quartzite cobble, both faces polished (north of center of wingwall).
- 7 slabs: all sandstone; one fragmentary (leaning in east corner of bin); others complete with edges worked in varying degrees, one with ground faces (one covering subfloor pit in southeast corner, one near sipapu, one leaning against west wall near southwest corner).
- 1 palette: irregular sandstone block with one face polished and slightly concave (floor).
- 1 ball: crudely spalled and ground sandstone, 4.2 cm. in diameter (lower fill).
- 1 pendant: bird effigy, of jet (fig. 205) (in bin).
- 1 conical fetish: magnetite, 4.7 cm. long, covered with red paint (southwest corner of floor).
- 1 dish: sandstone geode, ground all over, 3.5 cm. in diameter (lower fill).

There was only one piece of worked bone:

unknown artiodactyl: split tibia fragment with high polish.

Refuse bone was more plentiful. In the fill were:

rabbit (sp.): humerus fragment.

bighorn sheep: rib of large adult and tibia fragment of a medium-size animal.

bobcat: innominate fragment.

unknown artiodactyl: long bone fragment.

On the floor were:

rabbit (sp.): tibia, ulna, two femurs, and a rib (between warming pit and wingwall).

mule deer: fragment of main beam of antler (in bin).

unknown mammal: tibia.

Room 8

Rooms 8 and 10 are the westernmost of the contiguous rooms of House 4. Like the two apartments to the east, they made up quarters consisting of only two rooms, with a larger than average storage room. Room 8, the back room of the pair in this instance, is the only room at the rear of any excavated house that contained a firepit. It resembles the smaller living rooms in the single row in House 5, to be described later.

The room is wedge-shaped, averaging 6.5 by 11.5 feet, and was built over a pit excavated from 0.8 to 1.0 foot into the ground. The floor level is the same as that in Room 7 and Room 10. The three rooms were probably constructed by partitioning a single shallow pit. The west wall is true masonry built on the bank of the pit. Large, flat stones were used, averaging 1 foot square and 0.2 foot thick. Like the masonry of the rear rooms at the east end of the house, the mortar occupied more space than the rock. One stone in this wall has a bifacially chipped edge typical of the stonework during the later Pueblo II period. The north wall, also built on the

bank, is adobe containing widely spaced rough stones. Three slabs at the north end of the wall sit on the bank rather than against its face. The south and east walls were built up from the floor. The east wall, separating Rooms 7 and 8, has been described. The south wall is of adobe only to the height of 1.7 feet above the floor, where a course of small, unshaped stones was laid. The wall above this point is missing.

The room had not burned, but the floor was packed and easily defined. Two small postholes, 0.2 and 0.3 foot in diameter and 0.5 foot deep, had been dug about 0.8 foot in from the center of the north wall. Their purpose is not known.

A round unlined firepit, 2.2 feet across and 0.6 foot deep, is near the center of the room. It was empty. Near the north wall is a shallow pot rest, 0.5 foot in diameter and 0.1 foot deep.

In 1962, a year before Site 1676 was excavated, a test trench was dug along the outside of the west wall of Room 8. Near the northwest corner was a Bluff Black-on-red bowl. There was no pottery found inside the room except the sherds listed in table 15.

The following artifacts were found:

1 used flake: (fill).

3 projectile points: one complete, corner notched with straight stem, of red jasper; one fragment, corner notched, of chalcedony; one fragment of unknown shape, of quartzite (all in fill).

1 metate: fragment of trough type, probably re-used as building stone (fill).

1 small polishing stone: quartzite, with one face polished (floor).

1 paint stone: hematite, not rubbed (floor).

Refuse bones were:

black-tailed jackrabbit: fragments of rib, femur, and humerus, probably three individuals (fill).

dog: rib fragment of medium-size adult.

turkey: fragment of tarsometatarsus (fill).

Table 15. Sherds from Rooms 8 and 10 of House 4, Site 1676

Type	Room 8		Room 10			Totals
	Upper fill	Floor	Upper fill	Floor	Subfloor pit	
Chapin Gray	322	194	309	349	83	1,257
Moccasin Gray	13	14	16	19	—	62
Mancos Gray	—	—	1	—	—	1
Mancos Corrug.	—	—	2	—	—	2
Chapin B/w	4	3	1	4	—	12
Piedra B/w	6	1	2	1	1	11
PI b/w	8	2	7	7	2	26
Mancos B/w	—	—	—	—	1	1
Bluff B/r	8	10	12	7	3	40
San Juan Red	17	2	7	5	2	33
Unclassified	—	—	1	1	—	2
Totals	378	226	358	393	92	1,447

Room 10

Room 10, built in the same excavation as Rooms 7 and 8, is rectangular with maximum dimensions of 10.7 by 14.8 feet. The north and east walls have been described under Rooms 8 and 9. The south wall is adobe with one large standing slab and scattered unshaped stones in the matrix. The west wall contains more stone and approaches rough masonry.

Although the room showed evidence of fire, it did not suffer the heavy burn seen in many of the other rooms in House 4. The floor was hard-packed native soil and relatively easy to find. Just south of the center of the room is an unlined, bowl-shaped firepit, 2.0 feet across and 0.3 foot deep. In the northwest corner is a rectangular bin with walls of mud and sandstone spalls. The top of the bin wall now stands 1.7 feet above the floor outside, but the bottom is packed with 0.7 foot of adobe, which reduces its capacity.

An egg-shaped pit under the southwest corner of the room is an earlier feature. It was filled with trash, and the section under the room floor was sealed over with clay. It measures 7.1 feet wide by 7.9 feet long and was dug with perpendicular sides to a depth of 1.7 feet below the original ground level. The pit floor is 0.95 foot below the floor of Room 10. When Room 10 was built, several large blocks of sandstone were thrown into the pit to provide a footing for that part of the west wall that crosses it. There was no clue as to the function of the pit or which occupation of the site it relates to.

In addition to the sherds listed in table 15, four pieces of whole or restorable pottery were found in Room 10:

- Chapin Gray jar: wide mouth, short neck, and flared rim, 14.8 cm. wide (fill).
- Chapin Gray jar: miniature, 4.5 cm. in diameter and 3.8 cm. high, tapered from base to rim (fill of subfloor pit).
- Chapin Gray bowl: interior lightly polished, 15.3 cm. wide and 5.9 cm. high (west center of floor).
- Moccasin Gray jar: 18.2 cm. in diameter (fill; this and the larger Chapin Gray jar were probably originally on the roof).

Three worked sherds, all from the floor, were:

- 1 disk: Chapin Gray sherd with chipped edge, 4.5 cm. in diameter.
- 2 scoops or small dishes: large Chapin Gray sherds with ground edges.

The following stone specimens were found in Room 10:

- 1 used flake: (subfloor pit).
- 1 knife: fragment of flaked blade, of banded siltstone (fill).
- 2 scrapers: one quartzite flake (fill); one scraper-plane of green chert (subfloor pit).
- 1 chopper: small claystone core (fill).
- 1 notched ax: porphyry, poll notched (fill).
- 13 hammerstones: (seven in fill, four on floor, two in subfloor pit).
- 5 metates: fragments of trough type, probably building stones (floor).
- 3 manos: one trough type, of sandstone, and one "biscuit" type, of quartzite (fill); one trough type, of quartzite (on floor near south wall).
- 2 pitted rubbing stones: both quartzite; one with both faces and one edge pitted, one with both faces and two edges pitted (subfloor pit).
- 1 small polishing stone: quartzite, both faces polished, ends pecked (floor).
- 1 large polishing or rubbing stone: diorite cobble, one end pecked and both faces polished (subfloor pit).
- 5 slabs: all sandstone; one complete, 42.3 by 39.7 by 1.9 cm. (subfloor pit); four fragments (three from subfloor pit, one from fill).
- 1 paint stone: piece of limonite, 2.2 cm. long, one edge rubbed (floor).
- 1 unmodified stone: slab of yellow travertine (floor).

Three bone objects included:

- 1 scraper: rib of mule deer worn on one edge (subfloor pit).
- 1 spatulate tool: rib of mule deer worked on both ends (subfloor pit).
- 1 miscellaneous: fragment of jackrabbit tibia with high polish, possibly a "perforated tibia" (floor).

Refuse bones from Room 10 were all fragments, as follows:

- jackrabbit (sp.?): radius and ulna (floor).
- rabbit (sp.?): tibia and femur (floor).
- mule deer: phalanx (floor), and innominate (subfloor pit).
- unknown mammal: long bone (fill).
- unknown bird: unknown bone (fill).

Room 11

A trench outside the west wall of Rooms 8 and 10 revealed that they were the westernmost of the row of contiguous rooms of House 4.

Eighteen feet to the west were four more rooms which were thought to be part of House 4 when excavation began (fig. 29). As the work progressed, we found that these rooms were possibly joined to the end of House 5. Rooms 11 and 12 were paired storage and living rooms. Room 11, to the rear, was subrectangular and measured about 6 by 6.5 feet. The builders' excavation was 0.5 foot deep. All walls remaining were the slab-lined banks of the cut. The north, east, and west walls were partly lined, and the south wall was completely so. In the middle of the south wall was a doorway, 1.6 feet wide, leading into Room 12. This was one of the few unquestionable doors at the site. The jambs were large slabs standing at right angles to the wall. Between the door and the southwest corner of the room was a rectangular bin with inside

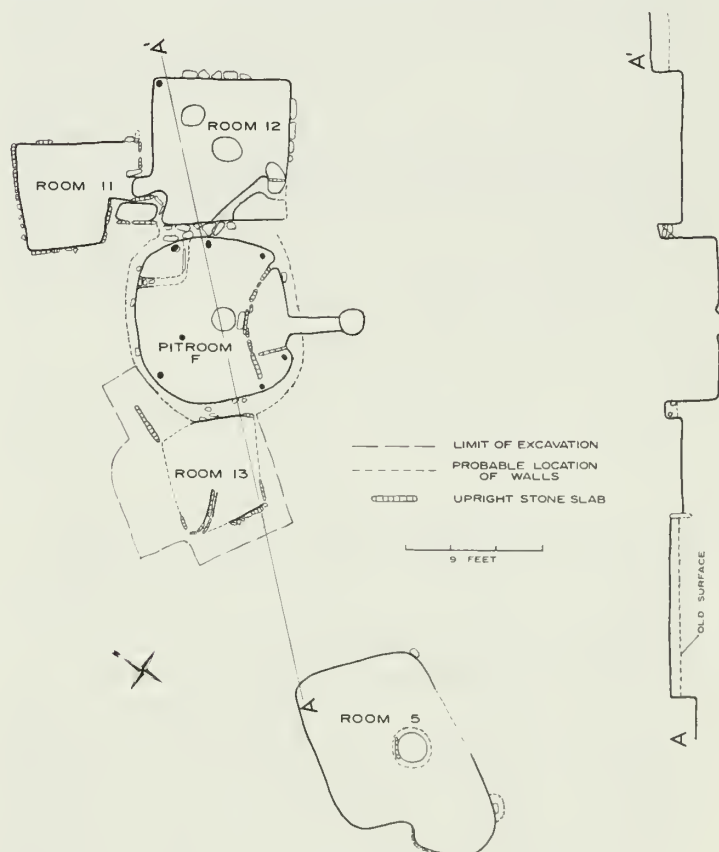


Figure 29. Rooms 11-13 and Pitroom F, House 4, and Room 5, House 5.

measurements of 1.1 and 2.6 feet. The walls were adobe-encased slabs, standing to a height of 1.4 feet.

Other than the sherds in table 16, only three artifacts were found in Room 11:

Stone

- 1 pitted rubbing stone: quartzite cobble, disk-shaped, one face ground, pits on both faces (floor of bin).
- 1 large polishing stone: fragment of quartzite, both faces polished (floor of bin).

Bone

- 1 awl: metacarpal of mule deer, 9.2 cm. long (fill).

Room 12

Room 12 was 9.1 by 9.4 feet. Its floor level was 0.4 foot lower than that of Room 11. The north wall stands on the edge of the Room 11 floor and is unlined adobe on the Room 12 side. The east wall, built from the top of the cut bank, still stands 1.2 feet above it and is made of masonry, using large rough stones and more mortar than rock. The south and west walls, also built above the pit, are made of the same kind of protomasonry except near the southwest corner, where only the edge of the pit was found. A low curved collar of adobe in the southwest corner forms a shallow bin (figs. 29 and 30).

An indentation at the east end of the adobe collar accommodated a bean-shaped firepit. The pit, 2.2 feet long, was divided in the middle by a thin, upright slab. The eastern part of the pit was 0.9 foot deep and full of ashes. The bottom of the pit west of the slab was 0.2 foot below the floor level but 0.7 foot higher than the bottom of the ash-filled section; it may have been an ashpit or a warming oven. There were two more firepits in the room, but it was not clear to us if all were contemporary. In the center of the floor was an oval pit, 2.0 feet long and 0.4 foot deep, with a low rim of adobe, 0.3 foot wide. Between the middle of the room and the northeast corner was another oval pit, 1.7 feet long and 0.7 foot deep, with steep sides. There was no clear sign of burn in this pit, and both of these were ash free. The only other feature of the floor was a posthole in the northeast corner, 0.4 foot in diameter and 0.7 foot deep.

Among the sherds on the floor of Room 12 (table 16) was about a quarter of a miniature Chapin Gray bowl, 8.0 cm. wide. The other specimens from the room were:

Clay

- 2 unfired sherds: base of a miniature jar (fill); and half of a miniature bowl or ladle (floor).

Stone

- 1 projectile point: fragment, corner notched, of chert (fill).
- 1 chopper: re-used rubbing or polishing stone, of basalt (fill).
- 1 notched ax: double-bitted, of quartzite (floor near middle of east wall).
- 5 hammerstones: (two in fill, three on floor).
- 3 metates: all fragments, of trough type (one in fill, other two standing in northeast and northwest corners of floor).
- 3 manos: all with canted ends; one of granite (fill); one sandstone fragment and one quartzite, with finger-grips (northwest corner of floor).
- 1 pitted rubbing stone: discoidal cobble of quartzite, with entire surface pecked, two faces pitted (floor).
- 1 hand abradar: sandstone spall, 11.7 cm. long, with edges flaked and two faces ground (northwest corner of floor).

- 1 slab: disk-shaped, sandstone, 18.0 cm. in diameter; possible cooking slab (floor near center firepit).

- 1 jar lid: sandstone, 6.7 cm. in diameter, with one ground face (floor).

- 1 paint stone: limonite nodule (floor).

- 1 ball: sandstone, 2.3 cm. in diameter (fill).

- 1 gizzard stone: (floor).

Worked bone

- 1 perforated tibia: jackrabbit (fig. 221f) (fill).

Refuse bones

- black-tailed jackrabbit: two fragments of right and left tibiae (fill and floor).

- dog: right ulna and both radii (fill), left ulna (floor); possibly all same small adult.

- mule deer: three fragments of the same antler (two in fill, one on floor).

- highorn sheep: fragment of humerus of immature individual (fill).

- turkey: vertebra (floor).

- unknown artiodactyl: fragment of metapodial (floor).



Figure 30. Rooms 11 (right) and 12, House 4, looking south-west.

Table 16. Sherds from Rooms 11, 12, and 13, and Pitroom F; House 4, Site 1676

	Room 11	Room 12	Pitroom F	Room 13	
Type	Surface to floor	Upper fill	Floor	Floor	Surface to floor
Chapin Gray	109	386	421	144	1,628
Moccasin Gray	5	22	30	9	59
Mancos Gray	—	—	—	—	1
Chapin B/w	1	3	4	—	10
Piedra B/w	—	3	2	3	10
PI b/w	—	8	4	7	16
Mancos B/w	—	1	—	—	2
Bluff B/r	4	14	17	7	25
Deadman's B/r	—	—	—	—	1
San Juan Red	3	11	10	2	19
Unclassified	2	5	—	—	5
Totals	124	453	488	172	1,776
					3,013

Pitroom F

The designation of this structure characterizes it and at the same time reflects the uncertainty of the archeologists as to its nature. We had followed a practice of assigning letters to subsurface structures and numbers to rooms. Pitroom F was both, and something had to be written on sacks of specimens before we had time to give much thought to the matter. In depth and in architectural detail, it was a pithouse. But it was incorporated—and probably built initially—in a block of surface rooms. Was it an unprecedented incorporation of a ceremonial chamber in a house block, in anticipation of what was to become the custom 300 years later? Or was it an example of cultural lag in some man's preference for an old style of house? We tend to favor the latter. In an auger hole drilled immediately north of the room, undisturbed soil was reached 1.4 feet below the surface, whereas in holes in the surrounding area it was found at an average of only 0.5 foot below surface. Thus it seems probable that a storage room lay behind it and that Pitroom F was the front room of a pair, as Room 12 was to Room 11.

Pitroom F was subcircular, or rectangular with rounded corners,



Figure 31. Pitroom F, House 4, looking southeast.

and measured 10.0 by 11.0 feet at the floor, which was 2.7 feet below the old ground level (figs. 29 and 31). The pit was made deeper by the raising of rock and adobe walls on the bank around the perimeter (see section A-A¹, fig. 29).

The four corner posts were supplemented by a post near the middle of the southeast wall and another behind the west wingwall near the ventilator tunnel. Only the holes remained, the posts having been pulled out. They were from 0.4 to 0.6 foot wide and from 0.4 to 0.7 foot deep. Just in front of the middle of the floor was a bowl-shaped firepit, 1.7 feet wide and 0.6 foot deep. It was rimmed by an adobe collar, 0.2 foot high by 0.3 foot wide. The pit had been altered by filling it with adobe to within 0.3 foot of the top and then using it in its shallower form. It was full of ashes and charred twigs. An ash pit, made by building low adobe collars from the firepit rim to the deflector, was empty. A small hole in the floor west of the center, 0.3 foot wide and 0.5 foot deep, may have been a sipapu.

Wingwalls were built of heavy slabs enclosed in adobe. The one to the east curved from the deflector to the east corner, while that to the west ran from the deflector to a point about 2 feet north of the south corner. The deflector itself was a thin worked slab with carefully chipped edges, standing in an adobe base 0.5 foot high. The area behind the wingwall in the southwest corner was partitioned by a chipped-edge slab (fig. 200a) to make a bin.

A bin in the north corner enclosed the corner post and was built of adobe, rough masonry, and a single slab—a broken metate.

A ventilator opening in the middle of the southeast wall was 1.6 feet high and 1.1 feet wide. It led through a tunnel 4.4 feet long, to a vertical shaft 1.8 feet wide.

Four burials (Burials 4, 5, 6, and 8, fig. 225) were found on the floor. The timbers were missing, but the stone and adobe features in the room were undisturbed and the floor was clean. A metate was propped on shims of sandstone spalls on the floor north of the west wingwall. It appeared to be in position for use and to be a house furnishing rather than a burial offering. There was no striation of the fill that would indicate it was deposited by the action of wind or water; on the contrary, it was unusually clean red soil. We conclude that Pitroom F was used as a dwelling until the burials were placed in it. The timbers in it were salvaged, and then the room was backfilled. It became a mausoleum.

Long after this had happened, but still in aboriginal times, a pit was dug from the surface above the back part of the room to a point on the floor where Burial 4 lay next to the northwest wall. The hole was abandoned and refilled. We found many of the bones scattered through the fill at the north side of the pit and near the surface in the overburden of Room 13 to the west.

The nine pots, numerous bone tools, and other artifacts that were left with the bodies are mentioned in the description of the burials in ch. 7. Other specimens are listed below. "Fill" was to within 0.4 feet of the floor; "floor" is from that point to the bottom. Sherds are listed in table 16.

Pottery

- 1 Chapin Gray jar: the base and shoulder of an olla 31.0 cm. in diameter, indented base, semipolished, cylindrical lugs with flared and cupped ends just below shoulder (floor of bin behind west wingwall).
- 1 Piedra Black-on-white bowl: about one-quarter of specimen, 18.0 cm. wide.

Stone

- 1 projectile point: corner notched, straight stem, of chalcedony (fill near Burial 8 and possibly associated with it).
- 1 scraper: claystone flake (fill).
- 3 choppers: all cores, two claystone, one quartzite (floor).
- 1 ax: fragment, of granite (floor near northeast wall).
- 3 hammerstones: (one at bottom of south bin, one on floor behind west wingwall, and one on floor west of Burial 5 and possibly associated with it).
- 5 metates: three fragments (two in fill and one leaning against wall by ventilator opening); two complete (one on floor, between firepit, southwest wall, and the west wingwall [fig. 188b]; one on floor next to northwest wall).
- 3 manos: all with canted ends (two of sandstone behind east wingwall, one of quartzite next to metate north of west wingwall).
- 1 crusher: sandstone, 10 pounds (near metate north of west wingwall).
- 1 whetstone: rough block of sandstone, ax-sharpening groove in one face (fill).
- 3 slabs: all sandstone, with spalled edges (one used as deflector,

one formed wall of south bin [fig. 200a], one on floor by ventilator but too small to close opening).

Bone tool

1 awl: tibia of bobcat, 10.2 cm. long (fill of ventilator shaft).

Refuse bones

dog: cervical vertebra of adult (floor).
gray fox: vertebra of large adult male (floor).
scrubjay: ulna (floor).

Room 13

This small and poorly defined room lay directly west of Pitroom F and slightly east of the bend in the long arc of rooms formed by Houses 4 and 5 (fig. 29). The old digging into the fill of Pitroom F also involved Room 13, and much of it was destroyed by this earlier activity. It was about 6 by 7 feet, in a pit only 0.4 foot below the surface. The northeast wall, of adobe and scattered stones, was common to the pitroom. The south and west corners were adobe supported by slabs. A short section of wall of adobe and slabs, curving to the east from the west corner, may have been a bin wall. Only patches of floor were found.

A single artifact, a mano, was found on the floor. All others were in the fill, with some certainly from the disturbed fill of Pitroom F. The sherds were bagged in one lot, from the surface to the floor (table 16). Other specimens were:

Pottery

1 San Juan Redware bowl: about one-third of specimen, 18.5 cm. in diameter and 7.5 cm. high, semipolished; probably unpainted Bluff Black-on-red.

Worked sherd

1 pendant blank: oval with ground edges; Bluff Black-on-red.

Stone

2 projectile points: one with corner and basal notches, of chalcodony (fig. 179q); one with corner notches and wide base, serrate edge, quartzite (fig. 179h).

2 hammerstones.

1 mano: sandstone, with canted ends (floor).

1 jar lid: sandstone, 6.3 cm. wide.

1 bead: pink, soft, chalky stone.

1 ball: sandstone, ground surface, 3.0 cm. wide.

1 concretion: sandstone, flat oval, entire surface ground.

Bone tool

1 awl: fibula of bobcat, 12.8 cm. long.

Refuse bones

rabbit (sp.?): scapula, innominate and femur fragments.

yellow-bellied marmot: fragment of ulna.

dog: fragments of cranium, mandible, tibia of small adult, probably female.

turkey: fragments of tibiotarsus, adult.

Protokiva E

Of the five subterranean structures located in front of Houses 4 and 5, only Protokiva E was excavated (fig. 24). It sits 20 feet in front of Rooms 9 and 10 of House 4 and was left open for exhibit with those rooms. The protokiva was abandoned and razed. The pit remained open long enough for a foot or so of alluvial soil and chunks of slumped walls to collect at the bottom and it was then

used as a dumping ground for trash. Possibly it was abandoned while some families still lived in Houses 4 and 5.

Excavation was in four levels. Level 1 was from the surface to -2.7 feet, Levels 2 and 3 were about 1 foot each, and Level 4 was the last 0.6 foot above the floor.

The structure was built in a nearly rectangular pit, 16.5 feet long by 13.0 feet wide at the floor which lay 4.3 feet below the old surface at the north end and 4.0 feet at the south wall (fig. 32). The east and west walls are perpendicular and still retain traces of plaster, while the north and south walls overhang the floor by 0.8 foot.

There are four postholes in the floor placed about 3 feet in from the corners. They range from 0.4 to 0.6 foot in width and are from 0.8 foot to 1.3 feet deep. The two southern posts were incorporated in the wingwalls and were further wedged at the bottom with sandstone spalls. These undoubtedly held the main roof-support posts which had been pulled out for re-use.

Two wingwalls separate the main part of the room from a narrow area along the south wall. They start at the side walls with large slabs, 1.5 foot high, and meet at the deflector. The slabs were encased in adobe which has sloughed off, making the wall about 0.5 foot thick. The wingwalls were joined in the middle of the room by a deflector of adobe reinforced by three small poles planted in the floor. The deflector itself has melted down and only its outline and the postholes remain.



Figure 32. Protokiva E, looking south-southeast.

Just south of the center of the floor is a D-shaped firepit, 2.5 feet across and 0.4 foot deep. Its south wall is straight and vertical, and reinforced by two small slabs. The entire pit is rimmed by a collar of adobe, 0.3 foot high, giving an effective depth of 0.7 foot to the pit. At the ends of the straight side of the firepit the collar is joined to the wingwalls and the ends of the deflector, creating a small ashpit at floor level. This construction is nearly identical to that in Pitroom F. The firepit was filled with ashes.

A sipapu, 0.3 foot wide and 0.7 foot deep, lies on the main axis of the room, between the firepit and the north wall. It was filled with yellow sand. Four other pits in the floor can be seen in figure 24. These are shallow pits, possibly potrests, from 0.4 foot to 1.2 feet in diameter and from 0.2 to 0.5 foot deep. All were filled with the same yellow sand that filled the sipapu. The largest and deepest had a small burned sandstone spall at the bottom.

Table 17. Sherds from Protokiva E, Site 1676

	Level 1	Level 2	Level 3	Level 4	
Type	Surface to -2.7'	-2.7' to -3.8'	-3.8' to -5.0'	-5.0' to floor	Totals
Chapin Gray	1,947	1,259	696	351	4,253
Moccasin Gray	110	51	25	19	205
Mancos Gray	1	—	—	—	1
Mancos Corrug.	2	—	—	—	2
? corrug.	8	—	—	—	8
Chapin B/w	7	13	4	1	25
Piedra B/w	17	10	5	—	32
PI b/w	59	37	15	6	117
Mancos B/w	3	—	—	—	3
Mesa Verde B/w	1	—	—	—	1
Bluff B/r	86	40	20	4	150
San Juan Red	29	30	23	4	86
Forestdale Smudged	1	—	—	—	1
Unclassified	28	5	—	3	36
Totals	2,299	1,445	788	388	4,920

There were shifts of the same sand in patches on the floor.

Two small unworked slabs of sandstone lay on the floor at the north edge of the firepit and a larger one leaned against the wall in the south corner. A crusher and a metate fragment were on the floor near the east wall. There were manos around the wing-walls and a mano and jar lid near the north wall.

The concentrated trash in Levels 1 and 2 and part of Level 3 yielded large numbers of potsherds (table 17) but no whole or restorable vessels. Other specimens from the Protokiva E were:

Worked sherds

- 3 disks: two plain gray, with chipped and ground edges (Levels 1 and 2); one Chapin Black-on-white, with chipped edge (floor).
- 1 palette: plain jar sherd with dry red paint rubbed on inner surface (Level 3).
- 1 miscellaneous: plain sherd with ground edge, possibly a pot scraper.

Stone

- 4 used flakes: (Level 1).
- 2 projectile points: one fragment, of chalcedony (Level 1); one fragment corner notched, straight stem, of chalcedony (floor in northeast corner).
- 2 knives: flakes of chert and siltstone (fig. 180k and l) (Level 3).
- 4 scrapers: one snubnose, of chalcedony; one flake and one scraper-plane, of claystone (fig. 183) (Level 1); flake, of claystone (Level 3).
- 3 choppers: small core of chert and re-used rubbing stone of porphyry (Level 1); core of quartzite (Level 3).
- 1 notched hammer or ax: fragment, of porphyry (Level 3).
- 47 hammerstones: fourteen (Level 1); 11 (Level 2); 7 (Level 3); and 15 (Level 4 and on floor).
- 2 metates: both sandstone fragments of trough type (Level 1 and floor next to east wall).
- 9 manos: four fragments—two sandstone, one quartzite with canted ends, one sandstone with flat face possibly used on slab metate (Level 1); five sandstone, of trough type—one with ends polished by the borders of a trough metate but with a concave face (on floor).
- 2 crushers: both sandstone with entire surface pecked—one with two shallow finger-grips and lightly ground convex face (near middle of east wall); one unground (south of deflector).

- 1 mano blank: sandstone fragment (northwest corner).
- 1 small polishing stone: bean-shaped pebble of granite, with both faces polished (Level 3).
- 1 slab: sandstone, discoidal, 23.0 cm. in diameter (floor near north wall).
- 8 balls: all sandstone, 2.7 to 5.0 cm. in diameter; most are ground, one with pecked surface, one with one side ground flat (abrader?) (five from Level 1, one from Level 2, two from floor).
- 2 concretions: sandstone geodes; one unmodified (Level 1), one with entire surface ground (floor).
- 2 conical fetishes: one flattened rod, 3.3 cm. long, partly ground, replaced ammonite; one cone of travertine, hexagonal cross section, surface spalled and partly ground, 5.7 cm. long (Level 2).

Worked bone

- 5 awls: three fragments, one metatarsal of mule deer and one metapodial of an unknown artiodactyl (Level 1); and one made from a long bone of unknown mammal (Level 2); two complete, one made from an unsplit radius of canine and one made from a split tibia of mule deer (Level 2).
- 2 perforated tibiae: both jackrabbit; one fragment (Level 3), one complete (fig. 221d) (floor).
- 1 miscellaneous: split and polished fragment of unknown mammal (Level 1).

Refuse bones (all fragments)

From Level 1

- jackrabbit (sp.?): tibia
- black-tailed jackrabbit: dentary
- dog: dentary
- mule deer: radius and humerus
- bighorn sheep: scapula
- unknown mammal: long bone
- turkey: femur and tibiotarsus

From Level 2

- bobcat: tibia
- unknown artiodactyl: humerus

From Level 3

- black-tailed jackrabbit: humerus
- turkey: tibiotarsus

From Level 4

- yellow-bellied marmot: incisor

Sciuridae (sp.?), probably marmot: cranium
dog: cranium and mandible
turkey: tarsometatarsus

HOUSE 5

(Piedra Phase, ca. 860)

House 5 yielded essentially the same dates as House 4, but it was probably a later addition to the complex. Two reasons for thinking so are the unusual north-south alinement of rooms with east-northeast orientation and the different character of the rooms themselves. Houses 4, 6, and most of House 7 are double rows of rooms, a modification of the arrangement in the demonstrably earlier House 3. On the other hand, House 5, like the completely separate House 1 (to be described later), seems to be a forerunner of the style of dwellings seen in the later Ackmen Phase. Though Houses 4 and 5 are not contiguous, they represent two units of the same complex of rooms and were contemporary during the last stage of their occupation.

Our practice of assigning house and room numbers prior to completion of the excavation simplified recording and field cataloging but also resulted in some premature assignments. We have mentioned that Rooms 11, 12, and 13 and Pitroom F in House 4 were not connected to the rest of the rooms in that house but, instead, appeared to be the north end of House 5. In the discussion of House 3, it was mentioned that Rooms 11 and 12 of that house were also probably part of House 5. If these suppositions are correct, there were an estimated 16 rooms and perhaps 11 families in House 5 (see fig. 2).

We numbered six rooms in House 5 and will describe them from north to south, continuing from Room 13, House 4, described above. They were excavated completely and later backfilled.

Room 5

About 10 feet southwest of Room 13, and with a suspected room joining them, was Room 5, a parallelogram with rounded corners. It measured 9.2 by 11.1 feet and was built in a preliminary excavation 1.0 foot deep (fig. 29). At the south end of the southwest wall, an alcove, 5.5 feet wide, was cut almost 2 feet into the wall. Small slabs lined part of the alcove wall at the base and a single slab stood in the east corner of the room. The walls were presumably of adobe; they could be traced only by the outlines of the pit and floor, but there was considerable burned adobe in the fill.

The floor had been damaged by rodents. Several patches of caliche, carried into the room from a deeper excavation could be found, particularly at the south end which had been thoroughly burned. There was a saucer-shaped firepit in the center of the room. Measuring 2.1 feet wide, it was surrounded by a low collar of adobe. At the floor level, near the south corner, was a semi-circular niche 0.7 foot deep.

Four pieces of charred wood in the fill, two of juniper and two of Douglas-fir, were saved for dating. One piece of Douglas-fir was dated:

Specimen	Provenience	Date A.D. ¹	
		Inside	Outside
MV-2258	Fill	686p	842vv

¹ Key to symbols: p—pith ring present; vv—outer ring eroded and very variable.

The sherds from Room 5 are listed by type and provenience in table 18. Five restorable pots were found. Two, badly shattered, were in the fill and presumably had rested originally on the roof. The others were on the floor.

Pottery

Chapin Gray jar: wide-mouthed 32.6 cm. high (floor, at east edge of firepit).

Moccasin Gray jar: 20.5 cm. high (floor, in northeast corner).

Moccasin Gray jar: one-third of specimen, 28.0 cm. in diameter (fill).

Moccasin Gray jar: one-third of specimen, 20.0 cm. high (fill).

Moccasin Gray jar: 20.3 cm. in diameter (floor, middle of north wall).

Worked sherd

scraper: Chapin Gray sherd with ground edge.

Stone

1 notched ax or hammer: fragment, of quartzite, used as hammer-stone (fill).

3 hammerstones: (in fill).

1 pitted rubbing stone: basalt, with ends pecked, one face ground, pits in both faces (fill).

2 rubbing or polishing stones: large cobbles with polished faces, of diorite (in fill) and quartzite (on floor).

5 metates: all of trough style; four fragmentary (in fill), one complete, of Utah type with pecked shelf (on floor near north wall).

Table 18. Sherds from House 5, Site 1676

Type	Room 1		Room 2		Room 3		Room 4			Room 5		Room 6		Totals
	Fill	Floor	Surface to floor	Surface to floor	Fill	Floor	North wall	Fill	Floor	Fill	Floor	Fill	Floor	
Chapin Gray	329	83	114	674	258	123	13	155	24	176	187			2,136
Moccasin Gray	29	1	19	82	23	20	3	20	1	11	18			227
? corrug.	—	—	—	1	1	—	—	—	—	—	1			3
Chapin B/w	4	—	—	8	1	—	—	3	—	3	1			20
Piedra B/w	4	—	2	1	5	—	—	3	1	—	1			17
PI b/w	7	—	2	12	4	2	—	8	—	11	3			49
Bluff B/r	4	—	6	11	11	—	—	4	—	10	3			49
San Juan Red	6	—	—	5	8	2	2	3	—	8	8			42
Unclassified	—	—	4	—	—	—	—	—	—	2	1			7
Totals	383	84	147	794	311	147	18	196	26	221	223			2,550

8 manos: three fragmentary, of quartzite, of sandstone with finger-grips, and of porphyry (in fill); four complete, of sandstone (one in metate), one complete, of quartzite with finger-grips (on floor).

1 crusher: sandstone, with convex face (floor).

4 slabs: all sandstone fragments (fill).

No bone was found, worked or unworked.

Room 2

Approximately 15 feet south of Room 5, and with a room between, was Room 2. Like all rooms in House 5, it was a single room with no storage room behind it (fig. 33). It measured 9.7 by 10.9 feet and was built in a pit 0.8 foot below the old surface. The north and west walls were built of rough rock "protomasonry." The south and east walls were adobe only.

South of center of the room was a round firepit, 1.4 feet in diameter and 0.4 foot deep, lined on the south side with a slab which formed a partition between the firepit and an ashpit, 0.9 foot deep. The latter had a small slab standing in the bottom. A slab, rising 0.7 foot above the floor, ran toward the south wall from the west side of the ashpit. The only other feature was a shelf of native soil standing 0.3 foot above the floor in the southeast corner.

The only pottery found in Room 2 was in the form of sherds (table 18). Other artifacts were not numerous.

Clay

1 pipe: straight shank, conical with slightly flaring rim, lightly polished (fill).

1 disk: Chapin Gray sherd, 4.0 cm. in diameter, with ground edge (ashpit).

Stone

1 scraper: claystone flake (fill).

2 notched hammers: both quartzite; one with peen worn away, one with red pigment rubbed on side (fig. 185g) (fill).

2 hammerstones: (fill).

2 manos: both sandstone; one with finger-grips (one in ashpit, one in fill).

1 pitted rubbing stone: quartzite cobble with one ground face, pits in two faces and two edges (fill).

1 large rubbing stone: quartzite cobble with two polished faces (fill).

Bone tool

1 awl: metacarpal of mule deer (ashpit).

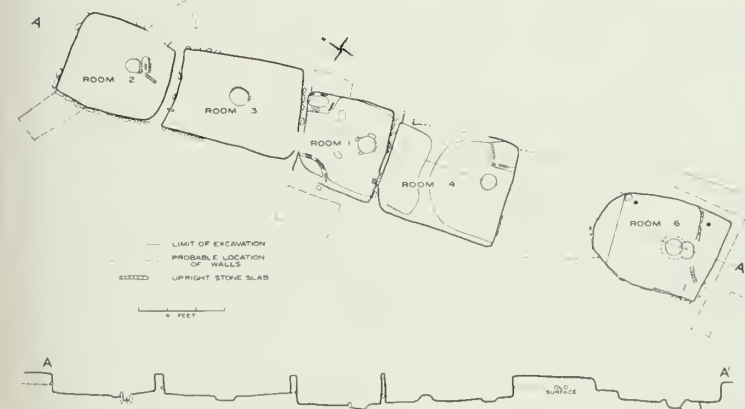


Figure 33. Rooms 1-4 and Room 6, House 5.

Room 3

Room 3 was rectangular and measured about 9 by 13 feet (figs. 33 and 34). Apparently a single pit was dug for both Rooms 2 and 3. The floor levels were the same and the partition wall was built of trashy adobe from floor level. A few spalls of stone appeared on the Room 3 side and a slab, 2.0 feet high, incorporated at right angles to the wall, projected 0.6 foot into the room. This had the appearance of a slab door jamb, but the adobe on the wall seemed to show no break. Most of the south wall was also built on the floor and was footed on a row of rough stones. The east and west walls were of adobe built on the shelf of native soil left by the pit.

In the middle of the floor was a subcircular, somewhat D-shaped, firepit, 2.0 feet in diameter and 0.7 foot deep, with perpendicular sides. The east side was lined with small plaster-covered slabs. Three unshaped slabs in the southwest corner of the room were upright in the fill and probably had slipped from the roof.

There was no separation made in the excavation of Room 3 and all specimens were recorded as "surface to floor." Except for the sherds listed in table 18, the only pottery found was one vessel in the fill:

Chapin Gray: eccentric bird effigy (?) with a high neck at one end, rim joined to tail by a handle.

Other specimens from the room were:

Clay

1 pipe: fragments of straight shank.

Stone

1 notched hammer: double faced, of claystone.

2 notched axes or hammers: fragmentary, claystone and quartzite; one notched at poll.

6 hammerstones.

1 pestle: quartzite core, 10.4 cm. long, with round base pecked.

1 mano: sandstone, trough style.

2 crushers: both sandstone, with entire surface pecked; one, 8 pounds, not ground, one 7½ pounds, with ground convex face.

1 small polishing stone: claystone pebble, with one polished face.

1 rubbing stone: quartzite, with edges and one face pecked, other face polished.

1 grooved abradar: sandstone spall, with two grooves.

Bone tool

1 awl: metatarsal of mule deer.

Refuse bone

dog: molar.

Room 1

The first room excavated in House 5 was the smallest and the most interesting. Room 1 measured about 9 by 9 feet, and its floor level was 1.5 feet below the original surface of the ground (fig. 34). As in Rooms 2 and 3, the east and west walls were adobe and built up from the bank of native soil at the edges of the cut. The north wall, adobe with a few stones, rose from the floor level of Room 3, a foot higher than the floor of Room 1. The south wall started from the Room 1 floor and was a hodgepodge. At its east end it was made up of many small sandstone spalls cemented with adobe.



Figure 34. Rooms 1, 3, and 4, (top to bottom). House 5, looking north-northwest.



Figure 35. Doorway, Room 1, House 5, looking south.

Near the center was white caliche subsoil without any stones. West of the center a complete trough metate was set in the wall as a slab and held in place by a smaller slab buried in the floor (fig. 35). The smaller slab might have been a step in a doorway temporarily stopped by a metate. If this was the case, the sill had settled and the bottom of the metate sank lower than the top of the step. Shallow banquettes, 0.3 foot high, lined the west wall and part of the east. Further mention of them will be made in the discussion of adjacent Room 4.

South of the room center was a basin-shaped firepit with stones mudded in at the four sides. West of the middle of the room was a small pit, 0.3 foot deep, and near the northeast corner was another pit, 0.9 foot deep; each was filled with sand. A thick-walled bin was in the northeast corner. Its walls, standing 1.0 foot above the floor, were built of small slabs and spalls of stone enclosed in adobe. The bin was apparently covered with small poles on which rested several pots. The northwest corner was also enclosed by a curved wall of slabs and adobe.

The fill of Room 1 was a jumble of artifacts, charcoal, and burned adobe. Four pieces of charcoal—one of Douglas-fir and three of juniper—were large enough to save. One of the latter was dated:

Specimen	Provenience	Date A.D. ¹	
		Inside	Outside
MV-2255	Floor, lying across firepit	704p	837vv

¹ Key to symbols: p—pith ring present; vv—outer ring eroded and very variable.

Sherds found in the room are listed in table 18. Some other artifacts in the fill probably fell in with the roof, but many were on the floor itself and on top of the northeast bin.

Pottery

- 1 Chapin Gray olla: large section re-used as a bowl (floor between firepit and east wall).
- 4 Chapin Gray jars: all wide-mouthed, 18.9 to 22.3 cm. in diameter; one on floor between firepit and north wall, three on top of bin in northeast corner (fig. 84c).
- 2 Chapin Gray bird effigies: one on bin in northeast corner (figs. 83h and 85e), one on banquette at rear of northwest bin (figs. 83q and 85f).
- 5 Moccasin Gray jars: all wide-mouthed, 16.6 to 25.3 cm. wide (one in fill and probably from the roof; one on northeast bin; two on floor at north end of room; the largest, reconstructed from scattered sherds on floor).
- 2 Chapin Black-on-white bowls: mineral paint; one midway between firepit and north wall, one near west wall of northeast bin (fig. 107c).
- 1 Piedra Black-on-white pitcher: gourd-shaped; between firepit and southeast corner (fig. 115c).
- 1 Bluff Black-on-red bowl: on top of northeast bin (fig. 166b).

Clay object

- 1 pipe: fired clay, conical with straight shank (between firepit and east wall).

Stone

- 1 used flake: (fill).
- 1 knife: chalcedony (fig. 180e) (fill).

- 1 notched ax or hammer: fragment of claystone, re-used as hammer-stone (fill).
- 6 metates: all of trough style (two fragments in fill, probably building stones; one complete in fill, possibly on roof; two complete on floor at north edge of firepit; and one against north wall).
- 7 manos: six of sandstone, one of quartzite; two with finger-grips, one bifacial; one made of metate fragment; two fit metate by firepit.
- 3 mano blanks: all sandstone, one a roughed-out metate fragment.
- 1 crusher: sandstone, with entire surface pecked and concave faces ground.
- 1 pitted rubbing stone: quartzite cube with rounded corners, entire surface pecked, one face ground, other face and both edges pitted (fill).
- 2 large rubbing stones: oval quartzite cobbles, with pecked edges and polished faces.
- 3 slabs: all sandstone, with dressed edges; one discoidal (fill), two rectangular; one, possibly a mano blank, (floor); one, 43.9 cm. long (fig. 200b), leaning against east wall.
- 1 conical concretion: sandstone, tip fragment of replaced ammonite (fill).

Bone tools

- 2 awls: tibia of mule deer, and long bone splinter of unknown mammal (fill).

Refuse bones

- Gunnison's prairie dog: fragment of humerus (fill).
 rabbit (sp.?): fragments of femur, tibia, rib, and dentary, and two metatarsals (fill).
 black-tailed jackrabbit: fragment of tibia (fill).
 bobcat: two rib fragments (fill), and fragments of femur and tibia (floor).

Room 4

The next room to the south of Room 1 was Room 4, which measured 10.5 by 13.0 feet (fig. 34, bottom). The east and west walls, of adobe with a few scattered spalls of stone, were footed on the bank at the edge of the initial pit, which was about 0.8 foot deep. The north wall has been described as the partition between Rooms 1 and 4. After the excavation of Room 4, this wall was taken apart. There were vertical clay laminations in the purely adobe part of it, as though successive layers of mud were daubed on as thick coats of plaster until the wall reached a thickness of about 0.5 foot. Figure 36 shows the Room 4 side of the closed door in this wall. At the north end of the east wall was an opening, 1.1 feet wide, to the plaza. The sill sloped upward from the floor to the old ground surface outside, and part of a broken metate was used as a jamb at one side of the doorway. There were three upright slabs along the base of the south wall at its west end.

The ground plan and section in figure 33 show that a curved ridge, 0.5 foot high and 1.0 foot wide at the top, crossed Room 4 from east to west. At its ends the ridge merged into narrow banquettes running the length of east and west walls. The banquettes are in line with those in Room 1, and, like the transverse ridge, were cut out of native soil. We believe that two older rooms are represented here and that the ridge was the location of the partition between them. It is probable that when the builders of House 5 laid out their new rooms, they dug shallow pits and built up the walls before the soft fill of the older rooms gave way, exposing the original depressions. The north wall of Room 1 was probably



Figure 36. Doorway shown in figure 35, from the Room 4 side of the wall, House 5, looking north.

based on this insecure footing and required rebuilding, perhaps at different times. This would explain the varying materials used in different sections of the wall. Traffic in the room would rapidly churn up the fill but leave the sections of the firmer subsoil undisturbed. Why the loose material was not removed and replaced with adobe, or the floor deepened by cutting away the high spots of native soil, is difficult to say. The banquettes left at the location of the old walls perhaps served as shelves, and the division of the north end of Room 4 by the old cross wall may have made a convenient large bin. There was no concrete evidence of the age of the earlier construction, but it may have been contemporary with Pithouse G and probably also with the pits below House 3.

The only other features on the floor were an unlined firepit near the south wall, 1.7 feet wide by 0.5 foot deep, and a slab bin in the southeast corner, standing 1.6 feet high.

Room 4 had burned and three pieces of charred juniper were collected. One was dated:

Specimen	Provenience	Date A.D. ¹	
		Inside	Outside
MV-2260	Fill near north wall	686p	806r

¹ Key to symbols: p—pith ring present; r—outer ring constant over significant portion of the surface.

Numerous specimens were found in the room. The sherds are listed in table 18. Many of the other objects were stone tools piled in front of the plugged doorway at the northwest corner. Here there were 22 hammerstones, 5 manos, 2 mano blanks, and 1 metate

fragment. Some of the stone artifacts recorded as "fill" or "near the north wall" may have been dislodged from this heap when the roof fell.

Pottery

Chapin Gray jar: wide-mouthed, 21.6 cm. in diameter (floor).

Moccasin Gray jar: 25.4 cm. in diameter (floor).

Chapin Black-on-white bowl: mineral paint, sparse sand temper, 17.5 cm. wide (fill, probably from roof); two sherds from Room 1 fit this specimen (fig. 110f).

Bluff Black-on-red bowl: 20.0 cm. in diameter (floor).

Worked sherds

3 scoops or small dishes: two Chapin Gray and one Piedra Black-on-white sherds, with ground or chipped edges (two in fill, one on floor).

Stone

1 projectile point: chalcedony, with wide, shallow side notches (fill).

1 knife: chalcedony (floor).

2 notched axes: one of quartzite, with broken bit reflaked bifacially; one of porphyry, with broken bit (fig. 185b).

1 maul: quartzite (fig. 186, center) (fill).

46 hammerstones: one at south end of floor; 22 at north wall; 23 in fill; (many of the latter group probably at top of pile in front of doorway and removed before recognized).

4 pitted rubbing stones: one of claystone, with pit in polished face, re-used as hammerstone (cache at north wall); two of quartzite and one of diorite (fill).

5 metates: three fragments (two on floor, one in cache); two complete (one in fill, one in doorway to Room 1 [fig. 188a]).

19 manos: all complete; two of quartzite, and rest of sandstone; two with finger-grips, one with two planes on one face, one a metate fragment (five in cache at north wall; three on floor; 11 in fill—probably many of these from cache before it was recognized).

2 mano blanks: sandstone (in cache).

6 slabs: all sandstone, 19.7 to 47.5 cm. long (one in fill near north wall may have been lying on cache of small tools; one leaning against west wall; one on floor at northeast corner—doorstop?; one on floor near north wall; others recorded only as "floor").

1 lapstone: fragment of large diorite cobble, with both faces polished (fill).

Bone tool

1 awl: metacarpal of unknown artiodactyl (floor, north end of room).

Refuse bone

bobcat: fragment of tibia.

Room 6

About 10 feet south of Room 4, beyond an unexcavated room, was Room 6, the southernmost one in House 5 (fig. 37). It measured about 9.5 by 13 feet. The walls were mostly adobe, but there were admixtures of spalls in the south and west walls and a few larger, unshaped rocks in the north wall. A few large slabs, standing 2.2 feet high, lined the west wall and a single slab stood at the north



Figure 37. Room 6, House 5, looking south.

wall. There was a heavy burn, particularly along the east side, which made the walls and floor easy to trace. Near the northeast and southeast corners were postholes 0.4 foot across and from 0.6 to 1.4 feet deep. Though there were several charred timbers in the fill, they did not offer clues as to the method of roofing.

A unlined firepit, south of the center of the floor, was 1.8 feet wide and 0.7 foot deep. It had a low adobe collar, 0.4 foot wide, and was underlain at the south edge by an oval pit, 1.7 feet long and 1.3 feet deep. This pit, averaging about 0.5 foot wider at the bottom than at the mouth, was filled and sealed before the construction of the firepit. In the northeast corner, behind the posthole, was a small pit, 0.7 foot across, with burned sides and bottom, indicating that it was open at the time of the fire.

South of the firepit were the three standing slabs and several fallen ones which walled off the southeast corner of the room. Faint outlines of adobe on the floor run from the ends of the slabs toward the middle of the room but do not join. Whether they joined the rim of the firepit to make wingwalls, or whether they met and formed a large bin in the corner, could not be determined.

At the rounded north wall was a bench cut out of native soil, 0.7 foot in height and 2.1 feet in maximum width.

While trenching outside the east and south walls of Room 6 in a search for additional rooms, we discovered that the south wall was built over fill above the bench of Pithouse G. There were no rooms to the south of Room 6, but several charred timbers and one post in place, 2 feet south of the southwest corner of the room, may have been remains of a *ramada* connected with the room. The presence of the La Plata Phase Pithouse G helped explain the floor anomalies in Rooms 1 and 4. Probably the subfloor pit in Room 6 and possibly the bench were also related to the earlier occupation here.

Eighteen wood specimens—two Douglas-fir, seven pinyon, and nine juniper—were collected. Two Douglas-fir, five pinyon, and seven juniper specimens were dated.

Specimen	Provenience	Date A.D. ¹	
		Inside	Outside
MV-2256	Fill, near south wall	782p	857r
MV-2264	Fill	637p	778vv
MV-2265	Fill, near south wall	783p	838r
MV-2266	Fill, northeast corner	572p	843v
MV-2268	Fill, near middle of east wall	670p	795 + vv
MV-2269	Fill, near middle of east wall	788p	861vv
MV-2270	Fill, near middle of east wall	759p	830vv
MV-2271	Fill, near middle of east wall	689p	840vv
MV-2272	Fill, near middle of east wall	749p	849vv
MV-2273	Fill, near middle of east wall	747 ± p	860 + vv
MV-2275	Fill, near middle of east wall	767p	844vv
MV-2276	Fill, near middle of east wall	758p	833vv
MV-2277	Floor, north rim of firepit	790p	842r
MV-2316	Post <i>in situ</i> outside southwest corner	763p	726vv

¹Key to symbols: p—pith ring present; vv—outer ring eroded and very variable; r—outer ring constant over significant portion of the circumference.

In addition to the sherds listed in table 18, the following artifacts were taken from Room 6:

Pottery

- 1 Moccasin Gray jar: 23.9 cm. high (floor midway between firepit and north wall).
- 1 Chapin Black-on-white miniature bowl: part of specimen, 8.0 cm. wide (floor).
- 1 Piedra Black-on-white bowl: half of specimen, 17.5 cm. wide (floor).
- 1 Bluff Black-on-red bowl: half of specimen, 18.3 cm. wide (fig. 169f) (floor).
- 1 Bluff Black-on-red bowl: half of specimen, 21.0 cm. wide (fig. 166d) (floor).

Other clay objects

- 2 pipes: one straight shanked, with flared bowl rim (fill); one slightly curved, made from handle of Bluff Black-on-red gourd-shaped pitcher (fig. 170f) (next to Moccasin Gray jar north of firepit).
- 1 worked sherd: disk of Chapin Gray, with chipped edge (floor).

Stone

- 1 projectile point: fragmentary, of chalcedony (fill).
- 1 knife: point, of chert (fill).
- 4 scrapers: claystone flake and core (fill); chert flake and quartzite scraper-plane (floor).
- 1 chopper: large quartzite core (floor).
- 1 notched ax: sandstone, with polished bit (fill).
- 1 notched hammer: fragment, of quartzite, re-used as hammer-stone (fill).
- 1 notched ax or hammer: fragment of quartzite, re-used as hammer-stone (fill).
- 16 hammerstones: (11 in fill, 5 on floor).
- 8 manos: three of quartzite, five of sandstone; two with finger-grips (five in fill, three on floor—one a quartzite "biscuit").
- 1 crusher: diorite, 11 pounds, both faces concave and polished (floor).
- 1 small polishing stone: claystone pebble with polished face and edges (fill).

4 rubbing stones: all cobbles, two diorite, two quartzite (three in fill, one on floor).

2 slabs: both sandstone; one 32.0 cm. long (fill), one 25.4 cm. long (floor, leaning against north end of west wall).

1 jar lid: sandstone, 6.4 cm. in diameter, with faces and edge ground (fill).

1 ball: sandstone, ground, 5.0 cm. in diameter (fill).

1 conical fetish: fragment of replaced ammonite (fill).

1 dish: sandstone geode, edges spalled (fill).

Bone artifacts

1 awl: long bone of unknown mammal (floor).

1 perforated tibia: fragment, of jackrabbit (floor).

HOUSE 1 AND PROTOKIVA D

(Piedra Phase, ca. 860)

About 100 feet north of House 4 and 150 feet south of House 6 was a single row of eight living rooms arranged in a south-facing arc behind two protokivas. This was House 1 (fig. 2). It was contemporary at least with the later stages of occupation at the combined Houses 4 and 5, but the architecture was almost wholly that of self-contained, one-room dwelling units, foreshadowing the Pueblo II style. Eight living rooms, three storage rooms, and one protokiva were left open after excavation to serve as an exhibit of a Late Pueblo I dwelling.

There seem to have been at least four stages in the building of House 1, though these stages may have succeeded each other quite rapidly. Near the middle of the arc there is a slight break between Rooms 9 and 10 (fig. 38). Rooms 10 through 14, to the west, probably went up as a unit; and Rooms 6, 7, and 9, to the east, probably went up as another. The western block of rooms may have been earlier, for it faces southeast, the conventional orientation.

Just to the east of Room 6 was the partly filled depression of an abandoned great kiva, to be described later. This was filled to the level of the surrounding surface with trash which could only have come from the rooms mentioned above, unless we accept the possibility that people living in House 6 would carry their trash 200 feet, or that those in House 4 would walk around the ends of their house to carry their refuse to a point at the rear. Both actions would be out of character for a people with usually casual ideas of sanitation. Room 5 was added to the east wing after trash had filled the depression and lay at its very edge. Room 1 was added still later, to the east and rear of Room 5, and was built partly in the layer of refuse. Room 8, separated from the contiguous rooms, lay almost entirely on the trash fill and was possibly built at the same time as Room 5.

Though they are not particularly reliable, the dates from Room 1 and Room 5 cover the years A.D. 850 and 853. The latest date from the other rooms in House 1 is A.D. 832.

Enough of the area between the rooms and the protokivas was stripped to expose outdoor firepits and other evidence of use of the plaza. These features will be described with the rooms that are closest to them. The rooms will be discussed, not according to their assumed chronology nor in numerical sequence, but according to their geographical position, from east to west. Though only Room 9 has a true north-south orientation, all walls will be described by their closest cardinal direction; thus all walls at the front of the house will be called "south." Reference to figure 38 will provide more precise directions.

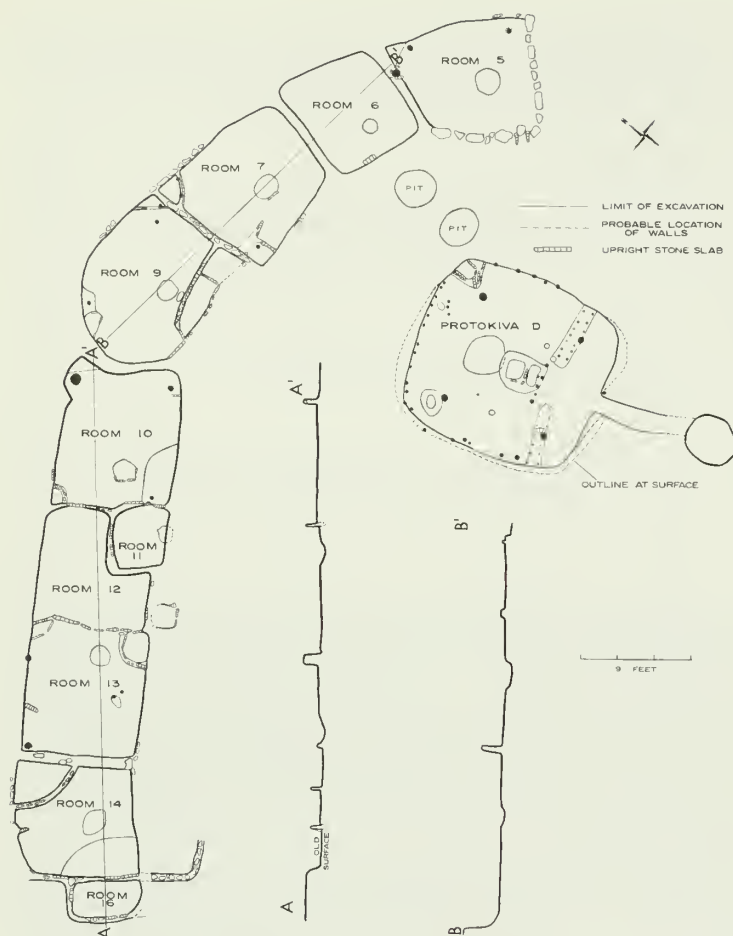


Figure 38. House 1 and Protokiva D.



Figure 39. Rooms 1, 5-7, and 9 (bottom to top), House 1, looking northwest.

Before it was dug, the house appeared as a long, low mound of burned rock, which had its eastern end over Room 1, continued south of Room 5 and Protokiva D, and ended just to the rear of Room 13 of House 4. Here it nearly joined the line of burned spalls and the few exposed slabs of House 5, and we initially assumed a single string of rooms, 300 feet long. Fortunately, we began trenching at the east end and ran into Room 1 of House 1, which led us to the rest of the house. All other rooms of the house lay under bare ground, with no surface indications of what lay below. The mound of burned stones at the expected location was only skin deep. Similar, but not such extreme, conditions existed at House 6, where the rooms lay immediately north of the debris on the surface, and at House 4, where nothing showed on top of the ground except two exposed slabs near Room 1.

Room 1

Room 1 was discovered in the first 2 feet of a test trench dug in 1962 and led to our 1963 excavations at Site 1676. It proved to be a storage room, 5.5 by 6.9 feet, with walls built of trash-laden adobe (fig. 39, foreground). The east wall, which had a few sandstone spalls in the matrix, was based on clay soil. The ground to the southeast sloped sharply into the great kiva but was covered with trash through which the builders dug to secure the same solid footing for the other walls. Foundation trenches into the loose refuse were filled with adobe, but a few sections were footed with rock. This insubstantial base resulted in the slumping of parts of the walls.

The destruction was completed by fire. Charcoal and burned adobe, some pieces bearing the impression of roofing poles, covered the floor to a depth of 1.5 feet. Eight charred pieces of timber were identified as pinyon (4), juniper (3), and ponderosa pine (1). One piece of pinyon and one piece of juniper were dated:

Specimen	Provenience	Date A.D. ¹	
		Inside	Outside
MV-2166	Floor, southwest corner	789p	850vv
MV-2177	Fill	754p	841 + vv

¹ Key to symbols: p—pith ring present, vv—outer ring eroded and very variable.

Room 1 was excavated in one operation. The only object noted on the floor was a worked sandstone slab leaning in the corner next to Room 5. The sherds, from "surface to floor," are recorded in table 19.

Other specimens from Room 1 were:

Stone

- 1 scraper: quartzite flake (fill).
- 1 chopper: claystone flake (fill).
- 1 hammerstone: (fill).
- 1 mano: sandstone, with canted ends and finger-grips (fill).
- 1 slab: spalled sandstone (floor).
- 1 lapstone: large, flat quartzite cobble, unmodified (fill).

Refuse bone

unknown wild bird: unidentified fragment (fill).

The areas to the north, south, and east of Room 1 were designated "Rooms 2, 3, and 4" when we were still misled by the building rubble mentioned above. The "room fill" excavated here was in reality the trash of Level 2 in the great kiva and will be discussed later in connection with that structure.

Table 19. Sherds from House 1, Site 1676

	Room 1		Room 5		Room 6		Room 7		Room 9		Room 10	Room 11	Room 12	Room 13	Room 14		Room 16	
Type	Surface to floor	Upper fill	Floor	Upper fill	Floor	Upper fill	Floor	Upper fill	Floor	Surface to floor	Surface to floor	Surface to floor	Surface to floor	Upper fill	Floor	Surface to floor	Totals	
Chapin Gray	71	185	58	153	52	162	183	350	80	179	125	85	142	134	15	33	2,007	
Moccasin Gray	3	10	4	10	6	15	12	23	3	17	7	11	12	10	—	1	144	
Mancos Corrug.	—	—	—	—	—	1	—	—	—	—	—	—	—	—	—	—	1	
? corrug.	—	—	—	1	—	—	—	1	—	—	—	—	—	—	—	—	2	
Chapin B/w	—	3	1	1	—	1	6	5	—	—	—	1	2	1	—	—	21	
Piedra B/w	1	1	—	—	—	1	5	2	3	3	—	1	3	1	—	1	22	
PI b/w	2	2	1	—	—	3	12	3	1	4	3	1	3	2	1	1	39	
Cortez B/w	—	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	2	
Mancos B/w	—	1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	
Bluff B/w	2	11	4	6	—	2	6	7	2	2	—	—	3	5	—	—	50	
San Juan Red	2	6	1	1	—	6	1	12	—	6	3	1	2	6	—	—	47	
Exotic	—	—	—	—	—	—	—	—	—	—	2 ¹	—	—	1 ²	—	—	3	
Unclassified	—	3	—	—	—	—	—	1	—	—	—	—	1	1	—	—	6	
Totals	81	224	69	172	58	191	225	404	89	211	140	100	168	161	16	36	2,345	

¹ Kana'a B/w and smudged red.² Smudged brown.

Room 5

This irregularly shaped room, averaging about 9 by 10 feet, is at the east end of the arc of living rooms in House 1 (fig. 38). It was built in a pit cut 0.8 foot below the old surface, and the north and west sides of the room were determined only by the bank of this pit. The east and south walls are built of large blocks of sandstone set in thick mortar. The stones are mostly unshaped, but a few show some scabbling. The masonry resembles Pueblo II construction save for the great amount of mortar, which makes up at least half of the bulk of the walls.

At the east end of the south wall is a narrow doorway opening on the plaza in front (fig. 40). The jambs are two upright slabs, only 0.7 foot apart. A flat stone sill is set 0.2 foot into subsoil and projects 0.6 foot into the room, with its outer edge supported by a slab riser 0.5 foot high. This must have been the bottom of a T-shaped door. It is unfortunate that the south wall did not remain standing to a greater height.

The east wall, standing to a maximum height of 1.5 feet, was footed on the mixture of ash and trash that was the upper level of the great kiva fill. The wall had toppled into the room as a monolith and 10 courses of stone lay intact on the floor. Using the three courses still in place as a reference, we estimate that the original height of the wall was 6.75 feet. The roof had burned and the falling timbers probably dragged the wall down with them. The fallen stones lay on 0.6 foot of charcoal and burned clay, and must have toppled while the wood was still burning. The timbers on the floor were charred on the outside but rotted in the center, suggesting the fire was extinguished before the wood was consumed.

In the northeast and northwest corners are postholes, 0.7 and 1.0 foot deep, containing the butts of juniper posts. A shallow posthole, at the top of the bank of native soil at the north end of the west wall, is 0.5 foot deep and is edged with small slabs. This probably held a supplementary roof-support post inserted after the initial construction. Six feet of the juniper post was still intact on the floor. It apparently fell before the roof gave way because the ends of the roof timbers rested on top of it.

Just east of the center of the room is a round, unlined firepit, 2.2 feet wide and 0.4 foot deep. Sand was banked against the south side of the pit and a thin layer of black ash covered it.

The only other feature in the room is a triangular shelf behind the post in the northwest corner. Cut out of native soil, it is 0.4 foot high.

Twelve pieces of charred wood—10 of juniper and 2 of pin-yon—were collected for possible dating. Eight pieces, including the two of the pinyon, were dated.

Specimen	Provenience	Date A.D. ¹	
		Inside	Outside
MV-2172	Fill, room center	764p	843r
MV-2173	Fill, room center	797p	853vv
MV-2174	Fill	769p	843vv



Figure 40. Doorway in southwest corner of Room 5, House 1.

MV-2176	Northwest corner post, <i>in situ</i>	762±p	841vv
MV-2178	Floor	756±p	844vv
MV-2179	Floor, support post from west wall	718p	821vv
MV-2181	Floor, near north wall	678p	831r
MV-2183	Northeast corner post, <i>in situ</i>	731p	841v

¹ Key to symbols: p—pith ring present; v—outer ring eroded and variable; vv—outer ring eroded and very variable; r—outer ring constant over significant portion of the circumference.

Other than the sherds listed in table 19, the only specimens collected were stone:

- 3 used flakes: (fill).
- 1 chopper: small quartzite core (fill).
- 1 notched hammer: porphyry, with extra notch at peen (floor).
- 6 hammerstones: (four in fill); two cobbles battered at one end (floor).
- 1 maul: granite, full-grooved (fig. 186, right) (fill).
- 2 metates: one complete, of Utah type (in fill near south wall); one fragmentary (fill).
- 2 manos: both sandstone (one with finger-grips in fill near north wall, one on floor).
- 1 pitted rubbing stone: oval quartzite cobble with perimeter pecked and pits in both polished faces (floor).
- 4 slabs: all sandstone fragments (three in fill, one on floor against north wall).
- 1 unmodified cobble: quartzite (floor).

Room 6

To the northwest of Room 5, with a common wall between them, is Room 6, subrectangular in outline and measuring about 8.5 feet each way. It was built in a pit 0.4 foot deep, and its floor is about 0.6 foot above that of Room 5. The banks of the pit were the only indications of walls, except for a large metate fragment standing upright near the middle of the south wall. There were no post-holes, but a piece of charred juniper, 1 foot long, lay on the floor in the southwest corner. It was not datable.

The only floor feature was an unlined firepit, 1.6 feet wide and 0.4 foot deep, in the south center of the room. The sides were fire reddened but the pit contained no ash.

Though the room had burned, there was little burned debris on the floor and there were few artifacts. Perhaps the room was abandoned before its destruction. The sherds from Room 6 are listed in table 19. The other specimens were:

Pottery

Chapin Gray olla: neck and shoulder portion only, inverted for possible use as pot rest (floor).

Stone

- 3 metates: all trough style; one complete but only slightly used, with trough 0.3 cm. deep; two fragments (one in fill, one on floor).
- 1 mano: sandstone, with canted ends and finger-grips (fill).
- 1 slab: fragment of sandstone (fill).
- 1 concretion: open disk-shaped geode; surface ground (floor).

There were two round pits, 3.0 feet wide and from 0.5 to 0.7 foot deep, 4 and 9 feet in front of Room 6 in the plaza between the house and the northeast corner of the protokiva. The unlined pits were empty but their sides were fire reddened and they may have been used for cooking.

Room 7

The next room west of Room 6 has average dimensions of 9.5 by 10.5 feet. It was set in a pit, 1.2 feet deep at the west wall and 0.5 foot deep at the east (fig. 38). The differences in depth are accounted for by the slope of the old ground level. The floor level is the same as that in Rooms 6 and 9 flanking it, though the three pits were dug separately. The partition walls between them were based on low banks of undisturbed soil.

The west wall and the west end of the north wall are coursed masonry of rough stone. A few stones appear near the middle of the south wall.

Roof-support posts were set near the northwest and southwest corners. The one to the north was Douglas-fir and was enclosed in a slab and adobe wall, making a small bin in the corner which was floored with a sandstone slab. A smaller pole was also incorporated in the north end of the bin wall. The southwest corner post, species unidentified, sat in a rectangular bin. From the outer corner of the bin an adobe-encased slab wall projected 1.6 feet toward the firepit—a rudimentary west wingwall. The bottoms of both bins are from 0.3 to 0.4 foot higher than the floor level of the room.

An oval, ash-filled firepit, 2.3 feet long, is a little south of the center of the room. It is 0.6 foot deep and has steep sides and a flat bottom. A single slab lining the south wall of the firepit extends 0.3 foot above its rim.

Room 7 had also burned, and seven pieces of charcoal were saved for dating. One was Douglas-fir and the rest were juniper. The Douglas-fir specimen and one piece of juniper were dated:

Specimen	Provenience	Date A.D. ¹	
		Inside	Outside
MV-2187	Northwest corner post, <i>in situ</i>	679p	805v
MV-2188	Bin, southwest corner	440±	647vv

¹ key to symbols: p—pith ring present; v—outer ring eroded and variable; vv—outer ring eroded and very variable.

The sherds found in Room 7 are listed in table 19. The other artifacts were:

Pottery

- 1 Chapin Black-on-white dish or bowl: long and narrow, the specimen measures 26.0 cm. in length and 10.4 cm. in width, mineral paint (fig. 107d) (floor).

Other clay object

- 1 pipe: tapered elbow, unpolished (fig. 170h) (floor).

Stone

- 2 used flakes: (on floor).
- 1 scraper: claystone flake (fill).
- 3 choppers: one chert flake (fill), one small claystone core and one small quartzite core (floor).
- 9 hammerstones: (three each in fill, on floor, and in firepit).
- 2 metates: both sandstone, of trough style (floor).
- 6 manos: all sandstone, with canted ends (one in fill; five on floor, two of which are fragmentary).
- 2 concretions: both sandstone, possibly pot supports; one pecked to cone shape (firepit), one geode (floor).
- 1 indeterminate object: egg-shaped quartzite cobble with entire surface pecked (floor of northwest bin).

Unworked bone

- dog: dentary fragment and molar (floor).

Room 9

Directly west of Room 7 at the bend of the arc of rooms is Room 9, subrectangular with the west wall irregularly rounded, and measuring 10.2 by 12.7 feet (fig. 38). It was built in a pit, 1.0 foot deep, with the floor at the same level as Room 7. The east wall, common to Room 7, is rough masonry, and some large stones appear in the north wall. The other walls were apparently of adobe only, but the south wall is also lined with slabs.

Two postholes in the northeast corner are 0.6 and 0.8 foot deep. A third post was placed in the earth-filled slab bin in the northwest corner. It may have been a later addition. The hole, only 0.6 foot deep, left the butt of the post 0.4 above the floor level.

A long curving wall of slabs running from the southeast corner sectioned off much of the south wall. A slab partition formed a rectangular bin 2.5 feet wide in the southeast corner, and a triangular bin 5.0 feet in length along the south wall. The latter contained pottery and several stone artifacts. The northeast corner was blocked off with slabs to form a triangular bin enclosing one of the two posts at that corner. Another small bin is next to the slab-supported northwest post.

At the south center of the floor is a D-shaped firepit, 1.6 feet long and 0.3 foot deep. It held no ashes, but a mano and a fragment of a thin worked slab lay in the bottom. Between the firepit and the larger south bin is an oval ashpit, 0.9 foot in maximum diameter and 0.4 foot deep, completely filled with ashes.

The fill of Room 9 contained much burned adobe and charcoal, including two charred poles lying parallel in an east-west direction. Three pieces of pinyon, two of juniper, and one of Douglas-fir were saved. Two pieces of pinyon, one of juniper, and the Douglas-fir specimen were dated:

Specimen	Provenience	Date A.D. ¹	
		Inside	Outside
MV-2192	Fill	650p	813 ± vv
MV-2193	Fill, room center	692p	778 ± vv
MV-2194	Fill, room center	664p	815vv
MV-2197	Northeast corner post	790p	832vv

¹ Key to symbols: p—pith ring present; vv—outer ring eroded and very variable.

In addition to the sherds listed in table 19, three pieces of restorable pottery were found in Room 9:

Chapin Gray jar: wide-mouthed, 28.2 cm. in diameter (fill of larger south bin).

Chapin Gray "submarine" vessel: 5.7 cm. high (fig. 83v and 85h) (fill of larger south bin).

Chapin Gray bowl: 17.5 cm. wide, with semipolished interior (fill).

Other specimens from the room were:

Stone

- 8 used flakes: (fill).
- 2 projectile points: straight stems, corner notched, of banded silt-stone and quartzite (figs. 179e and f) (fill).
- 1 scraper: claystone spall (fill).
- 2 choppers: claystone flake and chert core (floor).
- 1 notched hammer: quartzite, unused (fill of larger south bin).
- 4 hammerstones: (three in fill, one on floor).
- 5 manos: one of quartzite, four of sandstone, one with finger-grips (one in fill, three in larger south bin, one in firepit).
- 3 mano blanks: all sandstone (two in fill, one in larger south bin).
- 1 pitted rubbing stone: granite, both faces ground and one pitted, one end battered (floor of larger south bin).

- 1 small polishing stone: claystone pebble with two polished faces.
- 1 rubbing stone: diorite cobble with two polished faces (fill of larger south bin).

Bone tool

- 1 scraper: mandible of mule deer, with spatulate end ground and polished (fill of larger south bin).

Unworked bone

- dog: cranium fragment and cervical vertebra (fill).
- unknown mammal: long bone splinter (fill).

Room 10

Rooms 10 through 13 have floors at the same depth, about 1 foot higher than that in Room 9 to the east. They were built by partitioning a single pit 31 feet long. All these rooms were built as a single unit of construction (fig. 38 and 41, top).

The north, south, and east walls of Room 10 were indicated only by the banks of native soil at the edges of the pit. The west wall, common to Room 12, was built of adobe and standing slabs. The room measures about 9.5 by 11.0 feet. There are postholes in all corners except the northwest. The unusually large posthole in the



Figure 41. Rooms 10-14 (top to bottom), House 1, looking northeast.

northeast corner, 1.0 foot wide and 1.4 feet deep, is slanted so that the post set in it leaned toward the center of the room. The other two postholes are 0.4 and 0.6 foot wide by 0.4 foot deep. A single wood specimen found in the fill near the south wall was identified as juniper but was undated.

A semicircular wall of adobe and many sandstone spalls form a small bin in the northwest corner. A triangular shelf in the northeast corner, 0.2 foot above the floor, was cut out of native soil. A single standing slab in the southeast corner may be the start or the remains of another corner bin. In the southwest corner, the floor was cut away and lowered 0.2 foot in an area 2.5 feet wide and extending 5.0 feet along the south wall.

In the west-central part of the floor is a hexagonal firepit, 1.7 feet across and 0.4 foot deep, lined on three sides with slabs.

A metate lay on the floor near the firepit and a large slab with chipped edges was leaning against the west wall opposite the firepit. Room 10 was not excavated by levels. Locations of 12 pottery vessels and of a few stone artifacts were recorded, but many of the latter, and the sherds (table 19), were cataloged only as "surface to floor."

Pottery

- 1 Chapin Gray olla: neck and shoulder only, 35.2 cm. in diameter; possibly inverted for use as pot rest (fill).
- 2 Chapin Gray miniature jars: one, 9.4 cm. high (floor near firepit); one, 8.0 cm. high, covered with pattern of applique "hobnails" (fig. 85c) (6.0 feet outside the northwest corner).
- 1 Chapin Gray ladle: (fig. 86a) (floor).
- 6 Moccasin Gray jars: all wide-mouthed, from 21.0 to 32.8 cm. high (three in fill; three on floor, one of which [fig. 88c] is at rim of firepit).
- 1 Piedra Black-on-white pitcher: (figure 115a) (floor in southwest corner).
- 1 Bluff Black-on-red bowl: (figures 166c and 169e) (fill); matching sherds also found in Room 11 (probably from roof).

Stone

- 2 used flakes.
- 1 projectile point: straight stem, corner notched, of banded siltstone (fig. 179c) (floor).
- 2 hammerstones.
- 3 metates: one complete (on floor near firepit); two fragments.
- 10 manos: all trough style; seven of quartzite, three of sandstone; four with finger-grips.
- 1 mano blank: quartzite.
- 1 crusher: sandstone, with entire surface pecked, one face ground.
- 1 pitted rubbing stone: quartzite, with two faces and two edges pitted.
- 2 small polishing stones: one of quartzite with both faces polished (floor in southwest corner); one of quartzite with one polished face (fill).
- 4 rubbing stones: three quartzite cobbles and one sandstone.
- 3 slabs: all sandstone, rectangular with chipped edges (one nearly complete against west wall; one fragment on floor, northwest corner).
- 1 lapstone: large, flat granite cobble, with both faces smoothed.

Bone tools

- 2 awls: one gray fox ulna (floor) and one metapodial of unknown artiodactyl (fill).

Refuse bone

rabbit (sp.?): fragments of innominate and vertebra.
black-tailed jackrabbit: fragments of innominate and vertebra.
turkey: 48 bones of three poult.

A single slab stood in the open, 2 feet in front of the southeast corner of the room. It may have pertained to some early firepit or other structure not completely demolished.

Room 11

An area excavated just beyond the southwest corner of Room 10 was designated Room 11 (figs. 38 and 41). Whether this structure, only 4.2 by 5.1 feet, is a "room" or a large bin in the corner of Room 12, it was numbered before we knew its small size. The east and north walls are slab-supported adobe, but the south and west walls are adobe only. An unworked flat stone buried horizontally in the south wall projects 0.6 foot into the room. It may have served as a low shelf, but more likely it was a step, 0.8 foot above the floor, leading to an exit at the front of the house.

Material was collected from Room 11 without regard to levels.

Clay

- 1 sherd disk: plain gray, with a chipped edge, 3.7 cm.

Stone

- 2 hammerstones.
- 1 mano: sandstone, with canted ends.
- 1 indeterminate object: loaf-shaped quartzite cobble, with one pecked surface.

Refuse bones

black-tailed jackrabbit: fragments of femur and sacrum.
mule deer: tibia fragment.

Cervidae (sp.?): antler fragment, probably mule deer.

The small size of Room 11 and its position in relation to Room 12 suggest that it was a bin rather than a room. Bin or room, it was undoubtedly a part of the Room 12 quarters.

Room 12

Room 12, about 9 by 9 feet, was partitioned from Room 10 to the east and from Room 13 to the west by slab and adobe walls built from the floor. The outside, or north and south walls, were footed on the bank of the pit and were probably adobe. A couple of slabs stood upright along the south wall. There were neither postholes nor firepit in the room, but a slab-lined firepit just beyond the south wall undoubtedly served Room 12 (fig. 38).

No levels of excavation were followed in clearing out the room, but proveniences of the following artifacts are given when known:

Pottery

Chapin Gray miniature jar: about one-quarter of specimen, 8.3 cm. in diameter.
Chapin Gray bowl: interior semipolished, 12.9 cm. wide (floor in southeast corner).

Stone

- 2 used flakes.

3 hammerstones.

3 manos: all trough style; one of quartzite and two of sandstone, one of latter with finger-grips.

1 pitted rubbing stone: quartzite, edge pecked and both faces pitted (floor in southeast corner).

1 small polishing stone: claystone pebble, with one face polished.

Refuse bone

mule deer: fragments of tibia.

unknown artiodactyl: tibia fragments.

unknown mammal: tibia fragment.

Room 13

Room 13, measuring about 9.5 by 10.5 feet, is closer to being a true rectangle than any other room in House 1 (fig. 38). The east wall of slabs and adobe, common to Room 12, was built on the floor. North, south, and west walls were of adobe and a few unshaped stones footed on the bank of the pit about 0.8 foot above the floor.

A charred juniper post was partly recessed into the north wall near its east end with the butt resting at floor level. A circle of small slabs in the northwest corner was probably the seat for another post. Since neither post was set into the floor it is probable that they were later modifications of the room.

A semicircular wall of slabs and adobe forms a bin 3.0 feet across in the southeast corner, and a smaller bin of slabs is in the northeast corner. A single upright slab extending out from the north wall may have been the remains of a similar enclosure in the northwest corner.

An empty, unlined, bowl-shaped firepit, 1.8 feet wide and 0.5 foot deep, was dug just north of the larger bin, and an oval warming pit or pot rest about 3 feet southwest of the firepit. A small posthole in the east end of the latter pit is paired with another 0.3 foot southeast of the pit. Two trough metates lay on the floor.

Fire destroyed Room 13, like the others in House 1, and also burned the body of an adult (Burial 3), which was sprawled across the firepit with the head to the west and the knees and lower legs on the metate against the east wall. Bits of charred twigs of the roofing material were interspersed with the bone, and over the body lay the fallen adobe of the east wall. A stone hammer lay 2 feet from the head. Was this a man killed in a fight and then burned by enemies who fired the house before leaving, or was it a woman overcome by the smoke of an accidental fire? There is the germ of a good story in Room 13, but the scant evidence tells us very little.

In front of the house, 2.4 feet beyond the southwest corner of the room, was a round cooking pit about 2 feet wide.

Most of Room 13 was excavated as a single level until the body was discovered; consequently precise proveniences were recorded for only a few of the following specimens:

Pottery

Chapin Gray: two large jar sherds used as dishes or bowls.

Moccasin Gray jar: 13.2 cm. in diameter, with neck missing and broken edge trimmed to make new rim.

Piedra (?) Black-on-white bowl: 15.5 cm. in diameter, interior well polished, with single painted band around rim.

Other clay object

1 worked sherd: Piedra Black-on-white bowl rim sherd, slipped, with ground edges, used as small dish or scoop.

Stone

2 notched axes: one complete, of quartzite, and one fragmentary, of porphyry.

1 notched hammer: porphyry, unused, possibly an unfinished ax (floor, center of room).

1 hammerstone.

4 metates: two trough specimens, with wide shelves at proximal end (floor near southwest corner, and between firepit and east wall); and two fragments (fill).

1 pitted rubbing stone: quartzite cobble, one face ground, pits in two faces.

Bone tool

1 awl: split tibia of mule deer.

Refuse bone

unknown artiodactyl: long bone fragment.

Room 14

Unlike the rooms described above, Room 14, the westernmost living room in the house, was built on the surface of the ground. It was probably added after Rooms 10 through 13 were built. The west wall is slab based, and the other walls were mainly adobe with a few stones. The north wall curves toward the northwest corner.

A semicircular wall of slabs and mud sectioned off the northeast corner to form a bin 5.7 feet long. A depression in the floor at the southwest corner formed a basin, 6.4 feet long and 0.4 foot deep, similar to the one in Room 10. Next to the basin was a suboval firepit, 2.5 feet long and 0.6 foot deep. Room 14 had burned like the others in House 1, but no usable charcoal was found.

Beyond the southwest corner, as an extension of the west wall, is an adobe and rough masonry wall which runs 4 feet south, then turns and extends 3 feet east. This evidently was a room of undetermined size and shape which was razed before the rest of the house burned.

The room was excavated in two levels, but only two metate fragments and 16 sherds were found on the floor.

Pottery

Chapin Gray: one-quarter of wide-mouthed jar, 18.9 cm. in diameter (fill).

Stone

2 metates: fragmentary, of Utah type, probably used as building stone (floor).

2 manos: fragmentary, of quartzite, with canted ends and finger-grips (fill).

1 pitted rubbing stone: sandstone, entire surface pecked, with pit in one face (fill).

1 ball: sandstone, pecked and ground, 8.5 cm. in diameter (fill).

1 concretion: fragment of sandstone geode, unworked (fill).

Room 16

This so-called room, adjoining the west wall of Room 14, was probably a large storage bin. Its surviving walls are slab-supported adobe (fig. 41). In addition to the few sherds listed in table 19, a notched ax or hammer fragment of claystone was found in a trench outside the walls.

Room 8

Though not connected to House 1, Room 8 was probably associated with it and contemporary with Room 1 during the final stage of the occupation. It measured about 7 feet square and was built over the southwest edge of the great kiva (fig. 42). All four walls were of adobe, containing a few burnt spalls of sandstone, and were footed on the alluvial fill of Level 3 of the great kiva. The north, east, and west walls were built, like walls in Room 1, by trenching the loose, trashy soil of Level 2 and filling the trenches with adobe. The south wall stands on the ground surface at the edge of the pit. The trash does not appear to have been removed from the interior of the room, which was not floored. There were no signs of fire and there was no evidence of how the room was used. It may never have been completed.

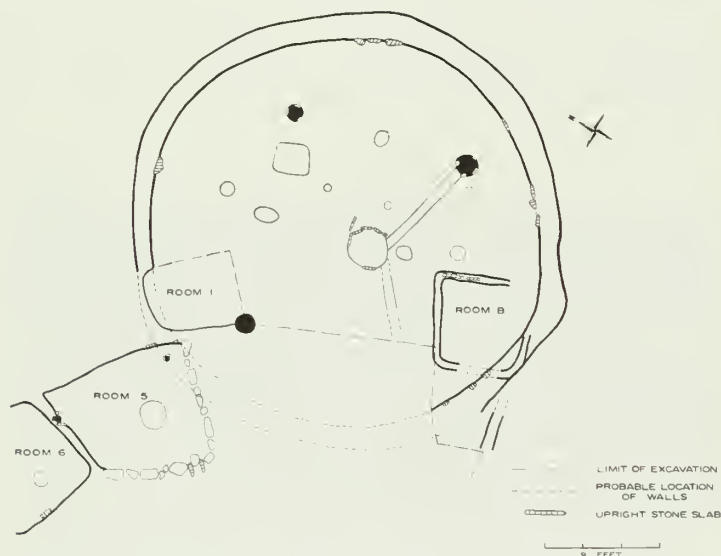


Figure 42. Rooms 1, 5, and 8, and great kiva, House 1.

Protokiva D

Two deep pit structures were located with the soil auger in front of House 1. The one to the east, 18 feet in front of Room 9, was excavated and protected for permanent exhibit (figs. 38 and 43). Protokiva D has a nearly square floor plan with rounded corners, measuring 15.0 by 15.5 feet. It lies in a pit which is 6.1 feet as measured from the present surface and about 1 foot less than that from the old ground surface. It was excavated in five arbitrary levels that varied from 0.6 to 2.8 feet in thickness.

In the undisturbed soil surrounding the pit, the red loess shows traces of caliche at depths of 2 to 3 feet below the surface and is almost white at depths of 4 to 6 feet. The caliche made digging difficult for the Indians who built the protokiva, but it made delineation of the walls an easy task for the archeologists. The east wall is nearly perpendicular, with a trace of plaster near the floor just north of the wingwall. Along the other three walls is an irregular bench, from 2.3 to 2.6 feet above the floor and from 0.3 to 1.0 foot in width. Along the south wall, west of the ventilator, is a second bench 1 foot below the first. The west wall, from the wingwall to a point 5 feet north, retained plaster from the floor to the bench. The benches were not functional but were a result of redrawing the pit's outlines and changing its contours as the digging progressed. Such rough outlines must have characterized all pits at some stage, but in most cases the walls were trimmed up after the full depth was reached. The presence of plaster below the bench indicates that these were used for a time as we found them.

Against the west, north, and east walls are lines of postholes, 0.2 to 0.4 foot in diameter. The poles may have been added later to support a wattlework covering the walls, or they may have been set originally to carry a screen down only as far as the plaster. A packed red clay floor overlies the white caliche.

A narrow chamber at the south end of the room was created by two wingwalls of adobe, averaging 1.2 feet wide. The tops of these were inadvertently shaved off in the excavation, but they probably once stood about 2.5 feet high to the level of the bench on the west side of the room. The wingwalls were enclosed by a lattice of small poles about 0.2 foot in diameter and spaced 0.8 foot apart. In front of the opening between the wingwalls are five small postholes—all that remains of a deflector, 2.5 feet wide. The posts probably supported a plastered wattle screen.



Figure 43. Protokiva D, looking south.

Four postholes, set an average of 2.5 feet in from the corners, mark the locations of the main roof-support posts. These were 0.5 and 0.6 foot in diameter and 0.9 foot to 1.9 feet in depth. The two southern posts were enclosed in the wingwalls. Spaces around the butts of all the posts were packed with shaly lignite, like those in Pithouse B.

A firepit-ashpit combination was originally built as an oval pit, 2.6 feet long and 0.3 foot deep. It was modified by a partition of small slabs and adobe and by adding an adobe collar to the rim of the firepit. The modifications produced a subrectangular firepit 1.5 feet wide with rounded corners, and a shallower ashpit to the south.

Sometime before the adobe collar was added, an irregular pit 3.0 feet wide and 1 foot deep, had been dug just north of the center of the room. Its sides and bottom showed no signs of fire or other use, and it was filled with red clay. The adobe collar of the firepit overlaps the south edge of this pit.

There was no sipapu, but three shallow, round or oval pot rests were situated at either side of the firepit and against the north wall. Lining the south side of the latter were three small postmolds, 0.1 foot wide and deep. A similar posthole was found midway between the firepit and the northwest corner post.

An unusual basin lay between the northwest roof-support post and the corner. This was not a pit in the floor, but much the same result was achieved by building a collar of adobe, 0.4 to 0.5 foot wide and 0.3 foot high, around an oval basin, 1.2 feet long. The

floor of the basin was built up a little at the south end. The adobe may have framed a small mortar or grinding stone, since removed, but the presence of a lump of handmolded red clay at the edge of the basin suggests this may have been a mixing basin for plaster.

In the northeast corner stood a bin of slabs and adobe 1.1 feet high. A large unworked slab of sandstone lying in the bottom may have been a cover supported by a stick laid across the top of the bin.

The entrance to a ventilator tunnel 1.5 feet high by 2.5 feet wide was cut at the center of the south wall. The tunnel was 7.5 feet long with a slight bend to the east near the midpoint. At its far end it intersected a shaft which widened to 4.0 feet wide at the surface and narrowed at the bottom.

Protokiva D was abandoned without razing the superstructure to salvage timber and stone, as had been done at Protokivas C and E. The few artifacts left on the floor were nearly all fragmentary. The floor was covered with alluvial fill, varying from 0.8 foot deep near the center to 1.9 feet against the north wall. Some of this may have blown in through an open hatchway, but most of it was probably from the earthen roof itself. Some short-term use was apparently made of the pit after the floor was covered with this soil. A metate and a matching mano were on the fill near the middle of the room, and against the north wall sat a Moccasin Gray jar containing ground and tempered potter's clay, a polishing stone, and a scraper or scoop made from a Piedra Black-on-white sherd. Very shortly after these objects were placed in the pit, the superstructure burned, mantling the fill and the artifacts with a thin layer of ash and charcoal. Most of the adobe that originally covered the roof must have fallen to the floor before this, because virtually all of the wood of the superstructure was consumed by the fire. Only three pieces of juniper and one of pinyon were found, near the east wall. One of the former was dated:

Specimen	Provenience	Date A.D. ¹	
		Inside	Outside
MV-2309	Near east wall, 1.3 feet above floor	706+p	785vv

¹ Key to symbols: p—pith ring present; vv—outer ring eroded and very variable.

The pit continued to fill with soil borne by wind and water, but the presence of a Mancos Black-on-white sherd in Level 2, about 3 feet below the recent surface, suggests that a well-defined depression was still there during the occupation of Badger House.

The 1,217 pottery sherds obtained in the excavation of Protokiva D are listed by type and level in table 20. The other specimens were:

Pottery

Chapin Gray jar: one-third of wide-mouthed jar, 25.8 cm. in diameter (floor, behind east wingwall).

Moccasin Gray jar: sherds of about one-third of specimen (Levels 4 and 5).

Moccasin Gray jar: complete specimen containing clay (fig. 88d) (Level 3, against north wall).

Moccasin Gray jar: about one-half of specimen, 24.0 cm. in diameter (floor, west of firepit).

Moccasin Gray jar: large sherd of specimen, estimated 23.0 cm. in diameter (floor, east rim of firepit).

Moccasin Gray jar: about one-half of specimen, 20.4 cm. in diameter, tempered with rock with inclusions of coarse shale (Level 5).

Chapin Black-on-white ladle: about one-third of specimen, of half-gourd form (Level 4).

Other clay objects

3 worked sherds: two scrapers made of Chapin Gray sherds with ground edges; and one scraper or small scoop made of Piedra Black-on-white in a jar with potters' clay (Level 3).

potters' clay: blue-gray sandy clay, probably from the Menefee formation, mixed with finely crushed rock, in jar (Level 3).

Stone

2 used flakes: Levels 4 and 5.

3 scrapers: one quartzite flake and one claystone flake (Level 1), and one claystone flake (Level 2).

1 chopper: claystone core (Level 2).

Table 20. Sherds from Protokiva D, Site 1676

	Level 1	Level 2	Level 3	Level 4	Level 5	
Type	Surface to -2.8'	-2.8' to -3.4'	-3.4' to -4.3'	-4.3' to -5.3'	-5.3' to 6.1' (floor)	Totals
Chapin Gray	387	127	187	138	108	947
Moccasin Gray	28	18	46	19	13	124
Mancos Gray	1	—	—	—	—	1
Mancos Corrug.	2	—	—	—	—	2
? corrug.	5	1	—	—	—	6
Chapin B/w	5	2	4	5	6	22
Piedra B/w	3	5	9	2	3	22
PI b/w	9	4	3	3	4	23
Mancos B/w	1	1	—	—	—	2
Mesa Verde B/w	2	—	—	—	—	2
Bluff B/r	9	5	13	7	3	37
San Juan Red	12	1	4	2	6	25
Exotic	1 ¹	—	—	—	—	1
Unclassified	3	—	—	—	—	3
Totals	468	164	266	176	143	1,217

¹ Smudged Brown.

- 1 notched hammer: fragment of quartzite (Level 4).
- 1 notched ax or hammer: fragment of quartzite, re-used as hammerstone (Level 4).
- 19 hammerstones: (three in Level 2, two in Level 3, nine in Level 4, one in Level 5, four on floor).
- 12 metates: all sandstone, of trough style; one complete, of Utah type with pecked shelf (Level 5); 11 fragmentary (two on floor—one with distal end broken but re-used after the break, from south of the west wingwall, and two-thirds of another, west of ventilator opening; two in Level 2, three in Level 3, and four in Level 4).
- 10 manos: all trough style, three of sandstone, one with finger-grips (on floor); one complete, of quartzite, and two fragments of sandstone and diorite (Level 2); a "biscuit mano," of quartzite but not ground (Level 3); two fragments of sandstone (Level 4); a bifacial specimen of sandstone, which fits the complete metate (Level 5).
- 1 mano blank: sandstone (Level 2).
- 3 small polishing stones: one of quartzite (in jar, Level 3), and one of claystone and one of quartzite (Level 4).
- 1 rubbing stone: flat quartzite cobble with two polished faces, reused as hammerstone (Level 4).
- 1 whetstone: block of sandstone, 23.7 cm. long, with sides spalled and one concave face pecked and ground (Level 4).
- 2 slabs: sandstone; one with both faces ground (Level 1), and one used as shim (Northwest posthole).
- 1 lapstone: fragment of quartzite, with scattered pecking on both faces (on floor).
- 1 pendant blank: red shale, with ground faces (Level 1).
- 1 paint stone: rod of hematite (on floor).
- 2 balls: both sandstone, 5.4 and 6.6 cm. in diameter (on floor, behind east wingwall, and in Level 4).

Worked bone

- 2 awls: metatarsal of mule deer and radius of jackrabbit (Level 5).
- 1 perforated tibia: jackrabbit (fig. 221e) (Level 5).
- 1 flaker: metatarsal of unknown artiodactyl (Level 4).

Refuse bones

- wood rat: dentary (Level 4).
- rock squirrel: dentary (Level 3) and tibia (Level 5).
- cottontail: tibia (Level 3) and innominate (Level 5).
- black-tailed jackrabbit: innominate and tibia (Level 3), cranium (Level 4), and innominate (on floor).
- jackrabbit (probably whitetail): humerus (Level 2); femur, tibia, and innominate (Level 3); rib, radius, and scapula (Level 4); femur, metatarsal, and three complete tibiae (Level 5).
- jackrabbit (sp.?): humerus and astragalus (Level 5).
- unknown artiodactyl: tibia (Level 3).
- unknown wild bird: unknown element (on floor).

The ratio of small to large mammals is higher here than in other features at the three sites and their concentration in a pit that had remained open for some time suggests that many of the small animals may have been trapped there accidentally.

GREAT KIVA

(Pit B)

This structure was discovered during the early work at House 1 when, in cleaning off the surface of the area to the east and south

of Room 1, it was seen that the old ground surface dropped off sharply to the south. Suspecting that it might be the site of a La Plata Phase pithouse, we trenched for 25 feet to the southeast of Room 1. Near the middle of the trench, at a depth of 3.5 feet, we encountered what we thought was the bottom of a wide, shallow pit from which adobe had been removed for use in building House 1. Additional probing revealed that the "subsoil" was actually redeposited, contaminated fill. The floor of a great kiva lay 3 feet farther down.

The eastern three-quarters of the great kiva was excavated. It was a circular pit 31.0 feet in diameter at the floor level, and 3.8 feet below the original ground surface—6.4 feet below the present level (figs. 42 and 44). Furnishing was simple. A low bench about 1 foot high and from 1.5 to 2.0 feet wide, faced with small sandstone slabs, lined the wall. The roof had been supported by four large posts, set from 3.5 to 4.5 feet in from the wall in the four quarters of the room. Three large postholes were found and cleaned out; the fourth one was assumed to lie in the unexcavated part of the pit. The holes, from 1.2 to 1.7 feet wide and from 3.2 to 4.0 feet deep, contained the rotten butts of the posts. The post in the northwest corner had been charred before it was set in the hole and was sufficiently preserved to identify as juniper but could not be dated.



Figure 44. Great kiva, looking north-northwest.

No entrance was found, but a part of the south wall and adjacent bench had slumped. It is possible that a ramped passageway here had eroded away along with the section of wall and bench, by action of water collected from the surface.

The central feature of the floor was a nearly round firepit 3.0 feet wide and 0.8 foot deep. Its steep sides, partially lined with slabs, were burned. Token wingwalls of adobe, 0.7 foot wide, ran from the firepit to the southeast and southwest postholes. Their height was a barely perceptible rise in the floor. A subrectangular pit, west of the northeast posthole, measured 2.5 by 2.8 feet and was 0.3 foot deep. It showed no signs of fire or other use and was filled with clay to the floor level. A round pit, 0.9 foot deep, south of the firepit, was seemingly too far away to have been used as an ash receptacle and there was no clue as to its purpose. Four scattered pits, from 0.1 to 0.5 foot deep, may have been pot rests.

No tree-ring dates could be obtained from the great kiva, although samples of charcoal were collected from the floor for possible radiocarbon dating, they were not processed. We believe that the stratigraphy of the fill and the associated pottery would give us a closer estimate of time. The fill was excavated by three

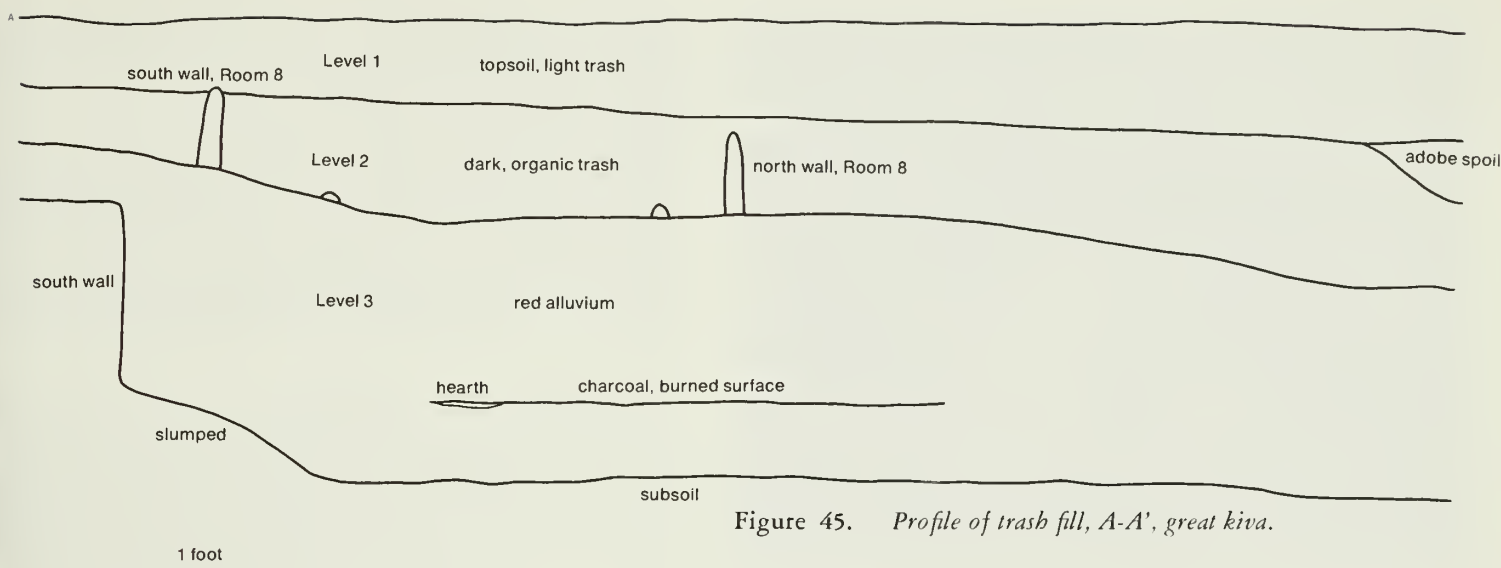


Figure 45. Profile of trash fill, A-A', great kiva.

natural strata which were easily distinguishable (fig. 45). The floor itself was cleaned separately. The levels of fill and their contents will be described from bottom to top, as they accumulated rather than as we encountered them.

The floor was the native caliche-impregnated subsoil, smoothed and packed by traffic. The floor in the vicinity of the southeast roof-support post, which had burned in place, was slightly fire reddened and covered with bits of charcoal. The remainder of the roof had not burned and was apparently salvaged. The scarcity of artifacts on the floor, except for sherds (table 21), suggests leisurely abandonment. The specimens found were:

- 2 used flakes.
- 1 projectile point: banded siltstone, straight stem, corner notches, serrate edge (fig. 179d) (northeast of firepit).
- 2 hammerstones.

Level 3 was composed of red loess from 2.9 to 3.7 feet deep. Faint striations dipping toward the center of the pit showed it to have been deposited through alluvial action. This soil would seem

to be the spoil from the initial excavation of the pit which had been banked around the rim and subsequently washed back to refill its source. After about a foot of soil had been redeposited, someone built a fire on an unprepared hearth near the south wall. Scattered ashes, charcoal, and patches of burnt earth reached from the hearth to about 6 feet north. Though more sherds came from this level than from the other two, it also contained three times the volume of earth and in reality was relatively barren. Probably the majority of the specimens from Level 3 were contemporary with the use of the great kiva, having collected on the surface of the spoil piled outside. The following specimens came from Level 3:

Clay

- 1 pipe: fired clay, straight, bullet-shaped, 5.8 cm. long.
- 6 sherd disks: all with chipped edges; two Chapin Black-on-white, three Chapin Gray, one red ware.
- 2 sherd scrapers: Bluff Black-on-red, with ground edges.

Table 21. Sherds from Great Kiva, Site 1676

Type	Level 1	Levels 1 and 2	Level 2	Level 3	Floor	Total
Chapin Gray	564	588	906	1,736	287	4,081
Moccasin Gray	30	47	59	41	2	179
Mancos Gray	3	—	—	1	—	4
Mancos Corrug.	4	—	1	—	—	5
? corrug.	4	—	—	—	—	4
Chapin B/w	8	11	12	61	13	105
Piedra B/w	2	4	8	6	3	23
PI b/w	6	11	31	54	14	116
Cortez B/w	3	3	1	—	—	7
Mancos B/w	—	—	1	—	—	1
Mesa Verde B/w	2	—	—	—	—	2
Bluff B/r	18	29	49	35	4	135
San Juan Red	13	15	21	11	2	62
Exotic	—	—	7 ¹	—	—	7
Unclassified	3	5	4	4	—	16
Total	660	713	1,100	1,949	325	4,747

¹ 5 polished brownware (2), smudged brown, *affinis* Forestdale?

Stone

- 1 scraper: claystone flake.
- 2 choppers: cobbles of porphyry and granite.
- 4 hammerstones.
- 2 manos: both sandstone, with polished ends (one bifacial, 0.2 foot above floor).
- 1 pendant: fragment, of turquoise, ground.
- 1 pendant blank: red shale, with ground faces and edges.
- 5 balls: all sandstone, from 2.9 to 21.1 cm. in diameter; two incised (fig. 208c and f).
- 1 conical fetish: sandstone cone, 5.3 cm. long, ground, incised near top (fig. 208q).
- 2 concretions: one "grape-cluster," with ground base; one unmodified.
- 2 dishes: both open sandstone geodes; one ground at base and interior, one unmodified.
- 1 miscellaneous: unmodified piece of soft, micaceous trachyte, from dike; probably tempering material for potters' clay.

Refuse bones

- rock squirrel: humerus.
- dog: fragments of cranium, dentary, tibia, radius, humerus, and ulna, of at least three individuals.
- turkey: tarsometatarsus of adult, and five bones of one poult.

On the surface of Level 3 near the south end of the pit, was a rectangular area measuring about 5 by 7 feet, outlined with adobe standing to a maximum height of 0.4 foot. We first thought these outlines were the tops of adobe walls similar to those of Rooms 1 and 8 in House 1, and the area was labeled "Room 15." However, we found no evidence that the outlines were ever any higher. They may have represented an initial course of adobe laid in an unfinished structure.

Level 2 was a dark, organic soil containing much ash, charcoal, and other refuse. This was probably trash from House 1 dumped when the original pit was filled except for a shallow depression at the north side. The stratum of refuse had a maximum depth of 2.0 feet and feathered out under Rooms 1 and 5 of House 1. The types of sherds and their proportions are what one might expect from the earlier occupation of the house. Two incomplete but restorable pots were found outside the walls of Room 1 before the stratigraphy was defined. They may have been in Level 1 but were more likely part of the trash in Level 2.

Pottery

- Chapin Gray jar: miniature, wide-mouthed, 9.6 cm. high; either unfired and accidentally burned, or very poorly fired.
- Moccasin Gray jar: 21.0 cm. high.

Other clay objects

- 2 sherd disks: plain gray, with chipped edges.
- 1 sherd scraper: Chapin Gray, with ground edge.
- 1 unfired piece: cylinder of clay, probably pinched off the end of a coil.

Stone

- 26 used flakes.
- 2 knives: claystone flake and fragment of chipped chalcedony point.
- 1 saw: claystone flake.

- 1 drill: chert, long projection with broad tip served as chisel or scraper (fig. 181f).
- 1 scraper: claystone flake.
- 2 choppers: flake and small core of quartzite.
- 1 notched ax or hammer: fragment of granite.
- 12 hammerstones.
- 2 jar lids: both sandstone; one, 4.8 cm. in diameter with chipped edge and ground faces; one, with ground edge, 6.3 cm. in diameter.
- 1 concretion: sandstone, unmodified, possibly a pot support.
- 1 conical fetish: travertine, ground and polished, 4.8 cm. long.

Worked bone

- 1 awl: metapodial of unknown artiodactyl (Levels 1 and 2, mixed).
- 1 perforated tibia: bobcat.
- 2 miscellaneous worked bones: metapodial of unknown artiodactyl, split and polished, probably an unfinished awl; and turkey femur perforated at distal end.

Refuse bones (some of these from Levels 1 and 2, mixed).

- black-tailed jackrabbit: fragment of tibia.
- dog: fragments of molar and dentary, of two individuals.
- mule deer: fragments of radius and humerus.
- unknown artiodactyl: fragment of humerus.
- unknown mammal: fragment of long bone.
- turkey: tibiotarsus of adult, two tarsometatarsi of poult.

A depression existed near the middle of Level 2 after House 1 was abandoned, and probably for some time after. This was filled with red adobe, which may have been the spoil from excavation of Kiva A, a Pueblo III kiva, 25 feet to the south.

Level 1, from 0.9 foot to 1.5 feet thick and nearly level at the surface, was composed of light trash and topsoil, and building rubble from House 1. Sherds are listed in table 21. The few other artifacts were:

Stone

- 4 used flakes.
- 3 hammerstones: fig. 187a.
- 1 chopper: quartzite cobble, with edges pecked and ground, and one end bifacially flaked.
- 1 rubbing stone: fragment of diorite, with one face polished, re-used as hammerstone.
- 1 conical fetish: truncated section of replaced ammonite, with pieces of shell still adhering, one face and one edge ground; possibly an abradar.

Worked bone

- 1 gaming piece (?): polished tablet of split and cut long bone of unknown mammal (fig. 221k).

Great kivas similar to this one have been found throughout the Four Corners region. A good summary of these early forms is given by Vivian and Reiter (1960, pp. 100-103). A great kiva in Largo Canyon south of Aztec, N. Mex., assigned to the Basketmaker III period on the basis of the pottery types, could be added to that list (Hibben and Dick, 1944). The great kiva of Site 1676 fits the pattern, although it is somewhat unusual in the absence of a deflector and in the presence of the vestigial or symbolic partition south of the firepit.¹

¹ It should be noted that other great kivas have been excavated since these lines were written.

The presence of Moccasin Gray and red sherds on the floor indicates the last use of the great kiva was post-Basketmaker III, but the paucity of those types, which occur in percentages comparable to those found in House 3, suggests the structure was abandoned early in Pueblo I times. There is no basis for estimating how long it took the alluvial fill in Level 3 to accumulate, but the trash in Level 1 was deposited before the construction of Room 5 in House 1, about A.D. 853. It would not be unreasonable to assume that at least 50 years elapsed between the abandonment of the great kiva and the building of the earlier rooms in House 1. Thus the great kiva, like Protokiva C, may have been built in the late La Plata Phase and used into the very early part of the Piedra Phase.

House 8

A few sherds and burned sandstone spalls on the surface midway between House 7 of Site 1676 and Pithouse A of Site 1644 marked the location of House 8. Late in the 1963 season, a series of six test trenches were cut to determine the extent of the house and to obtain enough architectural and ceramic data or tree-ring dates to place it in time. We were unable to accomplish much.

The trenches uncovered two patches of floor and three short sections of wall—two of slabs and a 3-foot span of a wall of adobe and unshaped stone. The house had not burned and, judging from the scarcity of sherds and other trash, was lived in only briefly. The trenches and auger holes indicated a house of about five rooms in a line approximately 70 feet long and facing southeast. A pit structure, probably a protokiva, lay 35 feet south of the east end of the house. The 83 sherds from the trenches are all Pueblo I types, but too few for tabulation to be meaningful. Two stone artifacts were found, both near the west end of the house:

1 hammerstone.

1 crusher: sandstone, 24.4 cm. long, 8 pounds, with one convex face ground smooth.

KIVA A

When we examined Site 1676 prior to excavation, a depression about 40 feet across lying between House 1 and House 4 was suspected to be a great kiva. A pit was started there early in the 1963 season. The structure turned out to be a masonry-lined kiva without pilasters. We excavated only the north half of it.

The kiva, designated Kiva A, was about 13 feet in diameter at the floor and was lined with carefully fitted and finished stones (fig. 46). A bench, 2.7 feet above the floor and 0.6 foot wide, encircled the room. Remnants of a single coat of plaster, .05 foot thick, still clung to the wall. The masonry liner rose 2.9 feet above the bench, to a flat ledge cut into the native caliche. This ledge evidently supported the roof timbers.

Most of the upper liner had fallen and the liner below the bench had bulged in places so that it projected as much as 0.8 foot into the room. This distortion occurred, or at least started, while the kiva was still in use, for a buttress of masonry had been built on the floor at the north side, as high as the top of the lower part of the liner.

We did not clear enough floor to find a firepit. There was no sipapu, but a small square niche was found in the northwest quarter of the liner, 1.3 feet above the floor.

Pieces of rotted timber were found on the caliche ledge, in the fill below the bench, and on the floor. Apparently the kiva had been abandoned without salvaging any of the timber or stone. The style of masonry and the Mesa Verde Black-on-white and corrugated sherds on the surface and in the fill, and in the fill of the eastern



Figure 46. Kiva A, Site 1676, looking southwest.

rooms of House 4, indicated that Kiva A was a late Pueblo III structure in use during the last occupation of Badger House which lies to the east.

Excavation was in four levels but the specimens collected are so few and of such doubtful significance, having been mixed up during the slow filling of the pit, that a listing of them here is pointless.

SUMMARY

At Site 1676 we have the record of a continuous occupation, most likely by one lineage, over a period of 200 to 250 years. Pithouse G, a typical Basketmaker III dwelling contemporary with Pithouses A and B at Site 1644, was probably served by a few surface storage rooms. Protokiva C may have been originally constructed at this time as a dwelling. About 100 years later, House 3 was built as a series of three-room (Pueblo I) apartments. By this time, probably all domestic activities were carried on in the houses above ground and Protokiva C was converted into a strictly religious structure used by the several families of the house. During this time, or possibly earlier, the great kiva may have served as a ceremonial center for a larger community which included House 3.

Perhaps House 2 was occupied before House 3 was destroyed by fire—the evidence is inconclusive—but the first use of Houses 6 and 7, representing a larger community and showing some changes in house plan, was either contemporary with the last days of House 3 or followed immediately after its destruction.

Houses 6 and 7 may have lasted until after the final surge of building at the site, or they may have been replaced by Houses 1, 4, and 5, and jacal at Site 1644. These latter structures, along with Pithouses D and E, showing further modification of house plan and some advance in building techniques, were occupied at the same time and represent the largest population on the seven acres. Sometime between A.D. 861 and 900 the last of these houses burned and the people scattered. Some families may have rebuilt at Badger House, whereas others may have built the small jacal at Site 1679 just south of Pithouse G. Still others may have been responsible for Two Raven House, above the head of Bobcat Canyon. The fragmentation into smaller communities at the beginning of early Pueblo II was suggested previously in the Wetherill Mesa site survey (Hayes, 1964).

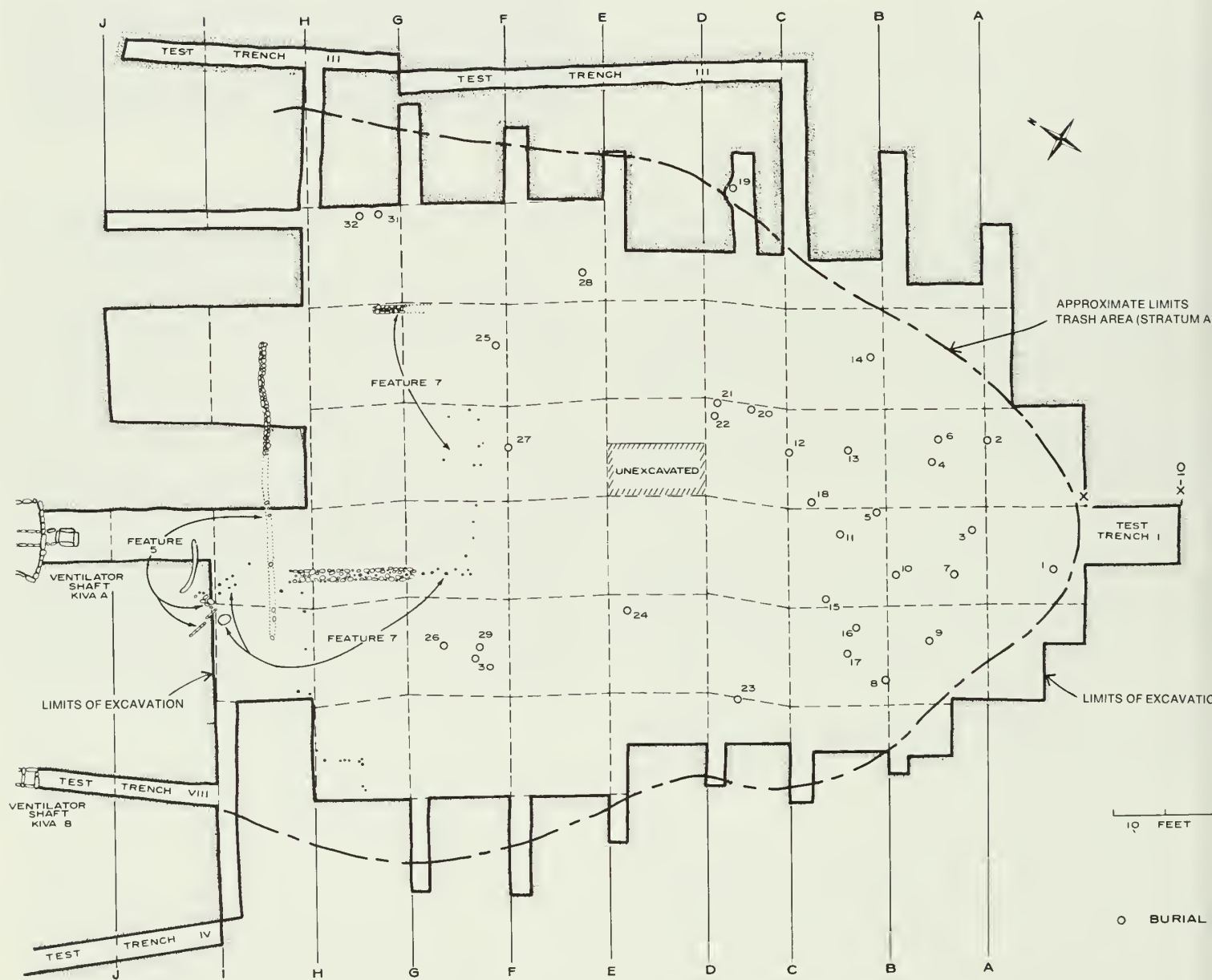


Figure 47. Trash mound, Badger House.

4

Badger House

After the last of the early Pueblo structures at Site 1676 was destroyed, occupation of the vicinity was confined almost entirely to Badger House (Site 1453) just below the crest of the ridge east of House 1 at Site 1676. Before excavation, the site showed a house mound, 75 feet long and about 3 feet high, with pecked building stones characteristic of Pueblo III exposed on the surface. Just to the west of the house were the upper stone courses of a round tower, and to the south was a large trash mound. Sherds collected from the surface of the trash indicated long use of the location before the visible stone masonry buildings had been constructed.

TRASH MOUND

The trash mound promised the most information as well as the greatest effort, and the work of excavation at Badger House started there. In original appearance, the dump was an obviously artificial hummock running for 100 feet to the southeast at right angles to the house mound. It maintained a relatively even surface for the first 50 feet where it reached its maximum height, and then dropped off sharply to merge into the natural ground surface. In the 100 feet from the kiva depression in front of the house to the mound toe, the surface fell 7.6 feet. The maximum width, 70 feet, was near the center of the mound. Later excavation revealed that since the main axis was northwest to southeast, the axis and the fall of the surface of the deposit did not conform to the original slope of the terrain.

Before the site was occupied, the slope was from west to east and had a gentler fall of 5.2 feet in 100 feet. A broad, shallow watercourse running from west to east under the approximate center of the mound was a feature of the early landscape. The building up of the mound diverted the watercourse so that it ran along the west side of the trash to its toe, where it again followed the natural eastward slope.

The surface of the mound was loose, ashy loam, quite rich in sherds, charcoal, and stone chipping debris, and it supported a flourishing stand of big sage (*Artemisia tridentata*).

A base line (X) was staked out along the crest of the long axis from the south edge of the kiva depression to the toe of the mound. This served as a base for a 10-foot grid. Lines crossing the base at right angles were lettered A through J starting at the toe. The squares were designated as Right or Left of Line X as one faced the house mound to the north, and given the letter of the line along their south edges. For example, the square immediately to the right of Line X and north of Line B was called "Block B, X-10' Right;" the square to its right was "B 10-20' Right" (fig. 47).

A test trench 5 feet wide was dug in 10-foot increments along the left side of Line X, and a continuous profile was drawn along that line from the mound toe to Kiva A. After the test trench reached an east-west, lettered grid line, the fill to the right and left of X

was removed by blocks and the profile of the exposed face of the transverse line was drawn. Thus the stratigraphy was charted on one face through the center of the long axis, and at 10 points crossing it, giving us a total of 521 feet of profiles. Those crossing the mound were from 30 feet long at Line A to 70 feet at Line F. The mound was completely removed by broadside up to Line F where architectural features were encountered. The remaining fill to the kivas was thoroughly trenched to expose a total of 15 feet of face, in two places on Line I and the same on Line J. Upper levels were removed from the untrenched sections between Lines F and J.

In excavating the blocks, the stratigraphy exposed on the face of the cut along the south side of the blocks was followed as far as possible. Sometimes this could be done throughout the square, but more frequently it was lost before the entire 10-foot advance had been made. Often the separation between Strata B and C would be lost, though the separation of A and B and of C and D was still possible, and the material would be sacked as "BC." When even this was not possible, the specimens were labeled "general fill" from that particular block. Several sections of the test trench were removed in arbitrary 0.5 foot levels as a control measure. Near the deepest part of the mound, a column, D X-5' Right was left unexcavated. This control column was 6 feet deep and measured 5 by 10 feet on the horizontal grid. Remains of architectural units on and below the trash mound were designated Features 3, 5, 6, 7, and 8. It was possible to relate some of the material directly to these features.

The mound proved to be deeper than expected. Trash was 3.8 feet deep at the Kiva A ventilator shaft at the north end of Line X. The surface of the mound rose 1 foot between that point and the crest between Lines E and F (where the original ground level was dropping), and there the trash reached a maximum depth of 6.5 feet. The mean depth along the median line was 4.6 feet. Badgers and small rodents had burrowed through the trash, and in some sections the trash was homogeneous in texture, but in most sections a readily defined stratigraphy was observed. This was designated as Strata A, B, C, D, D+, and E, from top to bottom. The anomaly of D+ resulted from an uneven advance of the broadside. Often the advance of the central trench or one of the faces at either side was halted for the drawing of profiles or for removing burials. Stratum E was reached and named before a careful study of profile X revealed that another stratum was interposed between D and E.

There was a considerable area between Lines D and E where stratigraphy was lost because of rapid drying of the profiles. Wetting down the surface with a sprinkling can was not successful because of the very loose and ashy nature of much of the soil. Good profiles were seen at most of the cuts, and more than half of the material taken from the mound could be assigned to a specific stratum or, in some cases, to a pair of strata.

Sherds and fragmentary tools were sacked by stratum and block. Burials and other important specimens were triangulated

from two grid corners or shot in by alidade from the principal datum point. Screening of the fill in a couple of squares and two sections of the central test trench showed that this process increased the work by 300 to 400 percent but increased the amount of material recovered by only 15 to 20 percent. The quantity of sherds and other artifacts which could be found by shovel and trowel was judged to be sufficient.

The six strata in the dump will be discussed in the order in which they were deposited. Figure 48 indicates their approximate horizontal limits. The contents of each stratum will be noted briefly and more detailed descriptions of artifacts will be given in subsequent chapters.



Figure 48. *Approximate limits of the trash mound strata, Badger House.*

Stratum E

Stratum E, the lowest level of trash, lying on sterile subsoil, extended 55 feet from Kiva A toward the mound toe and for 70 feet east-west at the widest point. It overlay a disused jacal structure and pits, Features 7 and 8. Throughout most of its extent, the stratum was between 0.6 and 0.8 foot thick and attained a maximum depth of about 1.3 feet just south of Kiva A. It was a rich organic soil, almost black with charcoal, and was easily followed. About one-quarter of its area was sealed from the stratum above by a hard-packed walking surface of sandy clay, Feature 6, and because of this circumstance it was the most discrete and undisturbed component of the entire site.

Direct association of Stratum E trash with any architectural feature was impossible since all trash close to the house mound was shallow and homogeneous. The small pithouse, Feature 9, and Kiva C may have been contemporary, but extensive trenching north and west of the trash mound failed to reveal other structures. It is possible that an earlier house stood where Rooms 1 through 9 now stand, but, if so, no definite trace was found.

At the north end of the trash at Kiva A, Stratum E rose up over an earlier deposit as shown in the short section of profile of Test Trench I in figure 49. Here, against the masonry lining of the ventilator shaft, were 2 feet of clay spoil. At first glance the clay was taken to be subsoil, but small flecks of charcoal and occasional fragments of burned sandstone, plus a different texture, showed it to have been disturbed. From 2 feet deep at the ventilator, the spoil sloped down to end some 19 feet to the south. It appeared to have been earth removed from an excavation into the native loess. Lying on this red deposit was from 0.8 foot to 1.4 feet of loam and coarse charcoal with fist-size spalls of burned sandstone. Stratum E and its roof of hard-packed earth, the surface of Feature 6, lay above the south end of the charcoal layer.

The sequence of deposits here suggested that the lowest level was spoil from a pit excavated for a kiva or pithouse in the pit where Kiva A was later placed. The charcoal layer above the spoil may represent the cleaning out of an earlier burned structure in preparation for its rebuilding. Both operations may have been more or less contemporary with Stratum E, but obviously trash was dumped at this level after the re-excavation of the pit.

In the same area was a posthole, 1.7 feet deep and 0.7 foot in diameter, which originated at the Stratum E level and penetrated both the charcoal layer and the clay spoil below. A stone slab at one side of the hole was used as a shim. Unfortunately, the remnants of a juniper post at the bottom of the hole were not datable. Two feet south of the post and at the same level was a cooking pit, 2 feet deep by 1.2 feet wide. Like the posthole, it originated near the base of Stratum E, and went completely through the charcoal and soft ash. It was topped with broken spalls of burned sandstone.

Pottery

Stratum E yielded 4,058 sherds, of which 52 percent was utility ware and 48 percent was decorated—a proportion that remained nearly constant through all the strata. This was the only level of trash, however, in which corrugated pottery, 33 percent of the utility sherds, was not dominant over the three gray wares, Chapin Gray, Moccasin Gray, and Mancos Gray. Undoubtedly all of the unidentified corrugated sherds were Mancos Corrugated, but it is also certain that many of the plain gray sherds were from Moccasin Gray or Mancos Gray vessels, and it is probable that the principal

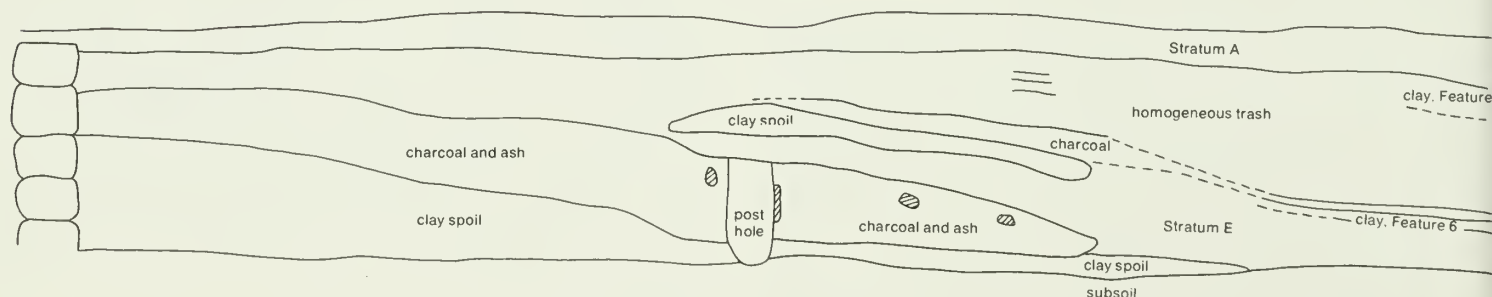


Figure 49. *Profile of Test Trench I from X (Kiva A) to point XH, trash mound, Badger House.*

culinary vessels of this period were Mancos Gray. The 2,132 utility ware sherds were in the following proportions (see table 30):

	Percent		Percent
Plain gray	43	Chapin-Piedra Black-on-white	6
Moccasin Gray	3	Cortez Black-on-white	56
Mancos Gray	21	Mancos Black-on-white	29
Mancos Corrugated	8	Mancos Black-on-white (carbon paint)	trace
uncertain corrugated	25	San Juan Red Ware	7
	100	Trade	1
			99+

Chapin Black-on-white combined with Piedra Black-on-white made up 6 percent of the 1,098 classified decorated sherds. In no other stratum did Pueblo I sherds reach as high a percentage. Cortez Black-on-white was the dominant type with 56 percent of the decorated sherds. Considering the method of classification described in the pottery section of this report (ch. 5), it is evident that many of the "Mancos Black-on-white" sherds in the stratum were actually misidentified Cortez sherds. San Juan Red Ware, always relatively unimportant, was also more numerous in Stratum E than in any higher stratum. Some 828 decorated sherds were unidentified. The percentages of the identified decorated sherds, (as shown in table 22) are:

The trade sherds were three Red Mesa Black-on-white and five unclassified Cibola White Ware. One bowl sherd, plain and unpolished on the outside, was smudged and burnished on the interior. It probably belongs to the Forestdale Series, with a source on the upper Little Colorado or the White Mountain area of Arizona.

Other clay objects

- 4 sherd disks: all with chipped edges; two Chapin Gray, one with ground edge; one black-on-red bowl sherd; one unknown.
3 sherd pendants: one red-on-orange with chipped edges and bi-conical hole; two black-on-red, undrilled blanks with ground edges.

Table 22. Frequencies of decorated sherds in the trash mound, Badger House

Stratum														
General fill		A		AB		B		BC		C		CD		
Provenience	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.
Chapin-Piedra B/w	2	181	1	42	2	10	2	5	1	2	—	0	—	0
Cortez B/w	34	2827	24	838	26	169	49	133	40	130	33	27	42	87
Mancos B/w	55	4671	66	2332	63	411	42	114	54	175	62	51	55	113
Mancos, carbon paint	1	145	2	78	1	8	—	0	T	1	—	0	—	0
McElmo B/w	T	37	1	30	T	4	T	1	T	1	—	0	—	0
Mesa Verde B/w	T	54	1	40	1	8	1	5	T	1	1	1	—	0
San Juan Red Ware	5	466	4	148	6	42	4	12	3	11	4	3	3	6
Trade	T	19	T	23	T	2	T	1	T	4		0		0
Totals		8400		3531		654		271		325		82		206

Stratum												Totals		
D		DD+		D+		D+E		E						
Provenience	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.
Chapin-Piedra B/w		1	5	—	0	1	9	5	4	6	67	2	325	
Cortez B/w		35	167	37	37	35	236	54	40	56	614	34	5305	
Mancos B/w		57	267	56	55	56	373	26	19	29	328	56	8909	
Mancos, carbon paint		1	3	1	1	T	2	—	0	T	3	T	241	
McElmo B/w		—	0	—	0	—	0	—	0	—	0	1	73	
Mesa Verde B/w		—	0	—	0	T	3	—	0	T	2	1	114	
San Juan Red Ware		5	24	4	4	6	38	10	7	7	75	6	836	
Trade		—	0	2	2	1	6	5	4	1	9	T	70	
Totals			466		99		667		74		1,098		15,873	

T = trace.

Stone

Stratum E was particularly rich in stone artifacts. The percentage of sherds in each stratum can be used as a measure of the popularity of stone artifact classes in the stratum. Stratum E contained 6 percent of the sherds in the trash mound and also 6 percent of the manos (11 of 186). In cases where the total collection of a stone artifact is quite small, the percentage is probably of no significance. For example, Stratum E produced 22 percent of the projectile points, but since these amounted to 4 out of only 18 in the trash, not much value can be placed on this figure. The same is also true of the seeming lack of notched or grooved axes and hammers—3 percent, or 2 of 63. However, some classes of stone tools were numerous enough to make comparisons interesting. In contrast to the 6 percent frequency of all sherds, we find Stratum E produced 16 percent of the utilized flakes (16 of 102), 11 percent of the scrapers (9 of 84), and 14 percent of the hammerstones (69 of 482).

Compared to the high proportions of stone artifacts in Stratum E, the proportions of these artifacts in Stratum A follow closely the proportions of sherds. Thus Stratum A contained 20 percent of the sherds in the dump and also 20 percent of the used flakes, 28 percent of the scrapers, 24 percent of the hammerstones, and 21 percent of the manos.

Table 23 compares the frequencies of sherds and stone artifact classes by strata. The percentages do not add up to 100 percent because the sections excavated as combined strata, such as AB and CD, are not included. It is assumed that sherds from a cubic yard of one stratum will be as numerous as sherds from another, but the numbers of sherds listed for each stratum do not reflect the relative size of the stratum. Stratum D+, for example, was about twice the extent of Stratum E, but in much of the area it was difficult to separate Stratum D+ from Stratum D and they were removed together.

It is to be noted that the frequencies of stone tools and sherds

correlate more closely in the larger samples, except in the case of Stratum E. The discrepancy here cannot be ascribed to an anomaly of excavation. The digging proceeded on a broadside with the same workman excavating all strata in a block, with little time lag between removing the top and the bottom levels. A possible explanation lies in the sterile soil which lay between Strata E and D. This appeared to have been soil from an excavation which had been spread over the surface of the dump, thus effectively sealing off Stratum E and preventing later salvage of useful bits of stone from it.

Stone objects from Stratum E were:

- 16 used flakes
- 4 projectile points: a complete corner-notched point (fig. 179j), a corner-notched point with serrate edge, and a possible dart point (fig. 179u), all of quartzite; one fragment of jasper.
- 3 knives: one long narrow blade of chalcedony without stem or notches, one of petrified wood with short stem (fig. 180a), one notched fragment of petrified wood (fig. 180f).
- 1 drill: chalcedony.
- 9 scrapers: five of claystone, three of chert, and one of quartzite; two specimens, snubber end-scrapers.
- 5 choppers: four are cores of quartzite or claystone; one is a double-notched ax of porphyry, with the bottom edge bifacially spalled for re-use as a chopper (fig. 184h).
- 1 ax or hammer: granite fragment, notched.
- 69 hammerstones
- 3 metates: all sandstone, fragmentary, trough type, one open at one end; others unknown.
- 11 manos: six of sandstone, five of quartzite; one complete, ten fragmentary; eight trough type, three unknown.
- 2 pitted rubbing stones: both quartzite; one with pits in all six facets, one with pits in both faces and both sides (fig. 197c).
- 4 polishing stones: three small pot polishers, two flat pebbles of claystone, and one conical chert pebble with polished base; one floor polisher, discoidal porphyry cobble.

Table 23. Frequencies of sherds and various stone artifacts in the trash mound, Badger House

	Stratum													
	General fill		A		B		C		D		D+		E	
	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.	%	no.
Sherds (63,000) ¹	59	37,000	20	12,500	2	1200	$\frac{1}{2}$	270	$2\frac{1}{2}$	1,450	$3\frac{1}{2}$	2181	6	4058
Hammerstones (482)	38	181	24	118	$\frac{1}{2}$	2	$\frac{1}{2}$	2	1	7	3	16	14	69
Manos (186)	43	78	21	40	1	2	—	0	2	3	9	10	6	11
Used flakes (102)	30	30	30	20	2	2	4	4	3	3	7	7	16	16
Scrapers (84)	38	32	28	24	2	2	—	0	5	4	2	2	11	9
Ax-hammers (63)	50	31	24	15	2	1	2	1	—	0	3	2	3	2
Choppers (30)	33	9	27	8	—	0	—	0	3	1	—	0	17	5
Metates (24)	37	9	33	8	—	0	—	0	4	1	4	1	12	3
Projectile points (18)	43	9	17	3	—	0	—	0	5	1	5	1	22	4
Knives (18)	28	5	28	5	—	0	—	0	—	0	5	1	11	2

¹ Figures in parentheses are actually numbers of artifacts.

- 1 hand abradar: small fragment of sandstone with two ground faces.
- 4 grooved abradars: all sandstone, with from one to seven grooves.
- 4 pendants: three of red shale, one drilled for suspension and two blanks (fig. 204c); one of gray-green soapstone (fig. 204j).
- 2 paint stones: one unmodified azurite pebble, and a bit of pulverized malachite.
- 1 conical fetish: sandstone, 14.0 cm. long, natural shape with some pecking along side and at tip.
- 2 jar lids: sandstone, 7.5 and 7.7 cm. in diameter, edges spalled; one ground on one face, other ground on both faces.
- 1 disk: sandstone, 4.1 cm. in diameter, with one ground face; possibly a bottle stopper.
- 1 stone bowl: half of large sandstone geode with outside roughly spalled.
- 1 gizzard stone

Bone artifacts

- 15 bone awls: seven complete; one with blunt tip, one with grooved shank; three deer, one bighorn, two bobcat (fig. 218k), one coyote, three unknown artiodactyls, four unknown mammals, one turkey (fig. 218q).
- 1 spatula: split tibia of unknown artiodactyl, with a chisel-like tip.
- 1 ornament: tube bead of golden eagle ulna.

Refuse bone

- rock squirrel: femur (2), sacrum, innominate.
- cottontail: cranium, innominate, radius, tibia, femur, humerus.
- black-tailed jackrabbit: tibia.
- badger: scapula.
- porcupine: cranium, dentary.
- bobcat: cranium, dentary (2), mandible, scapula, radius.
- gray fox: dentary, innominate, femur.
- red fox: radius, humerus.
- wolf: ulna.
- coyote: cranium, humerus, femur.
- dog: dentary.
- unknown canid: cranium (3), femur (2).
- bighorn sheep: cranium (2), dentary (2), vertebra (10), scapula, innominate (2), rib (6), sacrum, radius (3), ulna (2), humerus (2), femur, tibia, metapodial (4), phalanx (5), calcaneum, cuboid (2), astragalus (2).
- mule deer: vertebra, scapula, rib (3), radius (2), femur (2), tibia (7), metatarsal (4), phalanx (2).
- elk: cuneiform.
- unknown artiodactyl: dentary, scapula, innominate, rib (3), humerus (3), femur, tibia (3), unknown long bone (6), metapodial (5), phalanx.
- unknown mammal: long bone (3), unknown bone.
- turkey: two fragments.
- horned owl: two fragments.

Stratum D+

Stratum D+ covered an area nearly equal in size to that of Stratum E below it, but started at a point south of the north end of Stratum E and extended 29 feet south of its toe. It lay immediately above the clay layer, Feature 6, near the center of the mound. In most sections, it was easily separable from Stratum E, but a small amount of material was sacked as coming from Strata D+ and E. Near the center of the mound, in the area where Strata D+ and D

lay between the clay surfaces of Features 3 and 6 (fig. 49), it was not possible to separate these two strata and they were removed together. In general, Stratum D+ contained more whitish ash and less charcoal than Stratum E. At sections along the profile where it was possible to accurately separate it from strata above and below, Stratum D+ was from 0.8 to 1 foot thick and probably averaged thicker than Stratum E. However, because much of it was necessarily stripped with the strata which sandwiched it, the counts of sherds and other artifacts from Stratum D+ were not as great.

Pottery

A total of 2,181 sherds from this level showed definite changes from the earlier deposit. The 1,063 utility sherds were 70 percent corrugated. Mancos Gray fell to 8 percent, and there was only a trace of Moccasin Gray.

A corresponding trend is shown in the classified decorated pottery where Mancos Black-on-white replaced Cortez Black-on-white as the dominant type. Chapin and Piedra Black-on-white fell to an insignificant 1 percent and red sherds dropped slightly to 6 percent of the decorated sherds. In the counts shown in table 22, six sherds from Stratum D+ were thought to be trade sherds. On a later and closer look, four of these were judged to be atypical local sherds. The remaining two were unclassified Cibola White Ware.

Other clay objects

- 3 sherd disks: all Chapin Gray with chipped edges.
- 2 sherd pendants: one white, slipped and polished bowl sherd with a conical hole (fig. 172j); one blank of a black-on-white jar sherd with ground edges.
- 2 unfired miniatures: a jar replica, 2.3 cm. high, and a canteen replica, 2.8 cm. high (fig. 175c and d).

Stone

- 7 used flakes.
- 1 projectile point: quartzite, corner-notched.
- 2 scrapers: both flakes, of banded siltstone and chert, weighing 24 gm.
- 3 axes or hammers: a notched porphyry fragment, a notched claystone ax, and an unfinished ax of basalt with spalled edges.
- 16 hammerstones.
- 1 metate: sandstone fragment, trough type.
- 11 manos: seven quartzite cobbles and four sandstone; nine trough type, one trough or slab, one biscuit.
- 1 hand abradar: sandstone, subcubical, 2.6 cm., with four facets use-ground.
- 1 grooved abradar: sandstone spall with one narrow groove.
- 3 pendants: all red shale with ground edges; one round, two rectangular.
- 1 finger ring: one-quarter of onyx ring, 0.7 cm. wide and 0.4 cm. thick.
- 1 paint stone: lump of orange-red ochre, weight 8 gm.
- 2 conical fetishes: one sandstone cylinder, 2.2 cm. long, with rounded tip; one untapered cylinder, 8.2 cm. long, with one side ground (possibly a hand abradar).
- 2 jar lids: edges bifacially spalled, 8.6 and 13.0 cm. in diameter; smaller specimen has one face ground smooth.
- 1 pot support: subcylindrical burned concretion, possibly used in fireplace.
- 1 palette: rough sandstone slab, 1.0 cm. thick, with both faces ground smooth (possibly a whetstone).

Bone artifacts

4 awls: one complete mule deer ulna with weaving grooves (fig. 218h); three fragments: bighorn, mule deer, unknown artiodactyl.
 1 spatula: split bighorn tibia with two spatulate ends (fig. 220b).
 1 ornament: turkey tibiotarsus tubular bead fragment.
 1 miscellaneous: unknown artiodactyl, split and polished metapodial fragment.

Refuse bone

pocket gopher: cranium (2).
 rock squirrel: femur.
 cottontail: dentary (3), scapula, vertebra, innominate (3), femur (2), tibia (6).
 jackrabbit: tibia (2), radius.
 gray fox: tibia.
 coyote: dentary, humerus, femur.
 dog: cranium (2), scapula, innominate (2), ulna, tibia, plus most of post-cranial skeleton of small young adult.
 unknown canine: rib, metatarsal.
 bighorn sheep: cranium (9), vertebra (2), scapula (2), innominate (12), rib, sternum, fused radius/ulna, radius (5), ulna, humerus (2), femur (2), tibia (2), metapodial (5), scaphoid, cuboid, calcaneum (3), phalanx (6).
 mule deer: rib, radius (2), tibia, femur, metapodial (3), phalanx.
 bison: femur, calcaneum.
 unknown artiodactyl: scapula (4), rib (7), vertebra (2), sacrum, unknown long bone (7), humerus, radius, tibia.
 unknown mammal: long bone, unknown bone.
 horned owl: tarsometatarsus.
 unknown bird: unknown bone.

Stratum D

Stratum D was closely related to Stratum D+ and certainly represented the same occupation. The two might well have been called a single level, but a thin and definite lens of light-colored silt divided the two between Lines B and E. North of Line E, where both strata lay between the clay layers of Features 3 and 6, no separation was possible and this material was cataloged as "Strata DD+." Stratum D extended past the toe of D+ on an irregular line for 10 to 20 feet, and in this area reached a depth of 1.4 feet. Where it overlay Stratum D+ and was separable, it was shallower than the latter and averaged about 0.7 foot. At the north-center of the mound, Stratum D was covered by the hard-packed walking surface of Feature 3 (fig. 48) and the floor of Feature 5.

Pottery

Of the 1,459 sherds from this stratum, 311 were unclassified. As was true of all unclassified sherds, the majority were unidentified sherds of decorated types. The 681 utility ware sherds reflect a slight decrease in the early grays and an increase of corrugated to 82 percent. Decorated pottery remained in proportions almost identical to those in Stratum D+ except for a 1 percent decrease in red sherds and the same increase in Mancos Black-on-white.

Other clay objects

3 sherd disks: two Chapin Gray, one with ground edges is possible pendant blank; one slipped and polished but unpainted.
 8 pendants: five complete with biconical holes, four red sherds (fig. 172c), one black-on-white bowl sherd; three red sherd blanks with ground edges (fig. 172k).

Stone

4 used flakes: one is a lamellar blade.
 1 projectile point: shale, corner-notched with straight stem (fig. 179a).
 1 drill: quartzite, 4.7 cm. long, notched but base missing (fig. 181b).
 4 scrapers: two snubnosed of claystone and quartzite, two side scrapers of claystone and chert.
 1 chopper: small basalt core.
 7 hammerstones
 1 metate: sandstone, trough fragment.
 3 manos: all fragmentary quartzite cobbles; two trough type, other unknown.
 1 rubbing stone: discoidal quartzite cobble, unmodified except for one highly polished face.
 1 hand abradar: sandstone fragment, 4.7 cm. long, with triangular cross section, one face and one rounded edge ground.
 1 finger ring: about one-half of onyx ring (figs. 204h and 206).
 2 conical fetishes: both sandstone; one 3.7 cm. long, with some grinding on sides and with 0.7 cm. pit drilled in tip, possibly a feather holder; one cylindrical and slightly tapered, 5.1 cm. long, all surfaces ground.

Bone artifacts

12 awls: three complete, mule deer metapodials (2) and unknown artiodactyl (1); nine fragments, mule deer metatarsal (1); unknown artiodactyl (4), unknown mammal (4).
 1 perforated tibia: jackrabbit.
 1 ornament: turkey ulna tubular bead.
 3 miscellaneous: fragment of gray fox tibia, split and polished; splinter of humerus of unknown artiodactyl, cut and polished; polished fragment of unknown bone of unknown mammal.

Refuse bone

meadow mouse: dentary.
 pocket gopher: dentary.
 cottontail: cranium, dentary, vertebra (6), scapula, rib (2), pelvis, sacrum (3), innominate (2), humerus (3), ulna, femur (7), tibia (6), metapodial, calcaneum (3); also partial skeleton.
 black-tailed jackrabbit: femur, humerus.
 gray fox: partial skeleton of one individual.
 dog: cranium, tibia.
 bighorn sheep: rib, sacrum, vertebra, innominate, humerus, tibia, patella, astragalus, metapodial, phalanx (5).
 mule deer: dentary, scapula, innominate, radius (2), tibia (2) metapodial (2), accessory carpal.
 bison: phalanx (2).
 unknown artiodactyl: scapula, rib (5), femur, long bone (3), plus three rib fragments which are probably bison.
 unknown mammal: cranium, long bone, unknown bone.
 turkey: seven fragments.
 sage thrasher: skull and mandible.
 magpie: femur.
 unknown bird: fragments of unknown bone of large bird.

Stratum C

Stratum C was by far the smallest in the trash mound. It was most distinct near the south end, where it was separated from Strata B and D by silt layers (fig. 50). Here it had a maximum depth of 1.3 feet. As figure 48 shows, the horizontal spread was a narrow tongue near the mound toe. For only about 10 feet between Lines A and C, on a front about 24 feet across, could it be distinguished

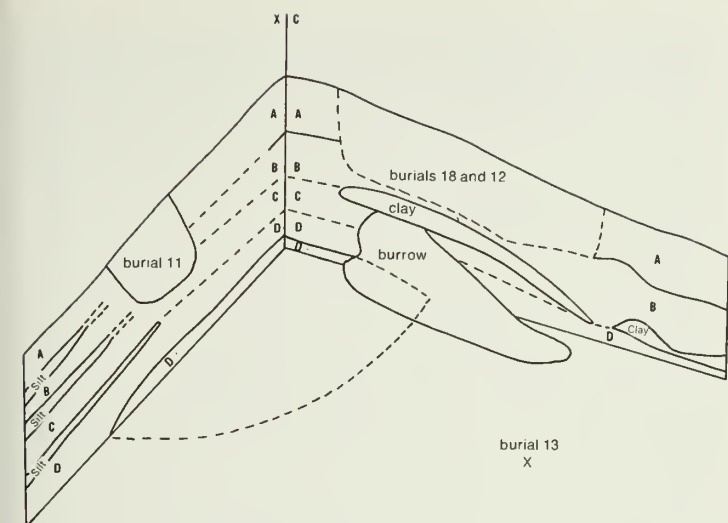


Figure 50. Profile of Section BC and XC to 10 feet right, Badger House.

clearly enough for separation of material. From Line C to E it was picked up in several isolated spots, and the northern limits of the stratum are largely interpolated. It seems probable that Stratum C represents trash thrown from the house at Feature 5 (fig. 47). In composition, the stratum was more tightly packed and contained more soil but less ash than Strata D and D+. Generally it appeared as a tightly striated layer of alternate thin bands of soil and charcoal. Although fairly deep, its limited extent resulted in a disappointingly small amount of material that could be ascribed to it.

Pottery

Only 276 sherds were counted, of which 55 were unclassified. The sample would seem to be too small for reliable comparison with those on either side of it, but the proportions fall into the pattern that one would expect. Of the 139 utility sherds, 85 percent are corrugated (an increase over the preceding trash deposit), plain gray is slightly decreased, and Mancos Gray was not found. The same established trends of change continue in decorated sherds. Mancos Black-on-white is still greater in proportion to Cortez Black-on-white, reds are reduced, and Pueblo I black-on-white types were not present.

Other clay objects

- 1 unfired miniature: a completely formed duck effigy jar, 3.5 cm. high (fig. 175b).

Stone

- 4 used flakes: two chert, one basalt, one shale.
- 2 hammerstones
- 1 jar lid: sandstone, 14.7 cm. wide, edges spalled.
- 1 gizzard stone

Bone artifacts

- 5 awls: two complete and one fragmentary mule deer metatarsal; ulna of unknown canid, complete (fig. 218g); unknown bone of unknown artiodactyl, point only.
- 2 perforated tibiae: a jackrabbit and an unknown canid.
- 2 miscellaneous: unknown artiodactyls, rib and metapodial, both split and polished.

Refuse bone

- unknown rodent: incisor.
- cottontail: dentary, scapula, innominate, femur (3), tibia (2).
- bighorn sheep: vertebra.
- mule deer: vertebra, innominate, radius, femur, metatarsal, phalanx.
- unknown artiodactyl: long bone, radius, rib (probably bison).
- turkey: humerus.
- unknown bird: unknown bones of large bird (2).

Stratum B

Though of considerably larger extent than Stratum C, Stratum B was less widespread than Strata D and D+, and it was shallower than any other deposit in the trash mound, and averaged about 0.6 foot deep. It lay immediately above the floor and walking surface of Features 3 and 5, a house site built on trash near the center of the mound, but only near the south end of the mound was it possible to isolate Stratum B sufficiently to bag sherds and other artifacts separately. The stratum contained more ash and was softer, or lighter in texture than Stratum C, and contained much burned adobe and many rock spalls. Some interesting reversals in artifact trend are recorded in the distribution tables.

Pottery

Unclassified sherds were in larger proportion here than in any other unit of the site—267 of a total of 1,140 sherds. We have no explanation to offer for this. The 601 utility sherds show a drop in corrugated pottery from 85 percent in Stratum C to 73 percent in Stratum B, with a corresponding increase in plain gray and Mancos Gray. Decorated sherds show a similar reversion to earlier types. This was the only level, except for Stratum E, that had a higher frequency of Cortez Black-on-white than of Mancos. Also, La Plata and Piedra Black-on-white combined, amounting to 2 percent of all the decorated sherds, are more numerous than any discrete stratum above Stratum E. The single trade sherd was Citadel Polychrome. No artifacts of clay other than pottery were found.

The increase in earlier pottery types calls for explanation. Stratum B was probably the deposit of the Mancos Phase occupants of the Rooms 5 through 9. There must have been considerable earlier construction which produced the trash in the lower three strata of the dump. Perhaps the earlier houses were burned and the area was scraped clean before the later houses were erected. This could account for the large amount of burned material in the stratum, and also for the fact that little could be found of earlier architecture in the house mound area. The result was an anomalous deposit containing high frequencies of very early sherds mixed with some of the latest types.

Stone

- 2 used flakes
- 2 scrapers: one end scraper on a chert blade; and one side scraper on a blade of siltstone.
- 2 hammerstones
- 2 manos: sandstone and quartzite, both trough type.
- 1 conical fetish: a flattened cone with edges pecked and faces ground.

Bone artifacts

- 5 awls: two complete, both mule deer. Fragments are mule deer, bighorn, and unknown artiodactyl.
- 1 ornament: tube bead of jackrabbit femur, complete, 24 mm. long (fig. 221h).

- 5 miscellaneous: polished or ground splinters of bison rib, deer metatarsal, unknown artiodactyl humerus, and a long bone and unknown bone of two unknown mammals.

Bone refuse

- rock squirrel: innominate.
cottontail: nearly complete skeleton plus an innominate bone and a radius.
gray fox: radius.
coyote: tibia.
unknown carnivore: femur.
bighorn sheep: radius, tibia, metatarsal (3).
mule deer: radius, ulna.
unknown artiodactyl: rib (2).
turkey: humerus, carpometacarpus, phalanx.

Stratum A

Stratum A, the upper layer of trash, was the most extensive of all the strata. Its limit is not marked on the map (fig. 48), but it corresponds to the approximate limits of trash shown on the overall map of the mound (fig. 47). Some of this spread is undoubtedly due to erosion off the top of the mound to the sides and south end since abandonment of the site. At points where it was clearly separable from Stratum B, there was a thin layer of fine silt dividing the two. In places at the south end of the mound where Stratum B first appears, the silt is heavier and up to 0.8-foot thick. Stratum A runs from about 0.6 foot deep at the upper end of the mound near the kivas, to about 2.7 feet on the southeast slope. It averages well over 1 foot and is the thickest stratum in the mound. It produced three times the amount of material as Stratum E, the next highest in content. In composition, Stratum A was made up of more mineral soil and recent organic matter than Stratum B, but contained a considerable amount of gray ash in most sections.

Though the highest percentages of the most recent types of sherds and artifacts were found here, there was also much early material. This last was probably due to two factors: the comparatively short term of the latest occupation, and the continued drift of sherds from earlier sites on the ridge above—a process that continued throughout the seven centuries after the abandonment of the settlement. It was the most disturbed level and the least discrete sample.

Pottery

A total of 12,282 sherds was collected from Stratum A. Of these, 1,403 were unclassified. The 6,353 utility sherds show a return from the peculiar situation in Stratum B with corrugated sherds higher in relation to plain gray wares. But even though the trend away from early plain ware in favor of corrugated that was established in the four lower strata seems to be reasserted, the proportion of corrugated to gray is not as high as it was in Strata D and C. The 3,526 decorated sherds held the highest proportion of Mancos Black-on-white over Cortez—66 to 24 percent—and the highest incidence of Mancos Black-on-white with carbon paint—2 percent.

Other clay objects

- 3 pottery pipes: two are stems only of undecorated pipes; one is an elbow pipe of Mancos Black-on-white with rock and sand temper (fig. 171, right).
9 sherd disks: six plain gray, two with partly ground edges; two red bowl sherds, one with partly ground edge; one unpainted white sherd, slipped and polished.

- 17 pendants and blanks: twelve finished, complete or fragmentary pendants; nine red and three black-on-white sherds (fig. 172d, g, i). Five unperforated pendant blanks; two red sherds with ground edges (fig. 172l), one Chapin Gray with chipped edges, one black-on-white sherd with ground edges, one unpainted disk, 1.2 by 1.6 cm., with central perforation.
1 unfired object: clay ball, 1.2 cm. in diameter.

Stone artifacts

- 20 used flakes: five lamellar blades.
2 projectile points: both quartzite, one with corner notches and a convex base, one with broad straight stem.
5 knives: a basalt pebble with percussion flaked edge; a chipped flake of banded siltstone; a chipped obsidian lamellar blade; a notched flake of jasper with rounded tip (fig. 180c); and a notched chisel-like tool of chert (fig. 180h).
1 saw: small flake of chert with dentate edge (fig. 180n).
3 drills: two triangular quartzite flakes (fig. 181a,d); one large chert spall with chipped corner.
24 scrapers: nine chert (fig. 182e and l), five claystone (fig. 182b), four quartzite (fig. 182k), three basalt (fig. 182c), two chalcedony (including one petrified wood), and one banded siltstone; 18 are side scrapers, six are end scrapers.
8 choppers: two sandstone mano fragments bifacially spalled and re-used (fig. 184g); two re-used hammerstones of claystone and quartzite; three cores of claystone and quartzite; one claystone flake.
3 notched axes: quartzite, porphyry, claystone.
3 notched hammers: all of granite.
6 notched axes or hammers: three diorite, two porphyry, one granite.
2 grooved hammers: one of diorite, with full groove; one of granite, grooved on one side only.
138 hammerstones
8 metates: seven sandstone, one of quartzite; all are fragments of trough metates.
39 manos: five complete, 34 fragmentary; 9 sandstone and four quartzite are trough type; 10 sandstone and five quartzite are slab type; five sandstone, four quartzite, and one trachyte are of unknown type. One trough type re-used on slab metate.
2 mano blanks: sandstone.
1 crusher: quartzite, pecked but not ground.
10 small polishing stones: four quartzite, three claystone, one each of chert, granite, sandstone; all with one or more polished surfaces.
3 rubbing stones: porphyry cobble with highly polished face; two of quartzite, with edges shaped by pecking.
5 hand abraders: spalls of sandstone with one or more faces ground; one is a fragment of sandstone tablet, with edge shaped by pecking.
1 whetstone: large spall of sandstone, with shallow concavity ground into one face.
3 grooved sharpeners: all sandstone; one is a shaft smoother (fig. 198c), two are awl sharpeners (fig. 198d and f).
5 pendants: all red shale, with edges and faces ground (fig. 204a and e).
5 beads: small perforated disks, three of shale and two of jet.
2 paint stones: one hematite and one reddish limonite.
1 fetish: polished black shale disk, 3.3 cm. in diameter and 0.4 cm. thick (fig. 204g).
4 worked slabs: door or niche covers of sandstone, edges squared by spalling and pecking, faces ground on two; one complete specimen, 16.0 by 7.7 by 1.1 cm.
3 jar lids: one sandstone fragment with both faces ground; one of

quartzite, 6.5 cm. in diameter, with edge flaked and ground; one of sandstone, 13.5 cm. in diameter, edge bifacially flaked, one face lightly ground (fig. 202b).

2 disks: one sandstone, 5.3 cm. wide, with all surfaces ground, possibly a bottle stopper; one of calcite, 4.1 cm., with battered edge.

3 weights: an ax-shaped, notched sandstone slab; a subconical concretion with pecked groove at one end (fig. 203c); a subcubical sandstone block with ground facets and crossing, incised grooves (fig. 203f).

1 pot support: cylindrical, burned sandstone concretion.

1 sandal last (?): fragment of sandstone tablet with bifacially flaked edges and one polished face.

14 gizzard stones: one was originally a chipped drill of jasper.

Shell

2 beads: these were the only shell artifacts found in the three sites.

Bone artifacts

17 awls: 11 complete; eight mule deer, one with weaving groove; one probably deer, a bodkin (fig. 219d); one bighorn with blunt tip (fig. 218a); seven unknown artiodactyls.

1 flaker: metatarsal of mule deer, split, with two use-blunted ends (fig. 221b).

1 ornament: tubular bead, turkey radius notched at one end.

5 miscellaneous: metatarsal and humerus of mule deer, cut and ground; metapodial of unknown artiodactyl; rib and unknown bone of unknown mammals.

Refuse bone

rock squirrel: innominate, dentary.

prairie dog: dentary.

cottontail: innominate, vertebra, humerus, femur, tibia (3).

ackrabbit: scapula, humerus, tibia (2), femur (3).

badger: dentary.

black bear: cranium.

bobcat: radius, ulna.

red fox: innominate, scapula.

gray fox: ulna.

coyote: dentary.

dog: radius, tibia.

unknown canid: vertebra.

poson: calcaneum.

bighorn sheep: dentary, cranium (2), vertebra (5), scapula (4), rib, innominate, radius, humerus (2), femur (2), astragalus, metacarpal (3), phalanx (3).

mule deer: cranium, dentary, rib, ulna, femur, tibia (2), metapodial (3), astragalus, cuboid (2), calcaneum, phalanx.

unknown artiodactyl: scapula, vertebra, rib (6), ulna, femur (2), tibia (3), metapodial (3), unknown long bone.

unknown mammal: vertebra, long bone (7), unknown bone.

unknown bird or mammal: unknown bone.

turkey: 18 bones.

unknown bird: unknown bone.

ARCHITECTURAL FEATURES

The various architectural features unearthed at Badger House will be discussed, like the strata in the trash mound, in the order of their chronological sequence, insofar as this could be interpreted.

Features 7 and 8

(Ackmen Phase)

The earliest construction of which there was any trace was a jacal structure built on subsoil below the center of the trash mound and under the toe of Stratum E. Feature 7 consisted of a series of 48 postholes, a section of adobe and rough rock wall, a firepit, and two larger pits. This was obviously a house site of some kind, but not enough was left to estimate the number and orientation of the rooms. The postholes averaged 0.5 foot wide by 0.6 foot deep. Sixteen of the postholes held rotten wood and two of these had charred remains of posts burned in place, but no wood was suitable for dating. Ten postholes contained sandstone spalls at the sides, which were used as shims to tighten the posts.

Near the center of the structure was a 17-foot section of adobe and rock wall that formed a continuation of a line of postholes (fig. 51). The wall was about 2 feet thick and consisted of a mass of adobe and small random rocks. The adobe contained considerable ash, charcoal, and sherds as though it had been made of trashy soil scraped up from the surface in the immediate vicinity. The sherds in the wall itself were predominantly Pueblo I decorated types and Mancos Gray, and are discussed in some detail in the pottery chapter under "Mancos Gray." At its north end the wall joined another at right angles, but the latter was destroyed. Twenty-five feet to the northeast of the wall was a short section, 4 feet long, of what may have been another like it. This latter section was more ash than adobe, and may have resulted from the dumping of burned rocks that formed a trap for trash.

Two large, irregular pits were associated with Feature 7. The first of these lay just south of the southernmost line of postholes. It was oval in shape with sloping sides, and measured 5.5 by 7 feet with a maximum depth of 1.3 feet. The fill was trash from Stratum E and several large broken pieces of burned sandstone. The second pit, 15 feet northeast of the north end of the adobe wall, was designated Feature 8 in the field before it was recognized as part of



Figure 51. Feature 7 under trash mound, section of west wall, looking north-northwest.

Feature 7. This pit, oval in outline and bowl-shaped in cross section, measured 4.9 by 5.6 feet and was 1.8 feet in depth. At the bottom of the pit was 0.3 foot of fine charcoal, above which was a jumble of burned sandstone. The earthen sides of the pit showed evidence of fire, suggesting that the pit was used for cooking. A firepit near the north end of the posthole complex was an oval basin, unlined, containing 0.3 foot of charcoal.

In addition to the sherds (table 24), one other piece of pottery was probably associated with the structure—the base of a Mancos Gray jar that was set in a shallow depression in subsoil near Feature 8. A fragment of trough type mano was used as a wedge in one of the postholes. Three stone artifacts—two hammerstones and a grooved sandstone awl-sharpener—and a large unmodified cobble of quartzite were incorporated in the adobe section of the wall. At the bottom of the southernmost of the two larger pits was a large stone bowl fashioned from a concretion.

No trash could be identified with the jacal and, although the entire area for distances of 60 feet to the south and over 100 feet to the east was trenched and cored with a soil auger, no trace of an associated pit structure was found. The pottery and type of construction, however, would point to an occupation at or close to the time of transition from the Piedra Phase to the early Ackmen Phase, probably about the beginning of the 10th century. Piedra Black-on-white and Mancos Gray were found in the adobe of the wall. Reed has suggested dates of A.D. 750 to perhaps 900 for Piedra (Reed, 1958, p. 79), and Mancos Gray has been given estimated dates of A.D. 875 to 950 (Abel, 1955).



Figure 52. Feature 9, a small pithouse; postholes at upper left are part of a later structure, Feature 11; looking north-northwest.

wall to wall, and tapered to 5.9 feet at the north end. The walls sloped outward slightly from floor to ground surface. At the northeast corner the upper edge was reinforced by flat rocks laid in adobe, probably to prevent slumping. The only features of the pit were four corner postholes, 0.4 foot in diameter by 0.7 to 0.9 foot deep. There was no wood or charcoal in any of the holes, and the posts had apparently been pulled up. We found no firepit, ventilator, cist, or break in the walls.

Other than the four postholes in the floor, there was no indication of how the structure was roofed or, indeed, what its purpose was. The walls were lightly burned. This had happened after a section of the southwest corner had slumped and probably after the pit was abandoned—possibly as a result of burning trash in the empty pit.

Scattered on the floor were seven complete manos and one fragment. All were unifacial with ends canted from use in trough metates. All but two had finger-grips. Two are illustrated in figure 193i and figure 194a. On the floor also were three sandstone mano blanks, one of which is a fragment.

The count of sherds lying within 0.2 foot of the floor (see table 24) shows a greater proportion of corrugated sherds than appeared in Feature 7, and a substitution of Cortez Black-on-white for the Pueblo I types that were dominant in the earlier structure. Cortez Black-on-white is more numerous than Mancos Black-on-white, indicating an Ackmen Phase occupation. The sherd proportions are quite similar to those in Stratum E, but nothing else can definitely relate Feature 9 to this stratum. Although it is possible that the pithouse is the sole remaining structure from which emanated the trash of Stratum E, another interpretation presents itself. Feature 6, which overlies Stratum E, is a thin layer of clay from 0.2 to 0.3 foot thick. It has an irregular oblong outline, oriented northwest-southeast (fig. 48). It is possible that this feature represents spoil from the initial excavation of the pithouse and is thus contemporary with the first use of the structure. If such is the case, Stratum D+ is probably the trash thrown out during the period Feature 9 was occupied. Sherds from Stratum D+, however, do not compare as closely to those from the floor of the pithouse as do those from Stratum E.

Table 24. Sherds from Features 5, 7, 9, and 11, Badger House

Type	Fea. 9			Fea. 9		Totals
	Feature 5	Feature 7	Floor	Fill	Feature 11	
Chapin Gray	23	14	57	188	137	419
Moccasin Gray	1	—	4	15	12	32
Mancos Gray	9	25	7	5	5	51
Mancos Corrug.	44	—	9	10	27	90
Mesa Verde Corrug.	1	—	—	—	1	2
? corrug.	86	4	26	39	72	227
Chapin B/w	1	2	1	4	2	10
Piedra B/w	—	16	1	8	1	26
Cortez B/w	52	2	16	19	5	94
Mancos B/w	69	—	12	11	35	127
McElmo B/w	3	—	—	—	—	3
Mesa Verde B/w	—	—	—	—	6	6
Abajo R/o	2	3	2	5	2	14
Bluff-La Plata B/r	6	—	3	8	3	20
San Juan Red	—	—	—	1	—	1
Unclassified	68	16	19	40	52	195
Totals	365	82	157	353	360	1,317

Feature 9

(Ackmen Phase)

Probably the next structure to be built at Badger House was the small pithouse, Feature 9 (figs. 52 and 78). It was encountered at the north end of Test Trench IV at a depth of 2.3 feet below the present surface. The structure was simply a subrectangular pit, 3.6 to 3.9 feet deep (from original ground surface). At the floor it was 8.7 feet long on a north-south line and averaged 6.6 feet wide. The pit was somewhat wider at its south end where it was 7.3 feet from



Figure 53. Feature 11, showing slab wall beneath floor of tower.

Feature 11

(Ackmen Phase)

Feature 11 was the remains of a living area built in part over the fill of Feature 9 and extending under the tower (fig. 78). A row of nine postholes into subsoil lay 4 feet west of Feature 9's northwest corner and disappeared under the tower wall. Some of these show in figure 52. The holes averaged 0.4 foot wide and 0.5 foot deep. The northernmost contained a rotted post. No continuation of this line of posts was found below the tower floor but if projected, as can be seen on the map, the posts would connect with the east end of a curved row of six standing slabs (fig. 53). The slabs were buried in the same surface into which the postholes were dug and are undoubtedly part of the same structure. They stood from 0.9 foot to 1.4 feet high. The top of the highest slab was level with the base of the footing of the later tower.

Running to the east of the line of postholes and over the top of the trashy fill of Feature 9 was a hard-packed clay walking surface. Built on this surface, 5 feet east of the southernmost posthole, was a rectangular firebox consisting of four upright slabs. The slabs were set 0.4 foot into the adobe of the surface, which was brought up in a gentle slope around their bases. Six irregular pieces of flat sandstone set in adobe formed the saucer-shaped, flagged floor of the firebox. The stones and adobe were burned red, and 0.4 foot of ash and charcoal covered the bottom of the pit.

An isolated posthole, 2.9 feet southeast of the southeast corner of the firebox, was dug 1.9 feet into the fill of the Feature 9. The unusual depth and the numerous sandstone wedges used were probably necessary because of the soft trashy nature of the fill. The posthole contained much rotted wood.

Approximately 3 feet southwest of the southwest corner of the fireplace, and also dug into the fill of Feature 9, was a small subfloor oven, 1 foot deep. Somewhat bell-shaped in cross section, the pit had a maximum diameter of 1.3 feet but was only 0.8 foot wide at the mouth. The bottom and sides were partially lined with sandstone slabs. The stones and the unlined portions of the oven were heavily burned, and the pit was filled with small burned sandstone cobbles.

The sherds from the surface of Feature 11 are tabulated in table 24.

Considering the small area covered by Feature 11, there was

an unusual number of stone artifacts. Some of them may possibly have been intrusive from the Mancos Phase trash overlying Feature 11. These artifacts were:

- 1 scraper: quartzite flake side scraper.
- 1 chopper: "turtleback" (fig. 184b).
- 2 hammers: one of quartzite, notched, other of porphyry, full-grooved; both broken and re-used as hammerstones.
- 13 hammerstones.
- 13 metates: two complete, trough with open ends; others troughed fragments.
- 11 manos: three complete trough manos, one of quartzite, one of local sandstone (fig. 193h), and one of Dakota sandstone; eight fragments, four trough type, sandstone (2) and quartzite (2); two sandstone slab type, two quartzite of unknown type.
- 2 mano blanks: fragments, shaped but not used.
- 1 pitted rubbing stone: quartzite cobble, all surfaces pecked, both faces pitted (fig. 197b).
- 2 hand abraders: wedge-shaped sandstone spalls, with one concave face ground.
- 1 ball: sandstone, 3.0 cm. in diameter, one side flattened by grinding.
- 1 slab: door slab, with edge flaked and ground.
- 1 small disk: sandstone, 12.2 cm. in diameter, edge spalled, both faces ground (fig. 201e).

Feature 11 may have contributed some of the trash which made up Stratum D, and possibly also Stratum D+, but this is not clear. Certainly it was not a large enough house to account for such a sizable deposit, and no other structures contemporary with it were found nearby. It is possible that another structure near at hand was destroyed by later building. It is not impossible that Feature 11 postdated the deposition of Strata D and D+. It may have been contemporary with Kiva C.

Refuse bone from the surface of Feature 11 consisted of:

- rock squirrel: tibia, femur.
- turkey: ulna (2).

Features 3 and 5

(Ackmen Phase)

Similar to the clay surface of Feature 6 and separated from it by Strata D and D+ below was the adobe surface of Feature 3 (fig. 48). It lay across the area of Feature 6 in a north-south line, but it was thicker—0.7 to 0.8 foot near the center. The texture of the soil showed the characteristic broken quality of transported spoil, in many instances in definite lumps, as though moist earth had been carried in baskets or cupped hands and dumped. The orientation of the irregular outline suggests that it was earth from the digging of Kiva C. Much of the surface of the layer was packed hard from traffic. Part of it formed the floor of the house, Feature 5 (fig. 47).

The house remains were too sketchy to permit an estimate of the original number of rooms. The house seemed to have been on a more or less east-west line and lay south of Kiva C. If Feature 5 and Kiva C were parts of a unit, the position of the house to the south of the kiva is unusual. But it seems likely that Feature 5 is the remaining projection of a larger, L-shaped structure which ran north and south, with the kiva to the east, an orientation seen at the contemporary Two Raven House nearby.

Evidence of construction consisted of two sections of adobe and rough rock walls at the northern end of Feature 3's surface and a row of six postholes at the toe of Feature 3. The postholes, set

close together, averaged 0.5 foot in diameter and 2 feet deep. The two deepest holes contained rotted juniper. Just to the south of the line of holes, the surface of Feature 3 was covered with numerous chunks of burned adobe, many of which bore impressions of poles and split shakes with a coating of plaster on their reverse faces. Near the east end of the line of postholes was a pit with an irregular outline and an average diameter of 3.5 feet. The pit was 1 foot deep, with a nearly perpendicular wall at one side reinforced with a single standing slab. The other side of the pit sloped gently to the surface. There was no indication of fire.

Twenty-five feet north of the postholes was the base of a wall which was traced for 31.5 feet. It averaged 0.8 foot wide, and at its western end it was made almost entirely of adobe. The eastern end of the wall was made up of small uncoursed and unshaped rock in adobe mortar. Seven feet to the north of the western end of the wall and running parallel to it was a shorter section of adobe wall. Just south of the latter wall was part of a bin composed of two standing slabs and a section of adobe and rough rock. The bin was filled with trash, and its function could not be determined.

The sherds from the floor of Feature 5 between the two wall sections are listed in table 24. The only other pottery was the neck of a Mancos Corrugated jar, which was inverted on the floor at the south side of the west end of the longer wall (fig. 94f). It may have served as a pot rest.

On the floor between the two walls, the following stone artifacts were found:

- 1 scraper: claystone flake.
- 4 hammerstones
- 1 mano: fragmentary trough type of quartzite.
- 1 pendant: red shale, trapezoidal, with faces and edges ground.

The following artifacts were collected from the surface of Feature 3 between the walls and the row of postholes:

- 1 sherd pendant blank: black-on-white bowl sherd, with chipped edges.
- 1 used flake: claystone.
- 3 hammerstones
- 1 cobble: quartzite, modified only by battering on one end.
- 1 mano: sandstone, fragmentary, bifacial, of undetermined type.
- 1 polished stone: fragmentary tablet of jet or lignite, highly polished on both faces.

Refuse bone

- cottontail: innominate, tibia.
- dog: sacrum.
- bighorn sheep: metatarsal.
- mule deer: rib (2).
- elk: scapula.
- unknown artiodactyl: rib (probably bison).

KIVA C

(Ackmen Phase)

The pit for Kiva C (figs. 54-56) was dug in ground that sloped sharply to the east so that its floor was 7 feet below original ground surface on the western side and 6 feet at the eastern side. The pit tapered from 18.8 feet wide at the surface to 16.2 feet at the floor. The digging was apparently done in moist soil with digging sticks—the marks of these tools still show in the earthen wall above the west banquette. To create a banquette, and to modify the sloping banks, a shelf 0.7 foot wide was cut at a point 3.1 feet above the floor. The earth above the shelf was removed to make a

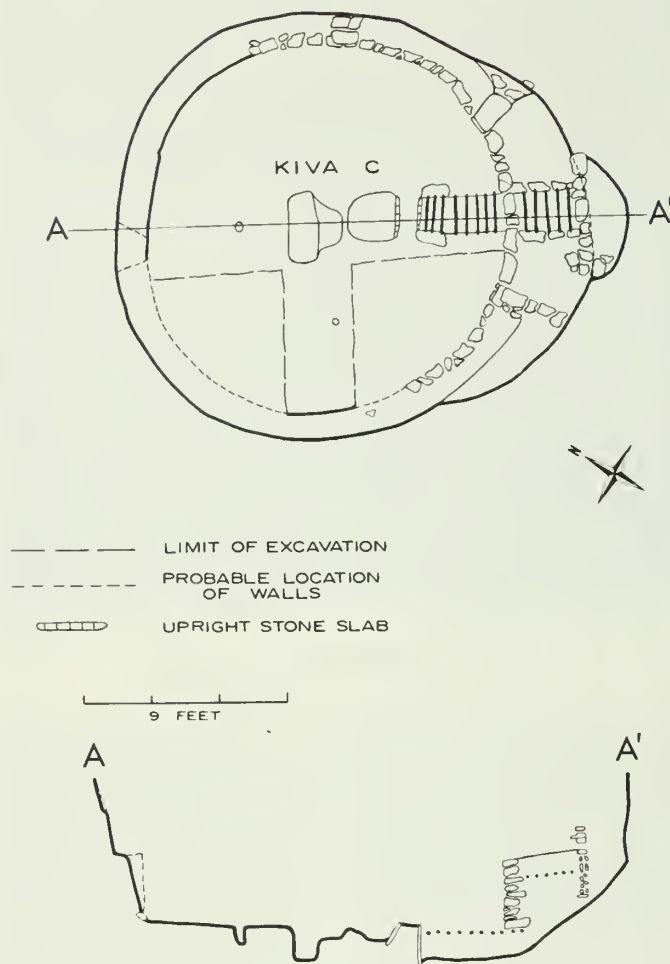


Figure 54. Kiva C, plan and cross section.

vertical wall above and to the rear of the shelf (fig. 55). Midway between the shelf and the floor, another shallow notch was cut to serve as footing for an inner liner of masonry, 1.6 feet high—five and six courses of flat stones—to reach the edge of the shelf. Some of the stones were roughly shaped by chipping. The liner added 0.7 foot to the shelf, creating a banquette 1.5 feet wide. The earth below the masonry was then shaved down flush with the stone, and the masonry was concealed by a coat of coarse plaster, 0.05 foot thick. Except for the plastered upper half of the wall below the banquette, the walls and banquette were entirely of earth (fig. 56).

Only three pilasters remained, one on each side of the ventilator, and one at the east side of the kiva. They were 1 foot wide and were set back 0.15 foot from the edge of the banquette. The pilaster to the west of the ventilator was the only one standing to its original height of 1.9 feet. Added to the height of the banquette, this allowed for a ceiling 5 feet high at the outer edge. This same pilaster was built of five courses of large rocks which had received only the most preliminary shaping. The other two pilasters had some large stones, but much more of their bulk was made up of mortar and small spalls. The inside distance between the pilasters flanking the ventilator was 6.5 feet, but that between the two to the east of the ventilator was 6 feet. If the latter distance is projected around the circumference of the kiva, and a 1-foot width is postulated for the missing pilasters, there were seven pilasters originally. Several large rocks in the north wall are probably the remains of

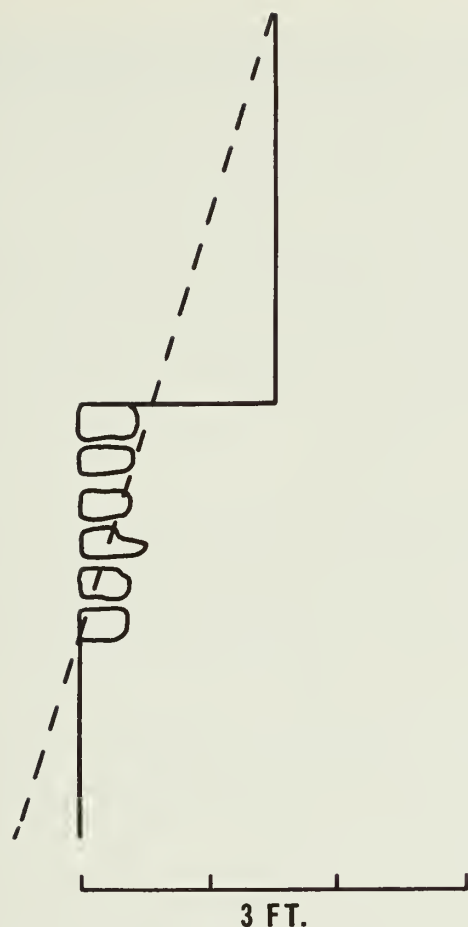


Figure 55. Kiva C, method of wall construction.

another pilaster fallen just to the west of its original position (fig. 57). Undoubtedly, the stones from in the missing pilasters were used elsewhere after the kiva was abandoned. As can be seen on the plan, the masonry inner liner of the northwest half of the kiva is also missing.

It is probable that timbers as well as stones were removed from Kiva C. The only evidence of roofing material is a 7-foot pole of juniper which sloped from the top of the pilaster west of the ventilator to the bench in the vicinity of the postulated pilaster to the west. The wood was too rotten to be dated. Immediately behind and parallel to it was the impression of another pole in the earth bank, level with the top of the pilaster. The position of the two poles is clear evidence that the roof was cribbed by laying poles from pilaster to pilaster around the circumference of the kiva.

In order to build a ventilator system, a pear-shaped hole was dug in the south bank of the original pit for a distance of 5.5 feet beyond the perimeter of the pit at floor level. A subfloor tunnel was run from near the firepit to the back of the new excavation. The tunnel was 1.5 feet wide and 1.2 feet deep, and its sides were lined with vertical slabs. Under the kiva floor it was roofed with small poles, 0.2 foot in diameter and on 0.45 foot centers, and finally covered with adobe, leaving an opening at the north end, 1.3 feet long. At the point where the tunnel crossed the perimeter of the original wall, its floor climbed steeply to rise 4 feet in the remaining 5.4 feet to the south end of the ventilator shaft. The south wall of the kiva was then rebuilt by constructing a wall of rough masonry



Figure 56. Kiva C, plastered rock veneer below banquette.



Figure 57. Kiva C, partly excavated, looking southeast.

across the tunnel and up to the height of the banquette on either side.

Another wall was built, 3.2 feet to the south of the first one and 1.6 feet inside the vertical south bank of the ventilator excavation, to make the north wall of a vertical shaft and a masonry form at the south side of a southern recess to hold earth fill. A large trough metate was used as footing for the wall where it bridged the tunnel. The distance between the walls was twice the depth of the banquette, and thus a southern recess was formed. The area between the masonry walls was bridged with small timbers. The timbers were crossed with trough metates and covered with 0.4 foot of earth. Because of the sharp rise in the floor of the excavation and the placement of timbers in the recess, the tunnel depth under the deck of the recess was more than twice its depth under the kiva floor—averaging 3 feet. The opening in the floor at the north end of the tunnel was flanked by flagstones set into the kiva floor and could be closed by a large sandstone slab which lay beside it (fig. 57).

An additional and unusual opening into the ventilator shaft was in the form of a small window in the rear wall of the southern

recess at deck level, 1.5 feet wide and 0.9 foot high. This is seen as slumped masonry in figure 57.

The first fireplace was circular and bowl shaped, 2.2 feet across and 0.5 foot deep, and was built in almost the exact center of the floor. The sides were hardened and reddened by fire, but it had been cleaned out, filled with clay, and floored over. Another firepit was then built to the south of the first one just 0.7 foot to the north of the end of the subfloor ventilator tunnel. This fireplace was D-shaped, 2.1 feet in diameter by 0.6 foot deep. The sides were sloping and the straight side on the south was formed by a nearly perpendicular sandstone slab which projected 0.2 foot above the floor level. White ash, 0.3 foot deep, covered the bottom of the pit. There was no deflector.

The floor was level and unplastered but covered with a fine skiff of golden sand. Three features were present in the floor. A sipapu, 0.3 foot wide and 0.8 foot deep, was at a point approximately midway between the second fireplace and the north wall of the kiva. It was empty. Between the center of the kiva and the west wall was a similar hole, 0.3 foot wide and 0.9 foot deep. This hole was slightly wider at the bottom and was filled with clean yellow sand. Cutting the old, refilled firepit at right angles to the kiva's main axis was a subrectangular pit, 3.1 feet long by 2.3 feet wide and 1.4 feet deep. The sides were straight and unburned. Apparently the pit stood open a very short time and was then refilled with clay—perhaps the same clay that had come out of it—and the area was smoothed over. Its purpose was not determined.

Kiva C was excavated in three stages. The overburden above the pit outline and the fill to banquet level was recorded as "overburden." The pit fill from banquet level to within 0.4 foot of the floor was removed as "fill," and the last 0.4 foot was labeled as "floor." The sherd counts for the three levels are shown in table 25. All of the material was trash. After the roof had been removed and much of the stone salvaged, the open pit was used as a dump—almost certainly by the occupants of the Mancos Phase house, Rooms 5 through 9. Much of the material removed as "floor" is actually

only the first trash thrown into the hole, and probably little of it represents things left on the floor by the users of the kiva. There was probably no time lapse between the abandonment of the kiva and its use as a refuse area. The floor features were in very good condition, and there was no evidence of deterioration of the roof nor any drifting of waterborne or windborne soil onto the floor before trash was dumped.

Except for the sherds shown in table 25, only those artifacts from the floor, ventilator tunnel, and the purposeful fill of the southern recess are listed below. These should represent tools contemporary with the building or use of the kiva, or with the period immediately after its abandonment.

Unless noted otherwise, the following stone artifacts were from the floor to 0.4 foot above it:

- 2 used flakes: both claystone.
- 1 scraper: chert core, snub-nosed.
- 1 hammer: claystone, notched on sides and peen.
- 14 metates: sandstone, fragmentary trough type; five from fill of southern recess where they had been used to cover the tunnel, one from subfloor ventilator tunnel, eight from floor.
- 8 manos: two quartzite cobbles, others sandstone; two used on either slab or trough metates, others all trough type; only one complete; one from fill of southern recess.
- 3 mano blanks: two sandstone, one quartzite; two complete, one fragmentary; all with flaked edges but unused.
- 1 whetstone: rough building stone with shallow ax-sharpening grooves in both faces; fill of southern recess.
- 1 crusher: quartzite, 25.5 cm. long.
- 1 possible fetish: calcite flake ground to wedge shape and polished, 2.5 cm. long.
- 1 lapstone: flat, oval cobble of yellow quartzite, 21.5 cm. long.

Two complete bone awls were found on the floor. They were made from split metapodials of mule deer and bighorn sheep.

Refuse bones from the floor area were:

- red fox: femur.
- mule deer: phalanx.
- unknown mammal: unknown long bone.
- turkey: humerus.

Table 25. Sherds from Kiva C, Badger House

Type	Kiva C			Totals
	Overburden	Fill	Floor	
Chapin Gray	272	101	24	397
Moccasin Gray	19	—	1	20
Mancos Gray	80	19	19	117
Mancos Corrug.	470	272	108	850
Mesa Verde Corrug.	3	2	—	5
? corrug.	1,346	545	243	2,134
Chapin B/w	4	—	1	5
Piedra B/w	9	1	—	10
Cortez B/w	124	70	15	209
Mancos B/w	782	305	71	1,158
Mancos B/w, carbon paint	18	3	—	21
Undetermined B/w, carbon paint	30	1	2	33
McElmo B/w	9	2	—	11
Mesa Verde B/w	6	—	—	6
Abajo R/o	7	1	2	10
Bluff-La Plata B/r	13	5	1	19
San Juan Red ?	6	—	—	6
Unclassified	807	274	73	1,154
Totals	4,005	1,600	560	6,165

Kiva C was probably used by the occupants of Feature 5 and possibly also earlier by those of Feature 11. It can be dated only by inference and comparison with other dated kivas that are similar in construction. It was filled with trash containing sherds in which Mancos Black-on-white was the dominant decorated pottery, but with a still significant number of Cortez Black-on-white sherds. The floor of Feature 5, presumably contemporary with Kiva C, exhibited a slight dominance of Mancos Black-on-white, but with a nearly equal proportion of Cortez—a situation one would expect in mid-Pueblo II, perhaps around A.D. 1000, and one suggesting an Ackmen Phase construction of the kiva. A similar earth-bank kiva at Site 16 on Chapin Mesa was the oldest of a series of three kivas—the latest of which was dated at A.D. 1074 (Lancaster and Pinkley, 1954). The kiva at Site 102 village, also on Chapin Mesa, was earth lined and equipped with masonry pilasters like those in Badger House, and was dated at ca. 950 (O'Bryan, 1950, p. 107). An unlined kiva at Two Raven House, with Cortez Black-on-white pottery, was dated from A.D. 1004 to 1039.

Subfloor ventilator tunnels are not uncommon in McElmo and Mesa Verde Phase kivas in the Mesa Verde area, and are commonly attributed to a Chaco influence. The occurrence in Kiva C is earlier than others reported from this area. Such ventilators in the

Chaco country are not clearly earlier although they are more common there. Most of the kivas at Pueblo del Arroyo in Chaco Canyon had subfloor tunnels. Dates from the ruin range from A.D. 1052 to 1117 (Judd, 1954, pp. 59 and 172).

The southern recess is a common diagnostic feature of the Pueblo III kiva of the Mesa Verde area, and when found in areas to the south it is frequently ascribed to influence from the Mesa Verde area. As a fully accepted trait, it made its appearance in the early McElmo Phase. Kiva 1 at Site 16 on Chapin Mesa, mentioned above, with a date of A.D. 1074 and associated with round towers, compound walls, and finished masonry but Mancos Black-on-white pottery, has a southern recess above the ventilator tunnel. Though unfortunately not well dated, Kiva C is unquestionably earlier and is probably nearly contemporary with the earlier of the Pueblo II kivas with a southern recess, at Site 3 in the Ackmen-Lowry region (Martin, 1938).

This is not to present an argument for the Mesa Verde origin of the trait, however. William Bullard and Francis Cassidy excavated two unlined kivas (one with a subfloor ventilator) with southern recesses near Tohatchi, N. Mex. Pottery associations were the Chaco types, Red Mesa, Escavada, and Gallup Black-on-white, and one of the two kivas produced two timbers dated at A.D. 1020 and 1047 (Wendorf, 1956, p. 31). A Black Mesa Phase kiva near Cameron, Ariz., also with earthen walls, had a southern recess and was dated by the ceramics present as pre-1064 (Breternitz and Schley, 1962). Also well outside the Mesa Verde area is Wingate 11:24, a Chaco Branch site dated at A.D. 930 to 1000, where the kiva had a southern recess (Gladwin, 1945).

It seems that we are not ready to name the source for either of the traits. We find the southern recess at relatively the same period at such widely separated points as the lower Little Colorado, the Chuska Valley, and the Mesa Verde, and the subfloor ventilation system throughout the Chaco province and on the Mesa Verde.

ROOMS 5 THROUGH 9

(Mancos Phase)

The next construction at Badger House, probably immediately after the destruction or abandonment of the Kiva C—Feature 5 complex, was the building of Rooms 5 through 9 and Kiva B. The house was built as a single row of rooms on a more or less east-west line (figs. 58 and 59). The first rooms constructed were Rooms 5 and 6, built as a unit using still earlier walls of rough rock as a foundation. The earlier masonry, possibly contemporary with Feature 5, could not be traced accurately. Rooms 8 and 9 were added later and were all of good masonry of simple wall construction with chipped-edge rock. Room 7 was made still later by building a partition wall across Room 8. This sequence of construction does not carry with it an implication that there was any considerable length of time between steps—it probably was all built in a comparatively short period. Another four or five rooms may exist under the unexcavated part of the mound to the east of Room 9.

Room 5

Room 5, at the west end of the house, is nearly rectangular and measured about 9.2 by 6.2 feet. Present height of the walls is an average of 1.4 feet. The floor was defined only as compacted soil at the base of the walls. A subfloor test produced no sherds and but 0.2 to 0.3 foot of clay with a few flecks of charcoal, before undisturbed subsoil was reached. The sherds from the fill are shown in table 26, along with the counts for the other rooms and the kiva of this period. Also in the fill were:

- 1 sherd pendant blank: Mancos Black-on-white bowl sherd, with ground edges.
- 1 tablet: sandstone, rectangular, 7.3 cm. long, edges and both faces ground.

Table 26. Sherds from Rooms 5, 6, 8, 9, and Kiva B, Badger House

Type	Room 5		Room 6		Room 8	Rooms 8 & 9	Kiva B		Totals
	Fill	Subfloor	Fill	Subfloor	Fill	Upper fill	Lower fill	Floor	
Chapin Gray	30	54	—	4	18	177	71	25	409
Moccasin Gray	—	3	—	—	1	12	1	—	17
Mancos Gray	1	5	1	—	10	20	17	2	56
Mancos Corrug.	3	5	—	2	11	49	34	10	114
Mesa Verde Corrug.	—	—	—	—	1	8	8	2	19
? corrug.	18	55	—	1	32	250	163	41	560
Chapin B/w	—	1	—	—	1	3	1	—	6
Piedra B/w	—	—	—	—	1	—	1	—	2
Cortez B/w	2	5	—	—	6	36	22	2	73
Mancos B/w	9	19	—	14	11	146	80	16	295
Mancos B/w, carbon paint	—	—	—	9 ¹	—	14	7	—	30
McElmo B/w	—	2	—	—	1	20	4	5	32
Mesa Verde B/w	—	1	—	—	5	10	6	1	23
Abajo R/o	—	1	—	—	1	—	—	—	2
Bluff-La Plata B/r	—	—	—	—	—	—	1	1	2
San Juan Red	2	—	—	—	—	4	3	1	10
Unclassified	17	29	—	—	29	152	111	8	346
Totals	82	180	1	30	158	901	530	114	1,996

¹ From 3 vessels.

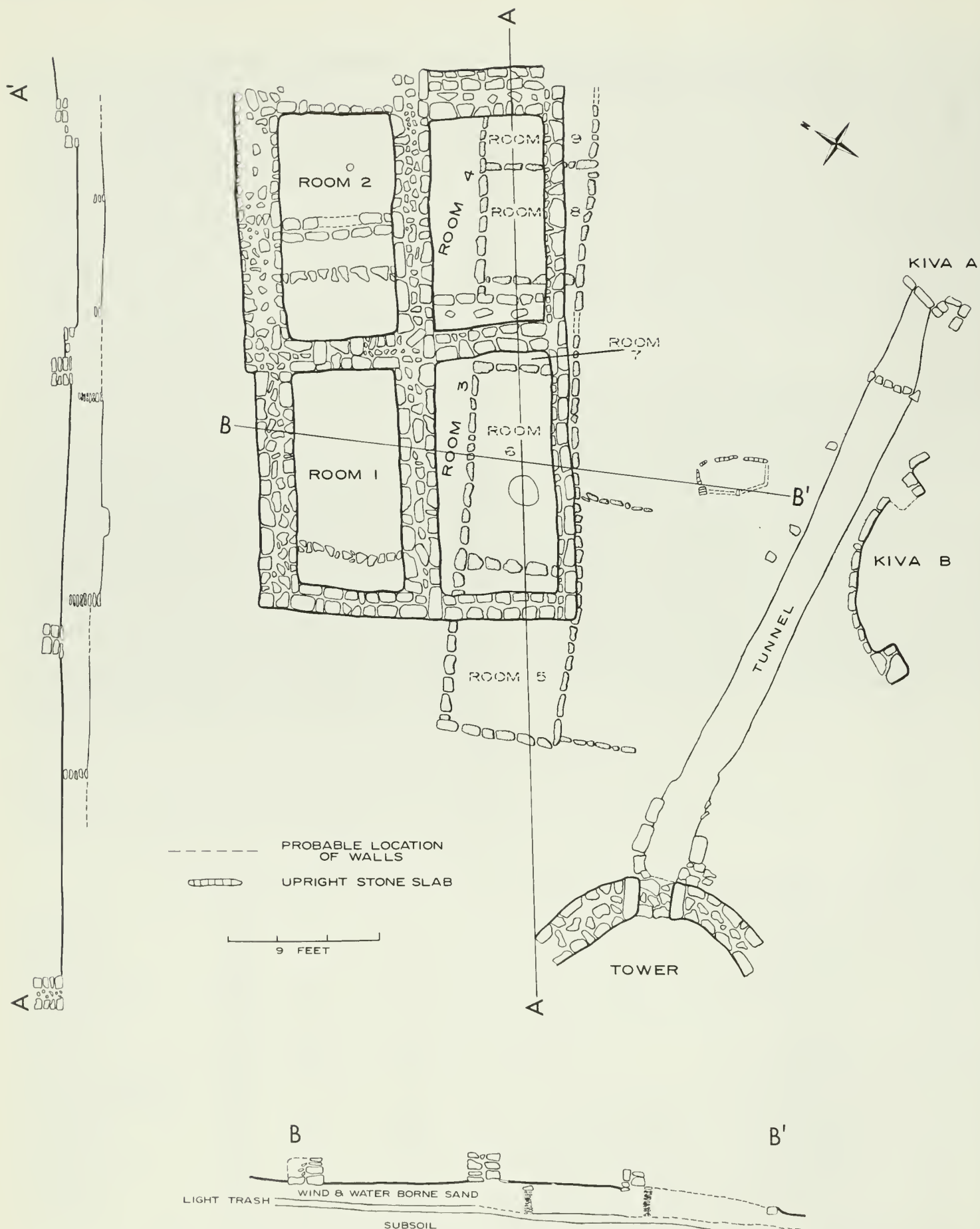


Figure 58. Excavated portion of room block, with nearby features, Badger House.



Figure 59. Rooms 5-9 (top to bottom), lying under later construction, looking west-southwest.

Room 6

This room was built at the same time as Room 5. The north and south walls of the two were built as a single wall, and the common wall between the two was then butted to the two longer walls. Average dimensions are 10.8 by 6 feet, the room being irregular and somewhat narrower at its east end. All four walls, like those of Room 5, are, in the lower 1 foot, of rough masonry or unshaped rock in variable sizes, with many small spalls and much mortar. This rough section of wall is then topped with one or two courses of scabbled stone of fairly uniform size—about 1.3 long by 0.3 to 0.4 foot thick—which make up the entire 0.6 to 0.7 foot thickness of the wall (figs. 60 and 61). These stones have the bifacial spalling of the edges typical of the late Pueblo II Mancos Phase. The lower part of the wall is similar to the type of construction used in the south wall of Feature 5, and was possibly part of the same structure used as a footing for the later construction. The floor is in subsoil, 0.6 foot lower than that of Room 5. Near the center of the room was a bowl-shaped firepit (fig. 61), 1.8 feet in diameter at the floor level and 0.6 foot deep. It had been obliterated by filling with clay to the floor level.

The following artifacts, unless otherwise noted, were found in the fill of Room 6:

- 1 hammerstone: on the floor.
- 2 manos: one sandstone, complete, bifacial with finger-grips, trough type; one fragmentary, quartzite, used on a slab.
- 1 hand abradar: sandstone, oval disk, 14.1 cm. long, edges spalled and one face ground.
- 1 cobble: quartzite, edges battered to discoidal shape.

Room 7

Room 7, about 5 feet square, was too small for anything but storage. It was formed by partitioning the west end of Room 8. The wide compound wall and bench of Room 4 in the later house crossed the room, and it was impossible to excavate it without destroying the wall above. Only stubs remain of the south wall which was largely destroyed, and the unexcavated north wall was only visible by the outline at both ends. The west wall, common to Rooms 6 and 7, has been described above. The east wall, butted



Figure 60. Room 6 (left and center) under Room 3, looking west.



Figure 61. Wall of Room 6 (below, in foreground), showing rough masonry, looking north-northeast.

to the north and south walls, unlike the walls in Rooms 5 and 6, is of good scabbled masonry to the bottom. Some small chinking spalls were used. The floor, as well as the floors of Rooms 8 and 9, was on a level with that of Room 6.

Room 8

Before the partition forming Room 7 was built, Room 8 was originally over 11 feet long—nearly the same size as Room 6. Its ultimate dimensions were 6.1 by 5.6 feet. All of the walls were more substantial than those of Rooms 5 and 6, and were built from the ground up with large, scabbled, flat stones. The south wall is now only two courses high and probably was robbed for later building. The floor was poorly defined and could only be surmised from the base of the walls. On the floor, in the northeast corner of the room, was a Mancos Black-on-white olla (fig. 142a). Nine large sherds of three Mancos Black-on-white jars, decorated with carbon paint, lay against the east wall.

Room 9

Only the west end of Room 9 was excavated. Its eastern end runs under the part of the house mound that has not been excavated. The masonry is the same as that of Room 8. About two-thirds of a large Mancos Black-on-white olla, decorated in large scrolls of straight hachure, lay on the floor near the center of the room.

Remarks on Rooms 5 Through 9

In front of, or to the south of, Rooms 5 and 6 were two short rows of stone masonry butting the south walls of those rooms at right angles (fig. 58). The area partly enclosed by these walls was not given a room number, but probably a room existed there, having dimensions of 13.7 feet long by at least 4.5 feet wide. Only one course of rock remained in these walls, and a floor could not be found.

Except for the plugged firepit, there were no floor features in any of the rooms. There is no sign of any doorway, but the maximum height of standing wall is 1.8 feet, with most sections of wall 0.5 foot lower. The possibility is not precluded that doorways existed in the fallen sections of wall.

KIVA B

(Mancos Phase)

Lying 15.5 feet in front of Rooms 5 and 6, Kiva B was excavated in three stages. The top 4 feet, from the surface to the top of the pilasters—labeled "upper fill" in table 25—was trashy at the top and can be equated with Stratum A of the trash dump. The lower part of this level contained more soil, lumps of adobe, and small bits of building stone. The fill from the top of the pilasters to within 0.4 foot of the floor, the "lower fill," was topped with about 1 foot of almost sterile, marbled, silty alluvium. Below the silt, the fill again was hard-packed, trash-impregnated soil, with an increasing amount of loose building stone toward the bottom. The last 0.4 foot of fill was removed as "floor."

The kiva is circular, entirely masonry lined, with six pilasters, no southern recess, and a floor-level ventilator tunnel. The diameter at the floor is 14.7 feet (figs. 62 and 63).

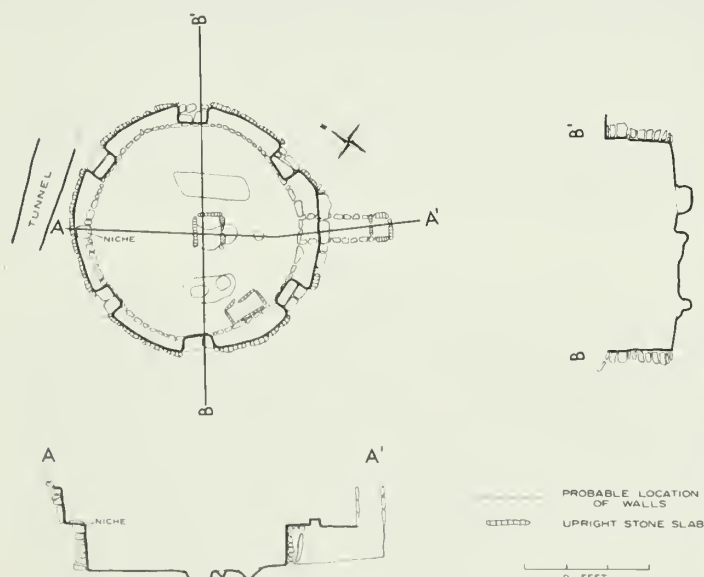


Figure 62. Kiva B, Badger House.

A banquette stood 3.1 feet above the floor exactly the same as the banquette in Kiva C. Kiva C may have served as a pattern for Kiva B, and the missing building material from the earlier kiva may well have been moved to the later one. The banquette was not of a uniform width but varied from 1 to 1.9 feet, and averaged about 1.5 feet. The masonry inner liner from the banquette to the floor was of well-laid, fairly uniform, blocky stones which had been carefully selected or scabbled. A few of the stones had been dressed by dimpling the face with a hammerstone. A minimum amount of mortar was used and, where mortar had to be thick to make up the differences in elevation of adjacent rocks, small chinking spalls were used. The stones were laid 13 and 14 courses high, and the top stones, which also formed the outer surface of the banquette, were thin and tabular. A single coat of reddish-brown plaster still adhered to some sections of the masonry when the walls were first exposed.

The six pilasters were arranged in groups of three on either side of the main axis of the kiva. The spacing between pilasters within a group was uniformly 5.2 feet at the outer corners. The spaces at the south and north sides of the kiva were greater. The pilasters at the north were separated by 7.3 feet and the two flanking the ventilator tunnel were 7 feet apart. They were built of larger stones than those used in the lower liner, squared and finished by pecking. They were set 0.1 to 0.2 foot back from the edge of the banquette and were uniformly 1.8 feet wide at the face by 1.5 feet high. If the basal cribbing of the roof timbers was laid directly on the pilasters, as it presumably was, the pilaster height added to the height of the banquette above the floor made a ceiling 4.6 feet high at the outer circumference of the kiva. Of course, as the cribbing progressed to a point where timbers were laid completely across the opening, the height increased.

The lining above the banquette consisted of slabs standing nearly to the height of the pilasters, topped by 1 foot or more of chipped-edge stone masonry cruder than that below. When the ceiling timbers were in place the slabs were exposed but the masonry above was mostly hidden. Two or three small patches of plaster remaining in place indicate the upper liner was also originally plastered. An exception to the slab liner occurred between the two southernmost pilasters over the ventilator tunnel. Here there was a single slab next to each pilaster with fine masonry of large blocks



Figure 63. Kiva B, looking south-southeast.

of stone filling the intervening space. At the center of this inter-pilaster space was a large niche in the south wall. One large block of sandstone served as a sill, 0.5 foot high. The opening was 1.8 feet wide and 1.6 feet high. The cist behind the opening extended into the bank some 2.8 feet behind the sill and was lined with masonry for a distance of about 1.5 feet. Its outlines are shown in the cross section, A-A¹, in figure 62. This niche possibly had the same function as a southern recess.

The ventilator tunnel at floor level was lined with masonry on both sides for its entire length of 6.5 feet. The floor was earth and rose 0.6 feet from the entrance to the junction with the shaft. It was roofed for the first 2 feet with large sandstone slabs. No trace of the rest of the tunnel roof was found, but it was presumably made of small timbers. The tunnel entrance was 1.4 feet wide and 1.9 feet high. A long slab was set into the floor to make a sill 0.1 foot high, and a masonry lintel rested on two small sticks. Just inside the entrance a sloping, perpendicular slab was set into the masonry on each side of the tunnel in such a way that its edge protruded into the tunnel for 0.1 to 0.2 foot and served as a stop for a stone slab which could be used to close the opening (fig. 64). Burial 33, the body of a child, lay at the angle formed by the junction of tunnel and shaft. The shaft, 1 foot square, was lined to the top with stone slabs.



Figure 64. *Kiva B, opening to ventilator tunnel, looking southwest.*

The kiva floor, 0.3 foot lower in the middle than at the sides, was no more than the natural, caliche-impregnated subsoil. Low spots had been filled with packed clay to make a smoother surface. A rectangular firepit sat a little to the south of the floor center. It was lined with slabs on three sides. The fourth side had an adobe rim 0.1 foot above the surrounding floor. The pit was 0.5 foot deep with a saucer-shaped bottom. A rather unusual feature of the firepit was a depression at the east side which dropped steeply for another 0.3 foot. This sump can be seen in figure 63 and in the cross section, in figure 62. There was no deflector.

A slab bin, 2.5 feet long and 1.2 feet wide, was built against the southwest wall of the kiva. Its purpose is unknown, but it may

well have held the metate (fig. 190) found on the floor between the firebox and the ventilator opening.

There was no sipapu, but a small niche in the masonry of the lower liner and on the main axis of the kiva in line with the fireplace and ventilator tunnel may possibly have substituted for one (fig. 65). It was 0.3 foot below the edge of the banquette, and measured 0.5 foot high by 0.6 foot wide and 1 foot deep.

The firepit and the slab bin were the only floor features dating from the last use of Kiva B. After the floor was swept, the vague outlines of two subfloor pits could be seen from the rim of the kiva. These proved to be long subfloor vaults on the east and west sides of the firepit. The larger of the two lay 1.2 feet east of the firepit and measured 4.9 feet long by 1.6 feet wide and 1.2 feet deep. The outline was asymmetrical and the clay sides were rough. A large Mancos Black-on-white olla had been placed in the south end of the cist (fig. 66). The vault was filled with clay and covered with a patch of adobe flooring over the settling earth. It is possible that the jar was placed in the pit at the time of filling so that the neck, now missing, reached the new floor with its rim flush. The somewhat smaller vault to the west of the firepit measured 4.4 feet long by 1.7 feet wide and 1.5 feet deep. Originally, it had been straight-sided with a relatively level floor, but wet adobe had been packed into the pit in such a manner as to create two oval depressions. They



Figure 65. *Kiva B, niche below banquette in north side, looking northwest.*

were empty, but possibly they once held jars similar to the one in the eastern vault. A second filling left this vault, like its mate, obliterated and level with the rest of the floor.

A test below the floor between the firepit and the ventilator revealed two more pits. The first was an earlier circular firepit, 1.4 feet across and 0.5 foot deep. The second was a round ashpit, 1.2 feet south of the first, and measured 0.8 foot in diameter and 0.9 foot deep. Both firepit and ashpit were filled with ash, and the floor between them was also covered with ash. The construction of the later rectangular firebox destroyed the north half of the earlier circular one which, with the ashpit and the ash-covered floor between, was covered with a new layer of adobe flooring.

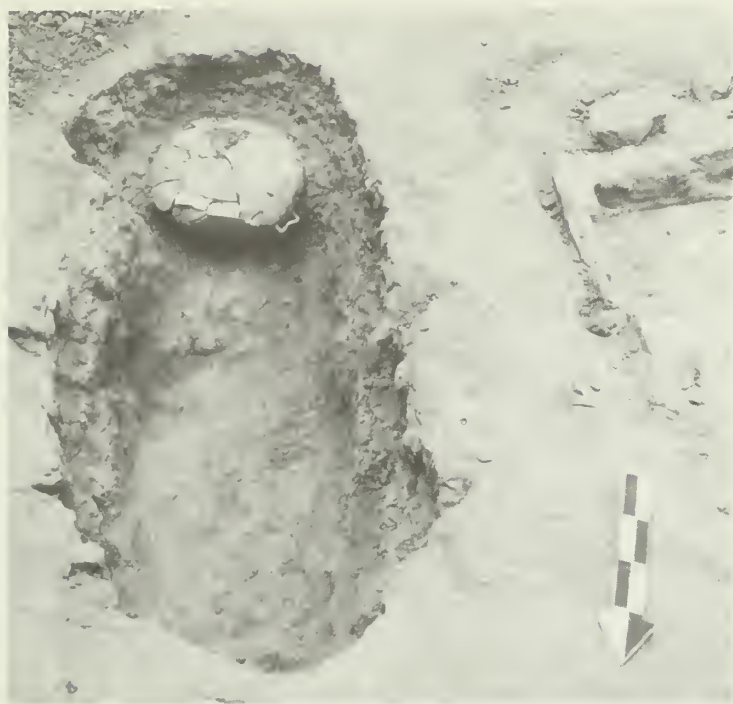


Figure 66. Kiva B, Mescalero Black-on-white jar in subfloor vault east of firepit, looking southeast.

Sherds from the three excavation levels in Kiva B are listed in table 26. Two restorable vessels were also found. The Mescalero Black-on-white jar from the vault mentioned above is illustrated in the pottery chapter (fig. 142, right). A large Mescalero Black-on-white bowl was found shattered on the floor west of the area between the firepit and the ventilator.

Stone artifacts from the floor and banquette were:

- 1 projectile point: quartzite, side notched.
- 1 ax: full-grooved, claystone (lying on bench).
- 1 metate: complete, trough with open ends; reverse face re-used as slab metate (fig. 190a and b).
- 6 manos: three complete, one quartzite, two sandstone, one trough type (fig. 193b), one used on slab, and one unknown; three fragments, all sandstone, two used on slabs, one unknown.
- 3 mano blanks: all sandstone, edges chipped but otherwise unshaped and unused.
- 2 hand abraders: one irregular sandstone spall with one face ground; one triangular slab with both long sides spalled and one face pecked and ground.
- 1 whetstone or palette: scabbled building stone with both faces ground to a concavity, remnant of yellow ocher on one face.
- 1 used cobble: granite, discoidal; edges spalled, pecked, and ground.

Refuse bones on the floor were:

- kangaroo rat: nearly complete skeleton.
- woodrat: partial skeleton.
- mule deer: radius.
- unknown artiodactyl: long bone (2).
- turkey: pelvis, radius, femur, ulna, phalanx.

Kiva B is somewhat more elaborate than Kiva 3 at Site 16 on Chapin Mesa but, lacking a southern recess, it is not quite so advanced in design as the later Kiva 1 at that site (Lancaster and Pinkley, 1954). In style, it is typical of late Pueblo II and should date in the 11th century.

The soil behind the masonry liner was sterile, and there was no evidence of an earlier structure on the spot or of any remodeling except for the buried floor features. A complete lack of any timber suggests that roofing material was removed for re-use elsewhere.

Evidence for the total abandonment of the site is presented in the following description of Rooms 1 through 4. By the time the Mesa Verde Phase people reoccupied Badger House, Kiva B's presence was marked only by a basin-shaped low spot about 2 feet deep.

ROOMS 1 THROUGH 4

(Mesa Verde Phase)

We excavated four rooms of the late Pueblo III, Mesa Verde Phase house built on the rubble of Rooms 5 through 9, described above. These rooms constitute the western end of a house which extends under the unexcavated portion of the house mound. From the size of the latter, we estimate that the house has eight rooms.

All walls are compound and of classic finished masonry. The stones are large, and all exposed surfaces are flat and most of them dressed by pecking. The area between the two finished faces of the walls was filled with rough rock, earth, and pieces of scabbled stone from the earlier construction. Both the insides of the rooms and the outside of the house have dressed surfaces. Some corners are butted, but others showed some tying by broken joints.

Room 2 was apparently the first to be built, followed by Room 1, with the walls of Rooms 3 and 4 abutted to the south of the first two. The layout of the rooms is shown in figures 58 and 59, and examples of the masonry can be seen in figures 60 and 61.

No timber was found in any of the rooms. Almost certainly, timber and much of the building stone was removed for construction at another site, as there was not enough stone in the fill to rebuild the house. To check this, all of the finished stone from the fill of Room 3 and from the outside of the room on the south and west sides was stacked and its bulk estimated. The number of stones used in a single course in the standing wall was counted, and it was found that the fallen rock was only sufficient to raise the wall about four courses, or to a maximum height of about 3 feet.

The sherds from the excavation of Rooms 1 through 4 are shown in table 27. Probably very few of them represent trash contemporary with the occupation of the house, but rather, earlier trash mixed with the earthen core of the compound walls.

Room 1

This room was 6.2 feet wide, but the sides were not entirely equilateral. The north and south walls were 12.4 feet and 13.0 feet long, respectively, and averaged a little over 2 feet thick. The outer face of the north wall had been mostly removed, exposing the inner core. Nevertheless, the remaining wall stood upright. Some protection was afforded, of course, by the debris and the unused broken stones which the razors dropped and left at the base of the walls. East and west walls are a little narrower—between 1.5 and 1.9 feet. Near the center of the east wall, leading into Room 1, was a door, 1.5 feet wide, with the sill the same distance above the floor (fig. 67). The upper courses of stone and the lintel were destroyed, and it was not possible to determine its original height. Though this was the only door found in the house, much of the span of the outside walls is lower than the height of the sill of the single door. Others may possibly have existed, but the flanking wall and sill had been removed. A simple wall of coarse scabbled masonry, 0.7 foot thick, formed a partition at the west end of the room and stood

Table 27. Sherds from Rooms 1, 2, 3, 4, and Kiva A, Badger House

Type	Room 1		Room 2		Room 3		Room 4		Kiva A		Totals
	Fill	Fill	Floor	Fill	Fill	Upper fill	Lower fill	Floor			
Chapin Gray	29	17	7	15	5	61	32	6	172		
Moccasin Gray	1	—	—	—	—	3	1	—	5		
Mancos Gray	4	2	—	1	2	13	1	—	23		
Mancos Corrug.	1	1	—	1	—	25	10	1	39		
Mesa Verde Corrug.	—	—	—	—	—	1	—	2	3		
? corrug.	24	11	3	4	5	110	61	—	218		
Chapin B/w	1	—	—	—	—	1	2	—	4		
Piedra B/w	—	—	1	—	—	—	—	—	1		
Cortez B/w	5	3	1	—	1	18	12	3	43		
Mancos B/w	8	6	2	1	2	72	41	5	137		
Mancos B/w, carbon paint	—	—	—	—	—	9	5	—	14		
McElmo B/w	—	—	—	—	—	3	2	—	5		
Mesa Verde B/w	1	—	1	1	—	4	5	1	13		
Abajo R/o	—	—	—	—	—	1	—	—	1		
Bluff-La Plata B/r	—	1	—	—	—	—	—	—	1		
San Juan Red ?	1	—	—	—	1	5	—	—	7		
Unclassified	26	21	6	10	8	85	49	1	206		
Totals	101	62	21	33	24	411	221	19	892		



Figure 67. Room 1 after stabilization, looking northeast.

1.5 feet high. Both ends are butted to the north and south walls. This fact and the marked difference in masonry are evidence that it was built after the initial construction of the room. Though there is a remote possibility that the wall was built to make a storage bin, 1.8 feet wide, it was probably filled to make a raised platform or bench like those in Rooms 2 and 4. No noticeably packed surface was found in its excavation, and the floor of Room 1 itself was also indistinct.

The stone tools in the fill of Room 1 were probably incorporated in the masonry construction of the walls. They were:

- 10 metates: two complete, one a shallow trough type with open ends, one slab type, eight fragmentary trough metates.
- 1 grooved abradar: shaft smoother with U-shaped groove, sandstone.

Room 2

Room 2 was nearly rectangular, measuring 13.2 by 6.5 feet. The walls were all of classic compound masonry with much use made of slablike, chipped-edge stone, re-dressed by pecking on the exposed face, with the scabbled edge of the stone concealed on the interior of the wall. Obviously this material had been salvaged from an earlier Pueblo II house. The north and south walls were from 2 to 2.7 feet thick, and the shorter east and west walls were from 1.8 to 2.2 feet thick. About 6 feet from the east end of the room, on both the north and south sides, the walls were broken by rough sections about 1.5 feet wide from the floor to a point about 1.4 feet above. The masonry here was rough and rubblelike. Outside the rough section in the north wall were the remains of two courses of a short stub of wall. Just 0.1 foot below the floor between the two broken sections, they were connected by one course of a compound wall. It would seem that here an older, but probably Pueblo III wall, ran north-south, standing about 1.5 feet high. The walls of Room 2 bridged it and the remaining section, between the new north and south walls, was removed down to the bottom course which was then concealed by an adobe floor. It is possible that the rough breaks in the walls were once concealed by plaster.

A simple wall of rough, burned, re-used stone was built across the west end of the room to the height of 2 feet and level with the bottom of the sill in the doorway in the east wall. The east face of the wall is relatively even and the face toward the door quite rough. The space between the partition and the east wall of the room was filled with rubble and was leveled with packed earth, forming a bench 4 feet wide (fig. 59, lower right). The floor of the room was indistinct, like that in Room 1. It was a thin layer of trash-impregnated adobe, 0.2 foot above the base of the walls. Near the

center of the floor, a large Mesa Verde Corrugated jar (fig. 102) was buried with the mouth flush with the floor.

The following stone artifacts were found in Room 2:

- 1 hammerstone: (floor).
- 1 metate: fragment of slab type (fill).
- 1 mano: fragment, used on slab metate (fill).
- 1 grooved abrader: with three awl-sharpening grooves (used as building stone in west wall at lower left of door).
- 1 petroglyph: pecked and ground face incised with a swastika (fig. 215) (fill).

A turkey tibiotarsus was found on the floor. This was the only bone found on any floor of the house.

Room 3

Rooms 3 and 4 were built at the same time by constructing short, north-south walls that abutted the south walls of Rooms 1 and 2. The south wall of Rooms 3 and 4 was continuous and built as a single unit.

The interior walls of Room 3 varied considerably and will be described separately. The north wall, 13.6 feet long, was perhaps the finest in the four rooms. The masonry was truly classic, with all exposed faces of the stones pecked. The wall had a footing of unshaped and scabbled stones that projected 0.4 foot beyond the base of the wall slightly above the level of the floor. This footing is not exposed on the other side of the wall in Room 1. The south wall, 14.2 feet long, used the base of the underlying south wall of Room 6 as a footing at its western end. It was 1.2 feet thick—considerably narrower than the outside walls of Rooms 1 and 2—and was of compound masonry without a rubble core. It consists of a double thickness of stone: an outside row of rather large blocks, and an inside row of generally small, re-used, scabbled stone which could be termed a veneer. Although the east and west walls abut the exterior line of stones of the south wall, the inner courses of the latter abut the east and west walls, showing the veneer to be a later modification. The exterior face of the south wall was of pecked stone of uniform size.

Both the east and west walls are 9 feet long and are compound, without a core. Both are abutted to the north and south walls. The west wall, of uniform pecked stone, inside and out, is 1.5 feet thick and is based on a footing of old building stone. The east wall, which separates Rooms 3 and 4, is 2.2 feet wide, and is similar to the west wall except for width.

The floor was clay laid down from 0.2 to 0.3 foot above the footing of the south wall and above the top of the remnant of the north wall of Room 5.

Artifacts from Room 3, all from fill, are:

- 1 sherd disk: Chapin Gray, chipped-edge.
- 1 used flake
- 1 scraper
- 1 metate: fragmentary, trough type.

Room 4

Interior dimensions of Room 4 are 7 feet in width, and 14.4 feet in length along the north wall and 13.8 feet along the south wall. The north and east walls are of good, solid, pecked stones in the classic style, the former being based on a footing of chipped-edge rock. The face of the west wall is coarser and is a mixture of large finished stones and thinner scabbled ones. The south wall, like the south wall of Room 3, of which it is a continuation, is classic on the outside but has a rough veneer of undressed and re-used

stone from the earlier house abutted to the east and west walls at the corners.

The only hearth in any of the four rooms was in the northeast corner of Room 4. There was no prepared fireplace, but a fire built directly on the floor had burned with sufficient heat to redden the stones of the north wall.

The hearth was covered when simple walls were built across the floor to construct benches at each end of the room (fig. 68). The wall on the east was entirely of chipped-edge stone with no dressed surfaces. The one to the west contained both styles of stone. Both walls were abutted to the north and south walls, and were from 0.7 to 1 foot thick, with the straight or flat face to the front or center of the room. The backs of both walls were irregular. The benches were filled with rubble and earth, and were flagged with slabs on the surfaces. The west bench was 0.9 foot high and 1.5 feet wide at the south end to 2.4 feet wide at the north. The east bench was 1.6 feet wide by 0.7 foot high.

The artifacts found, all in the fill, were:

- 1 used flake: claystone.
- 4 metates: one complete and two fragmentary slab metates, and one trough metate fragment.
- 1 mano: complete, unifacial, slab type.
- 1 ball: unworked concretion.

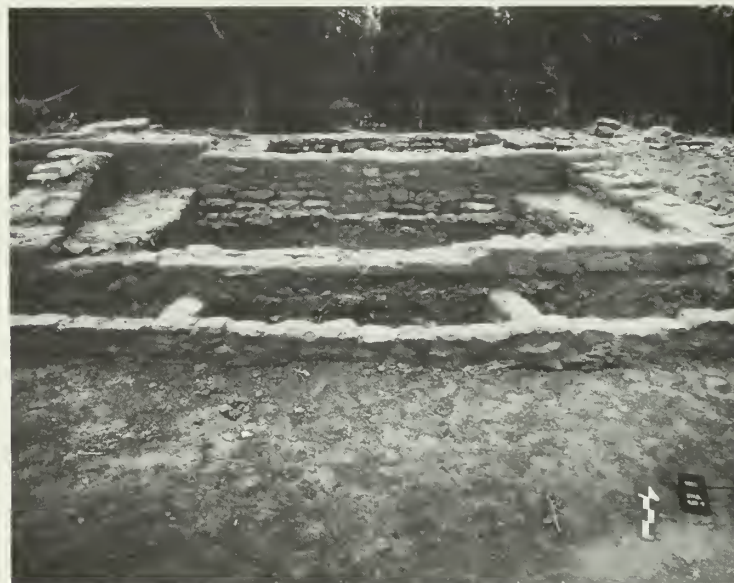


Figure 68. Room 4 after stabilization, with Rooms 7, 8, and 9 below it in foreground, looking northwest.

Remarks on Rooms 1 Through 4

Sufloor testing in the four rooms of the Mesa Verde Phase house, and the subsequent excavation of Rooms 5 through 9, revealed that the south half of Rooms 3 and 4 overlay the rubble remains of the Mancos Phase house, while the rest of these two rooms and all of Rooms 1 and 2 were built on about 1.2 feet of sandy alluvium. This alluvial layer was striated with very faint lines of fine charcoal or dark ash which floated to the surfaces with each successive washing from the slope above. The alluvium lay on 0.4 to 0.5 foot of thin Mancos Phase trash. Both layers stopped at the north side of the walls of the earlier house as can be seen in the cross section, B-B', in figure 58. The depth of the eroded soil indicates a hiatus between the abandonment of Rooms 5 through 9

and the construction of Rooms 1 through 4. The same gap in the record is reflected by the contents of the trash mound and by the alluvial silt in the fill of Kiva B.

The four benches across the narrow sides of the rooms are not unique in late Pueblo III architecture but are seldom so numerous. One wonders if they were sleeping platforms, raised to escape the old air that settled on the floors.

No cooking facilities existed in any of the rooms after the last bench in Room 4 was built, if the hearth buried there was for that purpose. A large rectangular, slab-lined firebox sat in the plaza area 7 feet in front of Room 3. It measured 1.7 by 3.8 feet and was sunk below the plaza surface. The interior was 0.7 foot deep, had sloping sides, and was filled with ashes and charcoal. The tops of the slabs were just below the surface when excavation started, and the structure probably related to this last occupation.

KIVA A AND TUNNEL

(Mesa Verde Phase, A.D. 1258)

Ten and one-half feet in front of the probable middle of the Mesa Verde Phase rooms is the kiva used by their occupants (figs. 69 and 70). It is an eight-pilaster, masonry-lined—17 feet across at floor level—and was destroyed by fire.

The inner, or lower, liner of classic finished masonry is 2.9 feet high with from 8 to 10 courses of well-squared stone. The top course of thin tabular stones forms the outer edge of a banquette that varies in depth from only 0.8 feet wide in the southeast quarter of the kiva to 1.7 feet wide in the northwest. The unconformity is built in and not the result of slumping, but the outer edge of the banquette overhangs the base of the lower liner at floor level for the entire circumference—as much as 1.1 feet on the north side, which is due to a post-occupational slumping of the walls (fig. 71).

Small patches of at least two coats of adobe plaster adhere to the walls on both sides of the ventilator tunnel. A few flecks of white paint cover the plaster on the edge of the bench and extend down onto the lower liner below the pilaster immediately east of the southern recess.

All pilasters are of classic masonry with most stones pecked, and the corners and some faces of individual stones are ground. Accurate measurement was impossible because of distortion, but

they appear to have been of different heights. Six of them average 1.8 feet high, but the third and fourth pilasters, counting clockwise from the southern recess, are 3.3 and 3.1 feet high respectively. They flank the entrance to a tunnel in the upper liner. All are 1.7 feet wide at the face and are set back 0.1 foot from the edge of the banquette. Their depths vary with the depth of the banquette. If the roof was built by cribbing from pilaster to pilaster, the ceiling height was 4.7 feet at the outer edge of the kiva and 6.2 feet

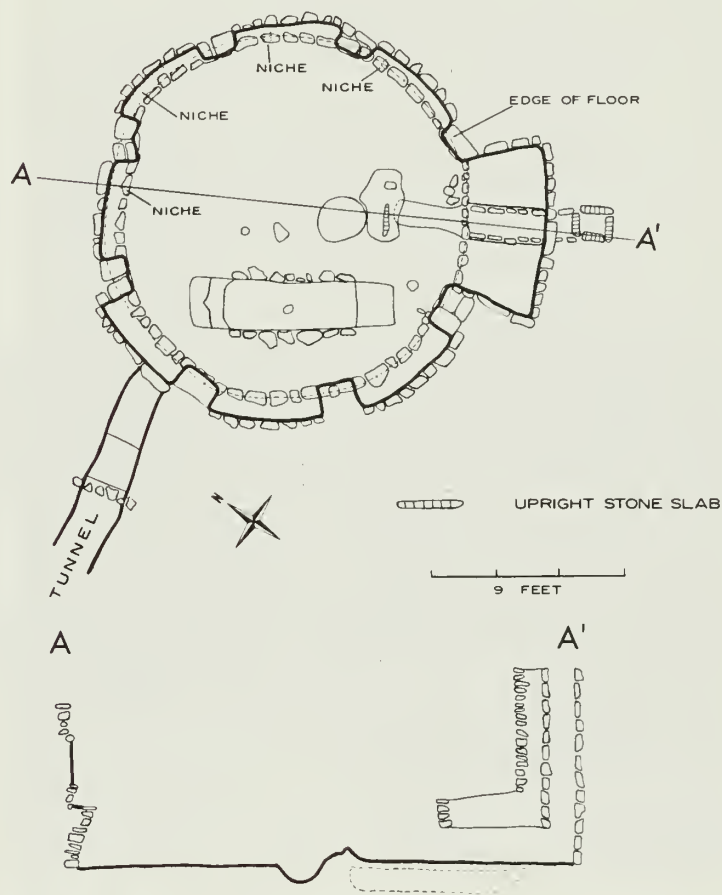


Figure 70. Kiva A and tunnel.



Figure 69. Kiva A, Badger House, before stabilization, looking south-southeast.



Figure 71. Kiva A, slumped masonry of north wall and a balk of unexcavated fill, looking northwest.

near the tunnel entrance to allow easy passage. It would be interesting to know what technique of timbering was used to compensate for the differing pilaster heights.

The upper liner is also well-finished masonry, employing somewhat larger stones than were used below the banquette. It reached 0.5 foot above the height of the pilasters. Above the upper liner there was 1.5 to 2 feet of masonry of unworked or chipped-edge stone, evidently salvaged from the rubble mound of the Mancos Phase house. Unlike all the masonry below it, this masonry was unburned and was not exposed to the fire which reddened the lower walls. It probably was placed around the open excavation during construction, to hold back the soil before placement of the roof. After the roof was timbered and covered with earth, it was out of sight and was protected. The elevations of all three masonry linings can be seen in figure 72.

The keyhole-shaped southern recess is 4 feet deep, 6 feet wide at the inner edge, and 8 feet wide at the rear (fig. 73). The inner liner below the recess is set back 0.2 foot from the rest of the



Figure 72. *Kiva A, west quarter and tunnel entrance, looking southwest.*



Figure 73. *Kiva A, southern recess, looking southeast.*

perimeter, and the deck is 0.2 foot higher than the banquette at either side. Traces of plaster and white paint remain on the classic masonry of the recess. This finished masonry rises 3.9 feet and is topped by 2 feet of the same rough masonry found above the upper liner in the main chamber. At the break in masonry types are four niches in the rear wall that served as beam seats. The timbers they carried evidently were rested, at their far ends, on a timber supported by the two pilasters flanking the opening to the recess. The niches, averaging 0.3 by 0.4 foot, are nearly equidistant on 2.4-foot centers with the outermost in the two corners. The niche to the west still retains the butt of a juniper pole. As was the case for the rest of the kiva's masonry, that below the rough stone and the niches is burned. The deck of the recess was plastered earth, which extended over the stones of the top course of the front wall and made a rounded rise of 0.1 foot at the edge.

A ventilator tunnel at floor level entered the center of the front wall of the recess. The opening is 1.6 feet high by 1 foot wide. The lintel is a large building stone with the charred butts of a false lintel stick just below it, which probably was used to support a closing slab. The tunnel runs back for 6.2 feet to intersect the vertical shaft. The floor is earth, but both sides are lined with masonry of exceptionally well-shaped, squared, and pecked stones of uniform size. What was probably the finest masonry at the site was hidden. The tunnel was roofed with small split sticks on 0.2-foot centers. These were burned out, but the ends protected in the bank remained. The shaft rises 9.1 feet to the surface, is built of shaped stones set on edge, and measures about 1 foot square.

Four niches are found in the lower liner. One is in the north wall, nearly opposite the ventilator. It is 0.4 foot below the edge of the banquette, the opening is 0.3 foot square and 0.5 foot deep. The largest niche, 2.2 feet wide by 1.6 feet high and 1.3 feet deep, is at floor level between the fifth and sixth pilasters (fig. 71). The rear wall is plastered earth. A third niche is midway between the sixth and seventh pilasters, 1.3 feet above the floor. It is 0.3 foot square and 0.5 foot deep, with a back wall of stone. The fourth, between the seventh and eighth pilasters, is 0.8 foot above the floor and measures 0.3 foot square by 0.6 foot deep. All niches were empty and none was sealed.

The floor was level and of well-packed adobe (fig. 74). The firepit was circular, unlined, with sloping sides and a level floor. It was 1.9 feet wide at the top, but narrowed to 1.1 feet at the bottom. About 0.1 foot of charred, finger-size twigs lay on the bottom of the pit, covered with the same depth of ashes. No true deflector was present. About 0.5 foot to the south of the firepit was a slab, 1.5 feet long by 0.6 foot high. It was surrounded by a low, irregular platform of adobe only 0.3 foot high at the east side, rising to the top of the slab at the center and extending to the south edge of the pit. The top of the slab is rough and broken but somewhat worn. The deflector was in this state before the kiva burned. The slab may have been the core of an adobe deflector which had broken down and was never repaired.

A sipapu, 0.4 foot wide by 0.7 foot deep, lies 1.5 feet west of the median line and closer to the firepit than to the north wall. The rim was rounded with plaster and the hole was empty.

A subrectangular vault or cist, 9.5 feet long, occupies much of the floor space west of center. It is 2 feet wide at the south end and 2.5 feet at the north end, and is 1.6 feet deep. The sides are straight and the floor is level. It had been dug into moist earth, as the marks of digging sticks show on the west, north, and east walls. At each end of the pit is a higher bench, 0.5 foot below the kiva floor at the south end and 0.3 foot at the north, which supported the ends of a large plank that covered a lower vault, 6.2 feet long. The charred remains of the plank lay on the south bench and in the



Figure 74. *Kiva A floor before removal of burned plank from vault, looking south-southeast.*



Figure 75. *Kiva A, tunnel entrance, looking northwest.*

bottom of the pit. Though it was no longer intact, inspection of the carefully removed fragments showed it to be a section from the middle of a ponderosa pine. The pieces from the center of the pit had the complete inner rings and pith. Measurements between the impressions in the soil of the edges and ends of the plank indicate a board 2.3 feet wide by approximately 8 feet long and 0.3 foot thick. The sides of the deeper part of the vault had been reinforced along the edges with rough masonry. The vault cover lay just inside these stones on narrow ledges of native soil on either side. Its top was at floor level, and the edges had been sealed to the floor with adobe plaster. Near the center of the floor, under the burned plank, was an irregular fragment of a pecked building stone.

At the north side of the third pilaster is the entrance to a tunnel through the upper liner (fig. 75). A masonry sill is 0.6 foot above the banquette, but no trace of a lintel remains. The top of the entry is the bottom of the rough, highest liner. Possibly a wooden lintel was entirely burned out. The entry is 1.7 feet wide by 2.7 feet high. The tunnel runs west for 41.4 feet from the inside of the sill to the back of a hatchway in the floor of the tower. It was built, not as a drift through the earth, but as a trench from the surface, 1.9 feet deep. The marks of the digging sticks are still visible on the walls at the east end. Some 2.4 feet from the kiva entry is a sloping riser on the tunnel floor, 1 foot high, and at 5 feet is another, 0.6 foot high. From the last step, the floor rises gradually, paralleling the slope of the ground surface to a final masonry step under the tower wall. From the sill of the kiva entry to the tunnel floor under the tower hatchway there is a difference in elevation of 5.9 feet. At the second step from the kiva, the tunnel widens to 2.5 feet.

Where it passes closest to the north wall of Kiva B, it is pinched to 2 feet and holds this dimension to within 5 feet of the tower where it becomes 2.3 feet wide. The sides are nearly perpendicular except near the center section where they slope to make the floor a few inches narrower than the top.

The tunnel was roofed at the old ground level with poles of Douglas-fir and juniper from 0.3 to 0.5 foot thick which were placed from bank to bank at intervals of 2.4 to 2.9 feet. Some of the butts were held in place by flat stones. The cross members were then apparently covered with brush topped with juniper bark and a final covering of earth which made a low mound when the passage was in use. The charred remains of five of the small vigas were found in place and two others closer to the tower were rotted. Sagebrush, juniper bark and branches, and fendlerbush charcoal covered the floor of the eastern half of the tunnel. The same fire which destroyed the kiva was sucked into the tunnel for about 20 feet, burning the roof and blackening and hardening the earthen walls. The tower hatch must have been open to provide the draft. A short wall, two and three courses high and of rough masonry, crossed the tunnel above the ground at a point 6 feet from the kiva entrance. Its purpose is unknown.

Through testing below the kiva floor, a subfloor ventilator was discovered 0.3 foot below the floor between the firepit and southern recess (fig. 76). It was 1 foot deep and 1.1 feet wide under the kiva floor, but approximately 1 foot from the south wall it gradually widened to 1.5 feet for its entire length under the southern recess. Its floor was level under the kiva floor, but gradually rose to the south to terminate at the level of the later ventilator tunnel under



Figure 76. *Kiva A, subfloor ventilator tunnel below the later floor-level tunnel (the cross trench is an exploratory test), looking southeast.*

the rear wall of the recess. The tunnel was roofed with tabular sandstone slabs supported by small juniper and pinyon sticks. Some of the slabs were still in place north of the recess under the floor of the kiva. The small timbers were burned and lying on the tunnel floor, although the rotted butts of several were still in the earth under the southern recess. At its north end, the tunnel terminated under the deflector 1.2 feet from the south edge of the firepit. Several artifacts, described below, were possibly buried ceremonially in the disused tunnel.

The merging of the old and new tunnels under the rear wall of the southern recess suggested to us that the vertical shaft of the older ventilation system had stood some 2 feet north of the present shaft and that the southern recess had been the result of a remodeling when the old subfloor tunnel burned and was abandoned. But the latter possibility was apparently not the case. Timbers from the deck of the southern recess and from the fill of the subfloor ventilator tunnel show the same cutting date.

Conclusive evidence of remodeling does exist at the north side of the kiva where the fifth pilaster and the liner below it, which had slumped badly, had to be removed and rebuilt to prepare a permanent exhibit. It was found that the upper liner extended below the banquette level for 0.8 foot behind the lower. The protected masonry was covered with two coats of heavily smoke-blackened plaster and was thus exposed at one time. Seemingly, the lower liner and the pilasters had been removed and replaced at a higher level.

One of the objectives in excavating Kiva A was to prepare it as an exhibit for park visitors. The necessity of preserving its walls

as intact as possible made it impossible to find subsoil in all directions. It is evident that there was some prior use of the excavation in which the kiva sat, but its nature is unknown. Evidence that an earlier structure, or at least an earlier hole in the ground, existed is provided by the condition in the trash mound immediately south of the kiva. This was discussed under Stratum E. The profile drawing in figure 49 shows nearly 2 feet of spoil mounded above subsoil and overlaid by an equal amount of soil with a heavy admixture of charcoal, ash, and burned adobe. Above this was Stratum E. It was suggested that the spoil was from the digging of an early pithouse, which had burned and had been almost immediately cleaned out for re-use. Evidence for the cleaning was the charcoal layer above the spoil.

The earth behind the masonry walls of the kiva could be checked at only two points without damage to the kiva. The upper liner to the east of the southern recess had slumped and fallen onto the bench, exposing the soil behind it. It was noted that the soil was trashy for at least 4 feet below the level of subsoil in Test Trench I at the ventilator shaft. A deeper section was exposed between the fifth and sixth pilasters, where badly slumped walls had to be removed and rebuilt. Here trash-laden soil was found for 0.8 foot behind the inner liner at floor level. A small subfloor test pit sunk between the firepit and sipapu reached white caliche, typical of the lower levels of the subsoil, at 1.1 feet. Above this was reddish clay much like the upper levels of the loess, but with a seasoning of small flecks of charcoal and the red smudges of fire-disintegrated sandstone. Between the kiva floor and the undisturbed caliche was a narrow band of darkened earth, which gave the whole section an appearance of striated alluvium from a source that had been affected by cultural activity.

There seems to be good evidence that there was a pithouse, 6.3 feet deep (10.5 feet below the present surface), which was probably contemporary with the jacal, Feature 7, and possibly also with the later deposition of Stratum E. It is probable that when people returned to the site during the Mesa Verde Phase there was no sign of the pit and the easily dug location was hit upon by happy accident. For some reason they avoided cleaning out and rebuilding Kiva B, which they must have recognized inasmuch as there is evidence that a sump still existed there.

The presence of Kiva A was noted before excavation by a depression in the surface, 1.6 feet deep. The upper fill from the surface to the banquette was largely a mixture of light trash and soil washed from the house mound and the area in front of it. Below the banquette some roof material began to appear in the form of a few burned tumblers and much burned adobe. The last foot above the floor was burned roofing which lay just as it had fallen. The locations of timbers were plotted but no pattern emerged. Evidently the fire was smothered at the southwest side of the kiva, because most of the charred wood lay in the vicinity of the firepit and around the wall between the first and third pilasters. The wood on the north-east side was mostly consumed.

One hundred fifty-one charcoal specimens were sent to the Laboratory of Tree-Ring Research at the University of Arizona for identification and dating. Juniper was the dominant species, represented by 136 specimens, three were pinyon, five were ponderosa pine (all from the plank in the vault), five Douglas-fir, one sagebrush, and one fendlerbush. Seventyfive of the specimens were dated. Of these, 55 had the outer ring present and reflected the true cutting date or the year growth ceased. Except for one Douglas-fir, they were all juniper. Forty-five timbers were cut in A.D. 1257, and the remaining ten ranged from A.D. 1239 to 1256. One piece of charcoal from the floor with a variable and much-eroded outside had an outermost date of A.D. 1258. From the clustering of dates

at 1257, it is reasonable to assume that the 1258 ring represented a cutting date and the kiva was roofed in that year. Probably the majority of the timbers were cut in 1257, while the excavation and its lining were being prepared, and were then allowed to season. At least one timber was cut the following year and perhaps used green.

The average timber was from a tree about 60 years old. Only three were 100 years or more. One large timber with a variable outside ring of A.D. 1065, not necessarily the cutting date, was, however, from a tree at least 312 years old. This was undoubtedly a re-used beam. If the timber was from Badger House originally, and if the outer ring present is close to the actual cutting date, it probably came from Kiva B or Rooms 5 through 9. Certainly all other structures were earlier.

The following tree-ring dates were obtained from specimens in Kiva A:

Specimen ¹	Provenience	Dates A.D. ²	
		Inside	Outside
MV-1486	Near banquet level	1219p	1257r
MV-1488	do.	1192	1257r
MV-1489	do.	1193p	1257B
MV-1492	do.	1149 + p	1256r
MV-1493	do.	1177p	1257r
MV-1495	do.	1220p	1257r
MV-1496	do.	1189p	1257r
MV-1632	do.	1157p	1257r
MV-1633	do.	1135 ± p	1250vv
MV-1634	do.	—	1250r
MV-1635	do.	1168 ± p	1253vv
MV-1499	Floor	1159p	1257r
MV-1506	do.	753p	1065vv
MV-1507	do.	1187	1257r
MV-1508	do.	1177	1258v
MV-1509	do.	1170	1256r
MV-1513	do.	1168p	1256r
MV-1514	do.	1211p	1257r
MV-1517	do.	1176p	1249r
MV-1521	do.	1228p	1257r
MV-1522	do.	1190p	1257r
MV-1523	do.	1192p	1257r
MV-1524	do.	1204p	1257r
MV-1527	do.	1208p	1257r
MV-1529	do.	1148p	1247vv
MV-1530	do.	1191p	1257r
MV-1532	do.	1178p	1256vv
MV-1535	do.	1186p	1256r
MV-1536	do.	1190p	1257r
MV-1537	do.	1210p	1257r
MV-1538	do.	1130p	1257r
MV-1540	do.	1177p	1256v
MV-1541	do.	1179p	1257B
MV-1545	do.	1193p	1257r
MV-1547	do.	1227p	1257r
MV-1549	do.	1199	1255r
MV-1552	do.	1167p	1257r
MV-1553	do.	1183p	1257r
MV-1554	do.	1210p	1253v
MV-1559	do.	1176p	1253r
MV-1560	do.	1160p	1257r
MV-1578	do.	1158p	1233v
MV-1579	do.	1120	1243v

Specimen ¹	Provenience	Dates A.D. ²	
		Inside	Outside
MV-1581	do.	1193	1241vv
MV-1582	do.	1204	1256vv
MV-1561	Southern recess	1165p	1257r
MV-1564	do.	1196p	1257r
MV-1565	do.	1185p	1257r
MV-1566	do.	1208	1257r
MV-1588	Subfloor ventilator	1130p	1249v
MV-1589	do.	1200	1257r
MV-1590	do.	1219	1257r
MV-1591	do.	1157p	1245vv
MV-1592	do.	1205	1257r
MV-1593	do.	1146p	1245vv
MV-1594	do.	1163	1248vv
MV-1601	do.	1206	1257r
MV-1602	do.	1206	1253v
MV-1603	do.	1202p	1257r
MV-1607	do.	1167p	1233vv
MV-1608	do.	1178	1244vv
MV-1610	do.	1179p	1257r
MV-1615	General kiva fill	1187p	1257B
MV-1621	do.	1210p	1257r
MV-1622	do.	1171p	1257r
MV-1623	do.	1212p	1257r
MV-1625	do.	1175p	1257r
MV-1626	do.	1162p	1257r
MV-1627	do.	1191p	1257r
MV-1628	do.	1172p	1253r
MV-1629	do.	1189	1255vv
MV-1630	do.	1190 ± p	1257r
MV-1631	do.	1221p	1257r
MV-1584	Tunnel to tower	1184p	1255r
MV-1611 ³	do.	1210p	1239r

¹ Specimen numbers assigned by the Laboratory of Tree-Ring Research, University of Arizona.

² Key to symbols: p—pith ring present; ±—pith ring present, innermost rings not well defined; v—outside eroded, outermost ring variable around circumference; vv—outside extremely eroded, outermost ring very variable; r—outer ring constant over a significant portion of circumference; B—bark present on outside.

³ This specimen is Douglas-fir. All others are juniper.

The dating of Kiva A illustrates the importance of the recent breakthrough in the dating of juniper from the Mesa Verde area by the Laboratory of Tree-Ring Research. In prior years only pine and Douglas-fir were easily dated. Only 13 of 151 specimens were of these species, and all five of the ponderosa pieces were from the same tree. Of the 13, only one piece of Douglas-fir was dated, at A.D. 1239. Without the fortunate dating of juniper, we would have grasped at the single date and assumed that it was built 18 years before its actual construction.

No pottery was found in Kiva A except for the sherds which are shown in table 27. They are few and probably of little significance. There was more Chapin Gray on the floor than corrugated, and probably all were mixed with the soil in the roof rather than having a temporal association with the kiva's use.

Stone artifacts and unworked fetishes were numerous on the floor. A large, carefully worked conical sandstone fetish lay on its side near the center of the kiva between the firepit and the sipapu.



Figure 77. Stone objects from the floor of Kiva A.

Various stone balls, concretions, and geodes lay along the face of the southern recess. The distribution of the large objects can be seen in figure 69, and an incomplete grouping is shown in figure 77.

Stone objects recovered from Kiva A are:

- 1 used flake: on floor of vault.
- 2 hammerstones: on floor of tunnel; possibly fell from surface.
- 1 cobble: battered on one end; southern recess.
- 2 metates: A complete slab (fig. 191) possibly part of cover of subfloor ventilator tunnel, and fragment of trough type re-used as slab; both from subfloor ventilator tunnel.
- 3 manos: all quartzite fragments of unknown type; two from subfloor ventilator, one from tunnel to the tower.
- 1 hand abradar: tabular sandstone fragment, edge spalled, one face ground; in subfloor ventilator.
- 1 pendant: dark green turquoise fragment, with one corner ground; in fill of vault.
- 2 conical fetishes: one, 28.6 cm. high, of pecked and ground sandstone (fig. 209), on floor between firepit and sipapu; one subcylindrical, sandstone with pebbly surface, 9.9 cm., in subfloor ventilator.
- 3 stone balls: all sandstone, 4.8 to 5.0 cm. in diameter; in subfloor ventilator and on floor.
- 1 fossil: rodlike fossil algae; on floor.
- 9 geodes: spherical, ovoid, pear-shaped to bird-shaped, from 101 gm. to 10 kg. (22 lbs.), all concretionary geodes from Cliff House sandstone, all unmodified but one incised vulva-like geode (fig. 212) from between deflector and ventilator; two in firepit, one in subfloor ventilator, six on floor between deflector and ventilator.
- 1 concretion: grapelike, similar to those in figure 208k and l; in subfloor ventilator.
- 2 large unworked cobbles: one subspherical, of granite, weighing 34 lbs.; one sandstone with pebbly surface, weighing 17 lbs.; on floor between deflector and ventilator.
- 2 oddly shaped, unmodified stones: flat, irregular sandstone matrix pitted by erosion of many small, spherical concretions, one pit perforating stone, shown near lower center of figure 77, from firepit; an "abstract" bird form, 49.5 cm. high (fig. 213), on floor between deflector and ventilator.
- 1 palette (?): sandstone slab fragment with both faces ground to slight concavity, in tunnel.

The only bone artifacts were scrapers found in the vault. They

were made from right and left turkey scapulae and had ground edges (fig. 220f).

Unworked bones from the subfloor ventilator were:

unknown amphibian: unidentified bones (2).
 woodrat: innominate.
 cottontail: humerus, tibia.
 turkey: unidentified bones (7).

Unworked bones from the subfloor vault were:

turkey: unidentified (8).
 unknown bird: unidentified (1).

Three features of Kiva A, though not uncommon in late Pueblo III kivas in the area, are of particular interest. They are the subfloor ventilator, the subfloor vault, and the tunnel to the tower.

Subfloor ventilators were treated briefly in the discussion of Kiva C. Not enough Pueblo II sites north of the San Juan have been excavated for us to make valid comparisons of the periods, but excavated examples from the McElmo and Mesa Verde Phases are plentiful. They are not the rule north of the San Juan, however—there are only two in 21 kivas at Long House. On the Mesa Verde itself, in addition to those in Long House, the single large kiva in Pipe Shrine House is so equipped, and all five kivas at Far View House had earlier subfloor ventilators rebuilt above the floor. The initial excavation did not reveal them, but they were found by Lancaster as a result of stabilization work in the ruin. Kiva A at Big Juniper House, a transitional Pueblo II-Pueblo III pueblo, had one, and the kivas at Sun Temple on Chapin Mesa, all above ground, apparently also had subfloor ventilators. Three of eight kivas at Lowry Ruin, on the plateau drained by Montezuma and McElmo Creeks, have subfloor ventilation systems (Martin et al., 1936), and one is reported for Beartooth Ruin in the same vicinity (Martin, 1930). Farther to the west on the same plateau, at Site II on Alkali Ridge, Brew (1946) excavated a kiva with a normal floor-level ventilator, but it had five subfloor tunnels radiating from the firepit. They had no shafts to the outside. Morris' (1939) extensive excavations on the La Plata River revealed only one, in Kiva 16 in Building XVI at Site 41. Two were found at the Hubbard Site at Aztec, N. Mex. (Vivian, 1959).

Some people have felt that subfloor vaults, like subfloor ventilators, found in kivas in the Mesa Verde area, are evidence of Chaco influence, but it has not been demonstrated that they occur earlier or more commonly in the latter area. Their origin and purpose have been the subject of conjecture—so far fruitless. The earlier examples, from Pueblo II sites, most often occur in pairs with one on each side of the firepit. Similar to those in Kiva B at Badger House were the paired vaults at Site 102 (O'Bryan, 1950) and Site 16 (Lancaster and Pinkley, 1954), both on Chapin Mesa. All six of these cists had been filled and sealed with clay. In the later periods the vaults more often occur singly to the west of the firepit, although the McElmo-Mesa Verde Phase Kiva A at Far View House, on Chapin Mesa, has a pair of sealed vaults. Single vaults on the west side of the kiva are found in Kiva M and Kiva Q at Long House. Both had been packed with clay, but the latter had earlier been covered with two boards which left their impressions in the soil at both ends of the vault. A kiva in Square Tower House on Chapin Mesa has a subfloor vault west of the firepit. At Lowry Ruin, a single vault lay west of the firepit in Kiva C and had been left open (Martin et al., 1936). None have been reported in the La Plata drainage or on Alkali Ridge.

At Pueblo del Arroyo in Chaco Canyon, Kiva C and Kiva F each had a subfloor vault west of the hearth, both filled with sand and sealed. In the later, tri-walled structure abutted to the north

wall of the pueblo, Kiva "c" had a vault in the same location, which had been roofed with poles, shakes, and willows (Judd, 1959). At Kin Kletso, also in Chaco Canyon, Vivian excavated a kiva vault which bore the impressions of a cover of two planks (Vivian and Mathews, 1964).

The similarity of the subfloor vaults in kivas and the masonry vaults built above ground in great kivas is so striking that it is difficult not to believe that they had the same function. In both types of structures, they often occur in pairs, flanking the fireplace in a more or less north-south orientation. Though vaults in Pueblo III kivas are most often single and placed to the west of the fireplace, paired vaults are not the unbroken rule in great kivas. The salvage excavation of a great kiva near Fort Wingate revealed only one vault, to the west of the firebox (Peckham, 1958). The difference in placement—above or below the floor—does not destroy the similarity. Fireplaces as well as vaults are usually built above the floor level in great kivas, but their function is the same as that of the subfloor firepits found in conventional kivas.

It may be significant that the four vaults with evidence of a temporary covering at Badger House, Long House, Pueblo del Arroyo, and Kin Kletso were in Pueblo III kivas, where McElmo or Mesa Verde Black-on-white was the dominant pottery. The earlier vaults, as well as some of the late ones, seem to have been used briefly, then filled with earth. Some ceremony may have required their periodic use, after which they were refilled or, in some instances in later kivas, temporarily covered. Such vaults have been referred to as foot drums or floor drums stamped on by passing dancers. Though this may be a possible explanation, it does not account for the majority of the vaults being earth filled. The pole and willow covering at Pueblo del Arroyo would not have served as a resonator, and the plank at Badger House had been sealed around the edges with adobe, which would have broken away at the first step.

Whatever their function, the filled pits in Protokiva D and Kiva C may have been prototypes, although their placement behind the firepit differs from that of the later vaults.

Tunnels leading from kivas to towers, other kivas, or into apparently secular rooms, or into the open, are common in the Mesa Verde area and, with one known exception, seem to be confined to the last two phases. No exhaustive search of the literature has been made for references to tunnels, but the only example known to us of a tunnel-kiva combination from a site outside of this area, or one not clearly influenced by Mesa Verde culture, is from the Riana Ruin in the Chama Valley of northern New Mexico (Hibben, 1937). At Riana a tunnel ran for 22 feet from the single kiva into a room of the house. The site dated in the A.D. 1330's. Table 28 lists 42 tunnels in sites north of the San Juan. We know of but one example of a tunnel prior to Pueblo III times, a 12-foot tunnel from a kiva to a room at B Village, a Pueblo I site at the junction of Stollsteimer Creek and the Piedra River (Roberts, 1930). Before the excavation of Badger House, the longest of those recorded was the 28-foot tunnel from a kiva at the Herren Ruins in Ruin Canyon, west of Lowry Ruin (Martin, 1929).

TOWER

(Mesa Verde Phase)

Fifteen feet southwest of the southwest corner of the Mesa Verde Phase house is the base of the circular tower connected by tunnel to Kiva A (fig. 78). It averages 12.4 feet in diameter and varies from 12.1 to 12.9 feet, in diameter. The wall, like those of the house, is compound and double-faced with a core of rough rock and adobe. Most of the stones in the core are burned and were

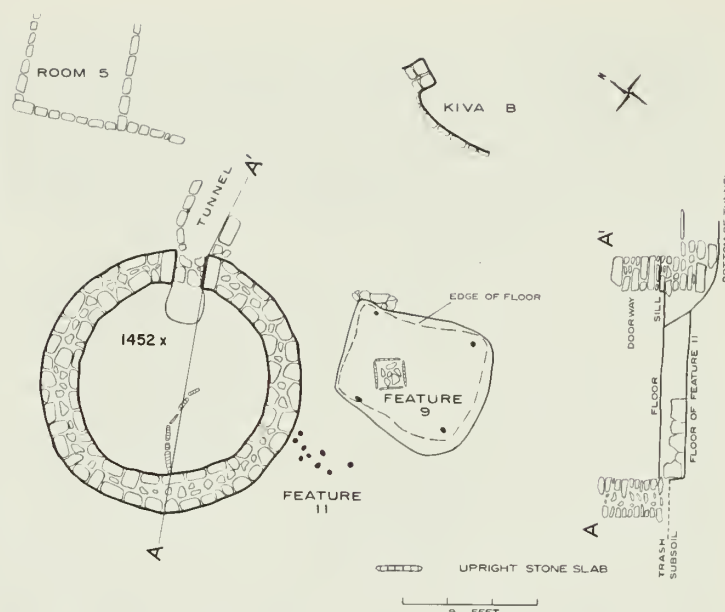


Figure 78. Tower and Features 9 and 11.

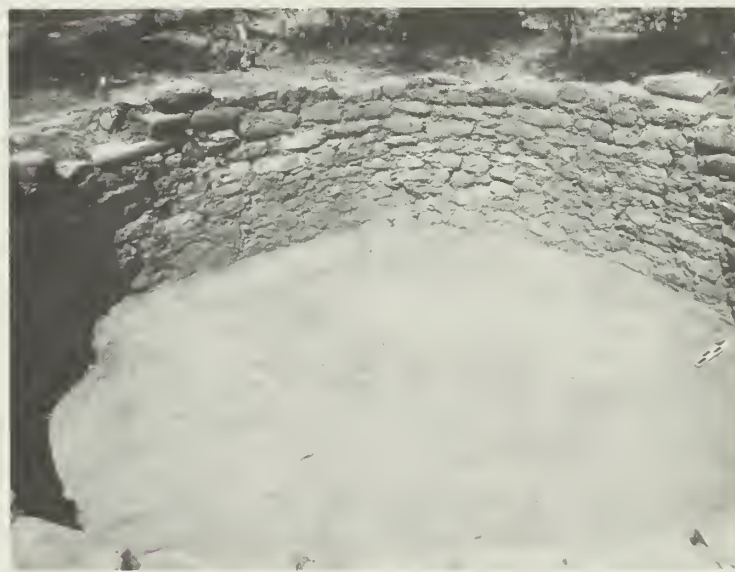


Figure 79. Tower, northwest wall and floor, looking northwest.

probably salvaged from earlier structures, possibly those of Features 5 or 11. Facing is of the best classic pecked blocks of fairly uniform size. Many of the stones in the outside wall are shaped to conform to its curvature, and there is a chinking of small spalls in the mortar of both sides. The wall was based on a footing of large, flat, chipped-edge stone laid in a shallow trench and protruding on both sides of the wall below ground and floor levels. The inside face, though well-finished masonry, is not quite as regular as the outside, but small patches of earth plaster of a different color than the mortar still cling to the west wall (fig. 79).

The only break or feature in the wall is a doorway on the east over the tunnel (fig. 80). It is 1.9 feet wide, with a sill 0.4 foot above the floor. The lintel is missing, but standing wall at the jambs indicates that it was at least 2.5 feet high. The floor is at the base of the wall above the footing stones and is not packed particularly

hard. The only feature is a subcircular hole, 2.5 feet wide, leading into the tunnel (fig. 81). The opening was unlined and uncovered, but a slab must have been used at one time. The open hatch would be a hazard to anyone entering the doorway from the plaza. On the floor, from 4 to 5 feet north of the door, was an unprepared hearth. Ashes on the floor and the smoke-blackened wall above were probably the result of a single fire.

The floor was removed and excavated into subsoil. The south half of the tower was found to rest on 1.2 feet of burned rock and adobe—the remains of the slab-based house, Feature 11, already described. The north half of the sub-floor fill was trash which had accumulated outside the walls of Feature 11.

Most of the fill above the floor of the tower was tightly packed clay and broken rock. This fill was complemented outside the walls

Table 28. Tunnel passages in the Mesa Verde area

Site	kiva to tower	kiva to kiva	kiva to room	Other	Remarks	References
Wetherill Mesa						
Badger House	1	—	—	—		
Long House	—	1	2	—	Two linked kivas with tunnel from one of these to room. A third kiva with tunnel to room.	
Mug House	—	—	1	1	From kiva to room, from another kiva to courtyard.	Rohn, 1971
Step House	1	—	—	1	From one tunnel to possible tower, one from another kiva to courtyard.	
Wildhorse Mesa						
Site 1138	—	—	—	1	From tower through narrow cliff to room on other side.	Site Survey Record, Mesa Verde Museum
Site 1235	—	—	—	1	From tower in cave through hole in rock to chimney and to foot of cliff.	do.
Chapin Mesa						
Cliff Palace	1	1	—	—	Two kivas and tower linked.	do.
Spruce Tree House	—	—	3	—	Two from one kiva and one from another.	Site Survey Record, Mesa Verde Museum
Square Tower House	—	—	—	1	Kiva to outside court.	do.
Site 499	1	1	—	—	Two kivas and tower linked.	do.
Cedar Tree Tower	1	—	1	—	Tunnel from kiva to tower branches to subterranean room.	Fewkes, 1921
Sun Point Pueblo	1	—	—	—		Lancaster and Van Cleave, 1954
Mancos Canyon						
Site 4	—	—	1	—		Reed, 1958
La Plata Valley						
Site 41, Bldg. XVI	—	—	1	—	Morris considers tunnels as influenced from the west	Morris, 1939
Site 42	—	—	1	—		do.
Montezuma Valley						
Aztec Spring (Yucca House)	—	—	—	1	From kiva—"opens inside of bank many yards distant." Not certain.	Fewkes, 1919
McElmo Creek						
Mitchell Spring	—	—	1	—	Probably the first excavated.	Prudden, 1914
Cannonball Ruin	—	2	—	—	Three linked kivas.	Morley, 1908
North of Cortez						
Little Dog Ruin	3	—	—	—	Three kivas and three towers.	Martin, 1930
Charnel House	1	—	—	—		Martin, 1929
Herren Ruin	5	—	2	—	In four unit pueblos.	do.
Southeast Utah						
Pierson Lake Ruin	—	—	1	—	On Squaw Point.	Fewkes, 1919
Alkali Ridge	—	—	1	—	Precise location of site unknown.	Kidder, 1924
Piedra River						
B Village	—	—	1	—	Pueblo I site.	Roberts, 1930



Figure 80. Tower doorway, opened tunnel and entrance to Kiva A in background, looking east.



Figure 81. Tower doorway and tunnel entrance, excavated to 1.5 feet below the floor, looking north.



Figure 82. Tower, Feature 11 in foreground, looking northwest.

by a buttress of the same composition which surrounded the tower. It was 2 feet deep against the walls and thinned out to disappear about 5 feet away. There were a few faced stones in this rubble, and a few were scabbled, but most were the same unshaped, burned stones which made up the core of the tower wall. Figure 82 shows a profile of the rubble against the base of the tower wall and lying over trash deposited on the remains of Feature 11.

The few sherds in the fill ran from the earliest to the latest types, but were predominantly Chapin Gray, probably from trashy soil used in the core of the wall. There was no timber in the fill or on the floor. The rubble was undoubtedly the debris left from the despoiling of the upper walls in the process of salvaging material for use elsewhere. When excavation was completed, the tower stood at a maximum height of 4.1 feet, and there were not enough finished stones in or around it to have raised it a single course. The doorway, the tunnel hatch, and the tunnel itself below the door were filled with the same rubble. It appears that the salvagers took only timbers and dressed stone. As their work progressed and they approached the floor, they found further progress impeded by the rubble, and they could go no further without removing it. Apparently it wasn't worth the effort. This same haphazard approach is probably what protected the lower 2 feet of the walls of Rooms 1 through 4. Two feet north of the tower was an L-shaped wall, compound and two to three courses high, which rode up over the rubble mound outside the tower wall. The wall was crudely laid and it could not be determined whether the rocks had been mortared. It may represent the start of some rough construction after the abandonment of the tower, but it is more likely that it was the remains of a stockpile of stone salvaged from the tower.

The sherds, a few small artifacts in the fill, and the rubble outside were not contemporary with the tower's use but were accidental inclusions in the building material. Nothing was found on the floor, but below the floor next to the south wall, under that wall and below the old ground surface outside the wall in a small area, was a cache of stone tools which was probably associated with the tower and may have been deposited as an offering at the time of construction. They were:

- 4 axes: all complete; three of porphyry, one full-grooved, two notched (one re-used as hammer); one claystone, notched and re-used as hammer.
- 1 mano: slab-type of diabase, with slightly concave face, unifacial with finger-grips, (fig. 194f).

Lying against the outside of the tower, on the east at the foot of the wall was an awl made from a gray fox tibia (fig. 218p). It was probably contemporary with the tower.

Excluding the related double-and triple-walled structures, circular, D-shaped, or sometimes rectangular towers are characteristic of the Mesa Verde architecture of the McElmo and Mesa Verde Phases. Though also known in the Gallina country of northern New Mexico in the succeeding century, they are otherwise confined to the Mesa Verde area. Morris (1939) reported none from the La Plata drainage, but from the Mancos River west onto the Grand Gulch plateau in southeastern Utah they become increasingly numerous. There are 59 known towers on Mesa Verde (Archeological Site Survey record, Mesa Verde National Park Museum), covering about one-quarter of the area that has been systematically surveyed.* Only four relatively small localities between Mesa Verde and the Abajo Mountains of Utah have been surveyed; the Ackmen area (Martin, 1938), Mancos Canyon (Reed, 1958), Alkali Ridge (Brew, 1946), and Hovenweep National Monument. A preliminary review of the

* These observations have been rendered obsolete by considerable work in the area since 1965.

literature indicates that 35 towers have been recorded in these localities, and doubtless more exist unnoted. On a 2-day trip between Squaw Point and Cross Canyon on the Montezuma Creek drainage, onto the eastern edge of Grand Gulch plateau, 13 towers were seen but not recorded (Hayes, personal observation, 1964).

The function of these towers has been the subject of speculation since they were first described. Nordenskiöld noted the easily defended situation of Navajo Watch Tower in Navajo Canyon, but suggested a religious use for Cedar Tree Tower (Nordenskiöld, 1893). Almost 30 years later when Fewkes excavated the latter site and found a sipapu in the tower and an underground passage to the adjacent kiva, he accepted the presumption of its religious nature and further suggested that it applied to all the towers, including those in the country farther to the west (Fewkes, 1919, 1921). But the commanding position of some of the towers, and perhaps their resemblance to medieval European keeps, has stimulated some observers, like Nordenskiöld in the case of Navajo Watch Tower, to see a defensive purpose in the structures.

Perhaps the largest tower known is Charnel House, one of the Ray Ruins at the head of Cow Canyon north of Cortez, excavated by Paul Martin, then with the Colorado State Historical Society (Martin, 1929). The tower, 28 feet in diameter and 12 feet high, was at the southeast edge of a crescent-shaped pueblo and was connected by a tunnel to a kiva. Despite several small windows or "loop-holes" in the southeast and southwest walls and the presence of 23 unburied dead on the floor, Martin doubted the defensive purpose of the building and inclined to a ceremonial interpretation of it.

Reed (1958) regarded the towers in Mancos Canyon and in the Hovenweep drainage as unsuitable for defensive structures or lookouts. Most of those on Mesa Verde are in poor tactical positions. Many were vulnerable to concealed approach or fire from above, and comparatively few command enough sweep of the terrain to serve as lookouts. Sites 1364 to 1368, an interrelated group around the tip of the ridge on Wetherill Mesa separating Bobcat and Long Canyons, are a case in point. Here several rooms were built in a cave midway up a sheer cliff, and 13 more were located on the top of a small butte separated from the tip of the ridge and extremely difficult of access. It is hard to believe that the dwellers on top were not seeking isolation. Yet the tower associated with this little population center was built on the talus next to the cliff. A mischievous youth could have demolished it with a few boulders rolled from the top of the main ridge.

Forty-four of Mesa Verde's recorded 59 towers are, like that at Badger House, parts of houses. All but six of those known on the mesa are adjacent to or very near kivas. In table 28, it will be seen that tunnels connect 15 towers with kivas at eight excavated sites. Unlike towers, tunnels are not evident unless exposed by the shovel, and it is probable that the direct association of kiva and tunnel is much more common than surface surveys indicate. There are other indications of the religious nature of towers. The sipapu in Cedar Tree Tower has been mentioned. At Site 1235, on Wildhorse Mesa, there is a 12-foot tower in a small cave with a floor-level entrance to a hole through the cliff leading to a chimney, providing access to the house on the talus 20 feet below. The tower, two stories high, has a southern recess, but no other kiva features (Archeological Site Survey record, Mesa Verde National Park Museum). In reporting the excavation of Mug House, Rohn (1971) notes that the towers which flank the ruin on the north and south ends are built of masonry identical to that of the kivas. Though in nearly all of the secular rooms the masonry was chinked with spalls, none of the kivas and neither of the towers were. Rohn, too, subscribes to the religious theory.

A few towers on Mesa Verde might give defenders some

tactical advantage. This may have been accidental or the builders may have had a dual function in mind. At the south end of Balcony House is a circular structure with no kiva association, which commands the southern approaches to the cave and was probably a purely defensive structure (Nordenskiöld, 1893). The others, in positions suitable for either defense or observation, are also associated with kivas and houses or kivas alone. Even the impressive Navajo Watch Tower, perched on an isolated bald knob separated from the cliff edge of Long Mesa, with an extensive view up and down Navajo Canyon, stands immediately above a kiva depression and the rubble of three or four rooms on the talus below. Many towers at Mesa Verde are located so as to afford a view of another tower. Signals from tower to tower could rapidly link most of the larger settlements across the entire mesa.

AREA 1

The area between house and kiva was used as a *placita* by the Mancos Phase occupants of Rooms 5 through 9 and Kiva B, and also by the later Mesa Verde Phase people. It was stripped down to the last-used packed area, about one-half foot below the recent surface. The only feature on the exposed surface was the large rectangular fireplace of slabs, Feature 12, described previously as associated with Rooms 1 through 4. The Mancos Phase surface, 0.9 foot below, was not completely cleaned but was found through Test Trench V, which was excavated into subsoil across the plaza.

Six feet in front of Room 8 was a small circular cooking pit excavated from the Mancos Phase surface of the area into subsoil. The pit was 4 feet wide at the top, 1.5 feet deep, and tapered to a width of 2 feet at the bottom. The sides were hardened and reddened by fire and were lined along the base of the eastern side by small upright slabs. The floor was covered with 0.4 foot of small burned rocks. Also originating at the earlier surface was a cache of two Mancos Corrugated jars in front of Room 6 (fig. 94b and c).

FEATURE 10

A cooking pit was cut in two by Test Trench IV, 27 feet southeast of Feature 9, the small pithouse. A pit, 2.3 feet deep, had been dug through the trash and 0.4 foot into subsoil. The hole apparently originated in the upper levels of the trash and must have been contemporary with one of the later phases. Its outline at the bottom was an irregular oval measuring 3.7 by 2.8 feet. At the east end the floor was flagged with a few unshaped pieces of sandstone. The bottom and the flaring earth walls were fire hardened and red. The pit was filled to a depth of 1.3 feet with thumb-size pieces of charcoal. The sides and the top were a shell of baked adobe, 0.2 to 0.3 foot thick. Since the loose trash in which the pit was dug could not have been plastered from a narrow hole at the top, the pit must originally have been roughly 3 by 4 feet and with straight sides. It was then filled with fuel, which was partially burned before the fire was smothered by a dome of earth. The fire, continuing to burn with little oxygen, produced charcoal and baked the soil covering it. This is a common method of oven baking. The space above the top of the charcoal, about 1 foot deep, may once have held ears of corn in the shuck. The central section of the pit was cut by the trench before its presence was discovered in profile, and it could not be determined if the pit had ever been re-opened. It could not be related to any specific phase or structure.

SUMMARY

Badger House was evidently occupied continuously through Pueblo II times, then deserted throughout the 12th century, and then briefly reoccupied in late Pueblo III.

Unfortunately, examples of early Pueblo II architecture were badly torn up and spotty due to the salvaging of material for use in later buildings at the site. There was no direct correlation of each of these fragmentary remains with stratigraphy in the trash mound. However, two levels of building activity within the period can be confidently related to the lower strata. During the first 100 years at the site, in Features 3 through 7 and Feature 11, we see a continuation of construction methods and the types of stone artifacts of Pueblo I associated with new pottery types and the development, in Kiva C, of a true circular kiva with pilasters, bench, and rudimentary masonry lining.

Late Pueblo II at Badger House saw, in Rooms 5 through 9 and Kiva B, the advance of solid masonry houses built of shaped stones, the full masonry-lined kiva, and with the introduction of grooved axes and open-ended metates used in bins, the first significant changes in stone tools in several hundred years. Differences in pottery were less marked and largely confined to painted design styles. The only gap in the cultural record at the three sites occurs next: the McElmo Phase and perhaps the first generation of the final Mesa Verde Phase are missing. A few more dated timbers would have been helpful, but an estimate of the dates of the hiatus can be made by means of data from other excavations.

Unit Pueblo II at Site 16 on Chapin Mesa (Lancaster and Pinkley, 1954) is similar in several respects to the stage at Badger House represented by Rooms 5 through 9, Kiva B, and Stratum B

in the trash mound. Both have lined kivas, some building stone dressed by pecking, grooved axes and hammers, Mancos Black-on-white pottery with both mineral and carbon paint; and both lacked McElmo Black-on-white and Mesa Verde Corrugated. Kiva 1 at Unit Pueblo II produced a timber with a cutting date of A.D. 1074. The excavators assumed the site was occupied for another quarter of a century.

Component D at Big Juniper House, dating from A.D. 1080 to 1150 (Swannack, 1969), showed kiva traits and a stone tool assemblage very similar to those associated with the Mancos Phase in Badger House and Unit Pueblo II, but, in addition to Mancos Black-on-white in both mineral and carbon paint, produced a considerable amount of an early form of McElmo Black-on-white, which was missing from the other two sites. Since it had not yet appeared by A.D. 1074 at Unit Pueblo II, which has an estimated terminal date of 1100, its earliest time of manufacture must have been between 1100 and 1150. Because of the respectable quantity of McElmo at Big Juniper House, the date was probably closer to 1100. The first abandonment of Badger House must then have taken place between 1075 and 1100.

The last occupation, represented by the typically late Pueblo III Kiva A, the tower, and Rooms 1 through 4, was characterized by finished masonry, compound walls, and Mesa Verde Corrugated and classic Mesa Verde Black-on-white pottery. The dates from the kiva probably represent the date of re-occupation, A.D. 1258. Though Mesa Verde Black-on-white, according to evidence from Long House, was made as early as A.D. 1225, the scant accumulation of late trash at Badger House makes it unlikely the site was re-occupied this early. The period of disuse of Badger House extended for 150 to 185 years.

5

Pottery

Excavations in the three Badger House Community sites produced 123,633 sherds, representing all the locally made pottery types. These, with the quantity of restorable vessels accompanying burials in the Badger House trash mound and of those found in the burned houses of the earlier phases, coupled with the stratigraphic evidence and the many dated timbers from the burned houses, afford a good look at the entire spectrum of the Mesa Verde ceramic industry.

Sherds from Badger House were studied first, before Sites 1644 and 1676 were dug. They comprised two-thirds of the total number, and two-thirds of those, or half of the total, were from the trash mound. The method used was to remove sherds associated with burials, structures, or other features, and those taken from the arbitrary levels of Test Trench I. First and most detailed attention was then given to the large balance of sherds from specific strata of trash and those labeled "general fill." Of this balance of over 62,000 sherds, 43 percent were pinned to the strata.

Sherds were first studied by stratigraphic provenience and a rough sorting was made by type. They were then spread out on tables by types so that all sherds of a single type could be studied as a unit. This rather intensive second look resulted in a more accurate idea of the characteristics of each type and in our making necessary revisions of the original counts of types by strata. The classification of pottery from the rooms and other features followed when the familiarization gained from the trash mound pottery allowed us to do the job with maximum consistency.

A modification of the same method was used in handling the sherds from Sites 1644 and 1676. Trash at these sites was thin and scattered and no stratigraphic separation could be made, but nearly all units were dated by tree-rings and sherds were first analyzed by provenience, starting with those from the earliest structures. The second step of grouping sherds by type was applied here only to the decorated pottery.

The descriptions which follow vary considerably in their fullness. The greatest emphasis is placed on the less well known types. Cortez Black-on-white, typical of the little known Ackmen Phase, had been previously described only from surface collections and is treated more thoroughly herein. Mancos Black-on-white rates a nearly equal discussion because of its relationship to Cortez Black-on-white. The Pueblo III types are discussed only to the extent that the reader will know how they were classified and can judge the validity of our conclusions or draw conclusions of his own. The populations of the later phases were smaller in number and their periods of occupation were of short duration. Their pottery types are more fully described in other reports of the Wetherill Mesa Project.

Anasazi ceramics are customarily divided into plain and decorated wares. Except for the red pottery of Pueblo I, which seems to have a different history, all types were developed from plain gray

pottery. The earliest decorated vessels were nothing more than this plain ware to which paint was added. The utility pottery remained the same throughout the centuries except for minor changes in shape and surface texture, but gradual changes were made in the techniques employed in the manufacture of the decorated ware. By the time of the Mesa Verde Phase, a sherd from a smoothed section of a corrugated cooking vessel could not be distinguished from a

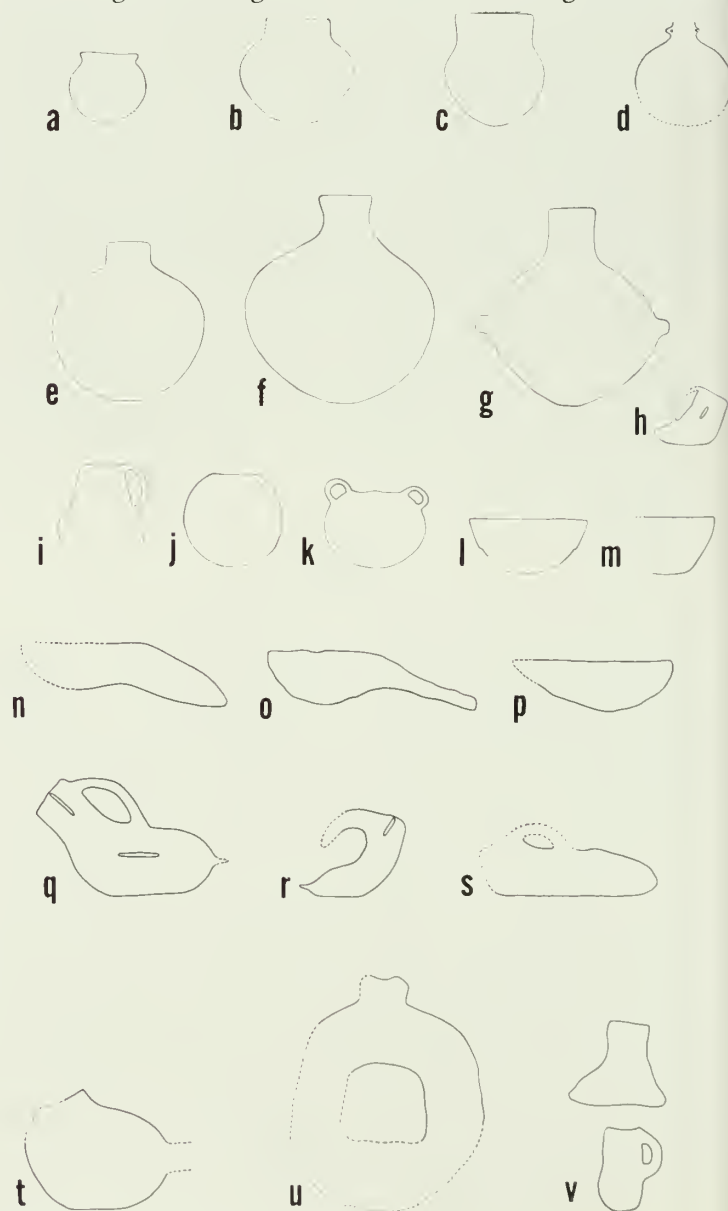


Figure 83. Chapin Gray vessel shapes.

sherd of a plain pot from Basketmaker III times, but the paste in a sherd from a late painted bowl is so different from the utility ware that one would hardly suspect them to be derived from a common tradition.

As the decorated ware developed attributes of its own, it also increased in numerical importance. In La Plata Phase pithouses, 91 percent of all sherds were plain gray. In the Piedra Phase village, the count of all utility sherds had dropped to 66 percent, and in the Pueblo II trash at Badger House only 52 percent were from culinary vessels. These basic utility types of pottery will be discussed first, in the order of their appearance.

CHAPIN GRAY

This basic culinary pottery during the Basketmaker and Pueblo I stages is much the same throughout the Anasazi country, but on the basis of differences in the temper, Abel (1955) suggested that the rock-tempered ware found north of the San Juan River should be considered a separate type, Chapin Gray. It has been fully described by Abel, Morris (1939), and others, and the description need not

be repeated in detail. Briefly, it is a well-made pottery, constructed probably by building up a series of separate rings of clay from the base rather than by continuous coiling, and then fired in a reducing atmosphere. The surface was scraped and smoothed and ranges in color from dark to light gray to buff. It was made in a wider range of forms than any succeeding type of pottery, and it was in the shaping of the vessel that the artistic imagination of the potter was expressed (fig. 83).

Though little can be added to a general description of the type, the amount of material from the continuous series of dated dwellings makes it possible to observe some interesting minor changes and tendencies from early to late. The observations were based on 48,770 sherds and 93 pots which were complete enough to indicate general size and shape. Most of the Chapin Gray, as would be expected, was from Sites 1644 and 1676, but over 10,000 sherds, one bowl, and a miniature jar were found at Badger House.

The numerical importance of Chapin Gray in comparison to other utility types can be seen in table 29. The actual number of Chapin Gray vessels used was smaller than the figures shown in the table would indicate. The typical culinary ware of late Pueblo I and

Table 29. Incidence of utility ware sherds from the trash mound at Badger House and from Sites 1676 and 1644

Source	Plain Gray	Moccasin Gray	Mancos Gray	Mancos Corrugated	Mesa Verde Corrugated	? Corrugated	Totals
Trash mound, Badger House strata and general fill							
A	16%	T ¹	4%	17%	T	62%	6,353
AB	12	T	4	20	T	63	1,184
B	20	T	6	16	0	57	601
BC	17	T	6	21	0	55	459
C	14	T	0	16	0	69	139
CD	21	1	7	20	0	51	345
D	15	T	3	20	0	62	681
DD+	20	T	3	10	0	67	131
D+	22	T	8	17	0	53	1,063
D+E	54	3	30	4	0	9	262
E	43	3	21	8	0	25	2,132
General fill	20	1	4	18	T	56	19,097
Houses 1, 4-7, and jacal, Site 1676	94	6	0	0	0	0	22,150
Houses 2, 3, Site 1676	97	2	0	0	0	T	7,855
Pithouses A, B, Site 1644, and G, Site 1676	97	T	0	0	0	0	2,846

¹ T = trace.

early Pueblo II differs from Chapin Gray only in having banded necks. Most of the vessel surface is scraped. Even in later periods many corrugated vessels were scraped smooth on the bases. Sherds from the smoothed parts cannot be distinguished from Chapin Gray, and many were undoubtedly classified as such.

A list of 19 traits was drawn up, and counts of sherds exhibiting the traits were recorded for three groups of houses: (1) the Basket-maker III pithouses, (2) Houses 2 and 3, dating in the A.D. 700's, and (3) Houses 1, 4, 5, 6, and 7, and the jacal at Site 1676, dating in the 800's. The same procedure was followed for the whole and restorable pots. The two lists showed consistently parallel results except in a few cases where the total numbers were too low for conclusions.

Evidence that much, if not all, Chapin Gray was constructed by using a shallow coiled basket as a basal form has been reported by others. Unobliterated impressions of basketry were seen on 10 sherds and one bowl. In the case of the bowl, the surface of the fillets applied above the rim of the basket was smoothed but extended beyond the rim to a greater diameter. This same swelling above a point just below the shoulder was noticed on several vessels with completely smoothed surfaces (fig. 177), suggesting that these vessels were also constructed in a tray but were removed while the clay was still moist enough to scrape the surface. Though the number of specimens is perhaps too small to rely on, they were found to decrease from early to late through the late Pueblo I component and were not noted at all on plain sherds from Badger House.

No change in temper can be seen. One ladle was tempered with fine brownish sand and might be typed Rosa Gray, but all other specimens examined contained crushed rock. Though most of the rock appears to be from the alluvial cobbles of igneous material, about 6 percent of the specimens examined seem to contain the friable micaceous stone from the intrusive volcanic dikes that cross the Mesa Verde at several spots.

The surface of Chapin Gray is scraped to remove the evidence of the joined fillets of clay and then wiped to varying degrees of smoothness. In the pithouses, 20 percent showed a semipolish produced after the pot was air dried (fig. 84a and b). The trait dropped in importance to 10 percent in late Pueblo I and to less than 2 percent in the Badger House trash. Most of the polished plain vessels from the later contexts were bowls, which had all the attributes of Chapin Black-on-white or Piedra Black-on-white except the painted decoration. Most of the polished plain sherds were also bowl sherds and many of these could have come from unpainted parts of decorated bowls, but it is significant that polished Chapin Gray diminished in popularity as the frequency of painted vessels increased.

Another surface treatment of minor importance is the incising of the still wet surface of the clay to produce simple designs. The trait occurred throughout the time the type was made but always in small percentages. It was largely, but not exclusively, confined to effigy pots and pitcher handles, and was most common in late Pueblo I (fig. 85f).

A fugitive red wash, applied to the exterior after firing, was



Figure 84. Chapin Gray vessels.



Figure 85. *Small and eccentric Chapin Gray vessels.*

noted on 3 percent of the Chapin Gray from the pithouses and the early Pueblo I structures. It was found on a little less than 1 percent from the later Pueblo I houses and less than half of that in the lower levels of Badger House trash. Certainly many more were so treated. Much of the wash must have been lost during use of the pottery, and more of it was unintentionally removed by the cleaning of the sherds in the laboratory. Fugitive red was seldom noticed before washing because of the usual ash-and charcoal-encrusted condition of the sherds. Possibly all or nearly all pots were originally coated. It was noted on all forms except dippers.

Style trends in Chapin Gray can be most clearly demonstrated in vessel forms, observed on rim sherds and whole or nearly complete pots. Jars were always the commonest form. They were somewhat less numerous in Basketmaker III when neckless squash pots were at the peak of popularity.

Jars had two shapes: squat, wide-mouthed jars with short neck, and larger ollas with narrow mouth and high neck. In all stages, the former occur about twice as commonly as the latter and show some change in shape with time (fig. 83a-c). Jars from the pithouses are subspherical, with rims that flare outward, much like those on Mesa Verde Corrugated of late Pueblo III. Some have a very short neck, and the rim of others turns out directly from the upper part of the body. All were slightly greater in diameter than in height, and at the rim they were a little over half as wide as the maximum diameter of the pot. Seven vessels average 20.6 cm. high by 23.1 cm. in diameter, with the rim 12.3 cm. across, and have a capacity of about 1 gallon.

The wide-mouthed jars from the early Pueblo I houses average slightly larger, and all have a short neck and straight, unflared lip. By late Pueblo I, jars are higher than wide with rather high necks, and are identical in shape to contemporary Moccasin Gray jars. Miniature jars were found in all three stages (fig. 85b-d).

The narrow-necked ollas were apparently equally important, early and late (figs. 83e-g and 84a). Those of Basketmaker provenience run a little larger than later ones and tend to be globular with straight neck and unflared rim. The four found are of roughly equal size and average 37.4 cm. high by 35.2 cm. wide with a

mouth 9.3 cm. across. Capacities range from a little over 4 to almost 7 gallons. None have handles. By late Pueblo I shapes had changed. The later jars tended to have a rounded but well-defined shoulder near the midpoint of the body, most often provided with a pair of horizontally placed handles (fig. 83g). The neck tends to be a little higher and is often tapered toward the mouth. The largest of 10 measurable specimens has the same capacity as the smallest of the Basketmaker III ollas, a little over 4 gallons.

Rims of both jar shapes are occasionally tapered, often rounded, but frequently somewhat flattened at the lip. The walls are usually uniform in thickness from base to rim and the average of all jars is 0.5 cm., with a range of 0.4 to 0.7 cm. The base is sometimes slightly thicker than the sides, but from many basal sherds it was noted that, although the original thickness of the paste was uniform, it had been reinforced from the inside with an additional plaque of moist clay molded to the initial coils.

The upper two-thirds of a narrow-necked jar found in the early Piedra Phase House 3, on the floor of Room 3 at Site 1676, was not included in the count of ollas. With a diameter of 19.3 cm., it is smaller than the average and could be termed a canteen. The surface carries a bright fugitive red wash, and each side of the neck bears a small nipplelike lug perforated horizontally, probably for suspension (fig. 83d).

No pitchers were found in the pithouses, and only one was recovered from the early Pueblo I houses. Near the fugitive red canteen was a small pitcher or cup, 11.2 cm. high. Its shape approximates that of the jars of the same time period, and it has a rounded strap handle from the rim to a point on the body just above the greatest diameter (fig. 85a). The late Pueblo I houses produced four pitchers of nearly the same size, averaging 20.4 cm. high and 17.4 cm. wide (figs. 83i and 84d). Unlike the single earlier specimen, all have well-defined shoulders and are similar in shape to Cortez Black-on-white and Mancos Black-on-white pitchers manufactured during the next 300 years. Two miniature pitchers, measuring 6.0 and 6.2 cm. in diameter, had late Pueblo I proveniences.

The commonest shape in Basketmaker III structures, consider-

ing the jars as two separate forms, was the subspherical, neckless squash pot (figs. 83j and k and 84e and f). The seven restorable pots are wider than they are high and look like calabashes with the tops sliced off. They are rather uniform in size, averaging 17.5 cm. in height by 21.1 cm. in diameter, with mouths 9.1 cm. across. Capacities are from $2\frac{1}{2}$ to $3\frac{1}{2}$ quarts. The incurved rims have rounded lips. One has vertically placed loop handles, round in cross section, just under the rim. Except for ladles, this was the only pot with handles from the pithouses.

Only one squash pot was found in an early Pueblo I house and this is a miniature, 7.1 cm. in width. Near the base is a hole, 0.6 cm. across, made while the clay was wet, apparently by using a stick as a mold. Similar pots were found in Basketmaker and Pueblo I sites on the La Plata (Morris, 1939) and at Shabik'eschee Village in the Chaco Canyon district (Roberts, 1929). In both localities, in the same contexts, were small bowl-shaped or globular vessels with short lateral spout attached near the base. Though function is problematical, the vessels with holes may have been fitted with a perforated stick instead of a clay spout, as Morris suggested. No Chapin Gray squash pots were found in the later houses. The decrease in popularity of the form reflected in the whole vessels is repeated in the rim sherds of these vessels. They accounted for 13 percent of all rim sherds in the pithouses, 6 percent in the early Pueblo I houses, and 2 percent in the structures dating in the A.D. 800's. The shape itself did not become obsolete, however, but was increasingly decorated and appears in later phases as Piedra, Cortez, and Mancos Black-on-white, and eventually, with modification, evolved into the Mesa Verde Black-on-white kiva jar.

Bowl sherds were found to be a constant 3 percent of all plain sherds from the various proveniences at Site 1644 and Site 1676. No counts of bowls were made at Badger House. It would not be proper to attribute all these sherds to Chapin Gray vessels because, as we have noted above, many were probably from unpainted areas on decorated pottery. Though their numbers are small, the seven complete or restorable bowls may provide a better clue to their distribution through time. None were found in the pithouses. One came from an early Pueblo I house, and six, or 13 percent of the total number of pots, came from late Pueblo I locations. Shapes range from nearly perfect hemispheres to steep-sided, flat-bottomed bowls, from 2.7 to 10.8 cm. high and 8.0 to 20.0 cm. in diameter, with wall thickness from 0.3 to 0.6 cm. (fig. 83l and m). Five of the seven show some light polish on one or both surfaces. The majority of the rims on sherds as well as whole vessels tend to be blunt and rounded, or even flattened by dragging a finger around the bowl edge. Unlike any of the previously discussed forms, which have round or almost pointed bases that can not stand unsupported, some of these bowls rest on a level surface without rocking.

The early Anasazi phases saw a wide range of eccentric pottery forms in both decorated and plain wares often appearing as stylized birds. As expressed in both sherds and pots, they occurred in highest frequencies in late Pueblo I. Only one such sherd was found in a structure dating in the A.D. 600's, and sherds of eccentrics became quite rare again in the early Pueblo II strata of Badger House trash.

From the early Pueblo I houses were one sherd and two pots. One of the vessels could be classed as a miniature squash pot. A roughly egg-shaped pot, 8.2 cm. in height, it has a short neck and open mouth at one end of the upper side, perhaps in crude imitation of a bird effigy, and a broken hollow handle at the other end (figs. 83t and 85g). The handle was made by molding it around a stick perforating the vessel wall, and probably was a hollow spout. The second pot was the top one-quarter of a stirrup vessel (fig. 83u). Spouts from each end of an enclosed vessel meet in a single mouth.



Figure 86. Chapin Gray dippers, a and b, and a sliced gourd, c.

Five bird effigies and 16 eccentric sherds came from the late Pueblo I houses. The finest, from a bin in Room I in House 5, has an estimated length of 13.0 cm. A flat tail is broken off but narrow, incised flanges are located at midsection on both sides of the mouth. A rounded strap handle loops from the rim to the middle of the back. This is shown in figures 83q and 85f. Sketches of two cruder vessels which lack the symbolized wings and tails but are essentially of the same shape are shown in figure 83r and s. An eccentric shape that has been called a "submarine" vessel may be seen in figures 117v and 85h. Potato-shaped, it has a tall vertical spout rising from the middle of the top side, with a vertical handle which is round in cross section below the rim.

The walls of eccentric forms, averaging 0.7 cm. were thicker than those of other forms, perhaps because of the difficulty of working in small, narrow-mouthed vessels.

Chapin Gray ladles were not numerous. The earliest and most popular shape was an elongated bowl with a curved and rounded handle attached just below the rim. The prototype may well have been the common gourd (*Lagenaria*) with one side sliced off (fig. 86c), as has been frequently suggested. By moving the axis of the cut a little lower down and removing the upper half of the stem, a dipper with a troughed handle is made. The style with a full round handle was the preferred style here, and the only one found in the pithouses and the early Pueblo I houses. The half-gourd ladle of Chapin Gray with an open handle is represented by only four sherds and one nearly complete ladle (fig. 83p) from Site 1676.

A great number of broken handles show a diversity not repeated on any later pottery type. Both in total numbers and in the number of styles exhibited, they are scarce in the earliest components and become increasingly common and more varied up through late Pueblo I, then drop in the Badger House trash to far fewer examples than in the pithouses. Many of those from the later sources were more likely plain sherds from Mancos Gray or corrugated pots, but handles on complete vessels of these later types are seen to be much rarer than on Chapin Gray. The most popular style in the early stage was a simple rope of clay, round in cross section, like those on the squash pot in figure 84. The round handle is still numerous in Pueblo I sites where it is sometimes made up of two or more strands of clay pressed together side by side, but the handle with an oval cross section leads in numbers, and a flat ribbon or strap appears in the latest houses.

Various types of lug handles are found in both La Plata and Piedra Phases and increase in numbers and diversity at the end of the latter phase. They range from simple conical bosses, sometimes perforated, through flat, tonguelike, downcurving projections (the most frequent), to elaborate, truncated, cylindrical lugs, dished at the outer end. Cupped flanges placed at the sides of a jar, just wide enough to accommodate the fingertips, occur in small numbers. Perforated, pinched flanges of clay placed vertically at a jar rim were probably for suspension strings. Small applique nipples are common, but are more decorative than utilitarian. Examples of Chapin Gray handles can be seen in figure 87.

MOCCASIN GRAY

As a type, Moccasin Gray is in a peculiar position. Its description refers to the surface treatment of a part of a vessel—that of leaving the fillets of the neck unobliterated. It follows then that only jars and pitchers are included in the type. The value of referring to the practice by a type name lies in the fact that it was followed for a short period and is a good time indicator.

Moccasin Gray differs from Chapin Gray jars and ollas solely by the presence of the unsmoothed clay coils between the shoulder



Figure 87. Chapin Gray handle sherds.

and the rim. In shape, wall thickness, and temper it is identical to contemporary Chapin Gray jars. Only sherds from the upper part of the jar are identifiable, with the result that comparatively few show up in the sherd counts. Sherds from the bottom half of the jar are typed as Chapin Gray. Only 1,886 Moccasin Gray sherds were found. In no single provenience did they amount to more than 9 percent of the utility ware, thus giving a distorted impression of the relative importance of the type.

Fortunately, 58 whole or restorable Moccasin Gray jars were found in the Piedra Phase houses and we need not rely on sherds for a description. One of these was a large, narrow-necked olla of 17-quart capacity with two unscrapped fillets at the rim (fig. 88a). All of the others were wide-mouthed jars similar in shape to the Chapin Gray vessels shown in figure 84b and c. Most of the entire distance between the base of the neck and the rim is spanned by the unsmoothed fillets, but on a few the lower section of the neck is smoothed, leaving only those at the top. A large sherd from Protokiva E was from a small jar with unsmoothed bands from top to bottom. Eighty percent of the jars have from four to six fillets, the latter being the commonest. One large jar has nine fillets, and on one jar all fillets were removed except the one at the rim. Four of the 58 jars have two coils remaining.

The fillets are sometimes quite uniform in width around the circumference, but more often they are irregular. From jar to jar, they vary from 0.7 to 1.6 cm. wide and average about 1.2 cm. The coils usually remain just as they were applied to the vessel as it was built up with each roll of clay. On five jars, however, the coils were smoothed by dragging a finger over the breaks between them around the circumference of the neck. One carefully made jar from

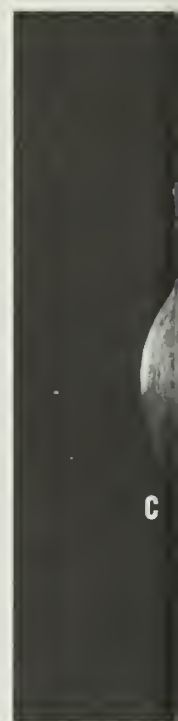


Figure 88. *Moccasin Gray jars.*

the firepit of the jacal at Site 1644 was smoothed in this manner and further finished by re-emphasizing the juncture of the individual fillets with an incised line (fig. 88b). Another jar, with Burial 8 in House 4 at Site 1676, was incised at the joining of the bottom fillet to the smoothed base of the jar. This last vessel was unusual in two other respects. The fillets, 0.7 cm. wide, were the narrowest of any on the 58 restorable pots, and there were nine of them—the greatest number on any of the jars. All of its coils were extremely regular, rather rounded in cross section, and fore-shadow Mancos Gray of the succeeding phase.

Relation of jar height to maximum diameter is even closer in this collection than it was in the Chapin Gray jars. In many the dimensions are identical, and in only a few do they vary more than a few millimeters. The jars average 21.0 cm. high by 21.0 cm. wide with the mouth 16.9 cm. across. The range of height and diameter is 10.0 cm. to 32.8 cm., and most of the vessels fall between 15.0 and 25.0 cm. The only one over 30.0 cm. is from Room 10 in House 1 at Site 1676.

The application of small nubbins, tits, or lugs was not as frequent as on Chapin Gray. Small earlike, nonutilitarian lugs appear on two of the jars, and over the coils of one is an applique of a reversed, open S, like those that appear more commonly on the later corrugated jars. Vertical handles were not found on complete pots, but they were observed on banded-neck sherds.

A fugitive red wash on the exterior was seen on none of the whole pots, but was noted on several sherds. A Moccasin Gray jar from Room 9 in House 4 at Site 1676 has a red-washed interior and may have held paint for applying to other pots.

The chief contribution this lot of pottery makes to our knowledge of the type is not in its description, which has been done adequately in other reports, but in its distribution in a series of dated houses. Table 30 shows the distribution of Chapin Gray and Moccasin Gray jars by dated proveniences. For valid comparison of numbers, only jars and pitchers of Chapin Gray are considered here. Moccasin Gray jars first appeared in House 2, at about A.D. 775. From this time until 815, they constituted about half of the jars.

Table 30. Relative distribution of Chapin Gray and Moccasin Gray jars (whole vessels) in Sites 1644 and 1676

Provenience	Date A.D.	Chapin Gray	Moccasin Gray
Sites 1644 and 1676			
BM III pithouses	650	15	0
Site 1676			
House 3	750	9	0
House 2	775	1	1
Houses 6, 7	815	8	7
House 1	850	11	12
Houses 4, 5	860	13	24
Site 1644			
Jacal	860	4	12
Totals		61	56

By 850, banded-neck jars were twice as common as plain ones, and by 860 they were three times as common. Although Moccasin Gray sherds were 3 percent of the utility ware sherds on the floor of House 3, dated 750, they were probably intrusive from the later trash overburden. They were also 3 percent of the utility sherds from Stratum E, and again were probably intrusive from the earlier houses up the slope. By the time of the deposition of Stratum E, Moccasin Gray was supplanted by Mancos Gray, which evolved from it.

MANCOS GRAY

Abel (1955) named and described Mancos Gray as “. . . an excellent diagnostic type in utility pottery since it is strictly limited to early Pueblo II times.” The 1,859 Mancos Gray sherds from the Badger House trash heap constituted 6 percent of the utility sherds. These, plus an additional 782 sherds associated with various features at the site and 3 fragmentary vessels, provide the first sizable exca-



vated sample with stratigraphic associations. The evidence from Badger House confirms Abel's statement.

Only 18 Mancos Gray sherds, probably intrusive, were found at Site 1676 where Moccasin Gray was the typical Piedra Phase utility ware. There was a very short period in the early Ackmen Phase, represented by Stratum E in the Badger House trash, when Mancos Gray was probably the only utility ware, followed by perhaps a couple of generations when its use continued along with indented corrugated pottery. By the end of the Ackmen Phase it was out of style. Figure 89 illustrates the relative abundance of Mancos Gray and Mancos Corrugated types in percentages of the total utility sherds in the trash strata. The percentages were arrived at by combining the identified Mancos Corrugated sherds and the unidentified corrugated sherds for each stratum. Because the Mancos Gray jars, when broken, produce many sherds indistinguishable from Chapin Gray, the count of Mancos Gray was arbitrarily swelled by adding to it half of the Chapin Gray sherds from the same strata. We note that Mancos Gray was more common than indented corrugated in Stratum E just above subsoil, but it sharply diminished in importance in Stratum D, immediately above, and continued to diminish to the top of the mound. Possibly its occurrence in the upper strata can be ascribed to rodent disturbance and, in part, to faulty classification. Some sherds of patterned Mancos Corrugated may have been mistakenly typed as Mancos Gray. It is likely that Mancos Gray was almost entirely superseded by Mancos Corrugated in the latter half of the 10th century.

It is unfortunate that the trash mound strata could not be given absolute dates. Associations of types and their relative abundance in succeeding phases, however, were indicated. The earliest tight assemblage of sherds from Badger House came from inside the short section of earthen wall which was part of Feature 7. The wall, footed on subsoil, was associated with a post structure but was itself built of adobe mixed with trash and small broken rocks. Though the wall was based on sterile clay, evidently it did not represent the first occupation of the site since the adobe contained a small amount of ash and sherds. The sherds in the wall probably

are from the earliest trash thrown out at Badger House and would seem to represent a terminal Piedra Phase-early Ackmen Phase. The 82 sherds within the wall were classified as follows:

Chapin Black-on-white	2
Piedra Black-on-white	16
Cortez Black-on-white	2
Bluff Black-on-red	3
Chapin Gray	14
Mancos Gray	25
? Corrugated	4
Unclassified	16

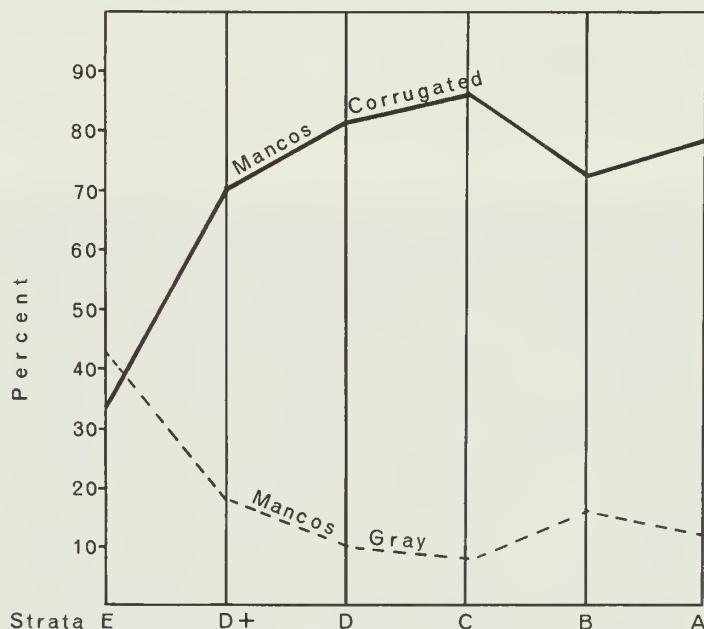


Figure 89. Relative abundance of Mancos Gray and Mancos Corrugated sherds shown as percentage of total utility sherds in the Badger House trash mound.

This was the only lot of sherds from the site in which Pueblo I decorated sherds outnumbered Pueblo II types, and, though few, their incorporation in the wall makes them a discrete sample. We believe they represent vessels manufactured within a very short period of time. The trash accumulation was shallow at the time of the construction of Feature 7, as indicated by the placement of the adobe wall on sterile ground and by the depth of the associated post-holes into subsoil. In this group, Chapin and Piedra Black-on-white, along with Bluff Black-on-red, made up 91 percent of the decorated sherds. In the trash of Stratum E, the percentage of the same three types had dropped to 13 percent of the decorated sherds. About one-half of the Piedra Black-on-white sherds in the wall were slipped and polished, and were considered to be late Piedra verging into Cortez Black-on-white. One of the two sherds classified as Cortez was also borderline and may have been Piedra. Six of the Mancos Gray sherds were of a wide clapboard style that is borderline Moccasin Gray-Mancos Gray. The evidence from Feature 7 shows that Cortez Black-on-white and Mancos Gray started at the same time.

In the section of Stratum E immediately overlying Feature 7, between grid lines F and H, Mancos Gray was still the dominant utility ware with 60 percent, and corrugated sherds showed a slight increase to 17 percent. In these same blocks, Piedra Black-on-white yields to Cortez Black-on-white, which here is 62 percent of the painted pottery. Mancos Black-on-white makes its appearance with 24 percent of the decorated ware. Both Mancos Gray and Cortez Black-on-white surrender their dominance in later deposits of trash to corrugated pottery and Mancos Black-on-white, but, while Mancos Gray almost disappears, Cortez occurs in significant amounts throughout the mound. It would appear then that the two types emerged at nearly the same time—in very early Pueblo II—but that Cortez Black-on-white held a minor popularity for some time after Mancos Gray had become unimportant if not obsolete.

Mancos Gray constitutes a node in the continuum from Moccasin Gray to true corrugated pottery, with the usual blur of unclassifiable sherds on both sides of the mode. In contrast to Moccasin Gray, the bands descend past the base of the neck and down onto the shoulder of the vessel (fig. 90), as is true of the plain-base, corrugated jars described under Mancos Corrugated. Rims are straight with slightly tapered and rounded lips identical to those on the earliest corrugated ware (fig. 93a).

Figure 91 illustrates sherds of Mancos Gray in its several variations: in a-i, narrow coils have been emphasized by tooling with a grass stem or sharp stick; in j-o, the coils have been smoothed



Figure 90. Mancos Gray jar neck.

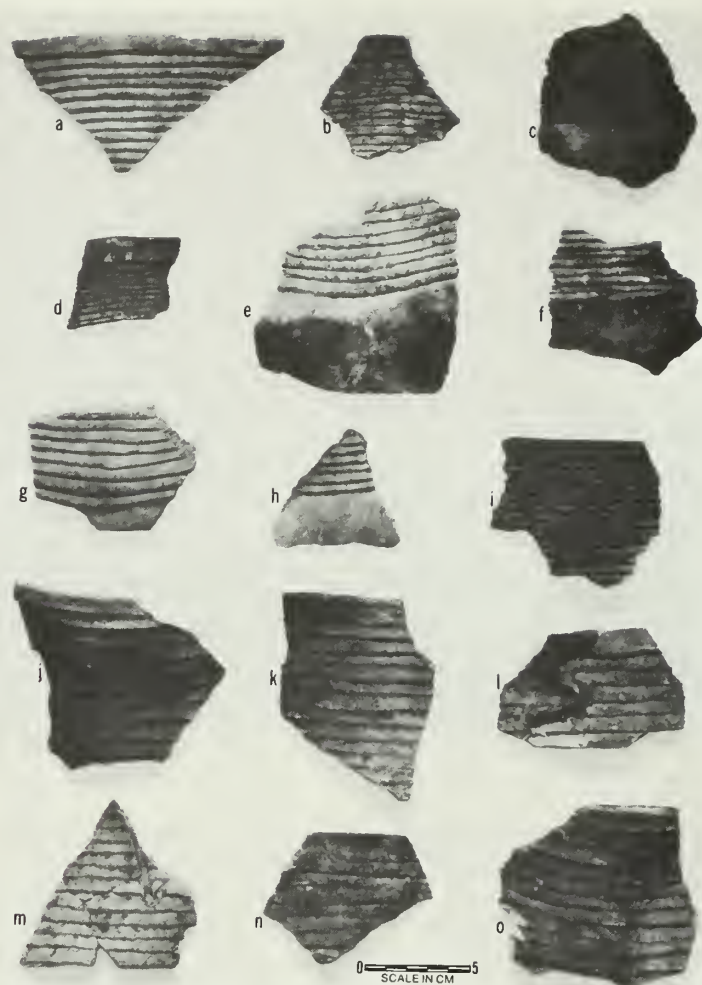
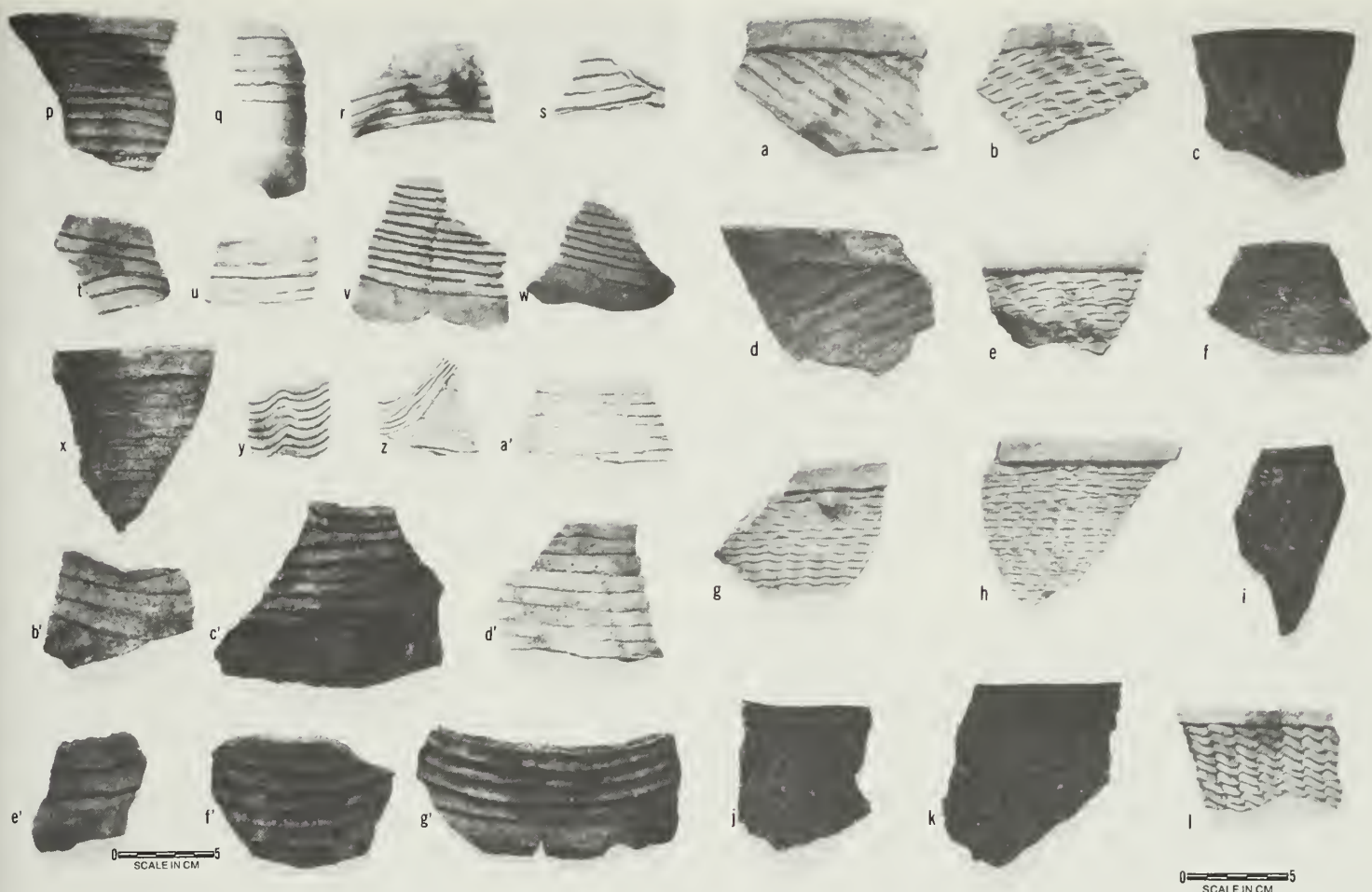


Figure 91. Mancos Gray sherds.

horizontally by dragging a finger in the moist clay; m is also incised; l shows an open S applique, precursor of the tight scrolls often applied to late indented corrugated jars; p-t show overlapped, clapboard coils. Very narrow coils with their outer edges slightly turned up, perhaps by light brushing with the palm of the hand, are shown in v-w. A wavy patterning of the coils, a style also observed on Moccasin Gray, is shown by t, y, z, and b¹. A similar effect was achieved on s by incising over the coils. On z, the area between the horizontal coils and the volutes was smoothed and then lightly cross hatched with a tool. The sherds, b¹-g¹, are the wide clapboards, referred to above, which might be called either dormant Moccasin Gray or latent Mancos Gray.

MANCOS CORRUGATED

The three sites produced 33,258 corrugated potsherds and 15 whole or restorable vessels. All but 159 sherds were from Badger House. In the laboratory the sherds were split three ways into the two described types and an unclassified group. The Pueblo II Mancos Corrugated and the Pueblo III Mesa Verde Corrugated are distinguished primarily by difference in shape and rim form. The practice of staggering the indentations on a coil in such a manner as to produce diagonal or spiral ridges across the body of a jar (fig. 92a-e) is almost exclusively a Pueblo II trait (Rohn, 1959; Hayes, 1964). All diagonally ridged sherds were also classified as Mancos Corrugated. Only 36 sherds from the trash mound were identified as Mesa Verde Corrugated compared to 5,603 Mancos Corrugated. The wide discrepancy suggests that only one out of 150 of the un-

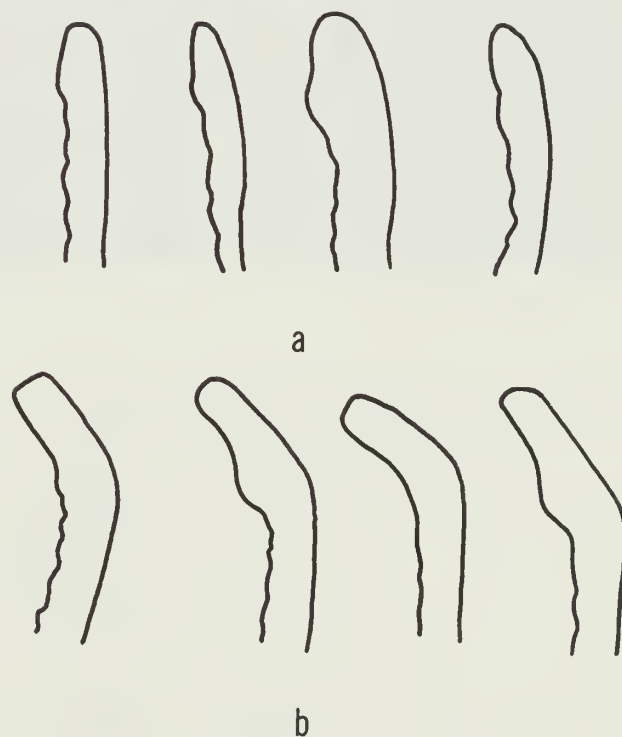
Figure 92. *Mancos Corrugated sherds.*

classified corrugated sherds was from a Mesa Verde Corrugated jar. All of the unclassified sherds were added to the number of Mancos Corrugated in preparing the graph shown in figure 89. It may be assumed that the number of Mesa Verde Corrugated sherds is too small to affect the percentages materially.

The large collection of sherds and the relatively deep stratigraphy confirmed ideas of minor tendencies from early to late in the manufacture of Mancos Corrugated. One of these was the gradual change from a straight, almost perpendicular rim and lip, as in the Chapin, Moccasin, and Mancos Grays, to a slightly flared rim (fig. 93b). The basic high, wide-mouthed vessel shape remained unchanged except for a slight constriction of the mouth on some specimens. Figures 94 and 95 illustrate Mancos Corrugated jars and pitchers from Badger House. The style foreshadows the squat, narrow-mouthed Mesa Verde Corrugated jar with the sharply everted rim. Collections of Mancos Corrugated made during the site survey of Wetherill Mesa showed that flared rims were associated with McElmo Phase sites (Hayes, 1964). The Mancos Corrugated rims from Strata A and B in the Badger House trash mound were 3.5 percent of the flared style. There were virtually none in the lower strata.

The transitional status of corrugated-neck, smoothed-base jars noted by Morris (1939, p. 186) and Reed (1958, p. 117) was corroborated by evidence in the trash mound. Corrugated sherds showing the break at the shoulder to a plain base (figs. 95b and 96b and c) were 4 percent of the total corrugated sherds in Stratum E and had diminished to a mere trace in Stratum A at the mound surface.

The stratigraphy also showed remarkably consistent evidence for a steadily reduced popularity of the technique of creating a

Figure 93. *Mancos Corrugated rims; top row, typical straight rims; bottom row, slightly flared rims characteristic of Mancos and McElmo Phases.*

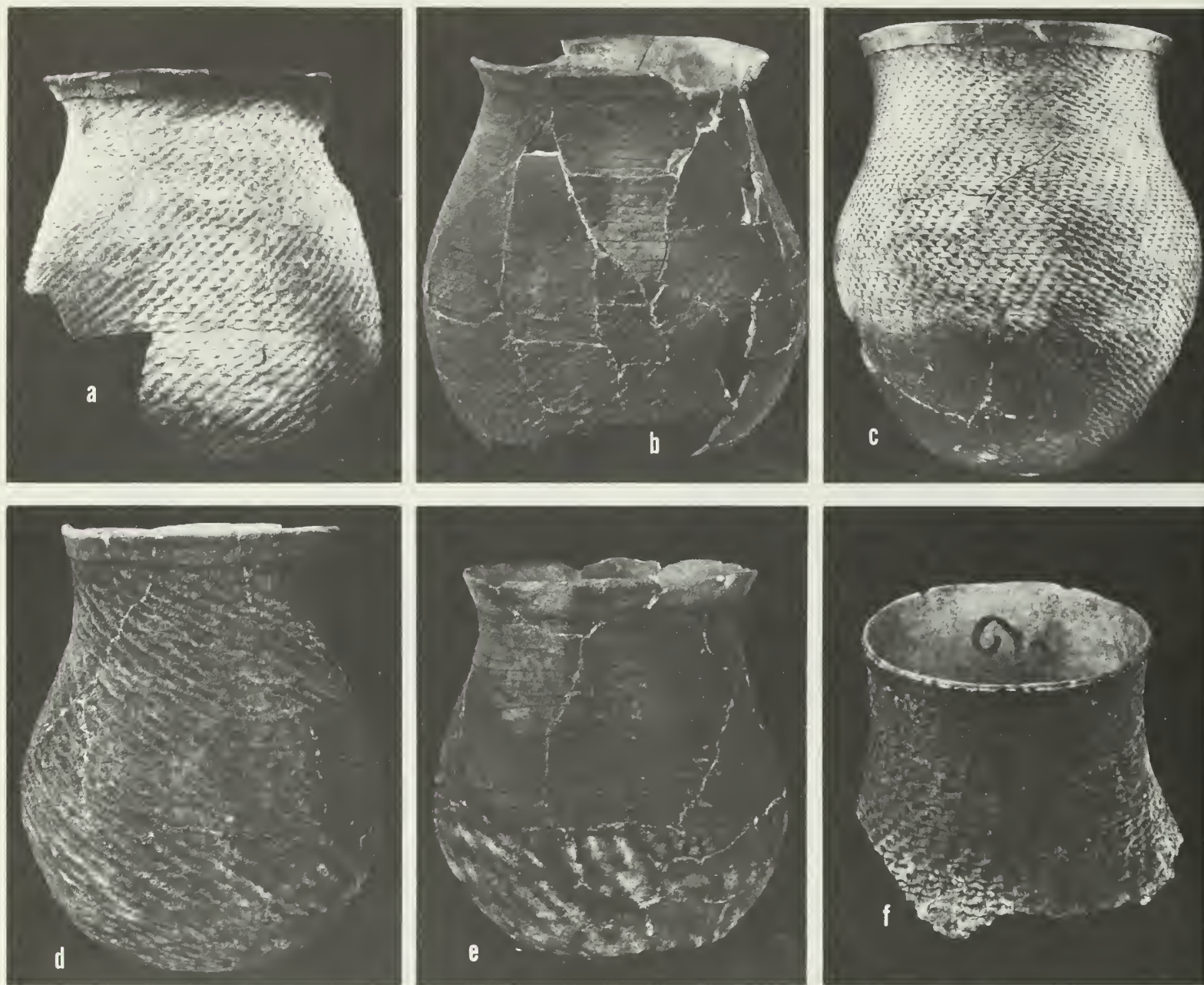


Figure 94. *Mancos Corrugated jars.*

patterned design in the corrugations by alternating, either horizontally or diagonally, plain coils with indented ones (figs. 96a and c, and 97d-g). In Stratum E, just above subsoil, patterned sherds were 30 percent of the 526 corrugated sherds, whereas in Stratum A only 6 percent of the 3,941 corrugated sherds were patterned. The three 10-foot sections of Test Trench I, which were excavated in 0.5-foot levels rather than by strata, revealed a similar drop. In Section 4 (between lines D and E), patterned sherds had dropped from 12.5 percent of all corrugated sherds in Level 9 (levels numbered from top down) to 2.5 percent in Level 1. In Section 5, with 10 levels, the decrease in patterned sherds was from 19.5 to 4 percent. In Section 6, patterned sherds decreased from 18 percent in Level 11 at the bottom to none at all in Level 1 at the top.

The corrugated body sherds associated with various structural features are shown in table 31. In the left-hand column, features are listed from early at the bottom to late at the top. The right-hand column gives the counts of corrugated body sherds associated

with the features. The percentages of patterned sherds in each case are in the middle column. It will be observed that the percentages of patterned sherds from the structural features and from the levels and strata are remarkably consistent.

A few unusual corrugated sherds were found. Two were from shallow bowls or deep plates. Both were well scraped on the interior but unslipped and unpolished. One was built up by applying the coil from the inside of the vessel so that the usual shingle or clapboard effect was reversed, that is, the lower coil overlapped the upper on the exterior. Both sherds were vessels having a diameter at the rim approximately four times the depth. Three unusual handles on corrugated jars are shown in figure 97: m is a cylindrical loop placed horizontally at the rim, probably for suspension; o is a flat strap depressed at the center, typical of handles on decorated ollas of the same period; and n is a cupped handle, apparently a holdover from a style found on Chapin Gray jars (fig. 87k-m).

An unindented, corrugated pitcher found with Burial 10 is

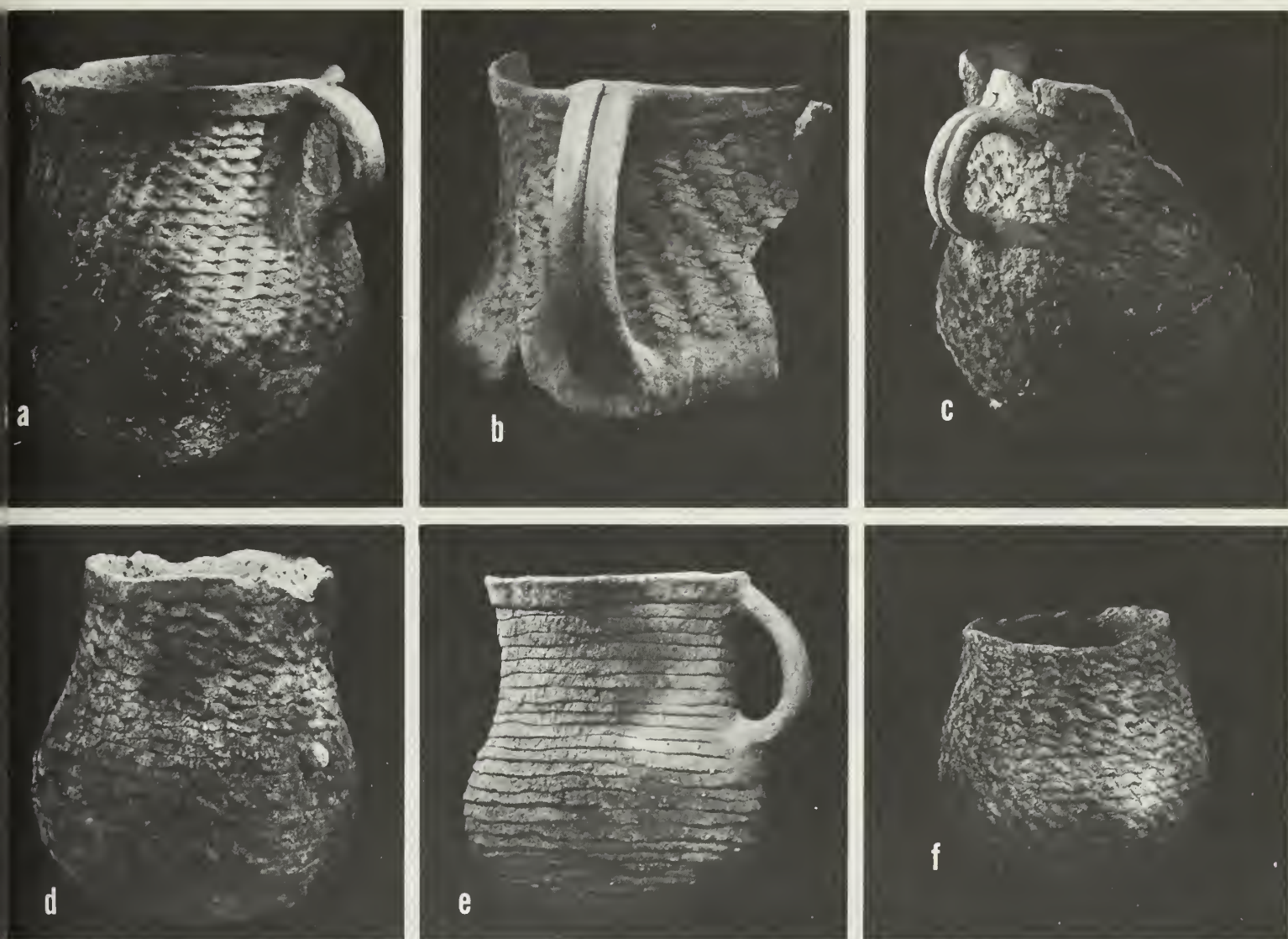


Figure 95. *Mancos Corrugated pitchers.*

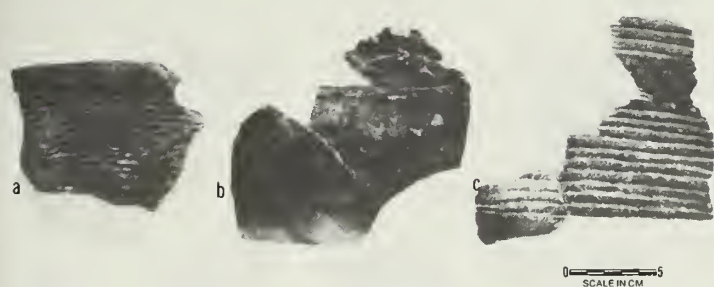


Figure 96. *Patterned Mancos Corrugated sherds.*

illustrated in figure 95e. The coiling is the kind that would be classified as Mancos Gray had it been limited to the upper part of the vessel. All descriptions of Mancos Gray prescribe a smoothed base. A number of sherds of unindented coils from the lower half of jars encountered in the trash mound were classified as corrugated pottery rather than as gray ware. Two unusual forms of ridges made by deep indentations staggered from coil to coil are shown in figure 98: in a, the diagonal ridges changed direction about every 10 coils, when an ambidextrous potter changed hands to produce a zigzag effect; in b, the ridges run vertically. The former is represented

Table 31. Incidences of patterned corrugated sherds associated with structural features, Badger House

Feature	Patterned sherds (percentage)	Total no. of corrugated sherds
Rooms 1-4, floor	3	67
¹ Rooms 5-9, floor	6	146
¹ Area I, old walking surface	7	207
² Feature 5, floor	8	74
² Kiva C, floor	7	243
³ Trash below Feature 5	12	888
³ Feature 11, floor	11	72
Trash below Feature 6	21	19
Feature 7, floor	35	49

¹ Rooms 5-9 and surface of Area I probably contemporary.

² Feature 5 and Kiva C possibly contemporary.

³ Trash under Feature 5 probably from Feature 11.

by 55 examples which came from all levels of the trash dump; the latter form is represented by a single specimen.

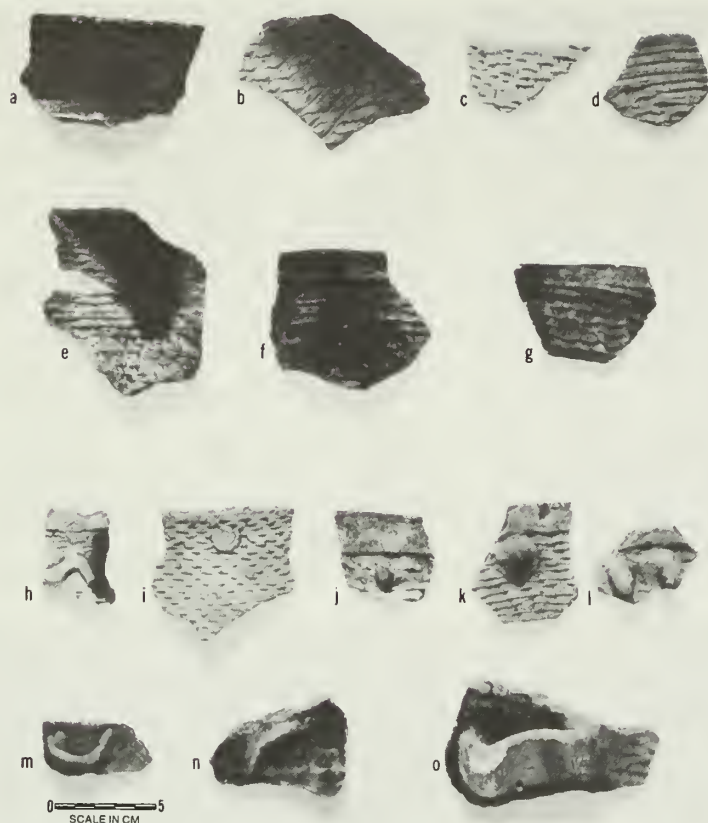


Figure 97. *Mancos Corrugated sherds.*

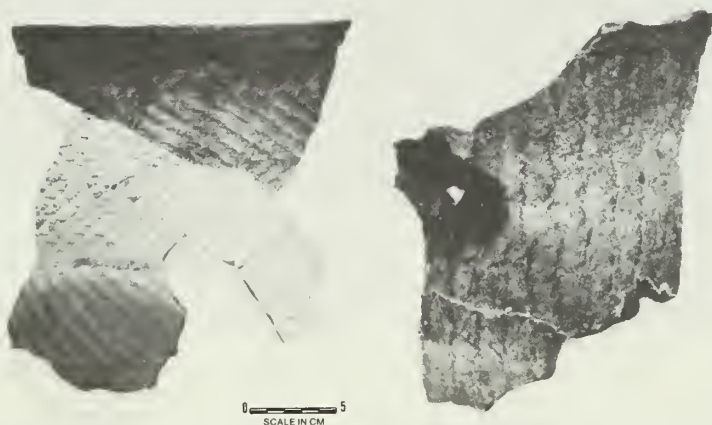


Figure 98. *Mancos Corrugated sherds, showing unusual patterns of corrugation.*

There are several sherds in which all coils or corrugations below the rim fillet have been obliterated by scraping. This surface treatment was applied to vessels of all types from Moccasin Gray to Mesa Verde Corrugated. In figure 99, a-e might be Pueblo I banded-necks with all but the top band removed; e, from Stratum E, has no rim fillet, but one is indicated by an incised line—a fairly common technique on Moccasin Gray. All the sherds, a through m, could equally well be Mancos Gray or Mancos Corrugated. The somewhat everted rim, n and q, could not be Mancos Gray, and r and s are certainly of late Pueblo II—early Pueblo III shape. A pitcher (fig. 100), plain but for a single fillet, was left with an early Cortez or late Piedra Black-on-white bowl as an offering with Burial 13. Another similar scraped jar is discussed below under Mesa Verde Corrugated.

Pottery answering the above description has been described as

Mummy Lake Gray by Rohn and Swannack (1965) who find particularly prevalent in late Pueblo II—early Pueblo III times. Such sherds from Badger House were more numerous from the upper levels, but because they also occurred commonly in the lower levels of the trash and in Piedra Phase houses in a form that is frequently indistinguishable from the A.D. 700's to 1100, we doubt the value of regarding them as a named type. Rather, they seem to show one of the many varied ways of treating the surface of culinary vessels in all phases, but one which was somewhat more important around 1100 than at any other time.

MESA VERDE CORRUGATED

Mesa Verde Corrugated was represented by a scant sample of 104 sherds and 2 whole or restorable vessels. As would be expected, the sherds were associated with the Pueblo III structures and Strata A and B of the trash. Representative sherds are illustrated in figure 101a-e; atypical is f, which is diagonally ridged. A complete jar 25.0 cm. high by 26.0 cm. wide (fig. 102), was set into the floor of Room 2 of the Mesa Verde Phase house and served as a subfloor cist. A restorable jar (fig. 103) on which all corrugations had been completely scraped down accompanied Burial 12. An unusual situation existed with the architectural features producing more sherds of the type than the entire dump area.

The small jar with a plain base illustrated in figure 104 is difficult to classify. It has the typical everted rim of Mesa Verde Corrugated and the wide mouth of Mancos Corrugated. Possibly it belongs to neither of the types but is an example of the process change.

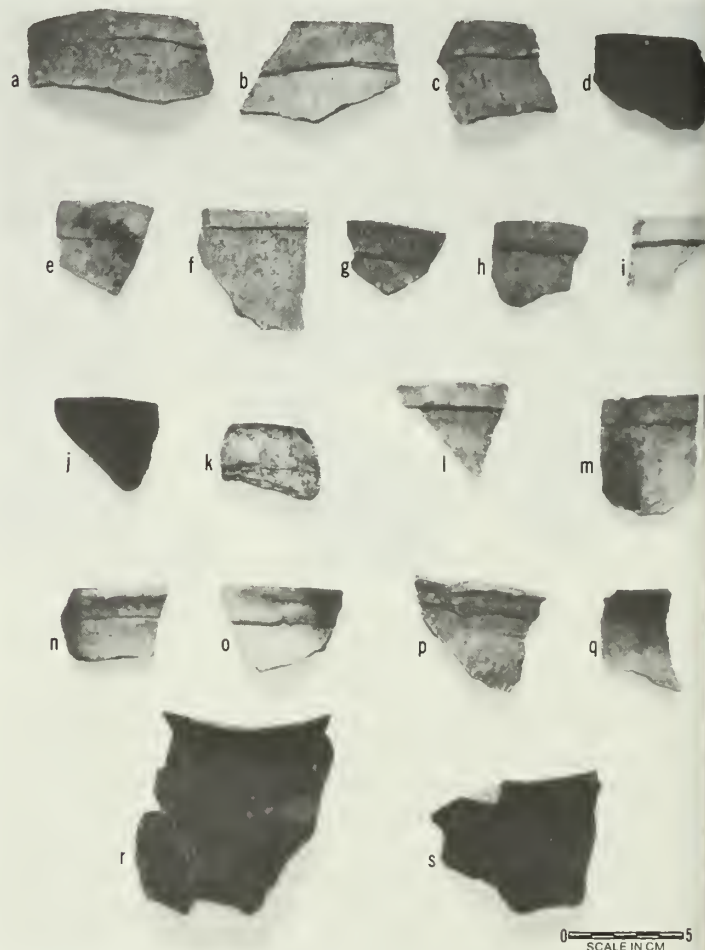


Figure 99. *Plain gray sherds with single rim fillet.*



Figure 100. *Plain gray pitcher.*

CHAPIN BLACK-ON-WHITE

In a discussion of the earliest painted pottery of the Mesa Verde area collected during the Wetherill Mesa survey, Hayes presented an argument for the retention of the earlier type name, "La Plata Black-on-white" (Hayes, 1964). Most of his colleagues on the project preferred "Chapin Black-on-white" (Abel, 1955), and for the sake of unanimity, all agreed to use the latter term in denoting this ware.

The Basketmaker III-Pueblo I decorated pottery is of two types: Chapin Black-on-white, earlier, and Piedra Black-on-white, later. Both are little more than paint applied to Chapin Gray pottery, usually bowls. The two types are distinguished primarily by design style, and by an increased refinement in the later type. Between any two types in a continuum of stylistic change, one expects to find a certain number of attributes common to both types but not the attributes that set the one off from the other. This situation was truer of these two types of decorated pottery than of any other pair that were contemporary or close in time. Pottery from the latest Piedra Phase houses at Site 1676 and from Feature 7 at Badger House is clearly different from that found in the La Plata pithouses, some 250 years older, and there is justification for describing it as two types. During the middle century of that span, the period of maximum change, the picture is clouded, with both types being made and with nearly half of the specimens transitional and not susceptible to being fitted into either slot. Aggregates of 2,073 Basketmaker III-Pueblo I sherds and 45 complete or restorable vessels were found, most of them at Site 1676. Forty percent of the sherds could be classified only as "Pueblo I black-on-white." Figure 105 illustrates this confusion. Sherds in the top row are classified as

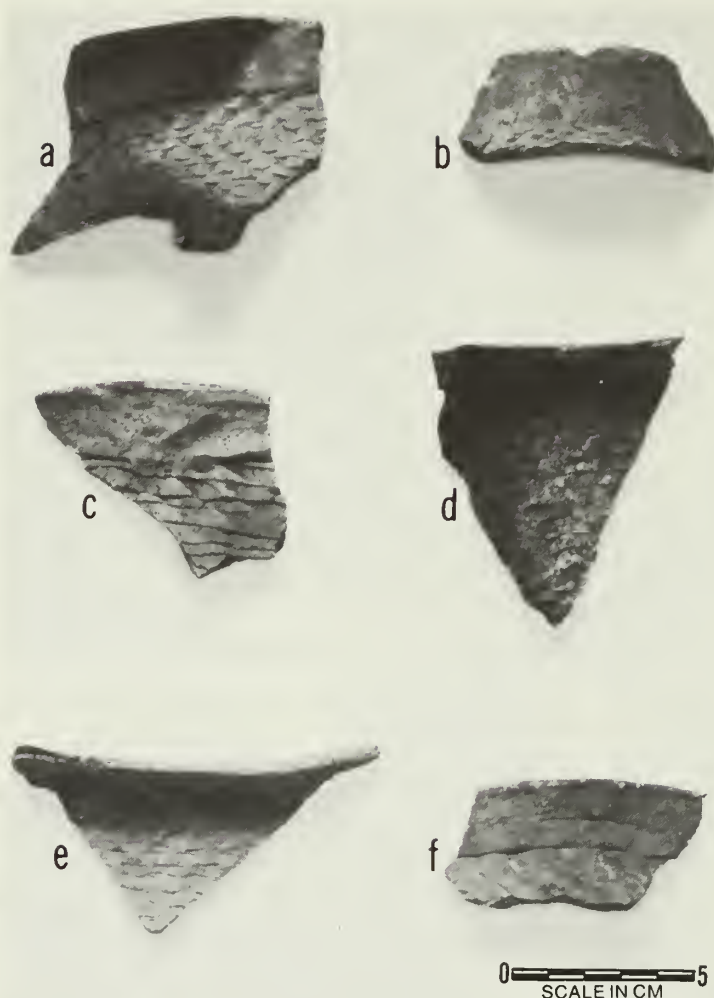


Figure 101. *Mesa Verde Corrugated sherds.*



Figure 102. *Mesa Verde Corrugated jar.*



Figure 103. Pueblo III plain jar from which all corrugations were removed.



Figure 104. Small corrugated jar with plain base.

Chapin Black-on-white and those in the lower two rows are designated merely as "Pueblo I black-on-white." The bowl in figure 106 is also unclassified. The design and the carbon paint are more characteristic of Chapin Black-on-white, but the unusually high polish of both surfaces is a quality of Piedra. It is probably a late example of the earlier type.

Chapin Black-on-white was well-made pottery as far as the handling of the plastic is concerned, but it was not as well finished as the later painted wares. Tempering material is crushed igneous or metamorphic rock, with a few specimens showing a fine sand temper. The impression of a coiled basket was seen on the base of two restorable bowls.

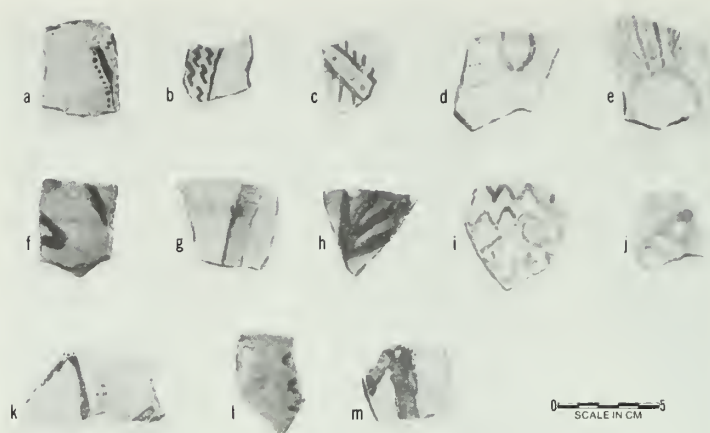


Figure 105. Pueblo I painted ware of undetermined type.



Figure 106. Chapin or Piedra Black-on-white bowl.

Areas to be painted, usually confined to bowl interiors, were scraped smooth and lightly polished. No slipped specimens were seen. Paint is either mineral, organic, or a mixture of both. Mineral paint was often fired to brown or red rather than black. Fifteen percent of the mineral-painted sherds are a dark greenish-black glaze. Organic paint was used on 44 percent of the sherds. Design is generally rather open, oriented to the bottom of the bowl, and often divides the field into two, three, or four units. The design is more often the divider of the field rather than a filling of the divided space (fig. 107). There was much use of dots, ticks, and busy Z's or squiggles (fig. 108). Zoomorphic designs were seen on two bowls from Pithouse A (figs. 109a and 110b). Fifty-nine percent of the rims are painted with a solid line, and four bowls have some paint on the outside in addition to the primary design on the interior. Eleven percent of the sherds and 20 percent of the restorable bowls were washed with fugitive red on the exterior.

A total of 699 sherds and 26 pots indicates that painted decoration was applied almost exclusively to bowls. The 583 sherds from La Plata and Piedra Phase sources include only one ladle (fig. 111), four squash pots, and six more sherds with an outside decoration on a squash pot, jar, or pitcher. One of the restorable vessels is a shallow, elongated bowl in the shape of a modern relish dish (107d), and one is an eccentric double-spouted pitcher (fig. 107g).

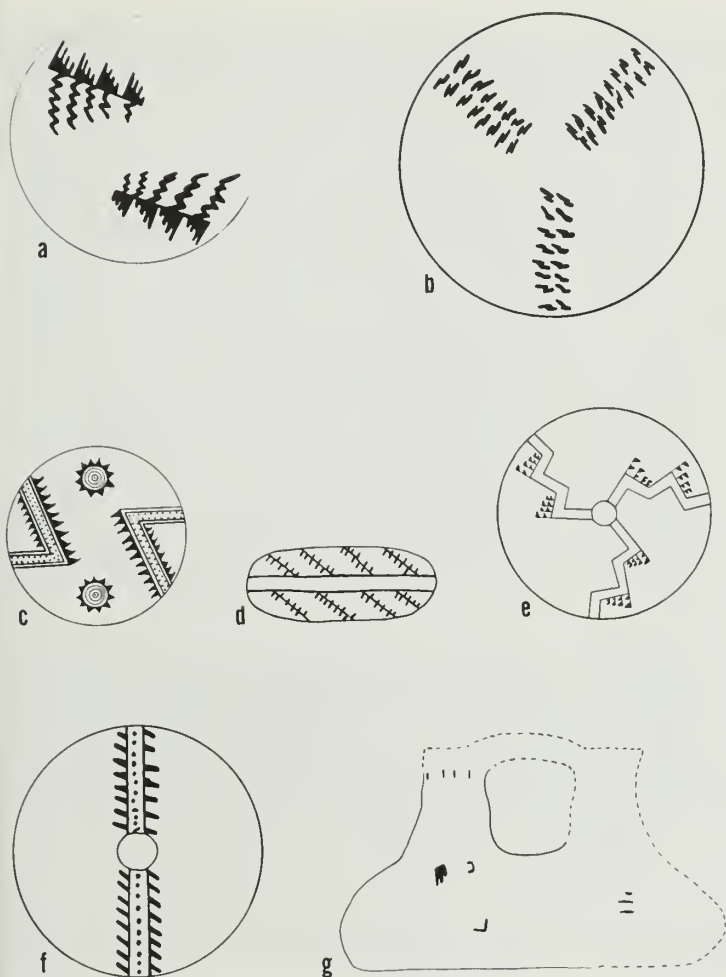


Figure 107. *Chapin Black-on-white designs (not to scale).*



Figure 108. *Chapin Black-on-white sherds.*

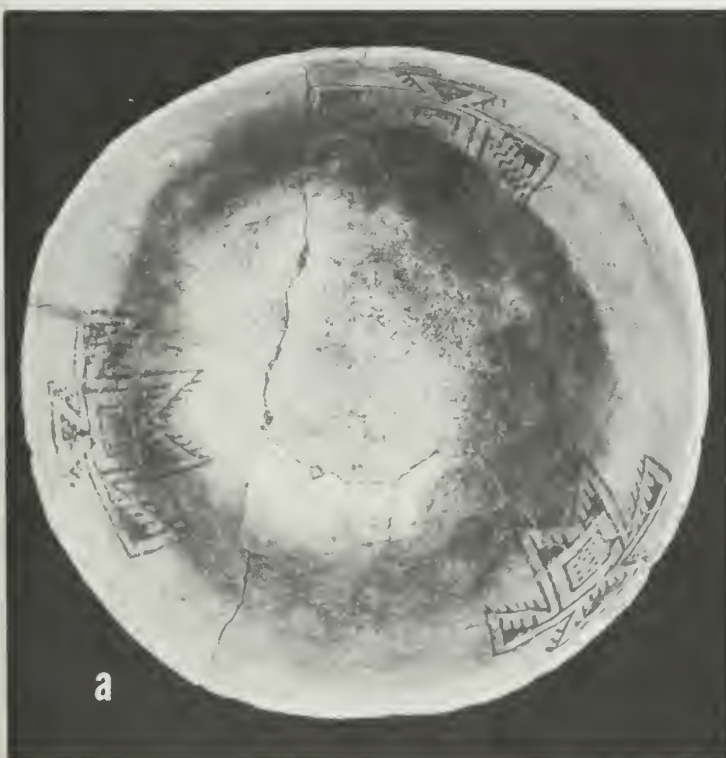


Figure 109. *Chapin Black-on-white bowls.*

PIEDRA BLACK-ON-WHITE

Piedra Black-on-white differs from the earlier Chapin Black-on-white notably in the gradual change in the placement of design from one that radiates from the center of the bowl to one dependant from the rim. Layout is frequently in a band or pattern below the rim but often employs the same simple elements (figs. 112 and 113). Much use was made of single or parallel lines arranged in horizontal bands or in vertical groups, often elaborated with ticks or flagged triangles. Though many of the single design elements are those of Chapin Black-on-white, there is a foreshadowing of Cortez Black-on-white in the more sophisticated layout, the increasing use of triangles, and, with later specimens, the addition of a squiggled line (a wavy line drawn over a straight one) to the inventory of design elements (figs. 113h-k). A checkerboard design, which becomes increasingly common on Pueblo II types, was noted on six sherds of Piedra Black-on-white. Two anthropomorphic figures are seen on the fragment of a bowl in figure 114a.

Refinement of technique is also apparent, particularly late in Pueblo I. Line work is neater and surfaces more carefully smoothed and more often polished. A covering slip was introduced with this ware, appearing on 1.5 percent of the specimens from Site 1676 and on 23 percent of the later sherds from Feature 7 and Stratum E at Badger House. The use of a fugitive red wash dropped from 11 percent on Chapin Black-on-white sherds to only 1 percent on Piedra. Another trait that fell into disfavor was painting with a pigment that was heavy with a carbonizing substance. Organic paint was identified on only 12 percent of the Piedra Black-on-white sherds from Site 1676 and had dropped to 3.8 percent on those from Badger House. Glazes amount to only 1 percent of the mineral-painted sherds.

There was a greater exuberance of vessel shapes in the La Plata and Piedra Phases than at any succeeding period but, until well into the Piedra Phase, painted decoration was almost exclusively confined to bowls. In contrast to a low of 1 percent of the Chapin Black-on-white sherds, 22 percent of the Piedra Black-on-white sherds from Site 1676 were from some sort of vessel with the exterior the principal decorated surface, and these became increasingly frequent in the later houses of that site. In the smaller Badger House collection, this figure rose to 51 percent of the Piedra sherds. These shapes included squash pots, pitchers, and effigies. A common form was a gourd-shaped pitcher with a representation of the curved neck of the gourd forming a handle (fig. 115b-d). Two sherds were from vessels of an unusual shape: a small double bowl, or two bowls joined at the side (fig. 112u), and a wide-mouthed jar, perhaps similar in shape to the utility jars of the same period, with a polished slip on both interior and exterior (fig. 113k).

Temper is essentially the same as in Chapin Black-on-white. Fifty sherds examined under the microscope contained crushed rock temper. Three of these also included some sand.

The series of tree-ring dates from Sites 1644 and 1676 and the sherds associated with floors at these sites give us a basis for estimating the periods when the two types, Chapin and Piedra Black-on-white, were used. The former was the only painted pottery found in the pithouses of the 7th century. In House 3 at Site 1676, at about A.D. 750, Chapin Black-on-white is still 85 percent of the classified painted sherds. Piedra Black-on-white first appears here, and the type probably began to be developed between A.D. 700 and 750. A quarter of the sherds from House 3 and Protokiva C were identified only as "Pueblo I." The latest structures at the two sites, the jacal Site 1644, and Houses 4 and 5 and Protokiva E at Site 1676, dating about A.D. 860, yielded the two types in equal proportion, but half of the total was unclassified. All the Chapin

Black-on-white sherds from Badger House are thought to be intrusive, and probably the type was entirely supplanted by Piedra in the last quarter of the 800's. Some terminal Piedra Black-on-white continued to be manufactured in the very early part of the Ackmen Phase. The lower levels of Badger House indicate that, probably about A.D. 900, Piedra was in the process of becoming Cortez Black-on-white at the same time that changes in utility pottery made Mancos Gray out of Moccasin.

CORTEZ BLACK-ON-WHITE

After the excavation of Site 16, a post-and-adobe village on Chapin Mesa, Lancaster and Pinkley (1954, p. 70) forecast the possibility of splitting Pueblo II Mancos Black-on-white pottery on the basis of design, but they did not have the stratigraphic evidence on which to base such a split. The archeological site survey of Chapin Mesa conducted between 1950 and 1954 by Lancaster, under the direction of Park Archeologist Don Watson, provided the museum with over 20,000 sherds from about 1,000 sites. Leland Abel made a study of a sample of those sherds and the related data (Abel, 1955). The association of sherds of specific design styles with certain kinds of sites and with reference to the material from Site 16, provided the basis for his naming and describing Cortez Black-on-white. Arthur Rohn reworked, but more comprehensively, the material from the completed Chapin Mesa survey and confirmed and amplified Abel's description (Rohn, 1959). The Wetherill Mesa survey collections further validated the type (Hayes, 1964), but deep trash at Badger House gives us the first stratified deposit of Cortez Black-on-white sherds in large numbers, plus associations with other types and with architectural features. For this reason, it will be treated more fully than the other types encountered at the site.

The material on which the following description and comments are based consists of 15 pots and 7,186 sherds (all but 32 from Badger House) which are classified almost entirely by design alone. The other distinguishing characteristics of pottery were not ignored, but no consistent differences in shape, temper, surface finish, or paint could be demonstrated within the type or between Cortez Black-on-white and Mancos Black-on-white. Some 13 simple design elements were noted on Cortez Black-on-white, about half of which are also found on Piedra. Seven or eight of the elements, usually employed a little differently, may also show up sometimes on Mancos Black-on-white. When two or more of the elements most characteristic of Cortez appeared on a single sherd, it was so classified. A glance at the accompanying photographs will show that this situation was common. The earmark of Cortez Black-on-white design layout is the repetition of several unrelated elements in almost every conceivable combination. Thirty-two percent of the sherds in the collection show several design elements, and often as many as five or six, on a relatively small piece (fig. 137b).

To arrive at a fairly tight definition of the type, it was necessary to be discriminating in classifying Cortez Black-on-white. Pueblo II black-on-white sherds that did not fit the qualifications were classified as Mancos Black-on-white. For example, the checkerboard pattern and simple pendant triangles are common to both types. In the absence of a diagnostic clue to Cortez Black-on-white, a sherd bearing no design other than simple triangles or checkerboard was classed as Mancos. If the sherd shown in figure 1361 were broken down the middle, the left half would be called Cortez and the right half Mancos. Thus, in table 22, 29 percent of the decorated pottery in Stratum E of the Badger House trash mound is listed as Mancos Black-on-white, but certainly some of this is Mancos by default. If

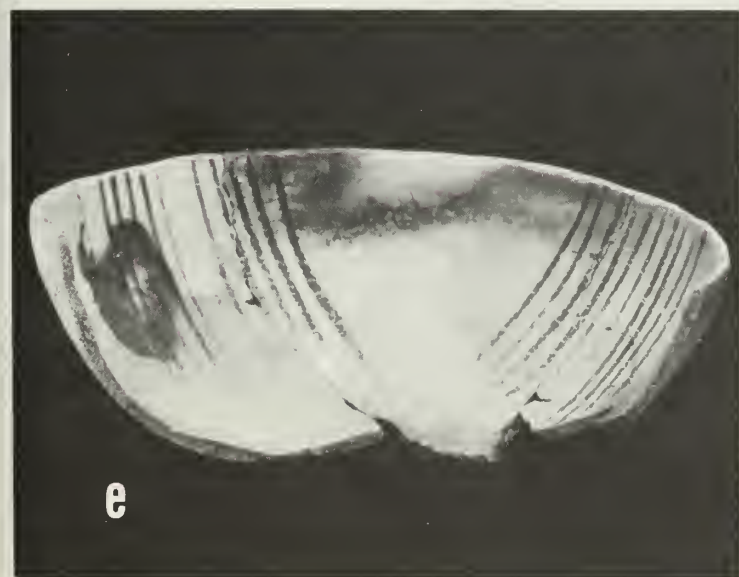
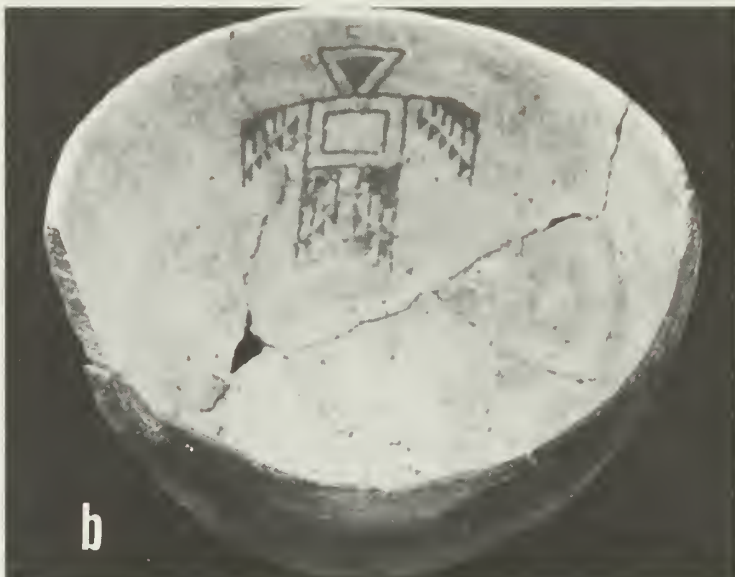
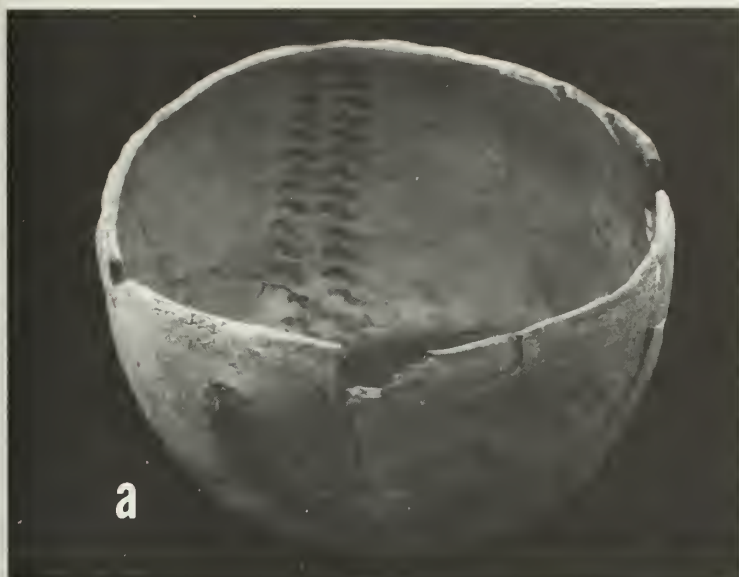


Figure 110. *Chapin Black-on-white bowls.*



Figure 111. Chapin Black-on-white dipper.



Figure 112. Piedra Black-on-white sherds.

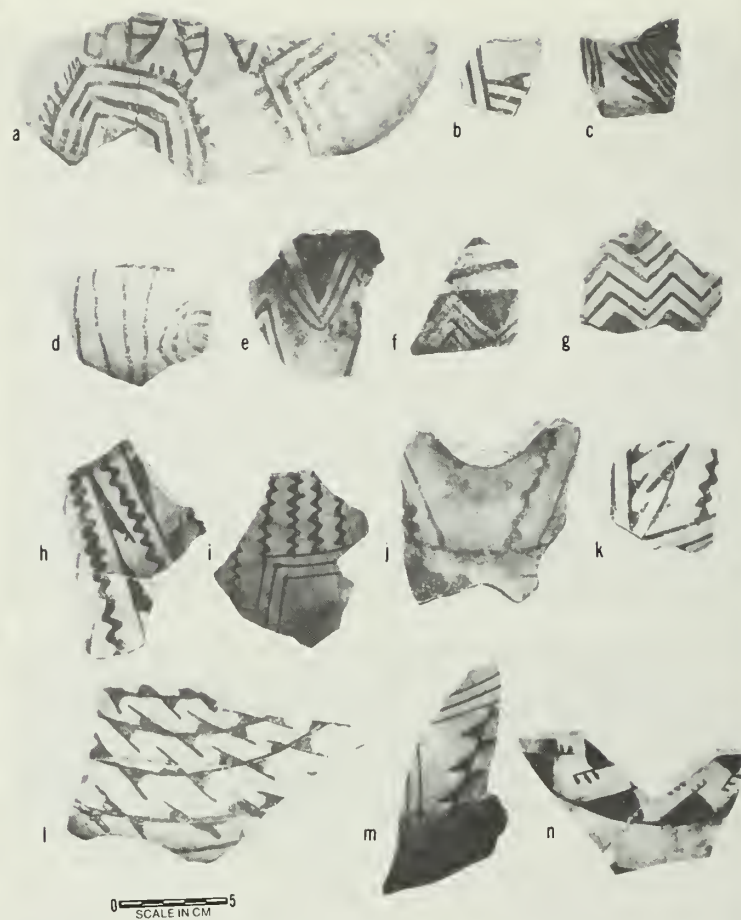


Figure 113. Late Piedra Black-on-white sherds.

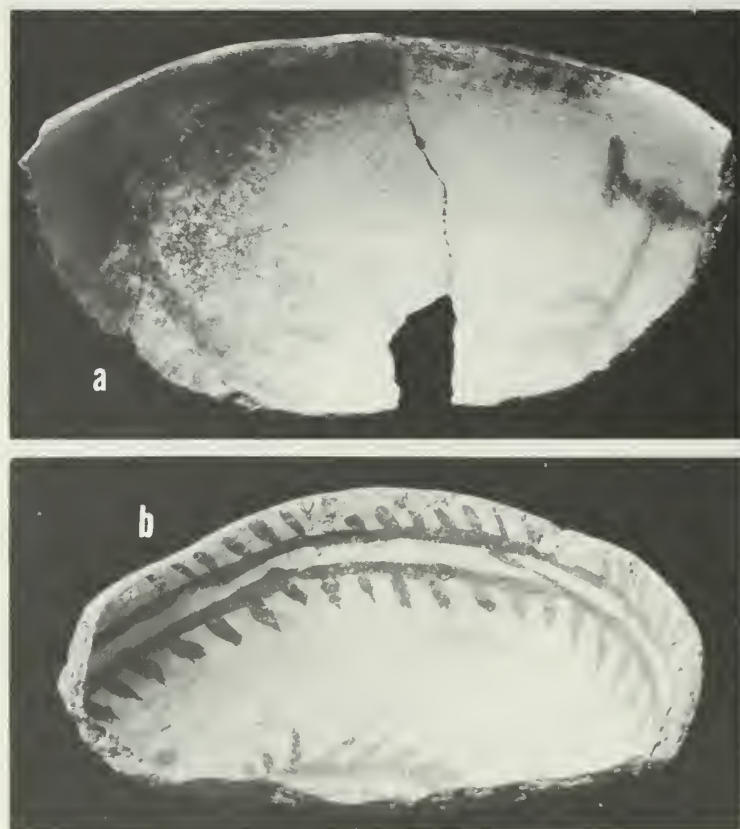


Figure 114. Piedra Black-on-white bowls.



Figure 115. *Piedra Black-on-white pitchers.*

more accurate classification were possible, the true percentages of Cortez Black-on-white would be somewhat higher and those for Mancos a little lower.

Cortez Black-on-white was the dominant decorated pottery of the early Pueblo II Ackmen Phase and constituted 56 percent of the painted sherds in Stratum E at the bottom of the trash mound (table 22). In Stratum D+ just above, it dropped off sharply, and then maintained about the same relative frequency throughout the middle layers of trash until it dropped again to 24 percent of the decorated sherds in Stratum A. The decrease of Cortez roughly parallels that of Mancos Gray and is in inverse ratio to the increase of Mancos Black-on-white. Cortez Black-on-white was dominant in the sherds associated with Feature 7 (the post-and-adobe structure on subsoil), with the rough rock-and-adobe walls of Feature 5, in the fill of Feature 9 (the small pit structure), and the jacal of Feature 11 above it. These were Ackmen Phase structures as was Kiva C. No sherds were proven to be in direct association with Kiva C, which was abandoned and filled with Mancos Phase trash, but in the fill Cortez Black-on-white was in higher proportions at the bottom than at the top.

Examinations of the paste and finish confirm similar tests on the sherds collected by the survey. Cortez Black-on-white is well-made pottery of quite uniform thickness of about 0.5 cm., ranging from 0.3 to 0.9 cm. Most of it is probably constructed by coiling but some Mancos Gray, contemporary with early Cortez, was constructed of successive concentric fillets rather than of a single continuous coil. It is likely that the same technique was sometimes used on the decorated pottery of the same period. Crushed igneous rock was the sole temper used in 85 of 100 specimens examined microscopically. Rock predominated in a mixture of rock and sand in seven more. The presence of sherd temper was seen in seven sherds, and all of these also carried varying amounts of rock. One sherd of the sample contained only sand temper. Vessel walls are compact, and hardness ranged from 3 to 8 and averaged 4.9. A black core, or "carbon streak," showed in 20 percent, and the dark smudge of a fire cloud appeared on the surface of 17 percent of the sherds. All of these tests and examinations were made on a random sample from the trash, and no attempt was made to see if there was a change in the paste of Cortez Black-on-white from early to late in the strata.

The surface of all sherds in the collection had some degree of polish and was usually well polished. In addition, 89 percent of the jars and 94 percent of the bowls were slipped. Bowls, with two surfaces that can be treated, are subject to a variety of combinations. Of 100 sherds:

- 88 were slipped and polished on the inside and out;
- 5 were unslipped but polished on both surfaces;
- 3 were slipped and polished on the inside only;
- 3 were slipped on both surfaces but polished on the inside only;
- 1 was unslipped but polished on the inside.

Although there is considerable variation in the slip, the majority has a slip of medium thickness, smoothly and uniformly applied which, when fired, produces the fine eggshell crackling common to later Mesa Verde pottery types.

Another method of treating the exterior of bowls is to leave the corrugations for decorative effect. Seventy-seven, or 2.5 percent of the 3,131 bowl sherds in the trash mound, had such exteriors. No significant change was noted from the bottom to the top of the mound, but it is interesting that four of the five sherds with corrugated exteriors in Stratum E had unindented coils like Mancos Gray.

There was some carryover of Piedra shapes into Cortez

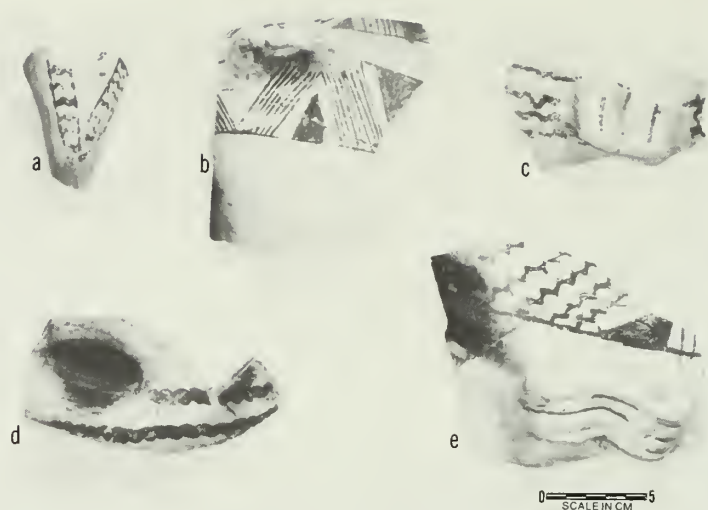


Figure 116. Cortez Black-on-white handle sherds.



Figure 117. Sherds of Cortez Black-on-white effigies.

Black-on-white. A few sherds are from gourd-shaped bottles (fig. 116a), a typical Pueblo I shape. The half-gourd was the most popular shape in dippers. Pitchers were common, but the solid, cylindrical handle of Pueblo I pitchers was gradually replaced by a flattened strap. The earlier jar shapes were modified by more pronounced shoulders and shorter necks. Seed jars, or squash pots, were still common, but the globular shape of earlier times had become a hemisphere with a flattened top (fig. 133k). Eccentric shapes were perhaps not as common as in the preceding phase, but sherds of what seemed to be bird and mammal effigies with Cortez Black-on-white designs were found (fig. 117a-c). The simple cross-hatched pattern on the top of the nose of the specimen shown in figure 117c is not evidence of Cortez Black-on-white style, but it came from trash between the walking surfaces of Features 3 and 6, an Ackmen Phase level dominated by Cortez Black-on-white.

A miniature clay replica of a bifurcated burden basket is shown in figure 117d and in figure 118. A break on the reverse side indicates that it was probably an applique figure on a larger vessel. Both Pueblo Bonito and Pueblo del Arroyo produced bifurcated baskets and their pottery replicas (Judd, 1954, p. 86-88, and 1959, p. 35) and a pottery model was found at a Pueblo I site on the La Plata (Morris, 1939, p. 166). A bighorn sheep effigy vessel of Cortez Black-on-white type from Goodman Point near Cortez, collected by Edgar L. Hewett, is now part of the Colorado State Museum collections (fig. 119).

A shape unusual in present Mesa Verde collections is represented by 13 sherds of nine bowls with widely flaring rims roughly equal in height to the body of the bowl itself (figs. 121 and 136m-o). The result was a bowl with a large sump in the bottom. Figure 120 shows a similar undecorated bowl in the Deane collection from Atarque, N. Mex., in the Colorado State Museum. Earl Morris found a complete vessel and sherds of the same shape, which he called a "double-flare bowl," in Pueblo II levels in the La Plata drainage (Morris, 1939, p. 190), and Judd (1954, pl. 53) illustrates one in Chaco Transitional (Red Mesa Black-on-white) from Pueblo Bonito.



Figure 118. Cortez Black-on-white basket effigy.

The main decorated surface of jars or ollas is usually the area between the neck and shoulder. Lugs and handles are fixed to the shoulder near the point where painting ceases, consequently not many handle sherds can be classified. Only 33 jar handles could be called Cortez Black-on-white and of these, 21, or 64 percent, are plain flat straps, which were more frequent in the lower levels than at the top of the trash. Other styles of handles were a simple, cylindrical loop (fig. 116b and 143c), or a strap indented or depressed in the middle (fig. 116c and e). Half of the latter straps are made up of several rolls of clay welded together side by side. The numbers of styles, other than the plain strap, are too few to show any meaningful distribution by strata, but a check of the larger number of handle sherds, unclassified as to type, shows a prevalence



Figure 119. Cortez Black-on-white mountain sheep effigy in the Colorado State Museum.

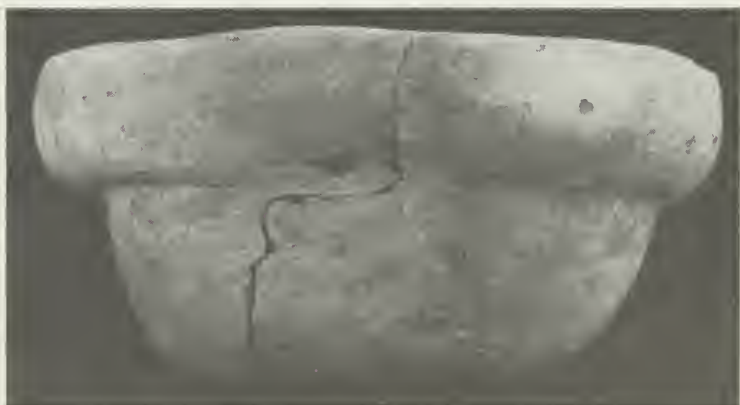


Figure 120. A "double-flared" bowl in the Colorado State Museum.

of the plain, flat strap at the lower levels, with the depressed strap by far the most common at the top of the trash in the late Pueblo II levels. An unusual handle is a cupped indentation in the vessel wall wide enough to admit two fingers (fig. 116d).



Figure 121. *Cortez Black-on-white sherd with a "double-flare."*

Ladle or dipper handles were in much greater supply—236 from the trash alone. Of the several shapes, the most favored was the half-gourd style which was 57 percent of the total. The half-gourd dipper, so-called for its resemblance to a gourd which has been cut longitudinally through the stem into the main body of the shell, was made in one piece with the handle no more than an elongated extension of a section of the rim. A nearly complete specimen from Stratum A is shown in figure 122. Though the earliest style in dippers and a prototype of those to follow, it remained high in popularity and constituted the predominant style in all levels of the trash mound. A natural evolution of the troughlike half-gourd was to a wide, flat strap handle made separately and welded to the rim of a small bowl. This was the next most common style, making up 35 percent of the trash examples and diminishing slightly in occurrence from bottom to top of the mound. Variations of the strap handle, a narrower strap with rounded sides, and a cylindrical handle, were of minor importance.

The tubular handle, which was the commonest of later types, provided only six specimens from the upper two strata. Examples of Cortez Black-on-white dipper handles, arranged in a more or less evolutionary sequence, are illustrated in figure 123; a-c are half-gourd handles; d, transitional from half-gourd to flat strap, shows the proximal edges of the strap slightly raised, and the rim of the dipper forming a dam between the shallow trough and the bowl; e-i and p, strap handles; j and k, narrower and thicker straps; l and m, oval in cross section; n, round; and o, an unusual loop of flattened clay. The only examples of the tubular style were too fragmentary to photograph.

Cortez Black-on-white has been described as painted exclusively with a mineral paint, but 32, or 0.3 percent of the sherds from the refuse mound which had been classified as Cortez on the basis of design were decorated with organic paint. A few of those near the top of the mound may have been carbon-paint variety of Mancos or early McElmo Black-on-white sherds on which there was a carryover of a Cortez design style. Rock temper in these specimens would rule out the likelihood that they were the similar and con-

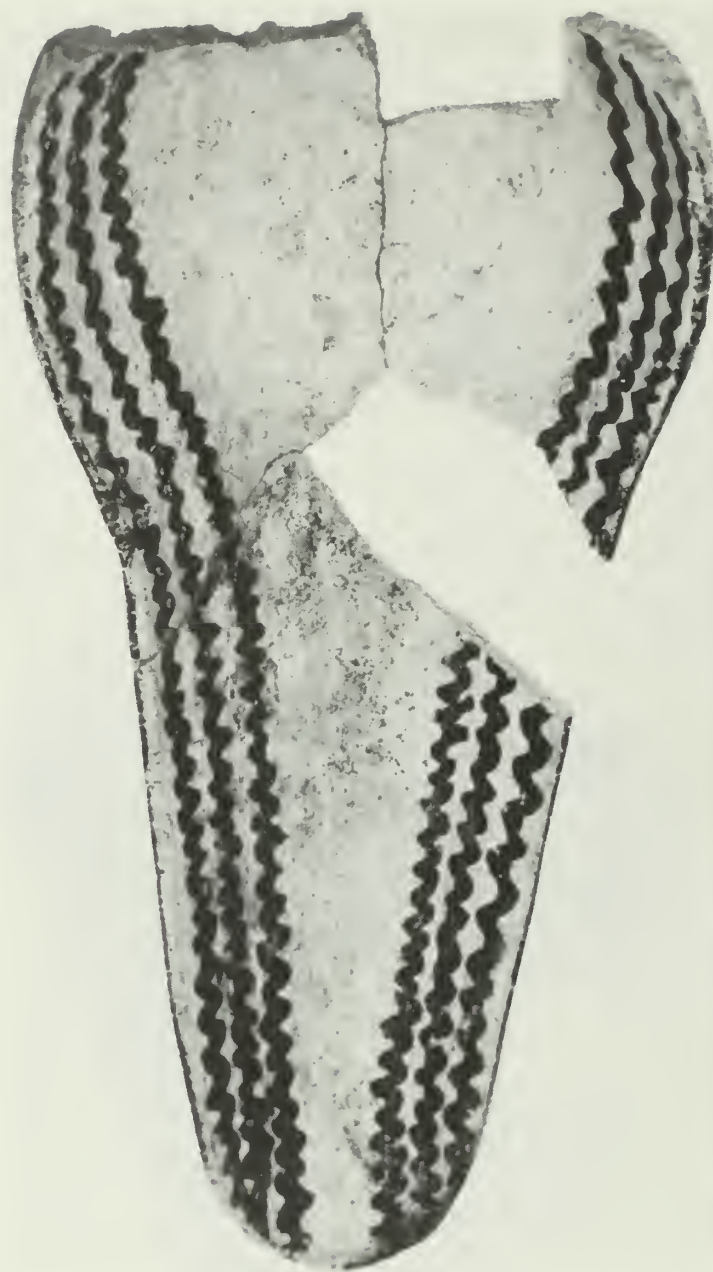


Figure 122. *Cortez Black-on-white half-gourd dipper.*

temporary Black Mesa Black-on-white traded from northeast Arizona. Since they occurred in higher proportion (3 percent) in strata D and D+, it is probable that we must admit that a few Cortez Black-on-white vessels were painted with a carbonizing substance.*

Figures 136p-v were intended to show Cortez Black-on-white sherds but, after the excavation of Site 1676, figure 136s now appears to be Piedra Black-on-white, and figure 136t and u could as well be Mancos Black-on-white. Although this is discouraging to a typologist, it does seem to be better anthropology. We have seen that almost 4 percent of the Piedra Black-on-white at Badger House had organic paint, and that there was transitional pottery that could be said to be neither Piedra nor Cortez Black-on-white. That there

* Since these lines were written, Museum of New Mexico surveys along the lower Chaco River in northwestern New Mexico, have discovered trachyte-tempered pottery decorated with carbon paint in the Red Mesa-Cortez style to be indigenous to that area (personal communication, Stewart Peckham).



Figure 123. Cortez Black-on-white dipper handles.

should be an abrupt break in the kind of paint used seems unlikely.

Mineral paint is most often a matte black, but on about 10 percent of the sherds, through a firing anomaly, the paint is a reddish-brown or rust color.

Design layout on vessels is difficult to determine accurately from sherds alone, and complete pots were too few to make a detailed study possible. However, some generalizations can be made. The basic plan was the geometric division of the field into sections, in each of which the patterned use of design elements was repeated. With the exception of a few vessels with a simple design, such as are illustrated in figure 130a-d, those vessels with the design in a band below the rim were laid out in the same way as those with the entire surface covered but with the center of the pattern omitted (fig. 124). The divisions were commonly marked by several narrow lines perpendicular to the rim. Intervening spaces were then filled by design elements which commonly ran diagonally from the division line to the rim. A simple example is shown by the bowl in figure 125 where the band is quartered, with each division marked by 10 perpendicular lines and the spaces filled with opposing, scalloped triangles on a diagonal. A nearly identical design on the dipper in figure 126 is enhanced by the addition of four narrow, diagonal lines separating the triangles.

Further elaboration was limited only by space and the artist's brush technique. The half bowl in figure 127 was quartered by four series of six parallel lines. The spaces created were filled from upper left to right by a scalloped triangle, two narrow lines, a negative diamond design, three narrow lines, squiggle hachure, four narrow lines, and interlocking scrolls. The interior surface of the nearly

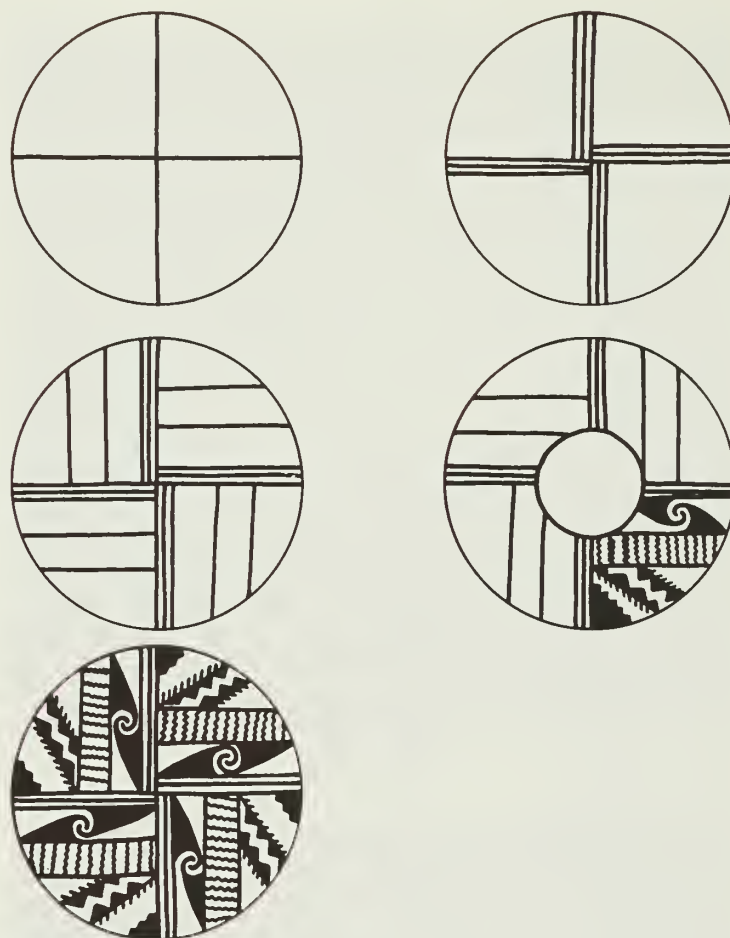


Figure 124. Typical Cortez Black-on-white design layout.

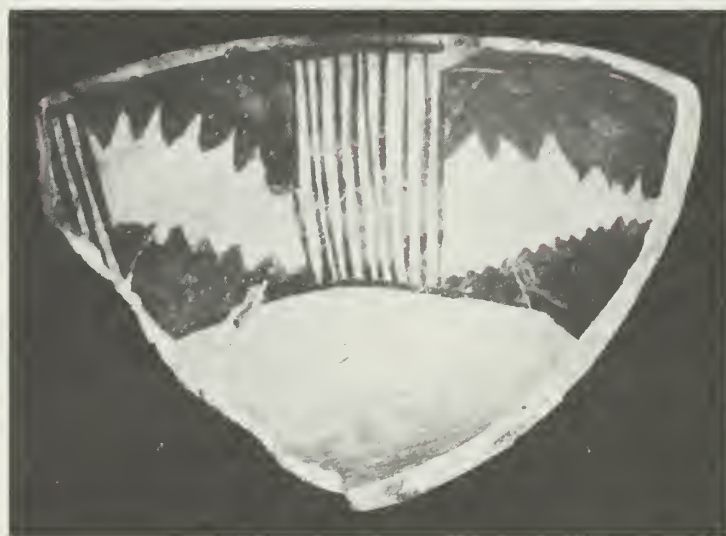


Figure 125. Cortez Black-on-white bowl.

complete bowl in figure 128 was divided through the middle by two series of narrow lines running from rim to rim across the bottom. The area remaining on each side of the central panel formed by the narrow lines was then divided through the middle so that six sections, four large and two small, were available for decoration by various combinations of scrolls and opposed ticked triangles. The earmark of Cortez Black-on-white decoration was the division,



Figure 126. Cortez Black-on-white bowl.

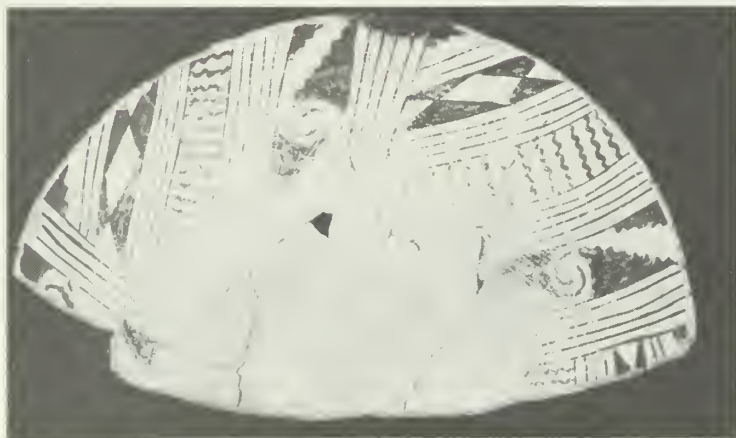


Figure 127. Cortez Black-on-white bowl.

subdivision, and resubdivision of the surface to be covered and the employment of numerous repeated individual elements of design.

A banded, and usually sectioned, layout was applied to jars (fig. 137a). Exterior decoration appeared on only 2 percent of the bowl sherds and was confined to very simple lines, usually widely spaced. It increased in importance in the upper deposits. Virtually all bowl rims are painted with a solid line, but a small handful of rims, less than 1 percent, are ticked. The ticking is most often a short line across the rim, extending slightly onto the bowl exterior. Another feature of bowl decoration was the common practice of drawing the upper framing line of an area to be decorated a little below the rim as shown by many of the illustrated examples of Cortez Black-on-white, specifically in figure 133b-h. The dropped framing line appears on 38 percent of the Cortez rim sherds and, although not unknown on Mancos Black-on-white, it is not nearly so common.

The relative importance of various design elements on Cortez Black-on-white is shown by table 32. The most frequently used



Figure 128. Cortez Black-on-white bowl.

element was a triangle with one side embellished by a ticked, scalloped, or stepped line. Some form of this modified triangle appeared on 32 percent of the trash mound sherds. It was of equal importance on jars and bowls, and in all strata. Ticked triangles (fig. 129c, and e-h) probably have their source in the ticked lines appearing on Piedra Black-on-white, and are earlier in Cortez Black-on-white than the other forms. Twenty-six percent of modified triangles in the trash were ticked, and were slightly more numerous in the earlier strata than in later ones. Triangles with a scalloped or wavy side (fig. 129a, d, i-l) possibly evolved from the ticked variety and were most numerous, 64 percent, and nearly constant in proportion from bottom to top of the refuse. Brushwork on many sherds (fig. 132f, o, and q) shows that a straight line was drawn first and the

Table 32. Incidence of various design elements on Cortez Black-on-white and Mancos Black-on-white sherds

Cortez Black-on-white (Size of sample: 5,342 sherds)		Mancos Black-on-white (Size of sample: 8,864 sherds)	
	Percent		Percent
Straight hachure	1	Straight hachure	28
Squiggle hachure	5	Squiggle hachure	21
Scrolls	11	Scrolls	T
Checkers	1	Checkers	6
Dots	T ¹	Dots	1.5
Rickrack	17	Cross hachure	2
Modified triangles	32	Triangles	13
% ticked	26	% negative triangle	5
% scalloped	64	% negative diamond	9
% stepped	10	Broad line (Sosi style)	17
Nested chevrons	12	Lifeforms	T
Vertical parallel lines	8		
Barbed wire (ticked lines)	5		
Banding line below rim	9		

¹ T = trace.



Figure 129. *Triangles on Cortez Black-on-white sherds.*

gimping added. Only 10 percent of the embellished triangles were stepped. There was a slight increase in the upper levels. On some of the examples, there is ticking of the outer corners of the stepped line (figs. 129b and m, and 134d and p).

Rickrack, or a squiggled line, (first seen on Bluff Black-on-red) was next in importance, showing on 17 percent of the Cortez Black-on-white in the refuse. It was a little higher, 22 percent, in Stratum E and gradually diminished in the later deposits, and is almost, if not entirely, absent on Mancos Black-on-white. In all strata, it is more common on bowls than jars. Much of it was drawn as a zigzag or wavy line over a previously drawn guideline. The use of a guideline was commoner in the early levels, dropping from 60 percent of the Stratum E squiggled sherds to 30 percent of those in Stratum A, and with an average of 48 percent for the entire dump. Its most common use was in banding lines under the rims of bowls, as shown in figure 130a-d and j, or around the neck or shoulder of jars, as in figure 164m and n and in figure 116c and d. In its angular, zigzag form on a guideline, rickrack appears on some late Piedra Black-on-white vessels but is in the main a diagnostic of early Pueblo II.

A series of parallel lines running around the vessel with occasional angles making nested rectangles or chevrons, is frequently referred to as the Kiatuthlana style (figs. 131 and 132). This, and a later adaptation in which nested chevrons are used between the dividing lines of paneled areas, occurred on 12 percent of the sherds. It was somewhat more prominent in the lower levels. It also appears on Piedra Black-on-white in its simpler form. Although series of narrow, parallel lines are found on Mancos, some vertical, some horizontal, the angles are formed by the series rather than by the individual lines. The lines terminate as in figure 137e, and do not go around the bend. The same effect is achieved in rickrack in the sherd shown in figure 130e.



Figure 130. *Rickrack on Cortez Black-on-white sherds.*



Figure 131. *Cortez Black-on-white bowl.*



Figure 132. Nested chevrons on Cortez Black-on-white sherds.

Another simple design carried forward from Piedra Black-on-white was narrow, parallel lines placed vertically or diagonally across the field of design. Such series of lines are used not only as dividers of the panels or sections, but as elements of design within the panels, as shown in figure 133. When the area to be decorated is bounded top and bottom by narrow framing lines, the vertical lines commonly cross them as in figure 133b-h and k. This feature appeared on 8 percent of all Cortez sherds, and in a larger proportion on jars than bowls. Although the trait is also common in the Piedra Phase and is not found on Mancos Black-on-white, there was a slight, but perhaps insignificant increase of it from the bottom to the top of the trash.

Interlocking scrolls emerging from the apexes of opposed, and usually scalloped or ticked, triangles appeared on 11 percent of the Cortez Black-on-white sherds in the trash mound. There was no apparent change in popularity from early to late, and they were used with equal frequency on jars and bowls. Several examples are illustrated in figure 134. Such scrolls are a good time marker in the Mesa Verde area. They were not used on Pueblo I or earlier pottery, and their employment in design on later types is less frequent, is not connected with ticked triangles, and appears more often in larger, open, noninterlocking scrolls. Though interlocking scrolls in the Cortez style appear again two centuries later on classic Mesa Verde Black-on-white, there is a tendency for the curved scroll of the former to become an angular fret on the later type and, of course, the other attributes of the pottery allow for no confusion of the types.

Hachure between closely spaced framing lines, the most common design element on Mancos Black-on-white, was found on only

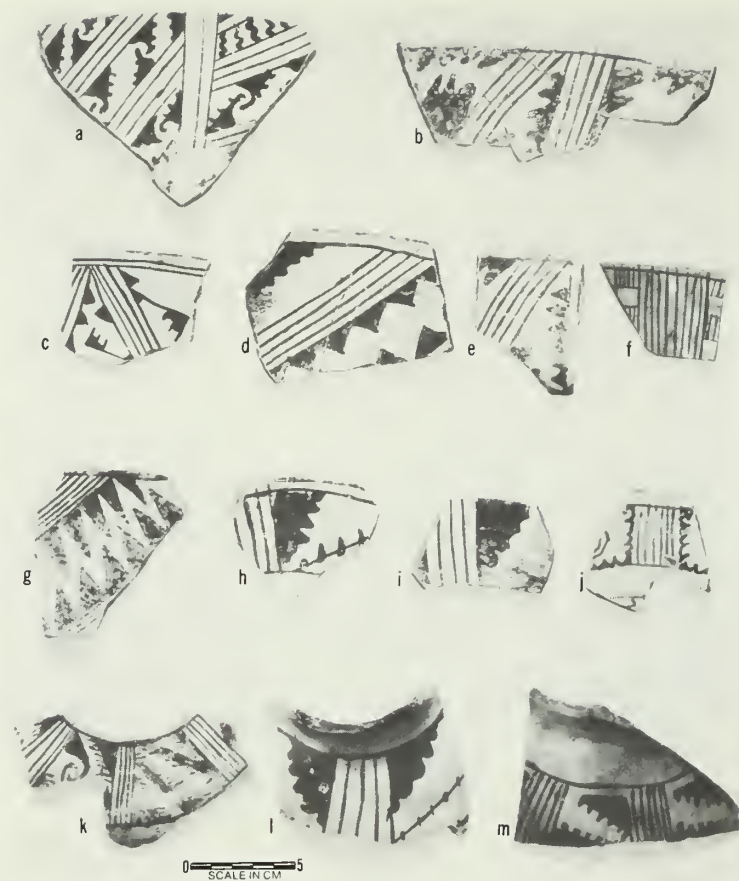


Figure 133. Parallel lines on Cortez Black-on-white sherds.

6 percent of the Cortez Black-on-white sherds (fig. 135). Squiggle hachure was by far the most popular, making up 85 percent of the total. In general the hachure differs from that found on Mancos Black-on-white vessels by a greater space between the lines, a tendency to zigzags rather than wavy squiggles, occasional use of guidelines on which the squiggles were drawn as was done with rickrack, and placement of hachure at nearly right angles to the framing lines rather than diagonally. Seventy-five percent of all hachure, whether squiggled or straight, was perpendicular to the framing lines.

"Barbed wire," or a narrow, ticked line, another relic of earlier pottery types, appeared on 5 percent of the trash mound Cortez Black-on-white and is illustrated in figure 136a-k. Though appearing on Piedra Black-on-white and still used on later types, barbed wire is more typical of Cortez. When found on Mancos, McElmo, or Mesa Verde Black-on-white, it is more often a line of dots on one side of a line rather than a short line crossing a longer one. It was found in nearly equal proportions on jars and bowls, and in all strata.

A checkerboard pattern was used on all types on the Mesa Verde from Pueblo I through Pueblo III and, when used alone, is not diagnostic of any phase. It did appear on 1 percent of the Cortez Black-on-white sherds, but these could not be so classified unless other more typical elements were present as in figure 136l and 132k and t. The latter example is a modification of the checkerboard.

It must be admitted that a certain amount of subjectivity was involved in dealing with the many sherds that did not fall neatly into place. Ideally, a "type" denotes a group of objects which share several attributes and have significance in place or time. Inclusion



Figure 134. *Interlocking scrolls on Cortez Black-on-white sherds.*

of atypical objects of known provenience and age results in broadening the definition of types at the risk of losing their usefulness as tools for defining a given material culture. The sorter of potsherds finds himself moving from strict adherence to rigid specifications for his types, to a greater interest in discovering what kind of pottery was made at a certain place and time. We found that the only way we could walk this tightrope was to use both approaches, separately. After the comparatively few early and late types had been separated from the black-on-white sherds, the bulk of the remainder were Pueblo II sherds of Mancos or Cortez Black-on-white. The Cortez sherds were then separated on the basis of design alone. These were further broken down into the various attributes described above, or attributes quite similar to them. The second approach was employed when the sherds of each group were checked for provenience and some small adjustments were made in our initial criteria, adjustments made on the basis of contemporaneity or lack of it.

In selecting sherds to illustrate the various design elements described, we picked relatively unequivocal examples, but there were others not so amenable. The classification of sherds by the presence or absence of specific elements of design would be more exact if we could assume that any element was exclusive to a single type. Unfortunately, we cannot always do this. For instance, in figure 138, a and b have similar combinations of narrow, parallel lines and a band of negative diamonds. The former is Cortez Black-on-white from an Ackmen Phase context at Badger House, whereas the latter is Mesa Verde Black-on-white from Step House, three-quarters of a mile north and at least 200 years later. The two sherds shown in figure 138c and d, from the same sites, exhibit almost identical opposed, ticked triangles. The two examples are

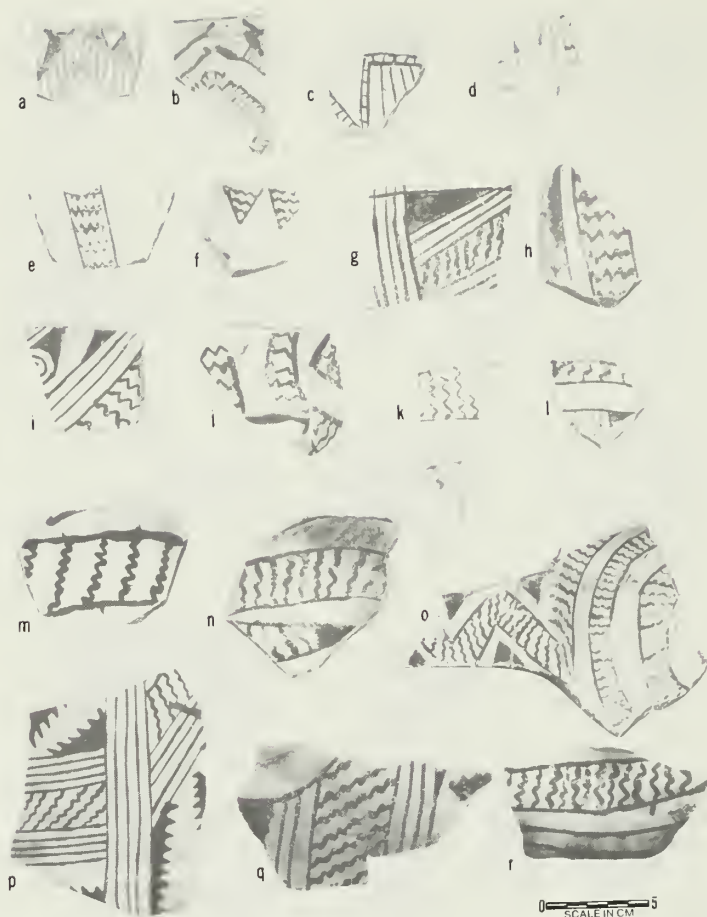


Figure 135. *Hachure on Cortez Black-on-white sherds.*

separable on the basis of paste, paint, and surface finish with no possibility of confusing the two sherds on the left with Mesa Verde Black-on-white. But if we have ticked triangles in the 10th century and again in the 13th century, what happened to them in the intervening years? It is not logical to suppose that they completely disappeared only to be re-introduced. Either we must include ticked triangles on Mancos Black-on-white or we must allow a longer span of years to Cortez Black-on-white.

In considering the Badger House pottery, we followed the latter course. Ticked or scalloped triangles were considered to be Cortez unless, as was the case of the sherds in figure 138, other criteria such as surface treatment permitted a separation. They are very frequently found in combination with other distinctive early Pueblo II design elements, were much more frequent in the lower levels of Badger House trash and, taken together, composed 29 percent of the sherds classified as Cortez Black-on-white. They were still 11 percent of the combined Cortez and Mancos Black-on-white sherds. By the time of the Mesa Verde Phase, the scalloped style had disappeared and ticked triangles were used on only about 4 percent of the Mesa Verde Black-on-white pottery in Long House (personal communication, George S. Cattanach, Jr.).

Further illustration of the difficulties of classification is provided in figure 139. Three sherds in the top row, a-c, are decorated with a row of simple triangles. Because of the addition of perpendicular squiggle hachures, specimen a, from Stratum D, was classified as Cortez Black-on-white. The framing line under the rim of b, more common on Cortez than on Mancos Black-on-white, may also indicate a Cortez sherd. Only triangles appear on c and thus it was classified as Mancos Black-on-white by default, even though it came

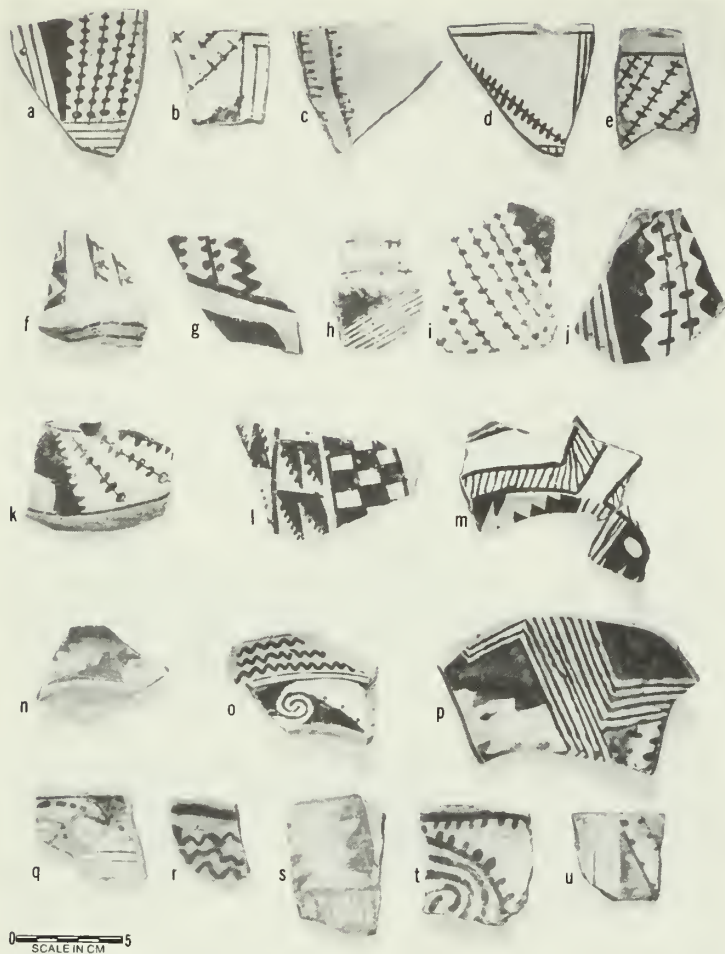


Figure 136. *Cortez Black-on-white sherds; a-k illustrate "barbed wire."*

from Stratum D and was probably made in the early 10th century. Rows of opposing triangles form a negative diamond pattern in d and e. The first, from Stratum E, was classified as Cortez because of the oblique approach to the rim (see fig. 134i, a sherd from the same vessel) and the second became Mancos, again by default. A still different effect achieved by opposing rows of triangles is shown in figure 139f and g. Both were classified as Cortez; the former because of the diagonal layout and the use of narrow line spacers, and the latter because of its ticked line, but neither are distinctive attributes.

Flagged lines appear on Pueblo I pottery and are still common on Cortez Black-on-white (fig. 133c-e and g), but in figure 139h-k they were classified as Mancos Black-on-white. Although h has scalloped triangles near the bottom and l a scroll and scalloped triangle, both (from Stratum A) have a sophistication that is not Cortez, and the series of parallel lines is neither the Cortez vertical or diagonal spacer nor the continuous line of the Kiatuthlana style. Both j and k are early sherds from Stratum D+, but they are not clearly Cortez Black-on-white. A modification of interlocking scrolls is shown on l and m, from Stratum A. The scrolls themselves are flagged with large triangles in distinction to the simple line scrolls erupting from ticked or pinked triangles in figure 134. Such flagged scrolls are most common in late Pueblo II levels and are considered to be Mancos Black-on-white. The large bowl sherd from Stratum A shown in figure 140 is an example of the dangers of classification by decorative style. The layout of panels divided by series of vertical narrow lines is a Cortez feature, as is the multiplicity of separate

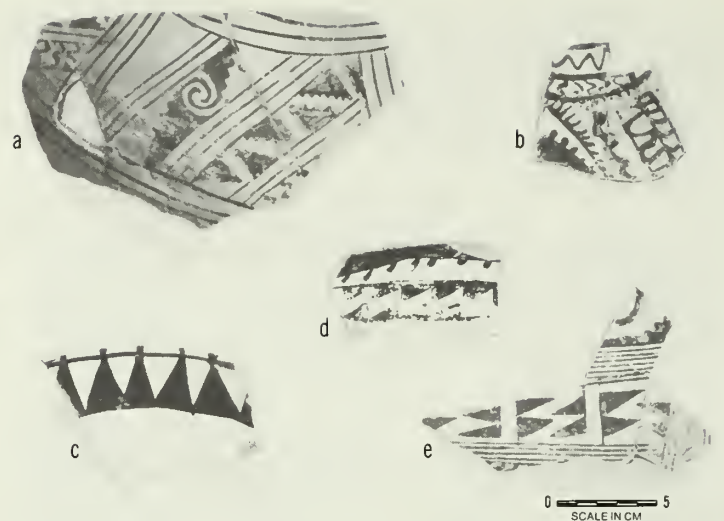


Figure 137. *Cortez and Mancos Black-on-white sherds: Cortez, a and b, and Mancos Black-on-white, c-e.*



Figure 138. *Identical design elements on Cortez (left) and Mesa Verde Black-on-white sherds.*

elements and the diagonal lines further dividing the panel, but the flagged scroll and the many convolutions of the fret to the right spell Mancos. Figure 139n had been broken between the two bars of hachuring. The upper half was an obvious Cortez sherd with its vertical squiggles and the lower was Mancos Black-on-white. There was a great temptation not to glue them together.

With the demonstration that decorative features typical of Mancos Black-on-white appear in the earlier Pueblo II deposits and that designs diagnostic of Cortez Black-on-white still appear in Mancos Phase trash, has the validity of the separation of the two types been destroyed? We do not believe it has. A preference for the Cortez style at the earliest stage of the Pueblo II period and its diminishing importance with time has been established. The introduction of a new style or technique may be dated, but once it is an accepted item of the culture it is not abruptly terminated.



Figure 139. Cortez and Mancos Black-on-white sherds.



Figure 140. Modified Cortez design on Mancos Black-on-white.

Adobe-plastered jacals were built long after masonry became common, and stones were thrown at rabbits after the introduction of the bow. The production of pottery in the Cortez style after the style has passed its peak testifies to the persistence of tradition.

The dating of Cortez Black-on-white has been largely through inference. Abel (1955) suggested dates of A.D. 900 to 1000. Site 1676, where Cortez did not appear, dates to the late 800's and Mancos Phase ruins have dated into the 1000's, but the only dated early Pueblo II site in the area is the Site 102 pueblo on Chapin Mesa where a piece of charcoal from a sealed subfloor cist dated

A.D. 947+ (O'Bryan, 1950). Abel's dates are probably quite close for the period when Cortez was the dominant decorated pottery. It was probably made in lesser amounts for another 50 to 75 years.

The area within which Cortez was the early Pueblo II style extends roughly from the upper Dolores River and Dove Creek on the north to the San Juan on the south, along with its tributaries, the Animas River to the east and Montezuma Wash to the west. Within this area there is a solid core of unquestioned Cortez country running from the upper drainage of McElmo Creek on Goodman Point, across the Mesa Verde, and into the La Plata River valley.

Somewhere between the Colorado-Utah line and Alkali Ridge, east of Blanding, Utah, the influence of the type diminishes. Brew's Sites 8, 9, 11, and 12 on Alkali Ridge are jacal villages, with dirt-lined kivas, corrugated pottery, and Mancos Black-on-white (Brew, 1946). No dates were obtained from the sites, but they were found to succeed the Pueblo I, Abajo Focus pithouse sites and to underlie masonry pueblos. Brew assigns both types of architecture here to the Mancos Focus. Although he illustrates some sherds that seem to be Cortez Black-on-white, they are not so abundant as would be expected on the Mesa Verde. It is interesting to note that Pueblo II pottery on Alkali Ridge is preceded by Abajo Red-on-orange and that Piedra Black-on-white is not present.

At the eastern end of the range, the Animas Valley is not well known, but still farther to the east, Dittert, Hester, and Eddy (1961), in their survey of the lower Piedra River and the upper San Juan in the Navajo Reservoir Basin, found Cortez Black-on-white in significant amounts on a dozen Pueblo Period sites. Though they consider it to be a trade ware from which its contemporary, Arboles Black-on-white, was copied, it was the dominant decorated type at two sites, LA4260 and LA4340. At Site LA4166, where no Arboles Black-on-white was found, it occurred in equal proportions to Piedra Black-on-white and was apparently considered diagnostic of the assigned Arboles Phase. At another site, LA4231, representing Rosa through Piedra Phases, Cortez Black-on-white exceeded Rosa Black-on-gray. Only 29 sherds were in the sample from this site, however.

The San Juan was not a barrier, and further refinement of the southern boundary may result from the survey of the Navajo Irrigation Project by the Museum of New Mexico. Sherds collected by members of the park staff at a site on Cowboy Wash, 15 miles northeast of the San Juan at the Four Corners, exhibited a closer affinity to the Chaco than to the Mesa Verde.

The northern limits of Cortez Black-on-white correspond to the northern extent of Anasazi culture which, in appreciable concentration, is on the mesas between the northeastern tributaries to Montezuma Creek, west of the town of Dove Creek. The area to the north is not well known archeologically, but a survey of the Paradox Valley was made by George and Edna Woodbury, who found Pueblo II villages there and illustrated what appears from the photographs to be Cortez Black-on-white, Mancos Gray, and indented corrugated pottery (Woodbury, G. and E., 1932). Sites only a short distance north of the Paradox, near the junction of Tabeguache Creek and the San Miguel River, seem to be peripheral Anasazi (Hurst, 1957).

A source within the Anasazi area for the decorative style seen on Cortez Black-on-white cannot be pinpointed on the basis of evidence now at hand. Pueblo II sites had been excavated south of the San Juan before sites of the same period were investigated in this area. When the squiggled lines, ticks, and scrolls were discovered in Pueblo II ruins around the Mesa Verde, the similarity to types already known from Chaco Canyon and the upper Puerco of the West led to their being described as Chaco-like or in the Kiatuthlana style. Perhaps this led to a feeling that they are southern

in origin. Nested chevrons appear on White Mound Black-on-white which Gladwin dated at A.D. 750 to 800 (Gladwin, 1945), but they are used at least as early on Piedra Black-on-white. On the basis of three dated sites, Gladwin placed Red Mesa Black-on-white at 850 to 930 \pm earlier than the suggested dates for Cortez Black-on-white, but the latter is dated more by inference than by tree-rings. New styles of pottery apparently spread so rapidly we may never know where they first started.

MANCOS BLACK-ON-WHITE

Mancos Black-on-white is represented by 12,415 sherds and 25 whole or restorable pots. Sixty-two sherds were from Sites 1644 and 1676—most of them from the vicinity of Room 10, House 3. All the rest were from Badger House. The type provided 56 percent of the decorated pottery at Badger House, although, as observed earlier, much of this in the earliest deposits of trash was Mancos only for lack of distinguishing Cortez Black-on-white characteristics. It was the dominant decorated pottery in all levels above Stratum E with the exception of Stratum B, which was a disturbed layer. It was most important in Stratum A, where it comprised 66 percent of all painted sherds.

In paste, an individual sherd of Mancos Black-on-white is indistinguishable from Cortez Black-on-white, though in large numbers of sherds we see some changes. Vessel walls are about the same thickness. One hundred random sherds averaged 4.9 mm. thick, a very slight increase over Cortez and probably not significant, but this may reflect a tendency since later types were of increasing thickness. The hardness of 100 Mancos sherds from the trash averaged 4.4, a slight reduction from Cortez, which probably anticipates the softer Pueblo III types. Despite very slight thickening and softening, vessel walls, in contrast to later pottery, are thin, compact, and have a metallic ring when tapped.

All combinations of tempering material found in Cortez sherds also appear in Mancos, but with an increase in the use of ground sherds. Of 100 random sherds examined, 38 contained some sherd temper. Almost all of these also had varying proportions of crushed rock. Fifty-seven were rock tempered and some of these also contained small amounts of sand. Five were solely tempered with sand.

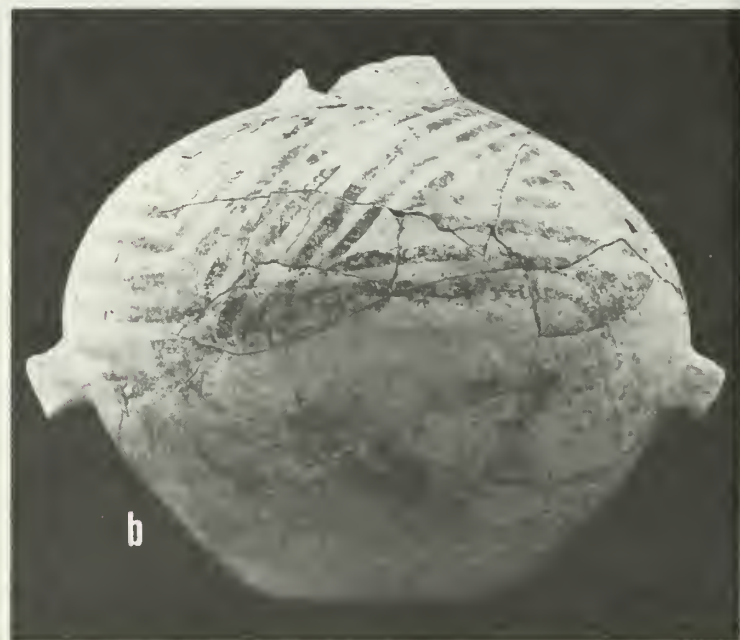


Figure 142. Mancos Black-on-white ollas.



Figure 141. Basket impressions on bowl exteriors.

The surface finish was essentially that of Cortez Black-on-white. The same combination of slip and polish occurred in relatively the same percentages. The slip had a tendency to become somewhat heavier with a greater incidence of a crackled surface. Though about 12 percent of the sherds were unslipped, none were found that lacked some polish. Exteriors were corrugated on 5 percent of the Mancos bowl sherds in the refuse, twice the frequency on Cortez Black-on-white, and the practice increased significantly from 3 percent in the lower two strata to 6 percent in the upper two. Impressions of basketry were seen on the exterior of six sherds illustrated in figure 141. Cylindrical baskets of the fine coils are represented by a and by c-f; the last four sherds are from the same vessel. Example b shows a herringbone imprint, probably of a twilled yucca ring basket.

Paint used to decorate Mancos Black-on-white, as it is described herein, was of a mineral base and again shows no change

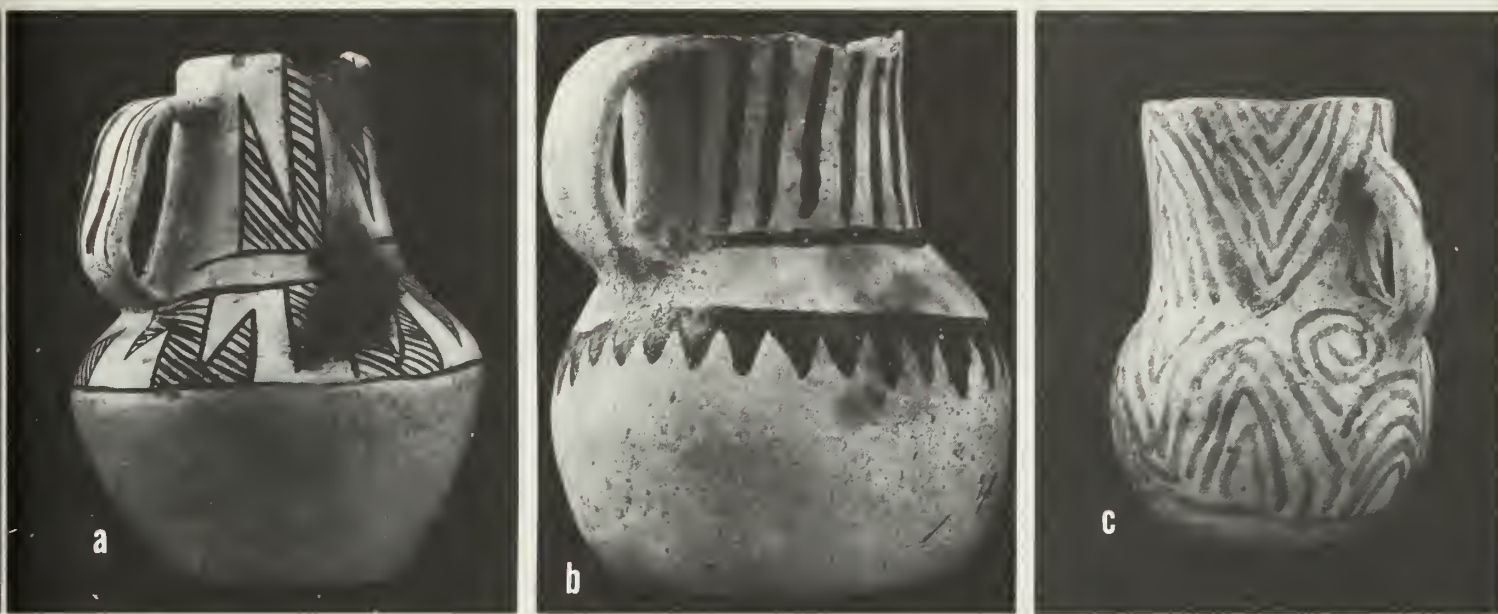


Figure 143. *Pueblo II black-on-white pitchers.*

from Cortez Black-on-white. Four sherds of the 8,864 in the dump were an intentional polychrome in which a mineral paint had been used to lay out the basic design, with the filler or supplements added in a carbon paint (fig. 150f and g). A carbon paint variety of Mancos Black-on-white is discussed separately below.

Vessel shapes differ little from those in Cortez, with an apparent decrease in popularity of pitchers, effigies, and squash pots. Jars were spherical ollas with shorter necks and smaller mouths than were common on Cortez Black-on-white (fig. 142). The flat strap that made up 64 percent of the Cortez jar handles had increased to 85 percent on Mancos, with almost half of these indented or depressed in the middle. Round loop handles and lugs were of minor importance. Pitchers were still popular but seem to be somewhat less common. The typical Mancos pitcher has a sharp shoulder and a tapered neck, as in figure 143a. Figures 143b and c are possibly Cortez Black-on-white. Their shapes are more typical of that type, and they were classified on the basis of a lack of really distinguishing Cortez features.

The half-gourd was the most common dipper, but was reduced in importance from 57 percent of the Cortez examples to 43 percent. The strap-handled dipper (fig. 144a), also somewhat less important than in Cortez, accounted for 29 percent of all Mancos dippers with a slight but consistent drop from Stratum E to Stratum A. The reduction of popularity in these styles was offset by the appearance of a tubular dipper handle (fig. 144b-d). This style, represented by only six examples in Cortez Black-on-white, all from the later deposits of trash, constitutes 25 percent of Mancos dippers and increased steadily in importance from the bottom to the top of the trash mound. Figure 145 shows the ribbed impression of a cornhusk or leaf which was rolled to serve as a form around which the clay was molded to a cylindrical shape. Small holes were punched through the clay so that gases from the burning form could escape without explosion. In some instances, pebbles wrapped in the husk mold, intentionally or accidentally, made a rattle of the hollow handle. An unusual dipper handle, shown in figure 144e, is made of two rolls of clay joined in the middle forming chainlike links. The proximal link is broken.

In table 32, the space-filling techniques used in the decoration of Mancos Black-on-white sherds from the trash mound are listed with their relative frequencies. We see that some form of hachure

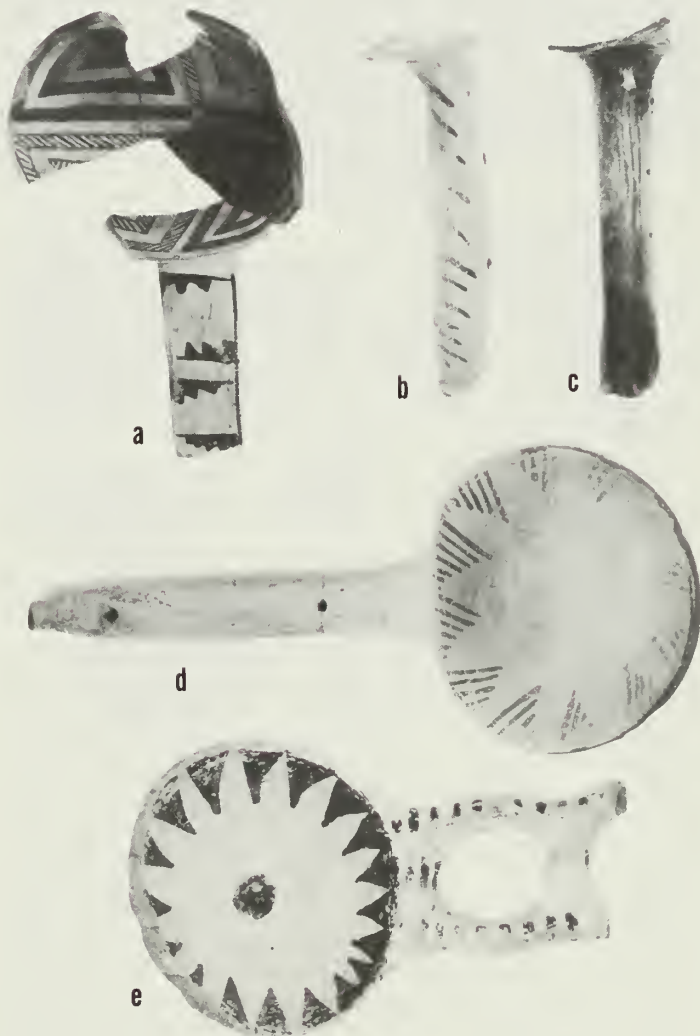


Figure 144. *Mancos Black-on-white dippers.*

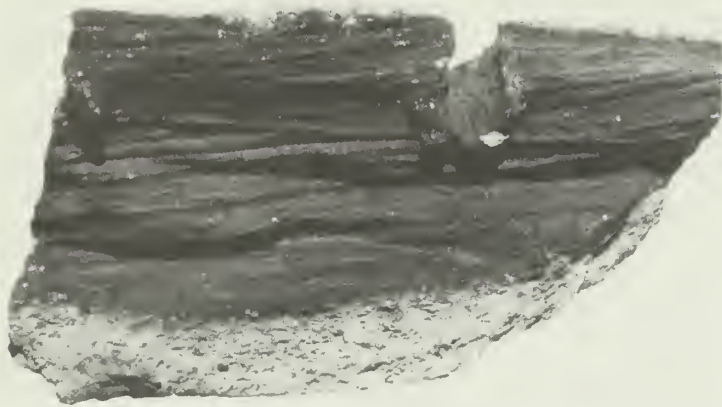


Figure 145. *Impression of cornhusk on interior of a dipper handle.*

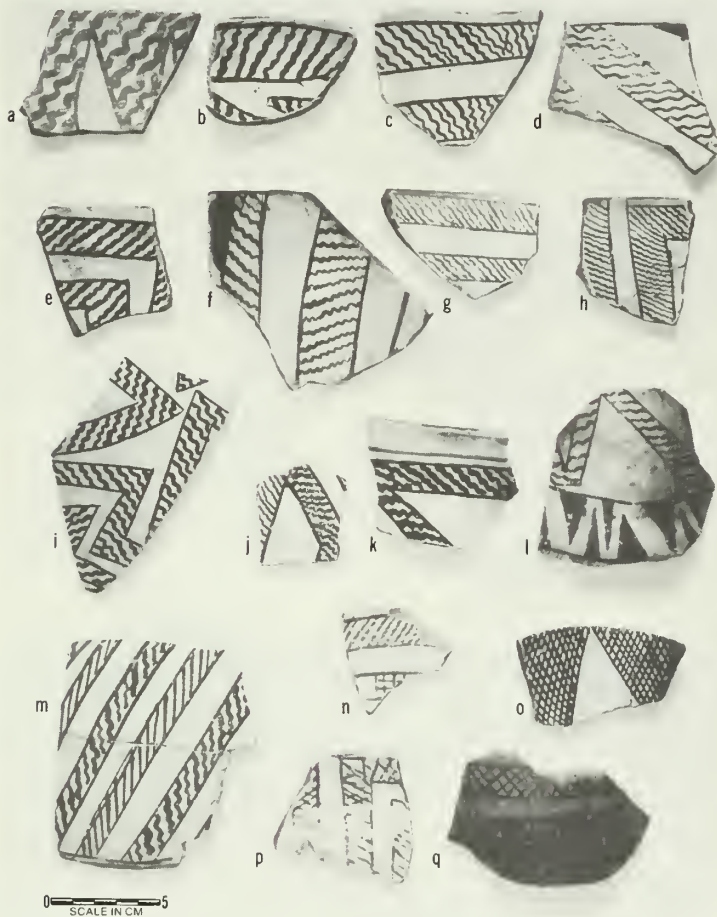


Figure 146. *Hachure on Mancos Black-on-white sherds.*

between framing lines, which amounted to only 6 percent of the Cortez Black-on-white sherds, make up 51 percent of the Mancos pottery, with a slight increase from early to late. The lower three strata showed an early preference for squiggled line hachure (fig. 146) of 2 to 1 over straight lines. Straight line hachure (figs. 147 and 148a and b) predominated, 5 to 4 in Strata A, B, and C. Cross hachure was rare, but examples are seen in the lower right of figure 146 and in the bowls, figures 148c and 149a. The use of checkers (figs. 148a, 149b, and 150a-i) and dots (fig. 150n-t) was increased on Mancos, while scrolls all but disappeared. A series of short parallel lines of staggered lengths (fig. 150j and k), a common

element used in dipper bowls, was employed in a different way on the bowl in figure 155a. Triangles also suffered a loss of popularity and, like scrolls, were often handled differently. Examples are shown by figures 151 and 155b. Biomorphic design was noted on only five sherds, two of which are illustrated in figure 152. Second only to hachure was the use of broad, bold lines often employed in a fretlike design (fig. 153). This style made up 17 percent of the sherds.

The bowl in figure 154 is transitional and might be called "Cortancos" Black-on-white. The design layout is typically Cortez but the small pendant dots are more often seen on Mancos or later types. It accompanied Burial 7 in Stratum A, and was probably post-A.D. 1000.

Though some differences in relative popularity of design elements from Cortez to Mancos are shown by table 32, a more striking comparison can be made in the differing approaches to layout. The busy involvement in many subdivisions of space and repetitions of several small elements are lacking on Mancos vessels. The approach is generally freer and bolder, and the design itself cannot be deter-

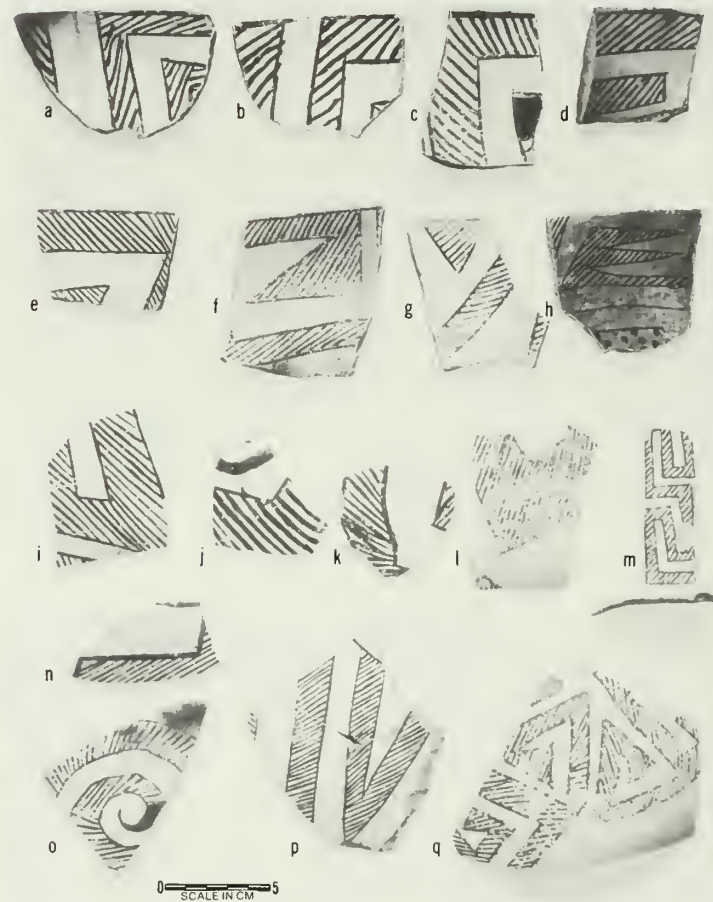
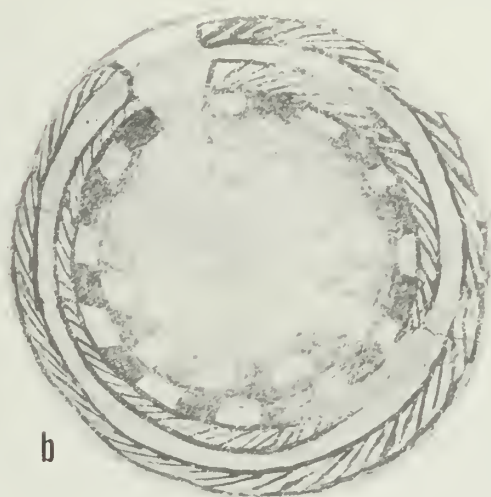


Figure 147. *Straight-line hachure on Mancos Black-on-white sherds.*

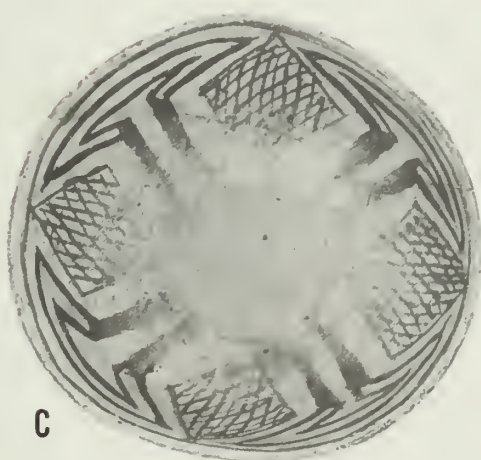
mined so readily from a small sherd. On Mancos Black-on-white pottery, the significance is not hachure versus solid lines, because both are employed most commonly only as space-filling devices in a larger, sweeping scroll or fret design. This is not so apparent in dealing with the small sherds from the trash mound, but a study of whole vessels and larger sherds, followed by a re-inspection of the smaller sherds, reveals that a majority of Mancos vessels from Badger House carried these free-ranging frets (figs. 155c and d, and 156-159). One is reminded of the similar style on the solid-line Sosi Black-on-white and the hachured Dogoszhi Black-on-white. There is no justification in this area for separating the solid and hachured



a



b



c

Figure 148. *Mancos Black-on-white bowls.*



a



b

Figure 149. *Mancos Black-on-white bowls.*

into different types. Though the employment of Sosi-Dogoszhi style frets was markedly greater in the later deposits, the 2 to 1 preference of hachured over solid-line frets is maintained in all levels and is of no apparent significance. The olla in figure 142a, the dipper in figure 144a, and the sherd in figure 153i employ both solids and hachure in the same pattern. Colton has indicated the same lack of significance in Tusayan White Ware in these words: "Sosi and Dogoszhi probably are style variations of the same type, as they have the same time and space distribution" (Colton, 1955).

Exterior decoration on bowls was 2.5 percent of the total and was commoner in lower than the upper strata of the trash mound. Four percent of the bowl rims were ticked. Almost all of these were in the upper two strata.

The spatial distribution of Mancos Black-on-white is somewhat wider than that of Cortez Black-on-white. The limits to the north and east are unchanged—somewhere between Dove Creek and the junction of the Dolores and Colorado Rivers to the north and the Animas Valley to the east. To the west, Mancos Black-on-white extends to the Colorado River. It has been recorded as the dominant decorated pottery at several sites in the triangle east of the junction of the San Juan with the Colorado, particularly in the Cedar Mesa and Castle Creek regions (Weller, 1959), and has been reported in appreciable quantities on the left bank of the Colorado between the Dirty Devil and San Juan Rivers (Florence C. Lister in Fowler, 1959; Lipe, 1960; Lipe et al, 1960). Rudy has reported Mancos Black-on-white in the Pueblo III sites of Beef Basin, northeast of the Abajo Mountains (Rudy, 1955). Mancos is found in Chaco Canyon to the south (Judd, 1959, p. 168) and dominates many of the Pueblo II sites between Chaco Wash and the Lukachukai Mountains from Toadlena to the San Juan River (Sciscenti and Greminger, 1962).

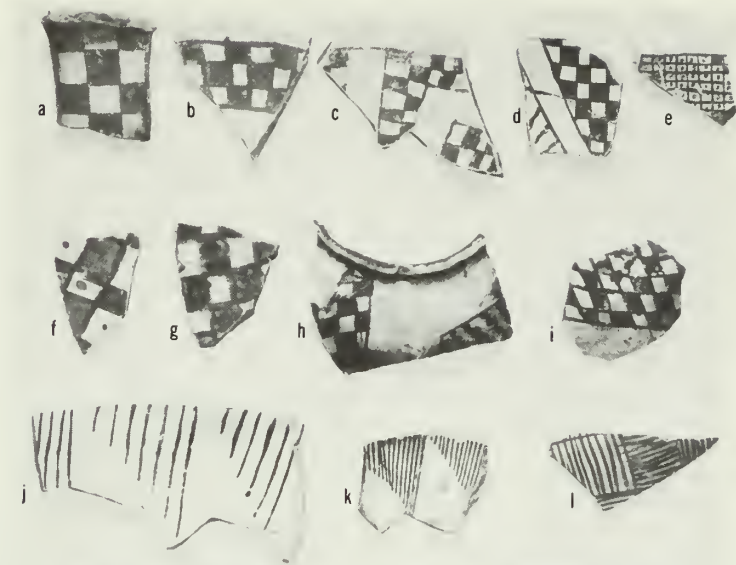


Figure 150. *Mancos Black-on-white sherds with checkerboard parallel-line, and dot motifs.*

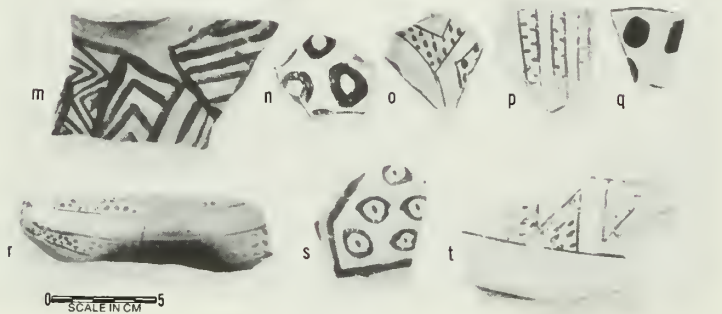


Figure 151. *Triangles on Mancos Black-on-white sherds.*

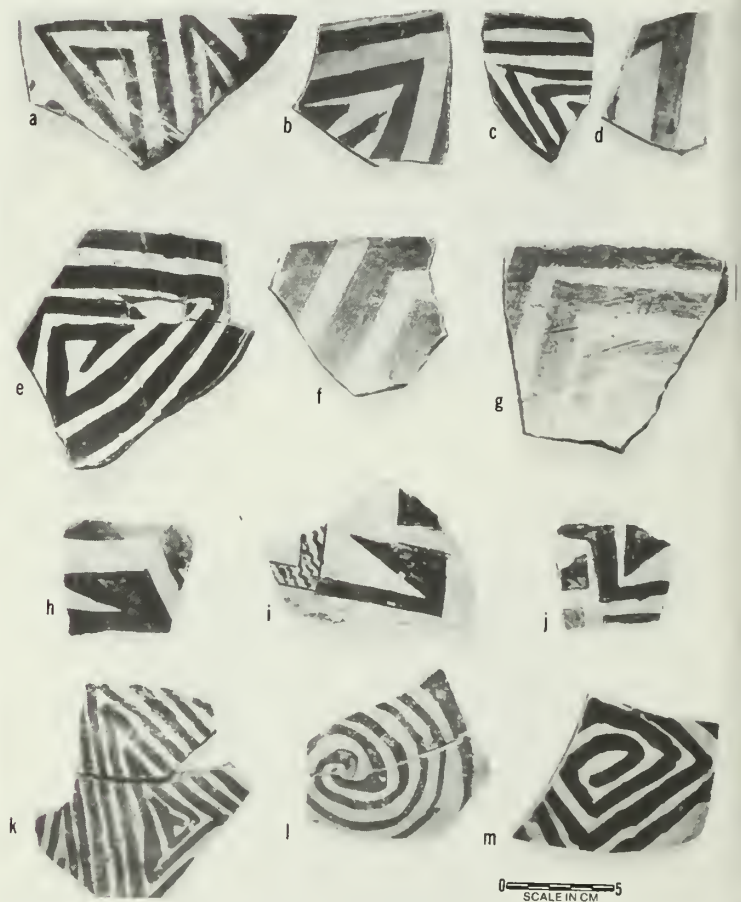


Figure 153. *Broadline frets on Mancos Black-on-white sherds.*

Figure 154. *Triangles on Mancos Black-on-white sherds.*



Figure 154. "Cortancos" black-on-white bowl.

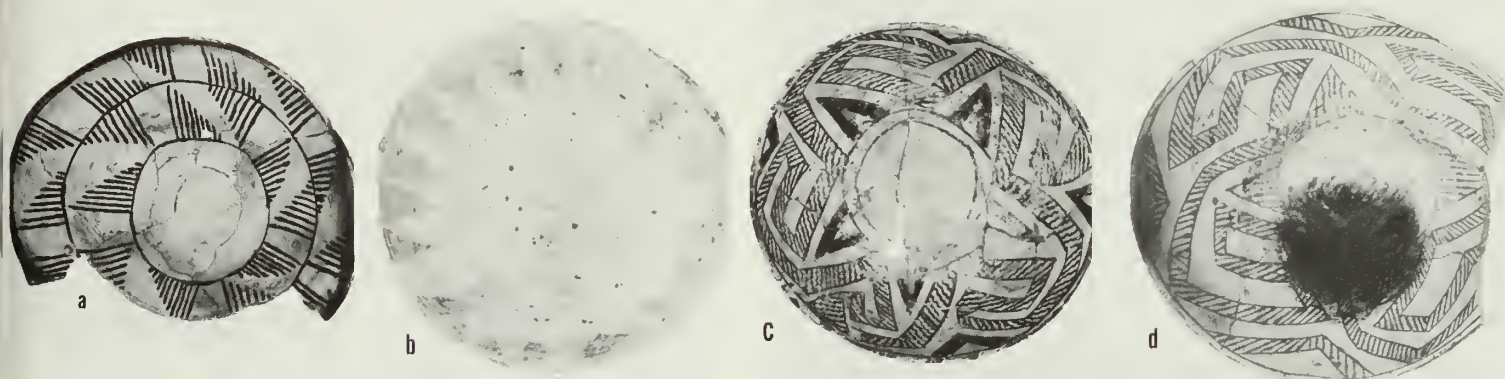


Figure 155. Mancos Black-on-white bowls.



Figure 156. Mancos Black-on-white bowl fragments with handles.

Abel has dated Mancos Black-on-white at A.D. 950 to 1150. The range is probably fairly accurate for the period in which it was a dominant type but, as described above to include all local Pueblo II black-on-white not assignable to Cortez Black-on-white, it could reach back to 900.

MANCOS BLACK-ON-WHITE, CARBON PAINT

We have seen that a few Cortez Black-on-white sherds bear carbon paint, and it is reasonable to assume that a technique commonly used in the 600's, well known in the 800's, and not unknown in the 900's would not be completely forgotten. Four percent of the total number of Mancos Black-on-white sherds from the trash mound, scarcely higher than the percentage noted for Cortez Black-on-white, were decorated with carbon paint. But unlike carbon-painted Cortez, which was found at random throughout the stratig-



Figure 157. *Mancos Black-on-white pitcher fragment.*



Figure 158. *Mancos Black-on-white bowl fragment.*



Figure 159. *Mancos Black-on-white jar sherd.*



Figure 160. *Mancos Black-on-white sherds with carbon paint.*



0 5
SCALE IN CM

Figure 161. Mancos Black-on-white sherds with carbon paint.

raphy, 90 percent of carbon-painted Mancos for which there was a known provenience came from the upper two strata. Because of the developing preference for carbon indicated by this clustering in the more recent deposits, the carbon-paint variety of Mancos Black-on-white will be discussed separately.

An analysis of sherds from the survey of Wetherill Mesa, including their correlation with architectural forms, suggested that pottery decorated with carbon paint was strictly confined to the early Pueblo III, McElmo Phase, context. A new type name, Wetherill Black-on-white, was suggested for them (Hayes, 1964). As a result of the excavation of Big Juniper House (Swannack, 1969) and Two Raven House, the staff archeologists of the Wetherill Mesa Project decided to throw out the proposed type. The material was assigned to Mancos Black-on-white, redescribed to include carbon paint, and to an expanded McElmo Black-on-white. The former, in its carbon-paint variety, occurs throughout Pueblo II in ever increasing amounts and into early Pueblo III. The latter is a Pueblo III type entirely.

There are 241 sherds from the trash mound that are essentially Mancos Black-on-white decorated with carbon paint. Those from the Pueblo II levels of the trash may have been only aberrant pieces in the same way as were a few Cortez Black-on-white sherds from the same levels. Table 22 shows, however, that an even larger proportion of Mesa Verde Black-on-white sherds came from the early Ackmen Phase strata. These unquestionably drifted downward because of disturbance. Though the numbers are small for ideal comparison with the more than 8,000 Mancos sherds decorated with mineral paint, a few trends are to be noted which foreshadow still later types. From its position in the late trash, one would expect this.

The shapes represented are essentially the same as those of the Mancos Black-on-white with mineral paint—steep-sided bowls, pitchers, and ollas. Rims are tapered and have rounded lips. Twenty random bowl sherds averaged 5.3 mm. thick, a slight increase presaging the still thicker pottery of a later period. Design is Mancos Black-on-white in all its varieties, with an increased tendency to a layout of banding under the rim. Application was often more open, in broader lines less neat and fine than in mineral-paint Mancos or McElmo Black-on-white (figs. 160 and 161). Ticking of the rim has increased to 8 percent.

Precise dating of the beginning and ending of any type will never be possible, if for no other reason than that classifying every sherd and accounting for all the whims and accidents of individual potters is not possible. But figure 162 shows a suggested relationship of Pueblo III types. If we allow a 50-year leeway, it is possible that at no time between A.D. 1050 and 1300 was any one type the only decorated pottery produced and that during the late 1100's all these decorated types were being made at the same time.

McELMO BLACK-ON-WHITE

McElmo Black-on-white appeared in Badger House in the smallest amounts of any decorated type. Only 73 sherds were found in the trash mound, and all of those with a known stratigraphic provenience were from the top of the mound.

A detailed analysis of such a sparse collection is not worth while. It should suffice to make the brief generalizations that bowls were shallow, with rounded sides; the walls were thick, untapered, with flattened lips, 57 percent of which were ticked. Design layout made much use of broad lines, open frets, and the open, banded triangles of the "proto-Mesa Verde" style (fig. 163). The last-mentioned style (fig. 163h), first described by Kidder (1924) as the typical early Pueblo III pottery of the area, clearly is later than

A.D. 900 1000 1100 1200 1300

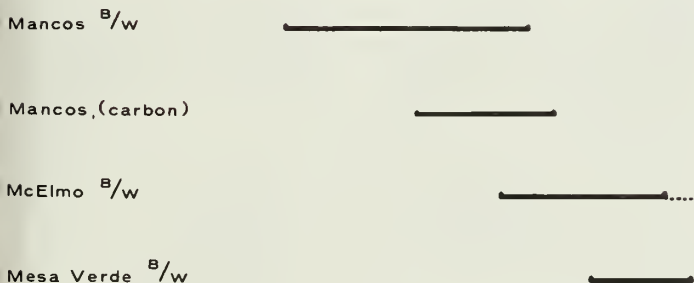


Figure 162. Estimated periods of manufacture of the later black-on-white types.

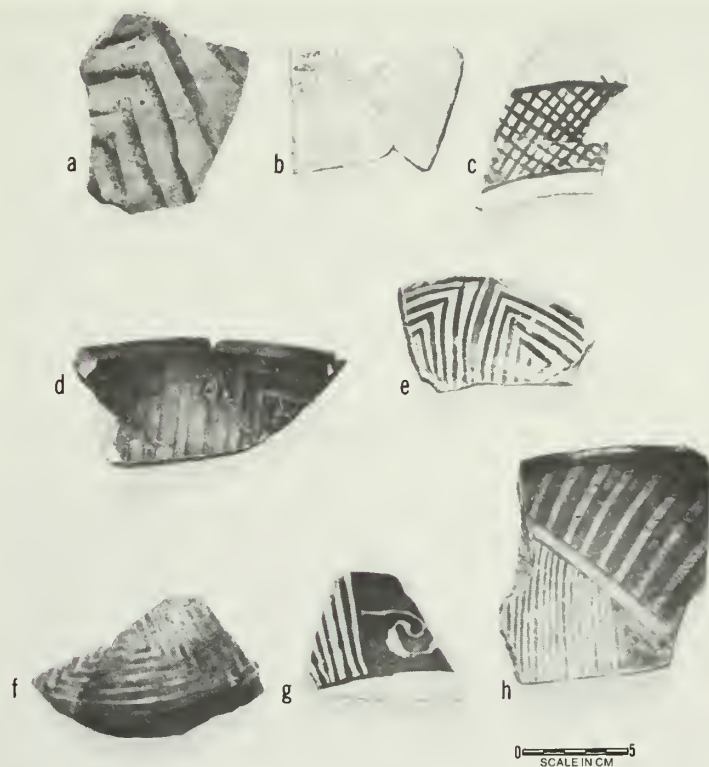


Figure 163. *McElmo Black-on-white sherds.*

Mancos Black-on-white and precedes full-blown Mesa Verde Black-on-white, but some of the rest of McElmo seems to be fully contemporary with Mesa Verde, if it is not in fact just a slovenly or off-brand version of it. It is interesting in this light that a higher percentage of these sherds are unslipped than any other late type.

Classic Mesa Verde Black-on-white at its best is such an outstanding product that archeologists tend to become quite demanding in the classification of it. The uneasiness they feel at the possibility of calling "McElmo" something that might be careless "Mesa Verde" runs through the literature of San Juan archeology.

However, extensive testing in McElmo Phase sites on Wetherill Mesa in the summer of 1963 has shown that McElmo Black-on-white is the dominant decorated pottery of a short early Pueblo III period (Swannack, 1969). Though individual sherds out of context may be difficult or impossible to distinguish as "sloppy Mesa Verde" from a late site or "incipient Mesa Verde" from an early one, Kidder's term of years ago—"proto-Mesa Verde"—seems to have been close to the mark. As difficult as it is to pin down, there is a McElmo Black-on-white during a time of experimentation.

MESA VERDE BLACK-ON-WHITE

Only 264 sherds identified as Mesa Verde Black-on-white were recovered from the sites. They were nearly in equal proportions from the trash dump and from the structures (39 were from Kiva A and House 3 at Site 1676). The upper levels of the trash, Strata A and B, produced 90 percent of the 59 sherds for which there was a definite provenience.

There were very few jar sherds in the collection. This fact does not necessarily indicate a preference for bowls over jars, but rather that jars are harder to classify. Most of the indeterminate Pueblo III, carbon-painted sherds were from jars.

Mesa Verde Black-on-white has been exhaustively described from much larger collections (e.g., Morris, 1939; Rohn, 1971).

Little can be added here but figure 164 and a few comments on characteristics of the type as expressed locally.

All but two of the Mesa Verde Black-on-white sherds from Badger House were decorated with carbon paint. About 15 percent were in an "allover" pattern, and the rest were in a banded layout. In their intricacy, but not in the subdivision of the field, the designs seem to hark back to Cortez Black-on-white. The decorated area is more completely filled than in any earlier style, often approaching a negative pattern. The exterior of 70 percent of the bowls is decorated, and 83 percent of the rims are ticked. Twenty sherds average 6.4 mm. in thickness. Contrasted with Mancos Black-on-white, bowls are wider and lower, and have rounded sides. Virtually all rims are of uniform thickness with flat, squared lips.

Jars tend to be somewhat more globular than those of Mancos Black-on-white, with handles less down-raking, rounder in cross section, and unindented. Jar necks are narrow, erect, unflared, and frequently corrugated, with a slip and polish over the corrugations.

SAN JUAN RED WARE

Throughout the Four Corners country, red-fired pottery appears at late Basketmaker, Pueblo I, and early Pueblo II sites in varying amounts. Very roughly, its principal popularity was from A.D. 700 to 950, and it is essentially a Pueblo I type. On the Piedra River, Roberts (1930, p. 78) found red pottery to be about 2 percent of his sample of decorated sherds. From the Piedra westward, red ware increases. Morris (1939) estimated it at 20 percent in the Pueblo I sites in the La Plata drainage. At Sites 1 and 102 on Chapin Mesa, O'Bryan found red sherds to be 26 percent of the painted pottery in the early components (O'Bryan, 1950, p. 92), whereas in the surface rooms and pithouses at Site 1 in the Ackmen-Lowry



Figure 164. *Mesa Verde Black-on-white sherds.*

area, only a short distance to the northwest, red and orange sherds made up 80 percent of the decorated pottery (Martin, 1939). Finally, at Site 13 on Alkali Ridge in Utah, Brew found Abajo Red-on-orange to be virtually 100 percent of the decorated pottery. Only 90 out of thousands of sherds were early black-on-white (Brew, 1946).

In his report on Mancos Canyon, Reed (1958) correlated the proliferation of names and descriptions of San Juan Red (or Orange) pottery in a synthesis which need not be repeated here, and in personal communication he has further suggested their reduction to two types:

- (1) Abajo Red-on-orange, as described by Brew (1946)—red (iron) paint on an orange background.
- (2) Bluff Black-on-red decorated with brown to purple (manganese) paint on either red or orange paste.

This last type would include La Plata Black-on-orange as described by Martin, La Plata Black-on-red as described by Morris, and Hawley's Sandstone Black-on-orange (Kluckhohn and Reiter, 1939), under the earlier published description of Bluff Black-on-red (Hargrave, 1936; Colton and Hargrave, 1937).

Anna Shepard, in a technological analysis of red pottery from Morris' La Plata Valley excavations, found two paint types. The commoner was an "iron manganese" in lustrous brown to brown-black. In smaller percentages, and assumed to be earlier, was iron paint of "soft red hematite," which fired from "reddish brown to purplish brown." She compared these with some of Brew's Abajo Red-on-orange sherds from Alkali Ridge, which she found to be of iron paint. Occasional sherds with black manganese paint she considered to be aberrant, but still local to Alkali Ridge since they contained the same temper as the dominant red-on-orange sherds (Shepard, 1939).

Even though it is impossible, from visual inspection, to distinguish in every case a brownish-black manganese paint from one of purplish-red or brown hematite, there does seem to be a difference in paints on oxidized pottery from the San Juan. A separation of reds from our three sites on this basis shows an apparent affinity with the area to the east. Only a negligible number were painted with a definite red. Most could be described as a brown-black or purple-black. A collection of sherds from Site 13 on Alkali Ridge made by Lancaster was compared to ours and revealed another obvious distinction. The Utah sherds are definitely orange, whereas our local pottery leans more to red. Side by side they are markedly red-on-orange versus black-on-red.

The validity of Reed's Abajo and Bluff types is borne out by their geographic distribution. The iron-painted orange Abajo centered on Alkali Ridge and the manganese-painted Bluff, with a redder background, was the preference (probably dictated by available materials) in the areas to the east. It is interesting that Martin's "Site 1," lying on Goodman Point between Alkali Ridge and Mesa Verde, produced red ware apparently painted with manganese (Bluff) but was described as having an orange color (Abajo). Appropriately enough, this marginal area yielded pottery that wasn't one thing or the other.

As we have seen, the distinctions proposed by Reed, based on paint and color, would call for the classification of the Mesa Verde red ware as Bluff Black-on-red. There are other factors, however, which need to be covered. In the collections from Mesa Verde, two fairly distinctive design styles were used. One of these, described by Brew for Abajo Red-on-orange, is somewhat similar to La Plata-Chapin-Lino Black-on-gray of the same period, but the lines are broad and unframed squiggles or rickrack are often employed. The other is much neater, with finer brushwork, and the elements are

more reminiscent of Piedra Black-on-white—parallel banding lines, nested chevrons, and angular frets. Many of the sherds in the latter style are slipped. In the analysis of the collections made by the survey of Wetherill Mesa, sherds of the first style were called Abajo and those of the second were called Bluff (Hayes, 1964). The *slipped* sherds were typed as La Plata Black-on-red. The paint technology was not taken into account. This breakdown is essentially the one made by Abel (1955), although he also saw differences in paint.

A separation of the local red sherds primarily on the basis of design does reveal a few interesting associated traits. Those in the Abajo design style tend to be thicker, less highly polished, with bowl exteriors frequently a dull buff or gray. Red paint, which was extremely rare, was confined to sherds of this style. The temper was fine sand and crushed rock in varying proportions and was indistinguishable from that in the sample collection from Alkali Ridge. In the light polish or lack of it, and in design, drab exterior, and temper, these sherds are like Brew's Abajo Red-on-orange. The feature that sets the Wetherill Mesa sherds apart from those on Alkali Ridge is their color—purple-brown on red in contrast to red on orange.

The sherds decorated in the fine-line style are thinner, and are well polished inside and out. A buff exterior is less common. Temper is mostly of crushed rock, ground finer than in the "Abajo" sherds. Though some sand appears in most sherds, there is not much of it. About half of those examined under the binocular microscope contained a few white or yellowish angular fragments which may or may not have been ground sherds. All the sherds with a bright red slip, "La Plata" in the survey classification, were of this style.

In September 1964, at the Sixth Ceramic Conference held at the Museum of Northern Arizona in Flagstaff, discussion centered on the red pottery of the Southwest, with considerable attention given to San Juan Red Ware. The views of several persons working in areas near the Four Corners and the examination of sherds from those areas in committee showed that much of the confusion over type names resulted from making our studies in a vacuum. Apparently there was more homogeneity than the several type names had led us to believe. Brew's Abajo Red-on-orange, Hargrave's Bluff Black-on-red, and the earlier sherds with broad-line decoration from Mesa Verde appeared to be essentially one and the same. Recognizing that separation of varieties on the basis of paint and color was possible, we agreed to call all of them Bluff Black-on-red, selecting the name that was first put in print. Somewhat to the surprise of the Mesa Verde delegation, it was seen that our later red pottery, polished, sometimes slipped, and decorated with fine lines, and Deadman's Black-on-red from northeastern Arizona were seemingly identical. Again we assigned the tag which had been published first, Deadman's Black-on-red.

The decisions of the conference, with which we are in accord, leave us the same pottery but with a different pair of names. The contributions of the Badger House community to our knowledge of the two types is largely in confirming and tightening their dating. There were 2,253 red sherds in the collection, over a third of which had no paint and hence were unclassifiable. Only eight restorable bowls were recovered. The discrepancy between the two figures may be explained by the fact that the oxidized pottery seems to be more friable than the gray and white wares.

No red sherds were found in clear association with the Basket-maker III pithouses. Two were found on the bench of Pithouse G at Site 1676 where they were undoubtedly intruded through the sinking of a posthole in the fill, a feature associated with House 5. The first appearance of red ware is at the A.D. 750 House 3, where it made up 34 percent of all painted pottery. There was a steady increase in its popularity, as can be seen in figure 165, peaking at

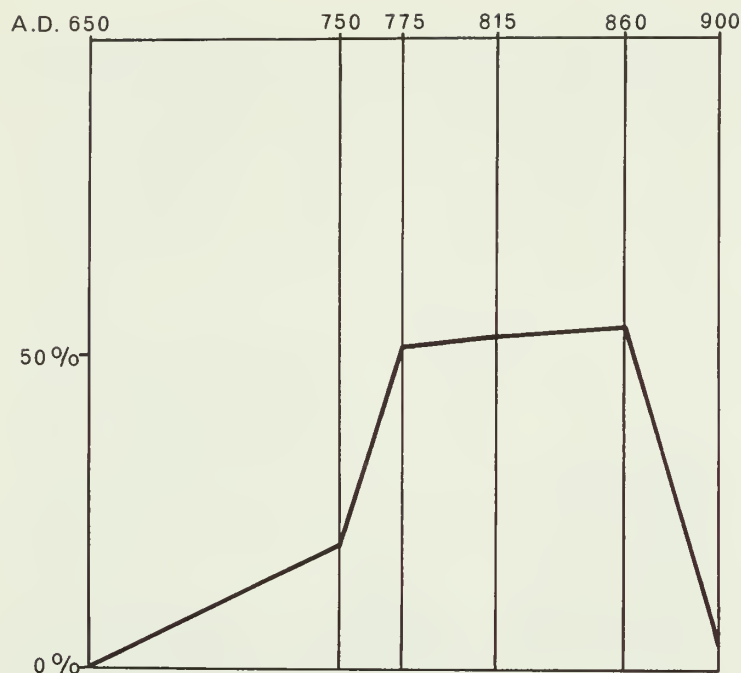


Figure 165. *San Juan Red Ware expressed as percentage of total number of painted sherds.*

860 in Houses 1, 4, and 5, and their protokivas, when it was 56 percent of decorated pottery. All of this was the earlier Bluff Black-on-red (figs. 166 and 167). No Deadman's Black-on-red was found at Site 1676. Sometime between 860 and 900 the red pottery began to decline in favor. In Strata D+ and E in the Badger House trash mound, with an estimated date of about 900, red sherds were only 7 percent of all decorated sherds.

Seventeen percent of the decorated sherds on the floor of the great kiva were red. There were no dated wood specimens from this structure, but by using the ratio of red sherds to the contemporary gray or white decorated types, we arrived at an estimated period between 650 and 750. We would not care to place much reliance on this method of dating, but in this case the guess is supported by other evidence. House 1 was built partly over the great kiva after it had been filled by natural means with alluvium to the depth of 3 feet.

Deadman's Black-on-red (fig. 168) first appears in the lower levels of Badger House and is entirely a Pueblo II type. But we cannot pinpoint the terminal date of either of the two red types from our evidence. A correlation of the red sherds from Badger House, classified according to the Bluff-Deadman's breakdown with the stratigraphy of the trash mound, is disappointingly uninformative. There were 836 sherds. Their occurrence from the bottom to the top of the mound ranged from 7 percent of the decorated sherds in

the lower two strata to 5 percent in combined Strata A and B—no significant change. The proportion of the two styles also remained virtually unchanged, with Deadman's slightly more common in all strata. Sherds of the slipped "La Plata variety" of Deadman's were fewer than those of either Bluff or unslipped Deadman's.

No differences are evident in vessel shapes, either between the two types of red pottery or through time. Bowls were by far the commonest shape and ran 5 to 1 over jars and pitchers. Squash pots were common, and the gourd-shaped bottle was particularly common in Bluff Black-on-red. Dippers of both the half-gourd and rounded strap handle types are present, but not in the frequencies of the contemporary black-on-white types. Pitcher handles were oval in cross section or flat strap.

A perplexing question in regard to the red ware at Mesa Verde is its place of origin. Was this trade ware or was it manufactured here at the same time black-on-whites were made? The consistent increase of red pottery from east to west, from the La Plata to southeastern Utah, suggests that the tradition, if not the vessels themselves, originated in the west. The fact that there were more red than black-on-white sherds in the late Piedra Phase at Site 1676 argues that the red ware was made locally. It is not an untenable notion that a potter might make oxidized vessels one day and gray ware the next. The utility ware on Alkali Ridge, where red ware is the only decorated pottery at this period, was a gray ware identical to that of Mesa Verde and was fired in a reducing atmosphere. But a comparison of the two painted wares—the red and the white—indicates that they were not likely to be the work of the same craftsmen.

The two kinds of firing are obviously different, but more significant differences became apparent when handling both types together. Compared to Chapin or Piedra Black-on-white, Bluff Black-on-red is strikingly symmetrical—a bowl rim is almost a perfect circle, with an even and usually flattened or square lip. The body of the vessel is much more carefully smoothed to create a regular surface, and the thickness of the vessel walls is remarkably even from one section to another. The paste is softer and the temper is fine sand and a finer ground rock. Differences in clay and temper can be explained by different requirements of the firing, but it is harder to explain the contrast in the care exercised in shaping of the vessels. Decoration, however, of Bluff is in broader, more carelessly drawn lines (fig. 169). The white and the red wares are products of different but related traditions and certainly of different potters.

If the red ware was traded from outside in the great quantities that the percentages in House 1 might indicate, we do not know where it came from. We have seen that the local paint and paste differed from that at Alkali Ridge, the most likely direction of trade. If red pottery was made here, it did not spring from the local tradition. Chapin Black-on-white was found alone in the La Plata Phase pithouses before Bluff made its sudden appearance in some

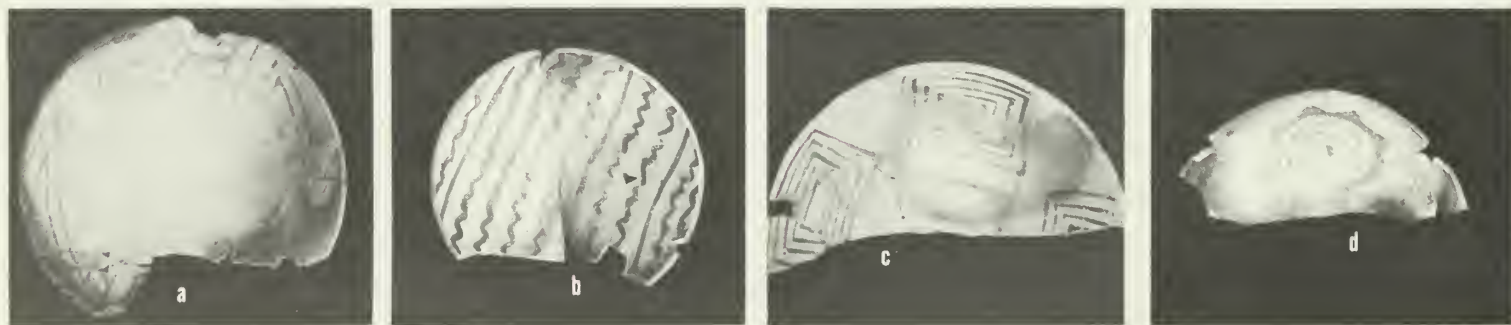


Figure 166. *Bluff Black-on-red bowls.*

quantity at the early Piedra Phase House 3. A possible explanation is that people from the west actually moved into this area, where they merged with the indigenous population, lived in the same villages, and continued for several generations to make their old style of pottery with the materials available locally.

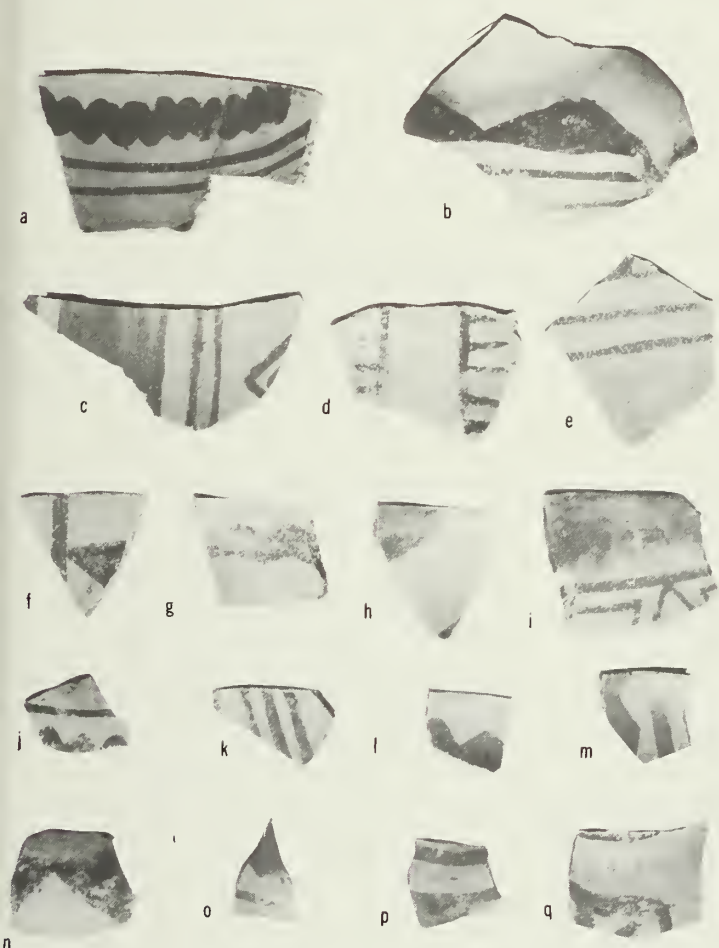


Figure 167. *Bluff Black-on-red sherds.*

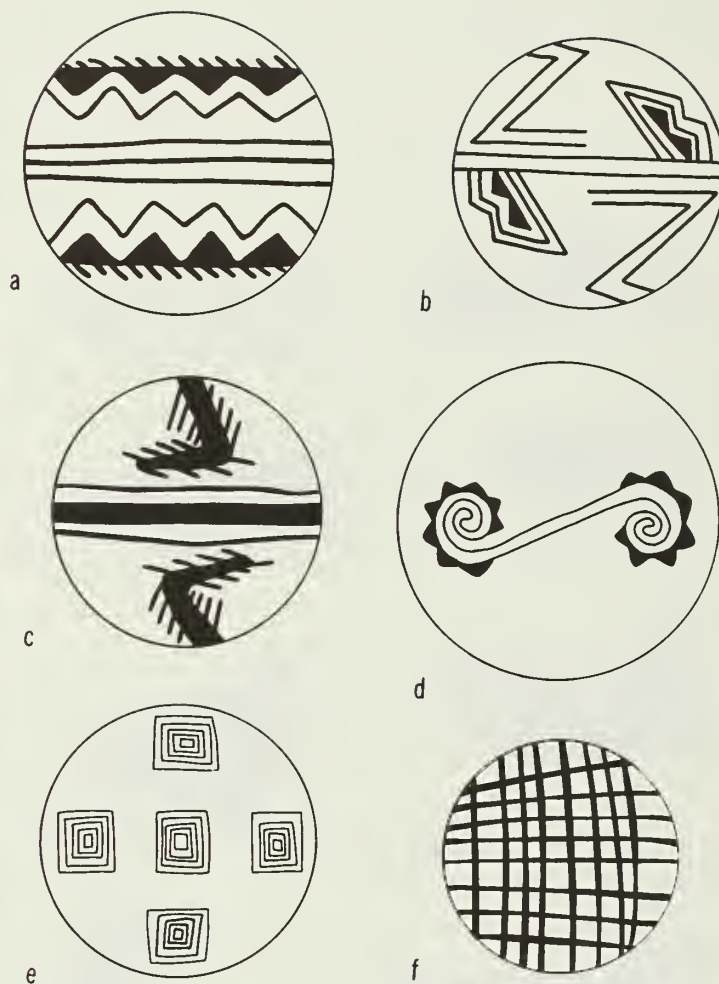


Figure 169. *Bluff Black-on-red designs.*

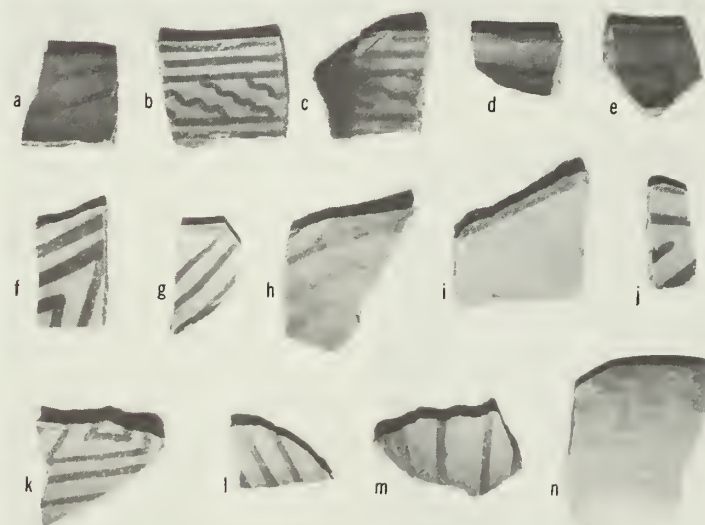


Figure 168. *Deadman's Black-on-red sherds.*

TRADE WARES

Seventy exotic sherds were counted from the dump and another 28 from associations with architectural features at Badger House and Site 1676. Those from the trash mound are shown in table 33, but the distribution throughout the mound of such a small number is probably of little significance, beyond the fact of their scarcity. Thirteen sherds initially classified as foreign to Mesa Verde were not identified—some of these were possibly only aberrant local sherds.

Of the 74 identified sherds, 48 were Cibola White Ware. Sherds of Red Mesa Black-on-white, a type generally equivalent to and contemporary with Cortez Black-on-white, were most numerous. The late Pueblo II-early Pueblo III Puerco Black-on-white sherds were fewer, perhaps significantly. Following the lead of the Cibola White Ware Conference held at the Museum of Northern Arizona in 1958, Puerco Black-on-white here includes what were formerly called Escavada, Gallup, and Chaco Black-on-white (Hawley, 1936). One of these was in the finely hachured classic Chaco style.

Sixteen sherds of red or brown ware, 12 of these with a smudged interior, probably originated in the upper Little Colorado River district, north of the White Mountains of Arizona.

A majority of the trade sherds are of types predominant in northwestern New Mexico rather than to the west of the Lukachukais. This seems to indicate that in Pueblo II times the most popular route linking Mesa Verde with its neighbors was up the Chaco Wash toward the Chuska Valley.

Table 33. Trade sherds from the trash mound, Badger House

Type	Stratum											General	Total
	A	AB	B	BC	C	CD	D	DD+	D+	D+E	E		
Red Mesa B/w	12	—	—	1	—	—	—	1	—	1	3	5	23
Puerco B/w	3	1	—	2	—	—	—	—	—	—	—	4	10
Cibola White Ware, unclassified	—	—	—	—	—	—	—	—	2	—	5	4	11
Wingate B/r	1	—	—	—	—	—	—	—	—	1	—	2	4
Kana'a B/w	—	—	—	—	—	—	—	1	—	—	—	1	2
Citadel Polychrome	—	—	1	—	—	—	—	—	—	—	—	—	1
Smudged red or plain	3	—	—	—	—	—	—	—	—	—	1	—	4
Woodruff Brown?	—	—	—	—	—	—	—	—	—	—	—	1	1
Tusayan Polychrome	1	—	—	—	—	—	—	—	—	—	—	—	1
Total	20	1	1	3	—	—	—	2	2	2	9	17	57

6

Other Artifacts

OBJECTS OF CLAY

Although the Indians of Mesa Verde were skillful in the fashioning of pottery vessels and lavish in their use, they seem to have employed clay sparingly for other artifacts. The majority of such clay objects were, in fact, made from sherds.

Pipes

Twenty pipes, complete or fragmentary, were found at the three sites. All were made from pottery clay and show a development from a cigar shape or flared "clowdblower" style, through a slightly curved to a bent elbow shape.

Four pipes from the two pithouses at Site 1644 are straight stemmed and made of plain gray pottery (fig. 170a-d). The surfaces are smooth; one is lightly polished and another appears to have been covered with an organic substance, perhaps pine gum, and burnished. The latter has an unusual shape. Three low-relief bands encircle the stem, the outermost of these forming a shallow bowl 1.1 cm. deep.

Site 1676 produced eight pipes, all from the later houses, 1, 4, and 5. Five of these differ in no significant way from those found in the earlier pithouses, but two have a gentle curve and one has a right-angle bend (fig. 170g). The last three were a definite improvement in style. The thin-leaved wild tobacco, when dried, is much like the familiar flake tobacco sold in muslin sacks today and would be impossible to keep in the bowl without holding it upright. The slightly curved, horn-shaped pipe shown in figure 170h came from a test trench across an unexcavated room to the east of Room 1 in House 4. Room 6 in House 5 yielded a pipe made from the tapered handle of a broken Abajo Red-on-orange gourd-shaped pitcher (fig. 170f). The narrow end of the handle was ground down until the hollow center was barely exposed and the flared end was also ground to make a smooth bowl rim. The single elbow pipe illustrated in figure 170g, from the floor of Room 7, House 1, was made as a long, straight, and tapered tube, and was bent crudely before the clay was dry with no attempt to smooth away the crimped acute angle of the bend.

Fragments of eight pipes came from the Badger House trash mound. Four were from general fill and four from Stratum A or combined Stratum AB. Three are fragments of apparently straight pipes and five have flared, upturned bowls. Four of the latter were painted. The typical Cortez Black-on-white design on the pipe bowl in figure 171, left, from the general fill, possibly indicates an Ackmen Phase origin. It is painted in open squiggle hachure at right angles to the framing lines on a polished off-white slip. The slightly upturned bowl is flattened and measures 3.0 cm. wide by 1.0 cm. high by 1.9 cm. deep. A fragment of a similar pipe with the same design on an unslipped surface came from Stratum AB.

No whole pipe was found at Badger House, but the painted elbow pipe from Stratum A shown in figure 171, right, is complete



Figure 170. *Basketmaker III and Pueblo I pipes.*



Figure 171. *Pueblo II pipes.*

enough for measurement. The stem is 4.9 cm. long, and the bowl 3.0 cm. high and angled a little forward like the modern "Dublin." The clay was tempered with a mixture of rock and sand, and the pipe was decorated with a black-on-white design of encircling bands and pendant triangles. The bore, about 0.3 cm., was formed by making a core of a tightly rolled piece of cornhusk which burned out upon firing. The broken shank of another elbow pipe was painted in narrow encircling bands of black, oxidized to red, on an unslipped and unpolished surface.

No stone pipes were found at any of the sites.

Pendants

Of 40 pendants made from sherds, 38 came from the Badger House trash mound and two were found with burials at the same site. Though no changes in popularity are demonstrated from the bottom to the top of the trash mound, there was a decided preference throughout for red sherds (fig. 172a-g). Thirty-two were San Juan Red sherds, the rest were black-on-white. The shapes are the same as shale pendants—mostly subrectangular, with a few trapezoidal, round, or teardrop shape. They average 3.5 cm. in length by 2.9 cm. in width. Some suspension holes were drilled completely through the sherd from one side, but twice as many were biconically drilled. Edges were ground. The preference for red sherds may have been in imitation of the common red shale pendants.

There were also 26 pendant blanks—sherds that had some primary shaping but were not perforated (fig. 172k-o). Some had been shaped only by chipping the edges, but most also had varying degrees of grinding over the chipping scars. Four were Chapin Gray and the rest were decorated types, mostly red.

All the pendants and all but two pendant blanks were from Badger House, where there was no marked preference in any period. One black-on-red sherd pendant blank and one of Chapin Gray, both with ground edges, came from House 4. This lack in the earlier components may be an accident of discovery. They are reported plentifully from other sites of the same periods.

Sherd Disks

Fifty-five sherd disks of unknown use were found well scattered throughout the three sites. All were shaped by chipping the edges, and 10 were also lightly ground. Of the six red ware and four black-on-white sherds, some may have been pendant blanks. Some other function, however, is indicated here. Although no corrugated sherds and only four of plain gray were represented in the collection of pendants and pendant blanks, most of the disks are utility ware sherds. Thirty-three are plain and four corrugated. The disks are generally larger than the pendants, ranging from 3.2 to 7.4 cm. in diameter, with more than half of them varying between 4.0 and 5.5 cm.

Examples of disks are shown in figure 173: a and c are Chapin Gray, d is red, and e and f are probably Piedra Black-on-white. The plain sherd c, is from the base of a vessel molded in a basket, the coils of which are barely discernible in the illustration.

Other Worked Sherds

Sherds with one or more ground edges were numerous in all levels of the Badger House trash, and were present but less numerous in the Pueblo I structures, but were not found in the Basket-maker pithouses. There are 130 cataloged specimens, mostly black-on-white. They can be divided into four categories: (1) broken jar or bowl rims and dipper handles ground down for continued use (fig. 174b, a bowl rim); (2) pottery scrapers used to



Figure 172. Sherd pendants and probable pendant blanks.

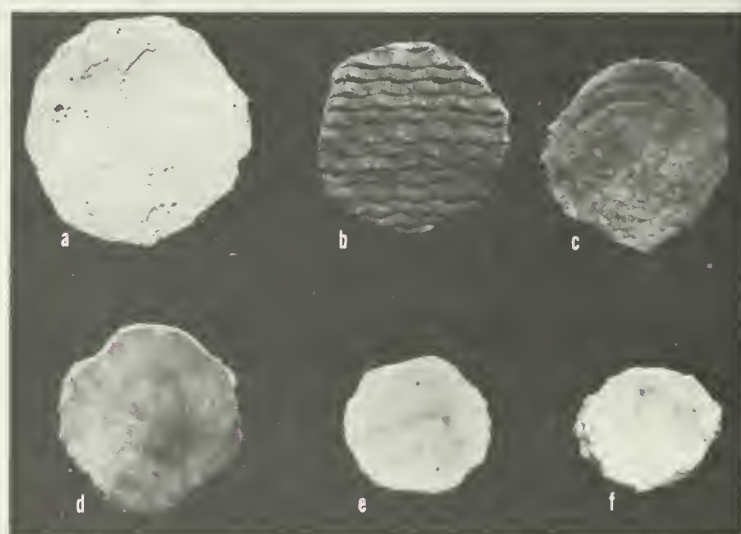


Figure 173. Sherd disks.

smooth the clay before the pot was fired (fig. 174d-f); (3) possible pendant blanks (fig. 174g); and (4) carefully ground sherd scoops and dishes (fig. 174a and c). The last were particularly common at Site 1676. One, from Protokiva D, is a Piedra Black-on-white sherd found on a cache of potter's clay in a banded neck jar, along with a small polishing stone. A plain jar sherd from the fill of Protokiva E, with red pigment in the bottom, was evidently used as a palette.

Beads

Two fired clay beads were found in Badger House trash mound. One, a whitish, pear-shaped bead, from combined Strata D and D+, is perforated on the side (fig. 175g). The other, from Stratum A, is a brownish, flattened sphere, with a perforation through the narrow dimension (fig. 175h).



Figure 174. *Worked sherds.*

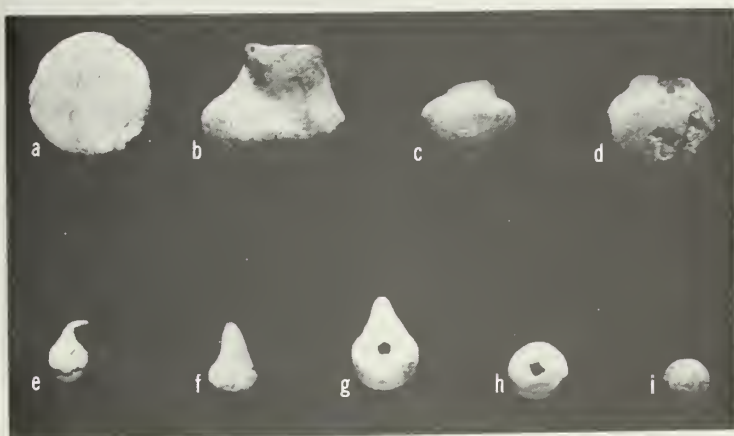


Figure 175. *Beads, pottery replicas, and other clay objects.*

Unfired Clay

Several bits of molded clay were found at both Badger House and Site 1676. They were probably pinched-off remnants of the coiling process.

Three small balls of clay were 1.2, 1.3, and 1.8 cm. in diameter and came from the deep trash mound and from the floor of Room 1, House 3. One is shown in figure 175i.

Three disks of clay from Badger House, from 2.2 to 3.1 cm. wide, may have been bottle-stoppers or lids for narrow-necked canteens. The largest bears the impression of the maker's palm (figs. 175a and 176).



Figure 176. *Unfired clay disk.*

Three miniature unfired pots are shown in figure 175: b is a lopsided jar, 3.5 cm. high and hollow inside, resembling the familiar duck effigy; c and d are replicas of a jar and a canteen, 2.3 and 2.8 cm. high, from Stratum D+. The mouths were simulated by puncturing with a small stick or grass stem. Two solid, unfired replicas of gourd-shaped pitchers, 1.8 and 2.1 cm. high, from the general fill, may be seen in figure 175e and f. A seed jar, 4.0 cm. in diameter, was found on the floor of Pithouse G at Site 1676.

From the three pithouses and the fill of the great kiva came 15 sherds of crude, unfired clay dishes or shallow bowls, apparently modeled rather than coiled. The unscraped, uneven walls vary from 0.7 to 1.2 cm. in thickness. A piece of a dish, possibly shaped by pressing clay into an empty gourd or squash rind, was found on the floor of Pithouse A. Five sherds of a bowl formed in a coiled basket were found in the burned adobe of the fallen roof in the same pithouse. The negative print in the moist clay is that of a finely sewn basket with coils only 0.3 cm. wide. A similar sherd with a lug handle, from the antechamber of Pithouse G, was made in a coarser, shallow tray with 1.1 cm. coils and 0.4 cm. stitches (fig. 177). The fragment of a bowl with fiber temper, made by pressing clay into the palm, was found on the floor of Pithouse B.

Similar sherds of unfired vessels have been reported from several locations in the Four Corners country, and it has been suggested, principally by Morris (1927), that they represented the earliest beginnings of fired pottery in this area. The theory is no longer held. The importation of the trait from Mexico seems to be certain, and locally we find unfired dishes long after comparatively sophisticated fired pottery was commonly made and used. The unfired "pottery" could be thrown together quickly, and, after air-drying, could be quite serviceable as containers for dry pinyon nuts, grass seeds, herbs, or meal. The basketry impressions suggest that clay may have been used to close off holes in a worn basket—a quicker patch than one of hide.



Figure 177. Unfired clay bowl made in a basket tray.

STONE

There are several methods of categorizing archeological stone material. Most common is that of a separation based on the technique used in making a tool (chipping, pecking, or grinding), or a functional listing (piercing, cutting, grinding, or decorative). Neither system is wholly satisfactory. A mano that has been roughed out by spalling, further refined by pecking, and then modified through use by grinding is difficult to fit into the former classification. Function is not always known for every tool, and others obviously had more than one use—the poll of a cutting ax may be used for pounding. The following breakdown uses a combination of both systems.

Small Tools, Chipped or Flaked

Used flakes and cores

Compared with many other Indian groups in North America, the Anasazi did not leave behind a particularly impressive assemblage of stone tools. Stone artifacts from Badger House seldom show much careful shaping. This is not to say that their makers were not efficient whittlers, but that loving craftsmanship was practiced more, perhaps, on the baskets than on the stone knife that cut the yucca leaves and stripped the bark from the willows that went into the baskets. Many stone tools were used in building a house, from mauls for quarrying rock and hammerstones for shaping it to axes for cutting vigas and knives for shaving lintel sticks. The unesthetic cobble ax was probably as efficient for cutting as the carefully ground specimens found on the Salt River, and its owner's pride had a more enduring monument in the house than in the expendable tools with which he made it.

This attitude is exemplified by the fact that of a total of 471 stone tools that had a cutting, scraping, or drilling function, over half of them (267) were no more than conchoidal spalls or flakes, or the cores from which they were struck, whose more acute edges

showed the wear of use. The evidence of use appears as nicking or minute chipping along one or both surfaces of an edge, and sometimes as dulling by edge-abrasion (Wheeler, 1965). This comparison of numbers probably does not begin to reflect a true proportion, which would be heavily in favor of the use of flakes over that of manufactured tools. The excavator in the field is not likely to save every stone flake his shovel uncovers, and the numbers of such specimens in the backdirt must far exceed the drills and projectile points he picks up. Further, 8,582 unmodified flakes were brought to the laboratory and many of these must have been picked up once to use for a small skinning, shaving, or scraping job too light to have left perceptible scars on the edge. The carefully chipped stone knife will stand up under long use better than the spall, but the latter, when first struck off and for the first few strokes, is a much sharper instrument. There was always a supply of rejects and detritus from the rough shaping of larger tools. Hunters or traders operating far from a source of the right kind of stone would want a chipped blade that could withstand some repeated use. But people whose work was largely carried on in the dooryard or in nearby fields would probably be better equipped using a fresh chip. It could well be that some cobbles were brought in for the sole purpose of producing unshaped flakes as the need arose.

Used flakes were small, ranging from 0.7 to 87 gm., and averaging 20 gm. The material most commonly used was claystone, with chert a close second. Also used, but far less commonly, were basalt, chalcedony (including pertified wood), siltstone, and quartzite. Shale, jasper, and sandstone were represented by only one or two specimens each. No change in preference of material was noted (D. Osborne, 1965).

Used flakes were much more numerous in relation to potsherds in the Pueblo I locations than they were at Badger House, and they were somewhat more numerous in the lower strata of the Badger House trash than in the upper. We must be cautious in imputing a greater use of such tools in the earlier periods, however, because most excavation at Site 1676 was in the fill of burned houses and most specimens from Badger House were obtained from refuse, where one would expect to find greater amounts of broken pottery.

Projectile points

Fifty-seven whole or fragmentary projectile points were found at the combined sites. In view of the extent of the excavation, this small number may be taken to reflect an economy in which hunting played a small part; on the other hand, untipped, hardwood fore-shafts may have been preferred over arrows bearing stone points. These open sites yielded only non-perishable items, and thus give a lopsided picture of the material culture.

The style range of Anasazi arrow points is generalized in figure 178. Style A is deeply corner notched with a straight stem, Style B is corner notched with an expanded base, and Style C is notched at the sides and has a short stem. They seem to have developed in that

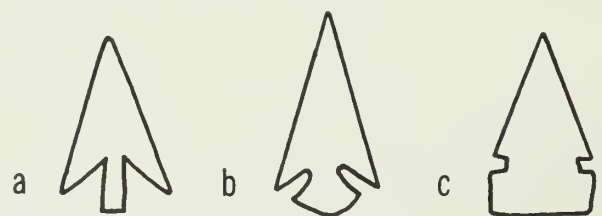


Figure 178. Styles of Anasazi arrow points.

order, although A and B are possible variants of one style.

Morris (1939, pl. 126) found Style A in Basketmaker III and Pueblo I contexts and Style C in Pueblo III. He found no points with good Pueblo II associations. Roberts (1930) found A and B in Pueblo I sites on the Piedra, and at Kiatuthlana he found the same two styles in his Pueblo I associations and C in the Pueblo III ruin (Roberts, 1931, p. 159). O'Bryan (1950) collected Style A arrow points from a Pueblo I village and an early Pueblo II ruin at Site 102 at Mesa Verde, and Style C from the Pueblo III Site 34. The change from corner to side notches apparently occurred during Pueblo II times. A side-notched point, Style C, was found on the banquette of a Pueblo II kiva at Site 16, also at Mesa Verde, which the excavators by deduction dated at A.D. 975 to 1000 (Lancaster and Pinkley, 1954, pl. 39). In Chaco Canyon, B and C were both found in the Pueblo I-III Tseh So (Brand, Hawley, Hibben et al., 1937, p. 91). Suggestive of a transition were the 28 arrow points accompanying Burial 10 in the "Old Bonitian," or early Pueblo II, section of Pueblo Bonito (Judd, 1954, pl. 74). Fifteen of the points were Style B and 13 were side notched and short stemmed, but with rounded bases—a shape intermediate between B and C. Pueblo III ruins yield side-notched points almost exclusively.

The material from Sites 1644, 1676, and Badger House corroborates previous information. Two of the 57 points are probably too gross for use on arrows and will be discussed later. Of the 55 smaller points, 40 are complete enough to show the type of notching. All but 10 of these are slim, triangular points notched at the corners. Stems are narrow and have a straight or expanded and often rounded base (fig. 179a-l). Some of the exceptions from the Piedra Phase locations are shown in the third row from the top in the same figure. A chert point from House 2 (fig. 179m) is notched at the corners but is excessively broad and squat, and it may have been a knife blade rather than a projectile point. Three unnotched points (fig. 179n-p) are possibly unfinished. Only three side-notched arrow points were found, all at Badger House. The only complete specimen (fig. 179s) was unfortunately from the general fill of the trash mound. A similar but crudely chipped point of granular quartzite came from the floor of the Mancos Phase Kiva B. The squat obsidian point shown in figure 179c is reminiscent of several specimens from Pecos Pueblo illustrated by Kidder (1932, fig. 7), who remarked that arrow points of this shape at Pecos were nearly always of obsidian. The shape and the material are rare in this area, and it is interesting to find them combined. Similar points also occurred at late Pueblo II-early Pueblo III Big Juniper House (Swannack, 1969).

Three points from Badger House are probably too large and coarse to have been used on arrows. One (fig. 179t) is a thick, serrated blade of gray claystone with a wide, straight stem. The tip is missing, but what remains weighs 5 gm., probably too heavy for an arrow and, with the toothed edge, of questionable utility as a knife. The size and shape suggest a dart point. It was found in the upper fill of Kiva C, a trash area during the Mancos and Mesa Verde Phases, but perhaps it was a relic of much earlier times. In the same category is the still thicker, stubby quartzite point shown in figure 179u. This complete specimen with a broad, straight stem, weighing 7.4 gm., came from Stratum E. The basically notched white chalcedony point from House 4 (fig. 179q) resembles Pinto Basin or San José dart points of the Archaic Period.

Complete specimens, excluding the two possible dart points, ranged from 1.8 to 5.1 cm. long and averaged about 3.0 cm. Weights ranged from 0.8 to 3.7 gm., and averaged 1.8 gm.

The most commonly used material was chalcedony, followed closely by quartzite. A gray or brown chert was the next most popular stone, and this was nearly equalled by siltstone and obsidian.

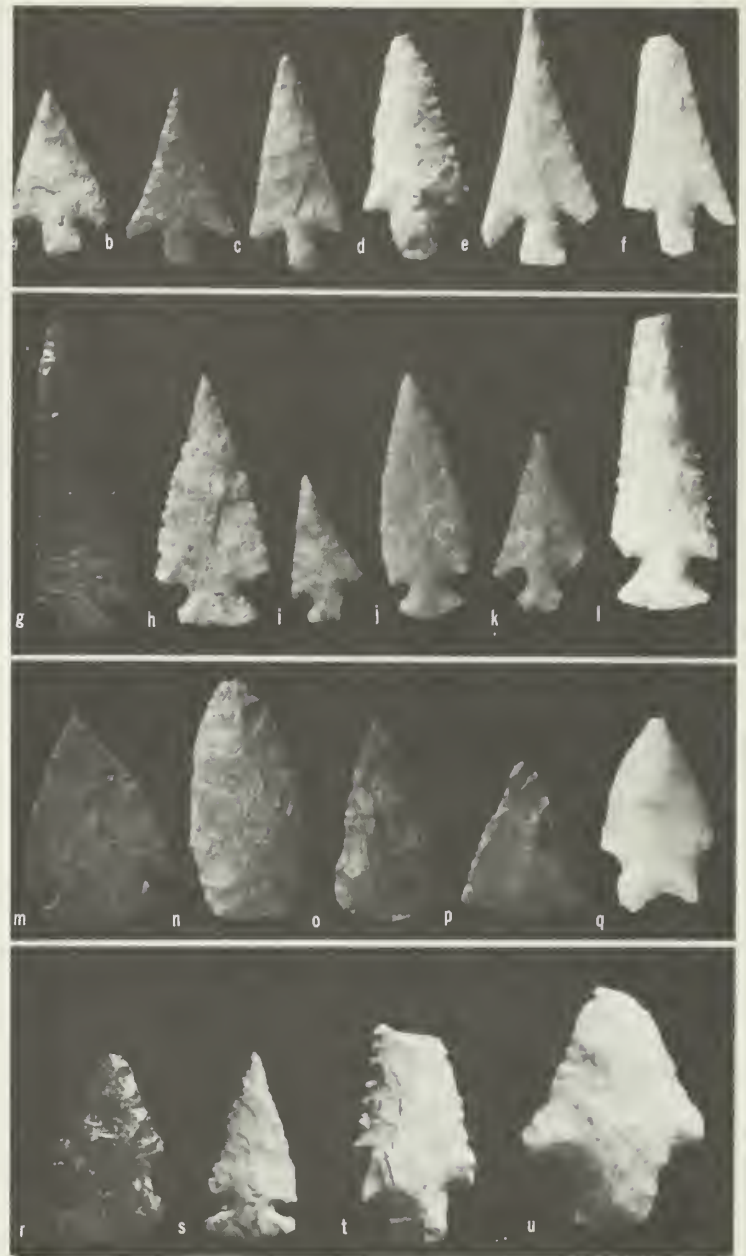
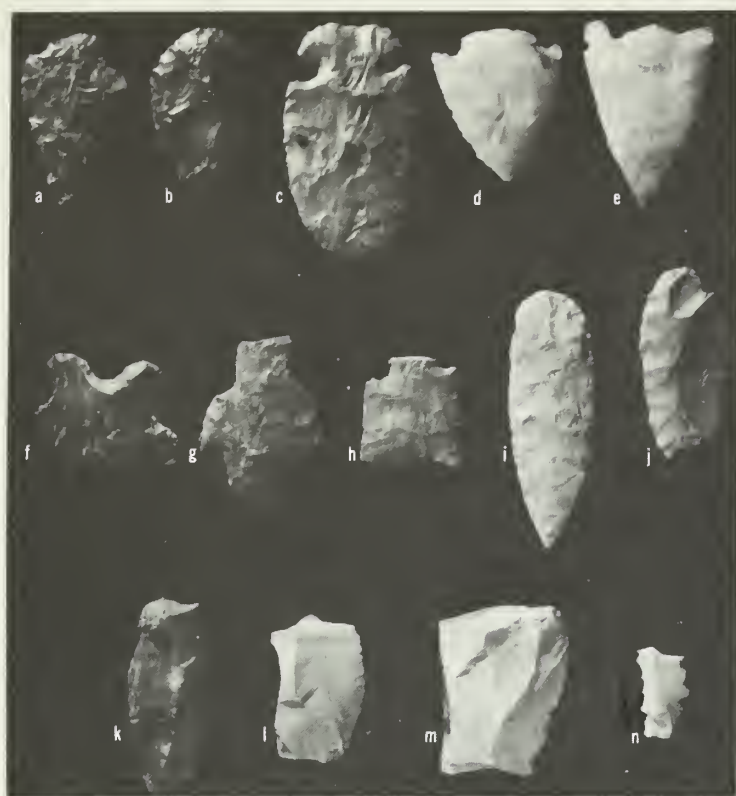
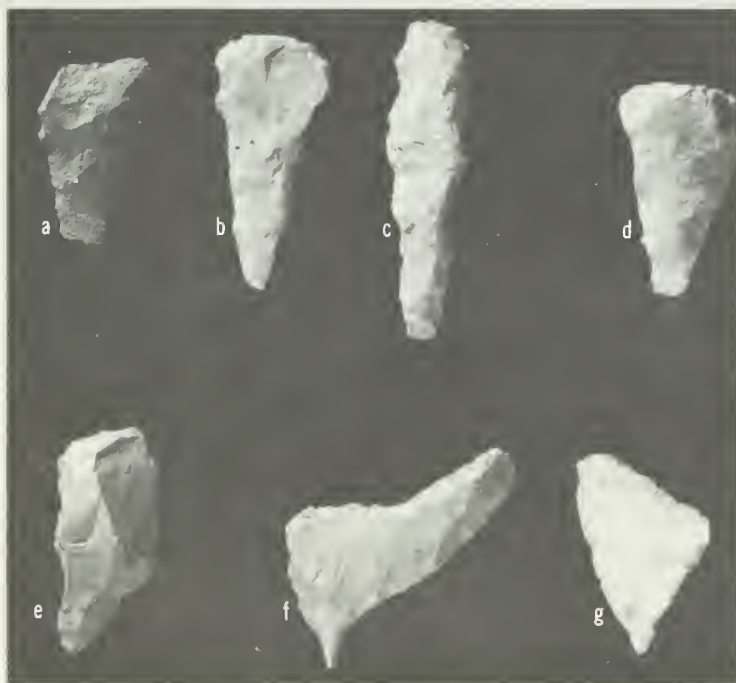


Figure 179. *Projectile points.*

There was one point of claystone and one of shale. Five points from Site 1676 were made of banded siltstone, the material which in later periods was most frequently used for *tcamahias*. Its source is apparently between the north end of the Carrizo Mountains and the San Juan River (Morris, 1939, p. 139). This colorful stone, known variously as hornstone, siliceous slate, variegated shale, and banded siltstone, has a conchoidal fracture and takes a good polish, but is rather brittle. Though it was one of the more common stones in the form of spalls, rejects, and used flakes, these five arrowheads and a few crude scrapers are the only artifacts of the material found at the combined sites.

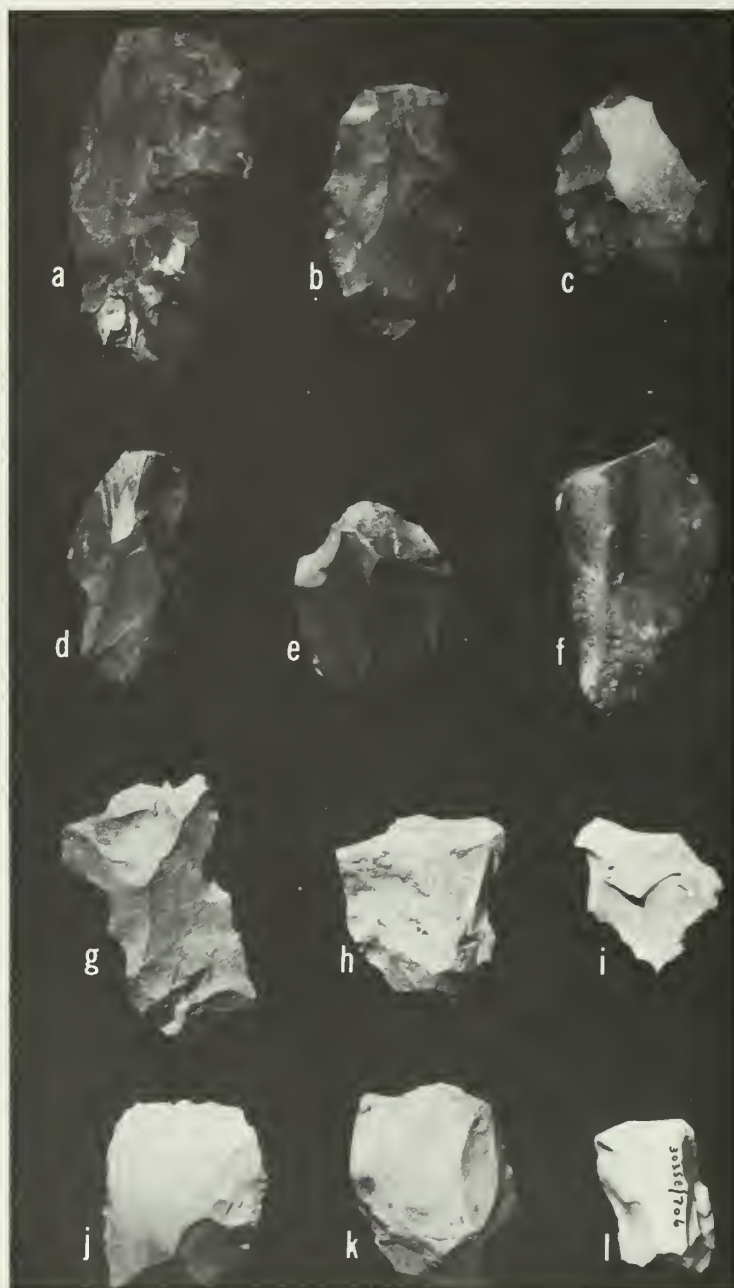
Chert, quartzite, claystone, and shale are all present in Pleistocene and Quarternary gravels on the mesa or at its foot in the Mancos Valley, but a decided preference is shown for imported stone. Chalcedony and siltstone are not, to our knowledge, found closer than 25 to 35 air miles from Wetherill Mesa and obsidian probably much farther. Two-thirds of the projectile points from the

Figure 180. *Chipped stone tools.*Figure 181. *Stone drills.*

La Plata and Piedra Phase components were of exotic stone, but in Badger House the situation was reversed. By Pueblo II, the stone knappers seem to have been more content to use what was closer at hand.

Knives

Thirty-eight tools were classified as knives. They are almost

Figure 182. *Stone scrapers.*

equally divided between retouched flakes or spalls (fig. 180k-m) and the more finished leaf-shaped tools (fig. 180a-f, i, and j). There are 17 of the later, whole or fragmentary, of which eight were notched for hafting.

The random flakes, carefully chipped on one or more edges, were classified as "knives" if the chipping was bifacial. If the chipping was all in one direction, producing a beveled edge, it was called a "scraper." This is a convenient separation, although an arbitrary one that might be difficult to support on functional grounds.

A sandstone spall, 29.6 cm. in length, from the Pueblo I room built over Pithouse B, though chipped bifacially, was possibly used as a chopper rather than a knife.

No changes in preference for spalls versus completely flaked blades are evident through time, nor are changes in preferences in material, but from early to late there was a continuous choice of imported stone. Only 13 of 38 specimens were chert, claystone, quartzite, basalt, or sandstone from local sources, whereas 25 were



Figure 183. *Scraper-plane.*

of stone not found in the vicinity. Of these, 17 were chalcedony, seven were banded siltstone, and one was obsidian.

Two eccentric artifacts are shown in figure 180g and h. The former is a blade of dark red chalcedony, nicely flaked and with secondary chipping on all edges. It is possible that the upper end was meant as a stem for hafting and that the lower end had been broken and rechipped, but if so, the shape of the stem is cruder than one would expect in an artifact so beautifully chipped. The concave edges would make efficient shaft smoothers or cutters. The upper end of h is a clean break and part of the artifact is missing. Side-notched projectile points with extremely long, blunt bases are occasionally found (see Morris, 1939, pl. 129). In this case the notches would seem to be headed in the wrong direction. The slightly concave base is secondarily chipped to a sharp cutting edge. It may have been used as a chisel, with the hafted proximal end missing.

Saws

Only two artifacts could be called "saws." One is a bladelike flake of claystone, trapezoidal in cross section, with teeth chipped into one long edge, found in the fill of House 1 at Site 1676. A smaller flake of chert from Stratum A at Badger House was deeply notched to a rip-saw-like edge (fig. 180n). Both were small tools to be held between thumb and forefinger.

Drills

Twelve drills were found, two at Site 1676 and the rest at Badger House. Seven are well-made blades chipped bilaterally to a long tapered point (fig. 181a-d) and five are flakes or spalls re-touched to a sharp perforating point at one corner (fig. 181e-g). Only one drill, from Stratum D, is notched for hafting. Probably the unhafted drills were used between thumb and forefinger or in the fist. Two drills were thin flakes bifacially chipped on the longer edges, and could have had a secondary function as a knife or reamer. One of these is shown in figure 181g. A handy chert drill (fig. 181f) from the upper fill of the great kiva, has a broader, double-edged projection which would have served as a knife and chisel.

A drill of olive-drab jasper from Stratum A is an example of

a tool re-used for another purpose. When the tip was broken and it could no longer be used for drilling, it was apparently thrown away, to be salvaged later as a grinding tool—a turkey gizzard stone.

Drills occurred in all phases and levels from early Pueblo I through later Pueblo III, with no evidence of change in styles or materials. The materials used were quartzite (4), chalcedony (3), chert (2), and banded siltstone and jasper (1 each).

Scrapers

Those tools expressly chipped to one or more beveled edges were classified as scrapers. The criterion excludes flakes in which a similar effect was produced by use.

The 152 scrapers from the excavations were distributed through the deposits with no apparent changes in style or material. An attempt in the laboratory to devise a typological breakdown of the specimens did not produce significant results.

Only two scrapers, both from Badger House, were carefully shaped to leaflike blades. One is a pressure-chipped blade of petrified wood from the general fill of the trash mound (fig. 182a). It may have been intended as a knife but, because the stone had a recalcitrant and chunky fracture, only one face was chipped. The other specimen (fig. 182b) from Stratum A, is of claystone, crudely flaked by percussion.

Twelve scrapers were cores or thick spalls with secondary chipping on the edges and with flat under surfaces. They resemble what have been called planes or scraper-planes. They have polished or worn areas on the flat striking platform, and it is probable that these tools were used in a planing action (fig. 183).

Most of the other scrapers were interior flakes, unmodified except for some secondary chipping on one or more edges, but there were a few cores and discoidal spalls from the cortex of a cobble (fig. 182c). These flaked scrapers could not be separated into "side" or "end" scrapers since most were sharpened on two or more edges. Twenty-nine, however, were snub-nosed scrapers chipped to a steep bevel at the thick end of a flake, though many of these were also worked on one or both of the longer edges. The chert scraper shown in figure 182i has a snubbed edge at the upper left and is chipped on both edges at the triangular lower end, terminating in a short graver point.

Twelve specimens had a chipped concavity in one edge (fig. 182g), which would have served admirably for smoothing shafts or peeling willows.

In contrast to the knives and projectile points, over half of which were made of the imported stone which lent itself to carefully controlled chipping, 83 percent of the scrapers were made of cherts, quartzites, and claystones available in nearby gravel deposits.

Striking Tools

Choppers

These are unhafted cutting tools designed to cut with blows rather than by steady pressure. Of the 89 choppers in the collection, the most useful appearing are 17 large cobbles or cores, weighing from 241 to 1,845 gm., with bifacially percussion-flaked edges. A battering of the cutting edge is evidence of their use. The examples shown in figure 184a and b are of quartzite. The second is a discoidal turtleback spalled on both faces and worn on three cutting sides.

A larger group of 54 choppers were smaller cores or flakes, ranging in weight from 22 to 210 gm. Some were unworked spalls, modified only by the battered edge, but the majority had been flaked along one or more edges (fig. 184c-f). Many are distinguished from scrapers only by the typically blunted edge and may have served that function originally.

Eleven choppers were definitely fragments of other tools. In figure 184, g is a sandstone mano fragment with the proximal edge chipped; h is a double-notched ax split longitudinally. Three edges were spalled and lightly battered. A split basalt hammerstone with

a sharp cutting edge is shown at c. Other artifacts used as choppers were a piece of a metate, three manos, and three hammerstones.

The controlled conchoidal fracture desirable in the stone used for the pressure-chipped tools described above was not necessary in making a percussion-flaked chopper, and the change in requirements is reflected in the choice of materials used. In all levels, the most frequently used was claystone with 36 specimens, closely followed by 26 of quartzite. Basalt, sandstone, granite, porphyry, and chert were represented by two to nine examples each. Only two were made of imported stone—one of banded siltstone and one of petrified wood.

Axes and hammers, notched and grooved

Just as a badly nicked farm ax in our culture is commonly relegated to service as a pounder, maul or wedge, so a blunted stone ax of the Anasazi commonly served as a hammer. Since it is frequently impossible to determine the original shape and use of a worn implement, all hafted tools will be discussed under a single heading.

Fifty-eight complete and 78 fragmentary specimens were found at the three sites. At least 46 of the 136 tools are axes and 41 are hammers. Of the 46 axes, 8 had been re-used as hammers. Other hammers may have been axes initially, but they were so battered as to eliminate all traces of a ground bit. Many are fragments showing a notch or section of a groove but no part of a bit or face, poll, or peen. Broken axes and hammers, no longer usable as hafted implements, often served as small hand tools. An ax converted to a chopper was mentioned previously. A piece of a full-grooved hammer was ground on one face and apparently saw use as a rubbing stone, and 34 fragments showed evidence of re-use as pecking stones.

Much of the success in making an ax or hammer depended upon the selection of the stone. The initial shape of the stone and the manner of hafting were, in part, determined by the type of tool to be made. A flat stone was easier to grind down to a tapered bit than a thicker one and did not require grooving of the flat surfaces to hold the wrapped haft (fig. 185a-h). However, to get the desirable broad striking face of a hammer, a thicker stone was necessary, and the nearer the stone approached the circular in cross section, the more necessary it became to have an encircling groove that could hold the wrapped handle in place (fig. 185i-l). These requirements are reflected in the axes and hammers in this collection. There were 20 axes from Badger House complete enough to provide measurements of width and thickness and evidence of preparations for hafting. Only four are grooved and they average 3.4 cm. thick and 5 cm. wide—a thickness about three-fifths of the width. The 16 notched axes average 3.3 cm. thick and 7.7 cm. wide, or thickness of less than one-half the width. Twelve hammers are complete enough for comparison. Though notching was the favored technique, as it was with axes, the incidence of grooved specimens is greater—five out of 12 specimens. Expectably, the thickness of hammers averages more than that of axes, as does the proportion of thickness to width. The mean thickness of notched hammers is 48 percent of the width, and that of the grooved examples 67 percent of the width.

With the exception of three mauls discussed below, hafted tools from all the excavations ranged in weight from 228 to 1,371 gm., and averaged about 500 gm. Hammers from the Piedra Phase locations averaged 50 percent heavier than axes from those sites, whereas hammers from Badger House ran some 60 gm. lighter than axes found with them. The difference is probably explained, not by changes in style, but by the fact that many of the hammers from Badger House were worn-down discards from the trash mound.

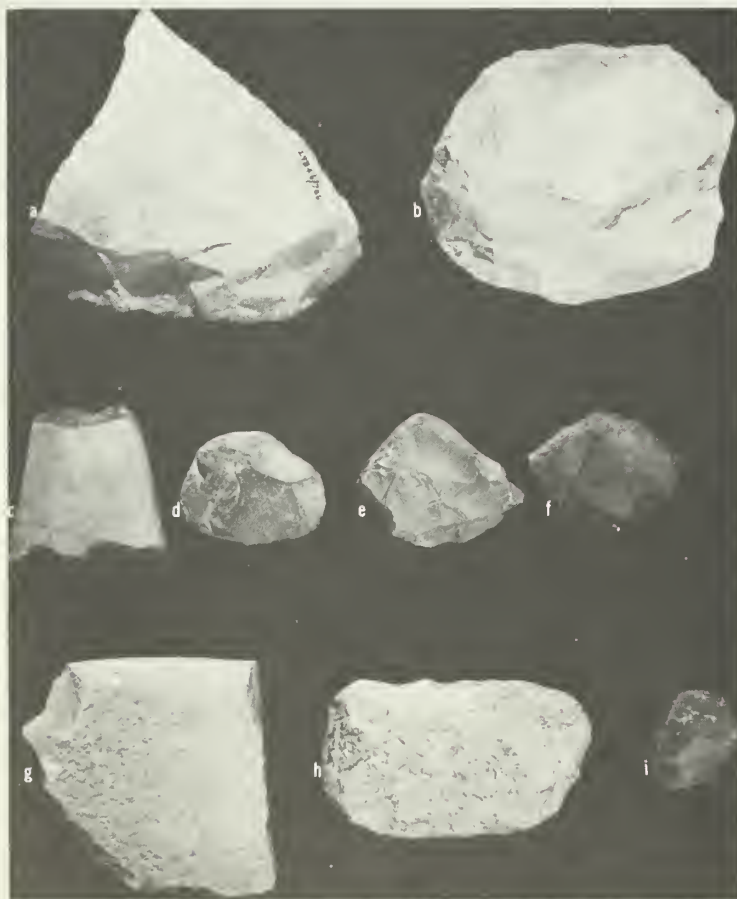


Figure 184. Choppers.



Figure 185. Axes, a-f, hammers, g-l, and other hafted implements, m-o.

The materials used were the tough alluvial cobbles, with three-fourths made of granite or quartzite. Much less common were tools made of claystone, diorite, or basalt, and there were only two specimens each of schist and sandstone.

Notched tools were generally equipped with a pair of notches, one on each side, placed well toward the poll or peen on a line at right angles to the main axis of the tool. There were a few exceptions. Two axes from Pueblo I rooms were double-bitted, with the notches close to the center of balance (fig. 185a). A very crude hammer had only one notch and a natural indentation in the opposite side. One ax from Badger House has two notches in one edge and one in the other. The paired notches are connected by a very shallow pecked groove in the convex face. Three axes had two pairs of notches. One of these is shown in figure 185d. This ax and the ax at c in the same figure also has an extra notch across the poll, evidently for the purpose of holding a binding or tightening cord. Five other axes and hammers, from both Site 1676 and Badger House, were similarly notched, at the poll or peen.

Three implements notched for hafting are possibly neither axes nor hammers. In figure 185m is a tool from Badger House with a curved, pointed blade that may have been used as a pick or hoe. At n is a smaller artifact from the Mancos Phase trash in Kiva C fill with a curved, polished bit and the shape and balance of an adz. The implement at o is single-notched and slightly battered at each end, but is made of the relatively soft Cliff House sandstone, and it may have been symbolic rather than utilitarian. It was found in the Piedra Phase House 2 at Site 1676.

Mauls

Three large, full-grooved mauls, two of quartzite and one of granite, averaged 1,565 gm. in weight (fig. 186). All were from Site 1676 and were the only fully grooved tools found in a context earlier than the Mancos Phase.

The collection from the Badger House community of sites does not upset what has been demonstrated by other excavations, and can be briefly summarized. No hafted pounding or chopping tools were found in the La Plata Phase pithouses. Except for the mauls

and one hammer partially grooved on one face, all such implements in the Piedra Phase houses were notched, and hammers outnumbered axes. In the Ackmen Phase levels of the trash deposits, only notched tools were found, and axes and hammers occurred about equally. Full-grooved axes and hammers first appeared in Mancos Phase contexts, and in this and the later Mesa Verde Phase, axes were more numerous than hammers.

Hammerstones

The 1,030 hammerstones recovered from the excavations make this the commonest class of stone tools at the three sites (fig. 187). They are alluvial cobbles used, among other things, for dressing building stone, shaping other implements, striking flakes from cores, and softening jerky. Hammerstones were probably never deliberately made but gained their subspherical shape through use. A smooth cobble held in the fist for hammering would break. The sharp or angular edge of the break was then used as the striking surface of the tool—the smaller area of impact increasing the efficiency of the blow. The acute edge of the striking face was reduced even more rapidly and then rotated to present another edge or corner. The original stone became smaller and rounder with use and spalling until it was finally discarded.



Figure 186. Mauls.



Figure 187. *Hammerstones.*

Sixty-seven waterworn pebbles or cobbles, altered only by a little battering at one end, were not tallied in the count of hammerstones but they may have been in the first stage of becoming hammerstones. Many hammerstones were undoubtedly cores left over from the production of flakes, and others were salvaged fragments of broken tools of another type. The re-used pieces of axes and hammers were mentioned above in the discussion of those tools. Several rubbing stones and mano fragments used as hammerstones were noted. Probably many more were used until all evidences of their earlier forms were obliterated.

The materials probably reflect the same proportions in which they occur in the local gravel beds; roughly 75 percent of the hammerstones are of claystone or quartzite.

All are small enough to have been held in the fist, and some are so small that they would have been held between thumb and forefinger. They range in weight from 37 to 1,525 gm., and average 182 gm.

The distribution of hammerstones in the three sites and throughout the stratigraphy of the trash mound at Badger House shows no differences in numerical importance, in size, or in choice of materials

in any phase, indicating that the tool was equally useful in all periods of occupation.

Grinding and Polishing Stones

Metates

There are 220 metates in the collection, of which 48 are complete or nearly complete. They can be separated into two broad categories—*trough metates* and *flat slab metates*. All are of sandstone except for two of quartzite, one of each type.

The trough metates can be further divided into three styles: (1) closed at one end by a wide border or shelf; (2) closed at one end by a narrow border; and (3) open at both ends. All were made from a flat slab of stone modified in varying degrees by spalling off uneven surfaces or projections at the sides and ends. Some were completely dressed by pecking, or by grinding down all visible surfaces; others were unmodified except by the creation of the trough, which was not cut into the stone but was produced by the alternate roughening or "sharpening" by a hammerstone and abrasion by a mano. Examples were found of all stages of use, from one in which the grinding surface, not over 0.1 cm. deep, is merely indicated by an area sharpened by a hammerstone, to one with a trough worn to a depth of 11.5 cm. The depth of the trough was limited only by the thickness of the slab. Several fragments had been worn completely through. The sides of all troughs slope inward toward the bottom, and the greater the depth of the trough the greater the difference in widths at the top and bottom. The sides of at least two of the trough metates are terraced as the result of using manos of different lengths. The bottoms of the troughs are concave both longitudinally and from side to side.

The first of the three styles of trough metates, with the broad shelf at the near end, was the most numerous (fig. 188). The 40 complete metates from the La Plata and Piedra Phase structures and all but two of the fragmentary ones with the proximal end present were of this style. Sixteen of 25 trough metates from Badger House that could be separated into subtypes were the same. The proximal border, ranging from about 10.0 to 18.0 cm. wide, served to keep the grain within the trough on the return stroke and provided a convenient rest for the mano. About one in 10 of the metates was modified by spalling, pecking, or grinding to make a shallow depression in the shelf in the style of the typical Utah-type metate (fig. 188b). In three specimens, a natural depression in the sandstone served the same purpose.

Six metates were closed at the near end by a narrow border approximately of the same width as the lateral borders, with the

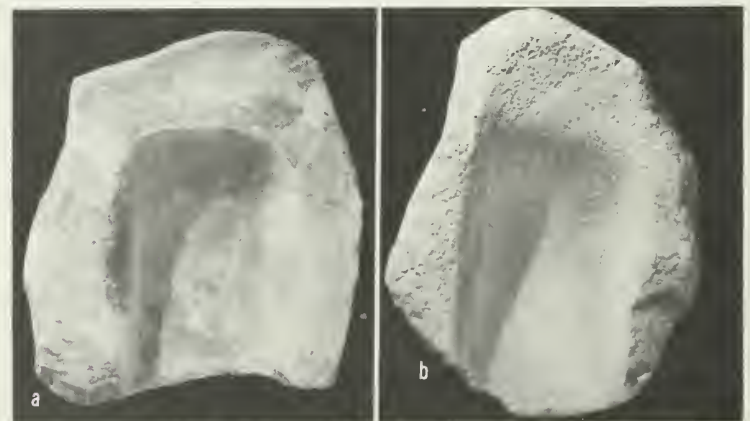


Figure 188. *Trough metates with shelf.*

trough running almost the full length of the stone slab. Two of these were from mid-to-late Pueblo I sources at Site 1676, and the others were from trash or re-used building material at Badger House.

Both of the subtypes closed at the near end tend to be somewhat wedge-shaped in longitudinal section, and are thicker at the closed end. These metates were used on the floor with the end closest to the miller elevated, either by virtue of wedge shape or by placing them on a block of stone or on an unused mano. Four trough metates at Site 1676 were found in position for use. All were propped in some fashion. Three of them were raised at the closed end and shimmed on both sides of the far end with small pieces of sandstone to prevent the metate from rocking or sliding forward. Two were further braced by sealing to the floor with adobe. The four were placed at right angles to the walls, facing the center of the room, and at distances of 1.4 to 2.0 feet from the walls, which presumably provided a purchase for the miller's feet and an occasional rest for her back. Three of the four metates were placed to the left of a corner bin, which may have held the whole kernels for grinding.

Nine trough metates from Badger House, five of them complete, are open at both ends. These are narrower and have straighter sides than the closed metates and, because of the elimination of the shelf, they tend to be lighter in weight and to have nearly parallel top and bottom surfaces. Four of these were found in trash near the surface of the overburden of Features 9 and 11, under the rubble outside the walls of the tower. This was a late Pueblo II level, in which the dominant pottery types were Mancos Corrugated and Mancos Black-on-white. One complete specimen shown in figure 189 was in the fill of Room 1 in the late Pueblo III house. It was not

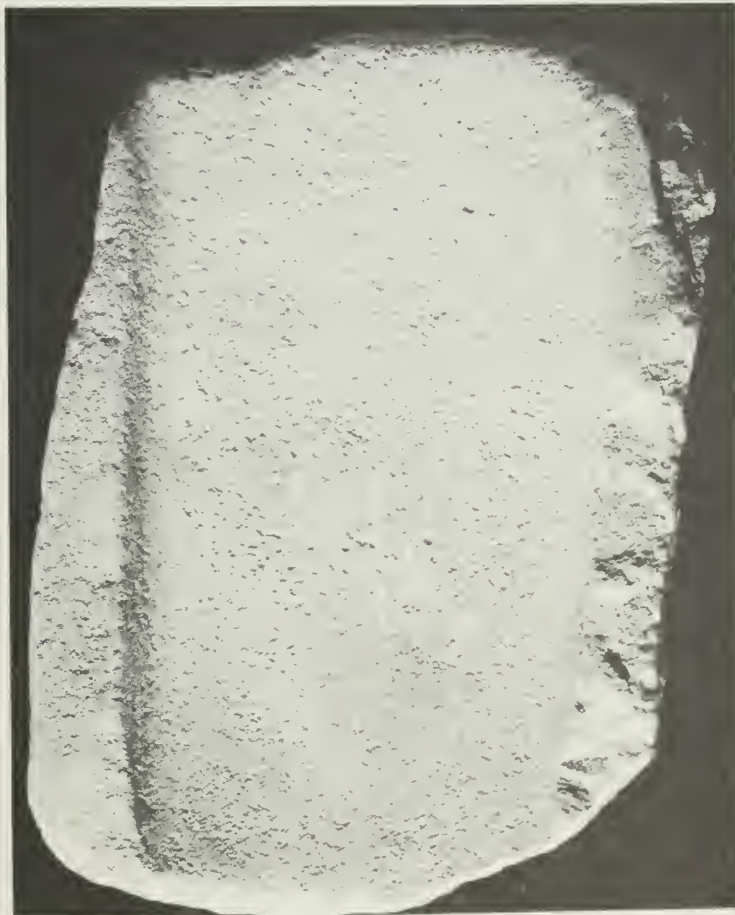


Figure 189. Trough metate open at both ends.

associated with the floor and probably had been used as a building stone. Another came from just below the surface of Area I, in front of the late Pueblo II Rooms 5 and 6. One, a fragment, was found in the Mancos Phase trash on the floor of Kiva C, and another was in the lower fill of Kiva B. This last, illustrated in figure 190, had been turned over and the bottom used as a flat slab metate. Thus all of them, and the only complete trough metates from Badger House, came from Mancos Phase deposits.

The open troughs were apparently used in bins and were a short-lived, transitional development. Though none were found in position for use, the remains of what was probably a dismantled meal grinding bin stand along the wall of Kiva B, suggesting that some milling may have been done in bins during the Mancos Phase at Badger House. The evidence is more definite at other sites.

At nearby Two Raven House, in a component dated in the early 1000's, a metate open at both ends was found set in adobe in a slab bin. Katharine Bartlett, in her study of the milling stones of the Flagstaff region, describes the change in Pueblo II, from trough metates resting on the floor to metates permanently set into bins, and she shows a trough metate with both ends open in a bin on the floor of a Pueblo II masonry-lined pithouse (Bartlett, 1933). The evidence indicates this was the latest of the three subtypes, and that it was adapted for use in bins in late Pueblo II times.

Four complete and nine fragmentary flat surface metates, designed for use in bins were found, all at Badger House (fig. 191). One was from the general fill of the trash mound and the rest were from post-Ackmen Phase sources. Six were in Rooms 1, 2, and 4 (in the later house), two from Kiva A, one from the Mancos Phase trash fill of Kiva C, one from the lower fill of Mancos Phase Kiva B, and two from the mixed Mancos-Mesa Verde trash overburden of Kiva C. Since none were found in pure Ackmen Phase contexts and only two were from Mancos Phase trash, and since Mesa Verde Phase Kiva A contained only flat slab metates, we can postulate that the use of such metates began in late Pueblo II and that conversion to this style was complete in late Pueblo III.

Unlike the troughs, slab metates are of a nearly uniform thickness from end to end and their grinding surfaces are not concave from side to side but flat or very slightly convex. Presumably they were used embedded in adobe, which wore away more quickly than the stone, permitting more stress on the edges of the metate.

There was a progressive reduction in the size of metates, as can be seen in the following tabulation.



Figure 190. Trough metate open at both ends, a, and reversed and re-used as a flat slab, b.

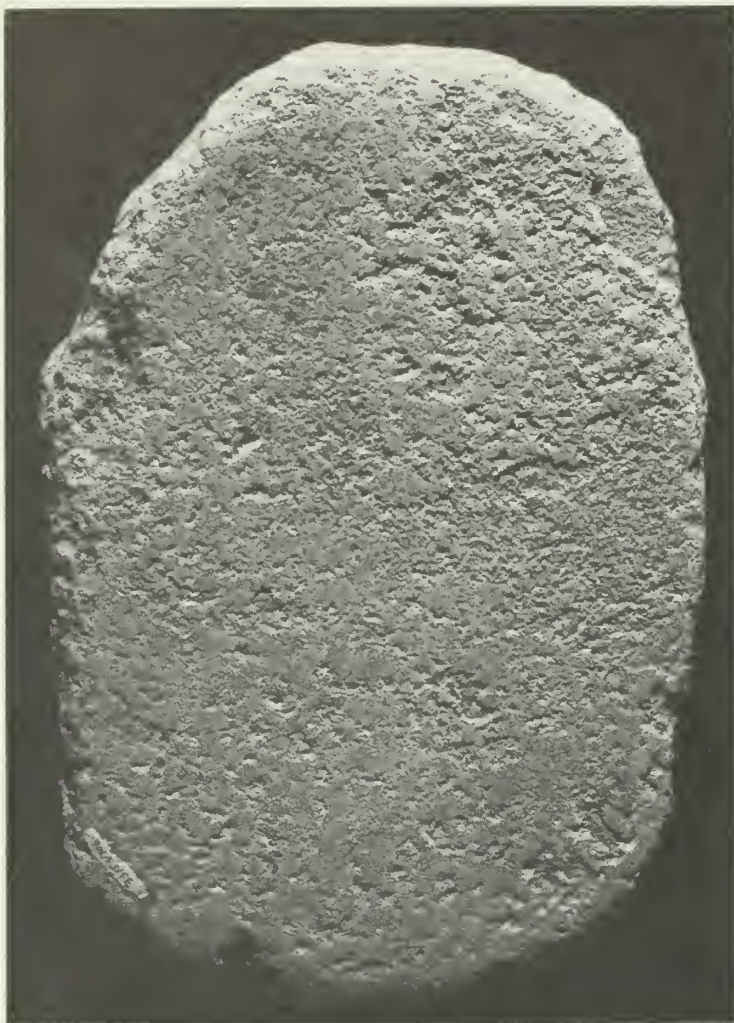


Figure 191. *Flat surface metate.*

Trough metates closed at one end by a wide shelf:

From 3.0 to 20.0 cm. thick; average 10.3 cm.

From 41.4 to 65.7 cm. long; average 53.2 cm.

From 31.3 to 55.0 cm. wide; average 41.2 cm.

Weight from 23 to 98 lbs.; average 52 lbs.

The metates closed at one end by a narrow border were too few for the measurements to be of value, but one would expect them to be shorter and lighter.

Trough metates open at both ends:

From 4.3 to 19.1 cm. thick; average 10.5 cm.

From 29.5 to 52.2 cm. long; average 44.6 cm.

From 19.1 to 32.0 cm. wide; average 26.3 cm.

Weight from 12 to 60 lbs.; average 37 lbs.

Slab metates were:

From 4.1 to 10.9 cm. thick; average 6.4 cm.

From 18.7 to 51.5 cm. long; average 32.3 cm.

From 15.9 to 28.8 cm. wide; average 22.7 cm.

Weight from 7 to 36 lbs.; average 19 lbs.

The largest specimens of slab metates in each dimension and in weight were re-used trough metates. Without them the figures for this type would be still lower.

Though there was a reduction in total length of metates from

the earliest to the latest types, the length of the actual grinding surface remained about the same and averaged about 38.0 cm.

There is nothing new in the temporal distribution of the various metate types found. The metate with the wide shelf seems to be the common Basketmaker III-Pueblo I style and is nearly confined to those early periods (Brew, 1946; Lancaster and Watson, 1954; Roberts, 1931). Reference to use of slab metates in late Pueblo III are so numerous that they do not need citation. The breakdown of Pueblo II into two phases in the area north of the San Juan, however, has not been done previously, and it was in Pueblo II that the transition occurred. Not all of the data from Badger House coincides precisely with that from other Pueblo II sites. In the "Old Bonitian" section of Pueblo Bonito, here interpreted as Pueblo II, all of the metates were troughs with one end closed by a narrow border (Judd, 1954, p. 135), and at Alkali Ridge, Brew (1946) found the same kind to be the only trough metate in Pueblo II sites. Though no Pueblo II metates were found *in situ* at Badger House, the much greater number of metates with shelves in Pueblo II levels would lead one to assume that this early form was still in style.

The metates with narrow proximal borders are so few as to seem to be ephemeral transition to the open trough. An explanation of the preponderance of the wide shelf style may be in the close proximity of the large Pueblo I ruin where old metates could be salvaged by people from Badger House.

Manos

Of the 563 manos recovered from the three sites, about half were complete. Distinctive features made it possible to determine, in the majority of cases, on what kind of metate a mano was used. The large number of manos found on floors in the Basketmaker and Pueblo I houses, where only troughed metates occurred, provided a point of reference and a corroboration of the determinations that had been made earlier at Badger House, where all types of metates and manos were found. Statistics from Badger House itself were a further confirmation. Thirteen percent of the metates from that site are flat slabs and 15 percent of the manos had been classified as having been used on slabs. While 3 percent of the metates are trough styles re-used as slabs, 2 percent of the manos also played a dual role.

The mano used in a trough metate is typically a subrectangular slab with rounded corners (fig. 192). The single grinding surface, sharpened by pecking, is convex from end to end, and the ends are smoothed, often to a high polish, and are usually canted or beveled as a result of rubbing against the sides of the trough. In grinding corn, a woman holds the mano with the fingers along the far edge and the thumbs on the near edge. The greater part of the weight

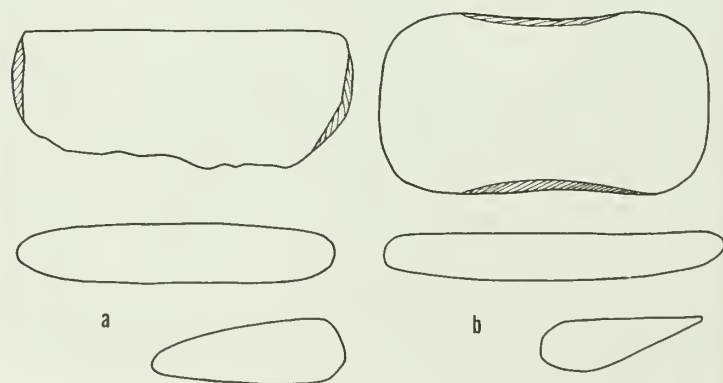


Figure 192. *Shapes of two manos used in trough metates.*

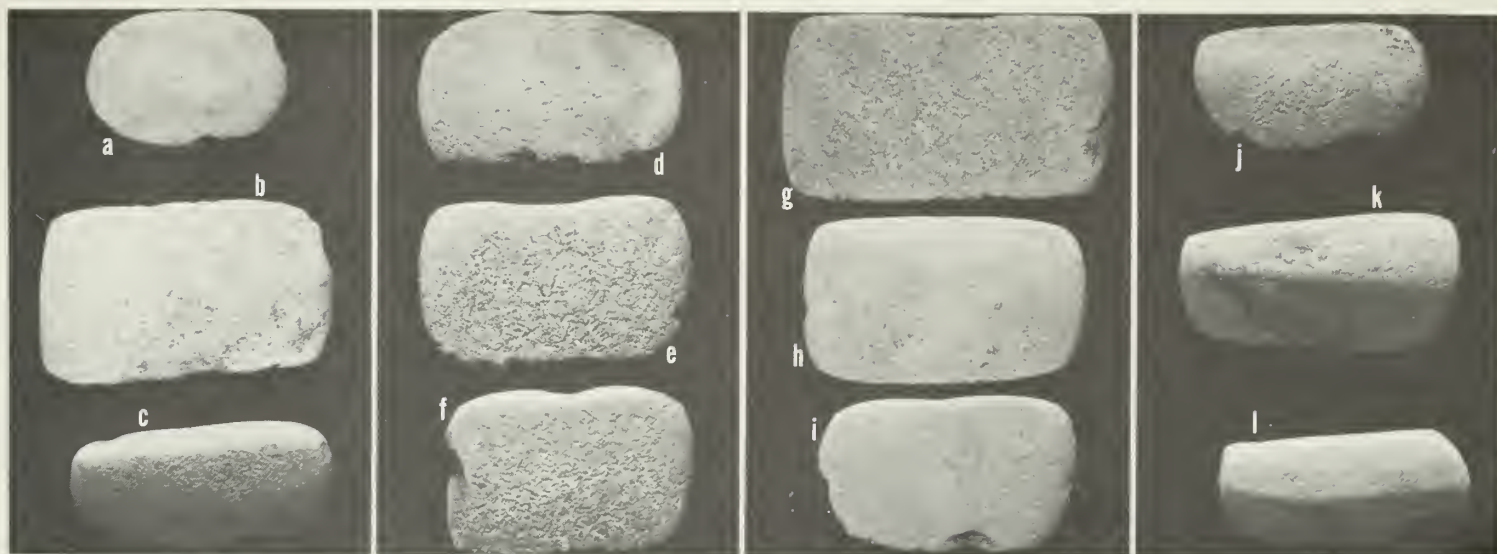


Figure 193. *Manos used in trough metates.*

is distributed through the heel of the hand with the consequence that, after some use, the mano attains a wedge-shaped cross section from greater wear on the trailing edge. Unless the mano has been resharpened, this wear is indicated by a smoother grinding surface at the near side. Figure 193 illustrates the range of shapes of trough manos. All of these have convex grinding faces and polished ends. Many of them are equipped with finger-grips in the shape of shallow depressions pecked into the edges (fig. 193d-f). Manos with finger-grips are closely divided between those with depressions on both edges and those with a depression on the leading edge only. A pecked depression on the trailing edge only is rare, though some may have been removed by the greater wear at this point. The occurrence of finger-grips on trough manos increased with time. They were seen on 10 percent of the manos from La Plata Phase sources, 25 percent on those from the Piedra Phase structures, and 35 percent on those from Badger House.

Although most manos used in trough metates are convex in long section with the ends steeply canted, this is not always the case. Three manos with flat or only very slightly convex grinding surface and polished but unbeveled ends are illustrated in figure 193g-i. The first example, 24.7 cm. long, with one end polished, may have been used either on an exceptionally wide trough metate or on a slab metate set in a stone bin. They were possibly used in shallow troughs, which are less concave than those that have deepened through long use.

Many trough-type manos have more than one grinding surface. In such cases, two grinding surfaces appear most commonly on one face of the stone. The three manos illustrated in figure 193j-l have three grinding surfaces; two on one face and the third on the reverse. In the first example, all the grinding surfaces are convex, from use in a trough metate. In the other two, the reverse face is flat or slightly concave (see also fig. 192b) with unpolished ends; they were probably used on a slab metate. In our study of the manos from Badger House, we theorized that the angled working planes on a single face may have resulted from the application of greater pressure on the trailing edge of the mano, and that a new mano started out with parallel sides, with the entire grinding face receiving some wear, but with continued use another plane was developed at the near edge at an angle to the first. It is not a completely satisfactory solution since it does not explain why adjacent planes do not appear on most manos nor why they are almost unknown in the early deposits but are found in increasing numbers on Pueblo II

manos. Bifacial manos with two parallel grinding planes also increased from none in the pithouses to 4 percent at Sites 1676, and to nearly 30 percent of the trough manos at Badger House.

Except for two manos of trachyte from an intrusive dike at the south end of Wetherill Mesa and three of Dakota sandstone, the closest source of which is in McElmo Creek, 10 miles to the northwest, all trough manos are made of native sandstone of the Mesa-verde group or alluvial cobbles, in almost equal proportions. Four cobbles are granite, one is diorite, and the rest are quartzite or quartzitic sandstone. Six were made from fragments of trough metates of sandstone.

One hundred trough manos from the three sites averaged 18.6 cm. long by 11.3 cm. wide by 4.0 cm. thick, and averaged 1,110 gm. in weight.

Some of the burned rooms in the Pueblo I houses contained large numbers of manos and, in some instances, those in a single room show the characteristics of individual workmanship. Though only 25 percent of all the manos from Site 1676 were provided with finger-grips, eight of the 12 in Room 10 of House 1 were equipped with grips, and all but one of these had them on both edges. Here, too, a preference is shown for quartzite cobbles over the more readily available sandstone. Sixty-seven percent were cobbles compared to 29 percent from the entire site.

Unless a mano exhibits the distinctive polished end, it cannot positively be determined that it was used in a trough. The mano from Badger House shown in figure 194a has one end ground smooth and the other unmodified. It could only have received the polish in a trough, but if it had been broken and just the unpolished end found, it would have been placed in the one-third of the collection from the site which is of indeterminate type. The almost square mano illustrated in figure 194b is also impossible to classify. The convexity of the single grinding surface is not as pronounced as on most trough manos and the ends are not polished, but it is only 12.0 cm. long, or shorter than the width of the narrowest trough metate. It could have been used in a trough without enough contact with the sides to grind the ends, or on one of the rare concave slab metates. The somewhat larger mano shown in figure 194c is also only slightly convex and has unpolished, unbeveled ends. It could not be typed with certainty from form alone. It was probably used in a trough since it was found on the floor of Kiva C, which was abandoned before the slab metate is believed to have been introduced.

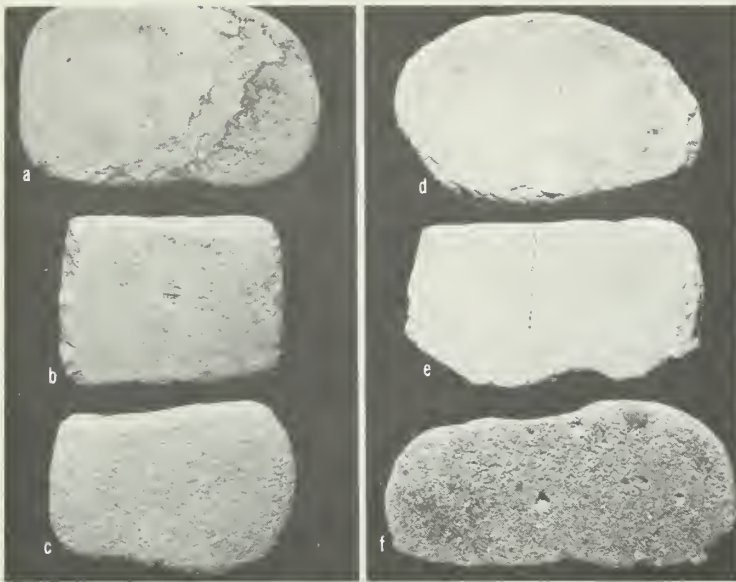


Figure 194. *Manos with flat or concave grinding faces.*

The slab metates in the collection were virtually flat from side to side, but larger series from Long House and Mug House include many examples that are slightly convex in cross section. Only manos that were flat or concave on the grinding surface were classified as definitely used on slab metates, and only 34 of them fit that description, including the four which were re-used trough manos. Three examples from Badger House are shown in figure 194; d is from Area I; e was found on the floor of Kiva B; and f, found with a cache of axes below the floor of the tower, is intrusive trachyte and has a degree of concavity from end to end that suggests it was once part of a slab metate.

There are finger-grips on three of the 34 slab manos, and eight, or 24 percent, are multifacial, a slight drop from nearly one-third of the trough manos from Badger House. The much larger collection of manos used on flat slab metates from Awatovi showed an increasing popularity of manos with more than one grinding surface (Woodbury, 1954). Probably the discrepancy can be attributed to the inadequate sample of flat-to-concave manos from our sites.

The materials used for the slab manos include quartzite (1), Dakota sandstone (1), and intrusive igneous rock (2). All the rest, or 88 percent, are local sandstone. They average 20.7 cm. long by 11.6 cm. wide by 3.3 cm. thick, and weigh an average 1,618 gm.

The proveniences of slab manos recovered at Badger House, when recorded, were all deposits and features dating from the Mancos Phase or later—Stratum A and B, Kiva B, the tower, Area I, Burials 11 and 27, and the trash fill of Kivas B and C. The three from Site 1676 were from the upper fill of Houses 3 and 4, where they were undoubtedly from the kiva and the late masonry room.

The slab manos were longer, wider, and heavier than trough manos, they were more likely to be made of sandstone and less likely to have finger-grips, and they were more inclined to be bifacial than at least the earliest trough manos.

Not included in the count of manos are 45 blanks—slablike stones apparently intended for manos but not yet ground enough to conform to the shapes of the metates. The ends or edges, or both, are spalled on all specimens, and some are also spalled or pecked on one or both faces. A few of the tabular blanks may have been niche covers, or used for other purposes. The reverse is also possible—that some of the stones classified as slabs may have been mano blanks. They were found in locations representing all phases.

Twenty-two small, oval or discoidal manos were left out of the discussion and count of manos above because of their clearly different form. Three examples are illustrated by figure 195. They average 9.3 cm. long by 9.0 cm. wide by 4.0 cm. thick, and weigh an average 487 gm. Four are sandstone, two are granite, and the rest are quartzite cobbles. Some were shaped by pecking around the perimeter, but others are simply alluvial cobbles selected for shape, the only modification being on the working face, which was roughened by pecking and then smoothed by grinding. All are nearly flat lengthwise but convex from side to side. Ten of them came from La Plata and Piedra Phase proveniences in Sites 1644 and 1676. Five were in the Ackmen Phase layers of Badger House trash, and one each was found in Stratum A and in the lower fill of Kiva B. The remaining five are from the general fill of the trash. The distribution points to a fading popularity.

Such tools are commonly found in small numbers throughout the Anasazi country and their precise purpose remains a matter of conjecture. They resemble the manos found with basin metates of the seed grinding Desert Cultures, and in Basketmaker II sites. But basin metates do not occur in later sites and our oval manos are worn by reciprocal rather than by the rotary motion involved in basin-metate milling.

They have been referred to as "rubbing stones," "handstones," and "biscuit" or "one-hand" manos. The ground-over-pecked surface indicates a grinding rather than a rubbing function, but the term "one-hand mano" implies that all the others are used with two hands. That might be the case, but, while we know from ethnographic observation that the mano used on a slab in a bin is gripped by two hands, we do not have the benefit of such observation of the use of trough metates. Some of the troughs are so narrow and their manos so short that one is led to wonder if the mano was not sometimes held in one hand while the other hand was placed on the floor to support the weight of the miller's body.

Crushers

The excavations on Wetherill Mesa turned up heavy, blocky, mano-like artifacts that apparently had not been described in the earlier published literature. They were recognized by Arthur H. Rohn and Richard P. Wheeler in the course of studying the stone artifacts from Mug House, and they were designated as "crushers" (Rohn, 1971). It seems likely that they were encountered previously and were identified as unusually heavy manos or mano blanks. Twenty crushers were separated from manos in the collections from Site 1644 and Site 1676, and four examples were found in the Badger House collection.

The typical crusher from the three sites was a brick-shaped object of sandstone with rounded corners, dressed on all surfaces by pecking, and showing very light grinding over the pecked surface of one convex face (fig. 196). Crushers differ from the manos most obviously in being heavier and larger in every dimension. Most of those that were contemporary with the use of trough metates are longer than the width of the trough of all but the widest of the metates, but none are polished at the ends from use in a trough. The faces of the crushers usually show traces of use which appears to have been a light rolling or rubbing, but none have the smoothed aspect of well-used manos. The weights, ranging from almost 7 to 14 pounds, would be difficult to handle if the implement were used as a mano, although several have finger-grips, and certainly the weight alone of a crusher would contribute to a smoothed face if it were used as a grinding stone. The majority have a slightly convex face, but six of the 24 have a flat or somewhat concave face. Four of the latter were found in deposits which predate the use of flat



Figure 195. *One-hand or "biscuit" manos.*

slab metates. One shows no use on the broader faces but was lightly ground on one edge and one rounded end.

Crushers were not confined to any one phase. One was found on the banquette in Pithouse B, several came from Pueblo I rooms, and four were found at Badger House. Twelve were found in rooms which also contained metates, and eight were in rooms yielding manos but no metates. Some connection with the preparation of meal is not impossible, but it is not at all clear what this was. They might be used for cracking corn kernels, but the carefully pecked outlines of most of the specimens would serve no purpose and it was not necessary to sharpen the working face in order to use it for crushing. The lack of polish on the ends of the faces and the concave faces of some would seem to rule out their use in metates in the conventional way. The proveniences and attributes of the 24 specimens are given in table 34.



Figure 196. *Crushers.*

Table 34. Crushers from Site 1644, Site 1676, and Badger House

Provenience	Length (mm.)	Width (mm.)	Thick- ness (mm.)	Weight lbs./oz.	*Ma- terial	Convex face	Con- cave face	Bi- facial	Face ground	Finger grips	Perim- eter pecked	Fully pecked	Remarks
Site 1644													
Pithouse B	219	138	66	8/12	ss	x	—	—	x	—	—	x	Back partly ground
Site 1676													
House 1, Rm. 1	230	123	77	9/5	ss	x	—	—	x	x	x	—	Outside SW wall
House 1, Rm. 10	215	127	90	8/7	ss	x	—	—	x	—	—	x	
House 2, Rm. 3	180	127	70	6/12	ss	x	—	—	x	—	—	x	Back ground with pit at center
House 4, Rm. 9	230	136	71	8/10	ss	x	—	—	—	x	—	x	
House 4, Rm. 9	276	138	89	14/0	ss	x	—	—	x	—	—	x	
House 4, Rm. 9	236	135	76	10/3	ss	x	—	—	x	—	—	x	
House 4, Rm. 9	265	139	66	10/4	ss	—	x	—	x	—	x	—	
House 4, Pitroom F	247	124	90	10/3	ss	x	—	—	x	—	—	x	Metate fragment
House 4, Pitroom F	231	127	80	10/11	ss	x	—	x	x	x	—	x	With Burial 8
House 5, Rm. 1	206	154	62	7/4	ss	—	x	x	x	x	—	x	Both concave faces ground
House 5, Rm. 3	213	130	60	7/8	ss	x	—	—	x	—	—	x	
House 5, Rm. 3	211	133	67	7/13	ss	x	—	—	—	—	—	x	
House 5, Rm. 5	242	144	69	8/11	ss	x	—	—	x	—	—	x	
House 5, Rm. 6	240	143	76	11/2	dior.	—	x	—	x	x	x	—	Face pecked and polished
House 6, Rm. 1	188	139	83	6/11	ss	x	—	x	x	—	—	—	Perimeter unmodified
House 6, Rm. 2	237	144	96	13/13	ss	—	—	—	—	—	x	—	One edge and one convex end pecked and worn
House 8, Rm. 2	244	144	60	7/10	ss	x	—	—	x	—	x	—	Face ground smooth
Badger House													
Protokiva E	207	128	65	6/7	ss	x	—	—	x	x	—	x	
Protokiva E	206	129	76	7/0	ss	x	—	—	x	—	—	x	
Stratum A	215	134	60	6/13	qtzt.	x	—	—	x	—	—	—	Perimeter spalled
Kiva B	—	128	62	—	ss	—	x	—	x	—	x	—	Entire surface lightly ground
Kiva C	211	136	67	6/12	ss	—	x	x	x	—	—	x	Both concave faces ground
Kiva C	255	149	43	7/5	ss	—	x	—	x	—	—	x	
Average	226	135	72	8/12									

* ss = sandstone; dior. = diorite; qtzt. = quartzite.

Pitted rubbing stones

Another class of artifacts widely distributed in the Southwest has an unknown function. It consists of cobbles, usually fashioned by pecking to rough brick or loaf shapes, which bear shallow pits pecked into the center of one or more facets. The tools have been identified as "pitted rubbing or pounding stones," or as "pitted hammerstones," with the assumption that the pits served as finger-grips, but this explanation is not entirely convincing.

On the La Plata, Morris (1939) found the pitted stones most common in Pueblo I sites and diminishing to rarities in the full Pueblo III period. Our collection bears him out. We found none in a Basketmaker III location, 31 in Pueblo I houses, and 13 at Badger House. Five of the eight Badger House examples for which a source was recorded came from Strata D through E, all early Pueblo II, Ackmen Phase levels. Only three came from later deposits—one each from Stratum A, the lower fill of Kiva B, and the overburden of Kiva C. It should be remembered that while the lower trash was relatively free of later intrusions, the upper levels contain early material as well as artifacts contemporary with the period of deposition. No pitted stones were found *in situ* in a late Pueblo II or Pueblo III structure. One otherwise unmodified cobble, pitted on six facets, was found in the earliest structure at Site 1676, House 3, which was occupied about A.D. 750. They were more numerous in the later Pueblo I proveniences.

The 46 specimens in the collections range from irregular

cobbles, unmodified except for the pits, through discoidal, oval, or egg-shapes, to the typical cuboid. Most have been shaped by some pecking. Though they vary in weight from 239 to 2,024 gm., the mean is close to 1,000 gm., and all can be grasped in one hand. Thirty-seven of the 46 are quartzite or alluvial cobbles of quartzitic sandstone. One to three specimens each are of granite, sandstone, basalt, and claystone.

The shallow pits occur in 10 combinations, as follows:

- Pitted on all six surfaces (3).
- Pitted on two faces and one side (3).
- Pitted on two faces and two sides (7).
- Pitted on two faces, one side, and one end (1).
- Pitted on two faces only (19).
- Pitted on one face and one end (1).
- Pitted on one face and both ends (1).
- Pitted on one face and one side (1).
- Pitted on one face and two sides (3).
- Pitted on one face only (7).

Little change can be noted in these combinations or in the overall shapes. The earliest example, from House 3 at Site 1676, was unmodified except for pitting. The next, from House 2, was a small mano pitted on both faces and used for grinding after pitting. By about A.D. 800, the artifact had appeared in its conventional form in Houses 6 and 7.

Typical examples, all from Badger House, are shown in figure 197. At a is a "one-hand" mano of granite, pitted on the reverse face and both sides, with the ends spalled. The quartzite specimen at b was shaped by pecking the entire surface to a cube with rounded corners and it has a pit in both broad faces. All facets of c are shaped by pecking, and it is pitted on both faces and both long sides. Both faces and both sides of d are pitted and the ends are battered as though from use in pounding. The sides and ends of e are carefully pecked, the faces ground, and it has pits on both faces, one end, and one side.

Our collection, like Morris', shows little evidence of pounding or hammering. Only the stone shown in figure 197d and one other



Figure 197. *Pitted rubbing stones.*

are battered. If these artifacts were intended for pounding, it was for beating soft materials that would not alter the tools themselves. Nineteen stones show evidence of grinding or rubbing, but several of those are manos or handstones which were pitted after the surface was ground. One of the 30 Piedra Phase specimens was in trash and all others were associated with rooms. They were apparently ordinary household equipment. The largest number in any one location were four in Room 4 in House 5 where they were possibly included with the large cache of hammerstones found there. Two were on the floor of the large work area, Room 9 in House 4, and one of these lay next to a metate in position. It is unlikely that we will have an explanation of their use until they have been found repeatedly in definite contexts.

Small polishing stones

These tools were divided into two classes: those that could be held between thumb and forefinger, and slightly larger ones that require all the fingers and the heel of the hand. The former were alluvial pebbles, averaging 4.0 to 5.0 cm. in diameter, weighing about 35 gm., and exhibiting no modification except a high polish on one or more smooth areas on the surface. There was some preference for black claystone.

The majority of the small polishing stones are probably pot polishers. There is ample evidence of such use of identical stones today in the pueblos. Pebbles are selected that have a smooth, dense surface. Convex rubbing surfaces are used to apply a polish to the air-dried interior of bowls prior to firing, and concave surface are naturally adapted to use on the exterior of vessels. Many of the

pebbles were obviously picked because both arcs were present on a single stone.

Of the 55 polishing stones in the collection, four were found on the floors of La Plata Phase pithouses, 29 had Piedra Phase proveniences, and 22 were distributed through all strata of the Badger House trash mound. Three of the four from the pithouses were atypical. Two of these were a little larger than the average and one was a rodlike pebble, rectangular in cross section and polished on all faces.

Thirty-nine similar pebbles attributable to all phases of the occupation had a natural polish but no areas of high luster indicating that they had been used.

Large rubbing or polishing stones

These are alluvial cobbles of discoidal, oval, or loaf shape with one or more broad and relatively flat surfaces. Though there is considerable range in size and weight, the mode is about 10.0 cm. in length and about 300 gm. in weight. Unlike the pot polishers, about half of the larger rubbing or polishing stones had been shaped to some extent by pecking, usually at the ends. Two were pitted at the edges and might well have been included under "pitted rubbing stones," described above. Some resemble "one-hand" manos, but differ in the lack of a roughened grinding face. All the stones show a polish on one or more faces, and are about evenly divided between one and two polished faces. A few show some evidence of additional use on an edge or end.

Just what function rubbing stones had is not fully known. Similar stones were used until recently in the Rio Grande pueblos for packing and polishing earthen floors, but they seem to be too numerous here (60 specimens) for that to be their sole purpose. They were familiar household tools from Basketmaker III through Pueblo III times. Only six were from Badger House, and all of these were in the trash. Eighteen of those from Sites 1644 and 1676 were in definite association with floors or bins, and nearly all of the balance were in room fill. As many as five were found on the floor of one room in the jacal which overlay Pithouse B.

Three polished stones that do not seem to be either pot or floor polishers were flat, oblong, pieces of schist, highly polished on both broad faces. Two of these, 9.4 and 10.8 cm. long were found just below the surface of Area I, in front of Room 6. A fragment of a similar specimen was in the late Pueblo II and late Pueblo III trash that was the overburden of Kiva C. Whether they were used as active polishers, or were the recipients of a polishing action to bring out the sparkle of the stone, is not known.

Abraders

For ease in discussing the several types of artifacts that are classed here as abraders, three arbitrary terms are used. By "hand abraders" is meant small tools held in the hand and moved over the surface to be modified. Knowing that all abraders might be "whetstones," whether active or passive, as used here the term refers to stationary stones over which the object to be abraded is passed. Because of their difference from the other tools, "grooved abraders" are treated separately, even though they may be whetstones and may also be held in the hand.

Hand abraders

These are 27 pieces of sandstone, probably spalls of building stone, small enough to be held conveniently in one hand and with from one to four ground facets. The ground surfaces do not appear to have been produced in order to modify the stone, but rather to

have been worn by rubbing something else. A few are ground over a previously pitted surface and may have been mano fragments. Only one specimen seemed to be deliberately shaped: an oval spall with a pecked perimeter and two ground faces. The friable sandstone used is a particularly effective abrasive for smoothing and shaping wood, and when wetted will reduce and polish stone. They were associated with all phases of the occupation.

During the process of excavation, we produced many similar artifacts when a spall was picked up to clean a shovel, or to sharpen a knife or pencil. The aboriginal specimens were probably produced just as casually.

Whetstones

Seventeen blocks or slabs of sandstone, larger than the hand abraders, have a slightly concave, ground surface that may have been used to sharpen the edges of small tools. Four of these have had some primary shaping in the form of spalling, pecking, or grinding of the edges. Four whetstones were sandstone blocks, probably building stones, with shallow ax-sharpening grooves, 8.5 to 9.0 cm. across, on the broad faces. A bifacial one was found in the intentional fill above the ventilator tunnel in Kiva C. Ax-sharpening whetstones also came from House 4 and 7 and from the Pueblo I room over Pithouse B. Other whetstones came from Stratum A, the lower strata below Feature 5, Feature 11, the floor and the lower fill of Kiva B, the floor of Pithouse B, and all the Piedra Phase houses except House 6 and House 8.

Grooved abraders

Twenty-one stones bearing narrow grooves were found. All are of sandstone, with from one to eight grooves each. The grooves average 0.5 cm. wide by 0.3 cm. deep and usually taper at the ends. As was the case with the other abraders, the grooves were not prepared, but were probably worn by rubbing a pointed object a few times across the stone until a track was worn. The V-shaped grooves serve efficiently for sharpening the tips of wood or bone fids and awls, or wood arrow points.

Thirteen of the tools are rather large unshaped stones used in a stationary position (fig. 198a and b); eight were small spalls which could be held easily in the hand. Unlike the larger ones, most of these are carefully shaped, with ground sides and rounded corners. Two are furnished with grooves, hemispherical in cross section, which could function as smoothers for arrow shafts, matting willows, or other dowel-like sticks. In figure 198, c is a shaft smoother, d and e are sharpeners, and f has two grooves—one of each kind. The irregular stone from the general fill of the Badger House dump shown in figure 199 is unusual. A shallow groove is ground into one face and in the bottom of the groove are two shallow, circular holes with nipple-like projections in the center of each. Hollow-stem drills are apparently unknown in the Southwest. It has been suggested that the holes resulted from grinding the end of small tubular bone heads or cane arrow shafts.

Abraders with narrow grooves came from Pithouse B, Room 3 in House 5 at Site 1676, and Room 1 and Strata A, AB, D+, and E at Badger House. Only one, from the general fill of Badger House trash, had no specific provenience.

Slabs and Jar Lids

Slabs

Thin, tabular slabs of sandstone with dressed edges, used for a variety of purposes, are ubiquitous in the San Juan area in all



Figure 198. Grooved abraders.



Figure 199. An unusual abrading stone.

periods of the Anasazi occupation. One hundred examples, 43 of them complete, were found in the Badger House locality. Nearly all specimens are shaped by bifacial spalling of the edges and most are subrectangular with rounded corners, a little longer than wide, and many are somewhat wider at one end than the other. The thin slabs were probably obtained by splitting them from native rock with wooden wedges rather than by dressing down thicker pieces of stone. About half of them have been further smoothed on one or both faces by grinding.

Though no slabs were found in position as door or hatch covers, they have been found in place often enough at other sites for us to

presume that some of the seven largest complete specimens, ranging from 47.5 to 65.0 cm. long, were used for the same purpose. One of these is a teardrop shape, the others are rectangular. Most were found in fill or on floors of the Piedra Phase rooms. One was leaning against a wall in Room 4 of House 5, and another lay just south of the tunnel between Kiva A and the tower. It measured 42.5 cm. in width, or 3.5 cm. narrower than the door between Rooms 1 and 2 at Badger House, where it may well have been used. The large slab illustrated in figure 200a was embedded on its side to form the vertical wall of a bin in Pitroom F, House 4. The remaining complete specimens were found in Houses 3, 5, 6, and 7 at Site 1676, and in Feature 11, Stratum A, and the lower fill of Kiva C at Badger House.

Smaller slabs, ranging downward from the sizes of the larger ones to a minimum of 14.1 cm. in length, were more numerous. They may have been used to cover niches or close ventilator tunnels and bins (fig. 200b). The majority were the same shape as the larger slabs, but eight were round or oval. One was found in place covering a small subfloor cist in Room 9, House 4, and a thoroughly shattered specimen lay in front of the ventilator opening in Pitroom F at House 4. Several slabs, most of them fragmentary, had polished faces and were probably used as griddles. A thin, unworked slab, partly covering the firepit in the jacal built over the Pithouse B fill, supported two cooking pots. A similar *comal*, a rectangular slab with flaked edges and a smooth, heavily carbonized face, lay along side of the firepit in Pithouse A. A smaller oval one, with ground face and an irregular rounded bottom, sat next to the firepit in Room 6 of House 4.

Some of the pieces classified as "slabs" have well-ground faces and may have been grinding stones or merely working surfaces to use as "table space" on the floors of rooms.

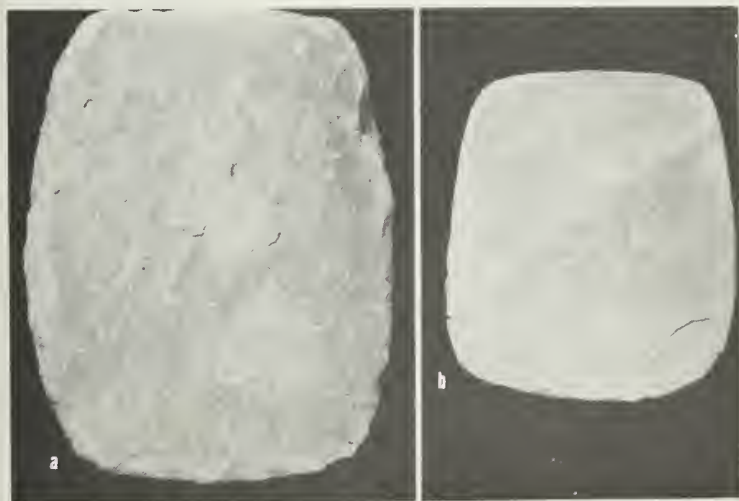


Figure 200. Large slabs with chipped edges.

In the overburden of Kiva B at Badger House was found half of a flat slab, 18.0 cm. long and 3.6 cm. thick, with a hole, 8.0 cm. across, pecked in the middle of it.

Small tablets

Three triangular, bifacially edge-ground tablets of sandstone are illustrated in figure 201: a, which is 7.9 cm. across the base, and b are from the general fill of the Badger House trash mound; and c, which is also ground on both faces, is from Area I at Badger House.

Twelve similar rectangular tablets, measuring 3.2 to 10.4 cm. in length, are spalled or ground on the edges to varying degrees,

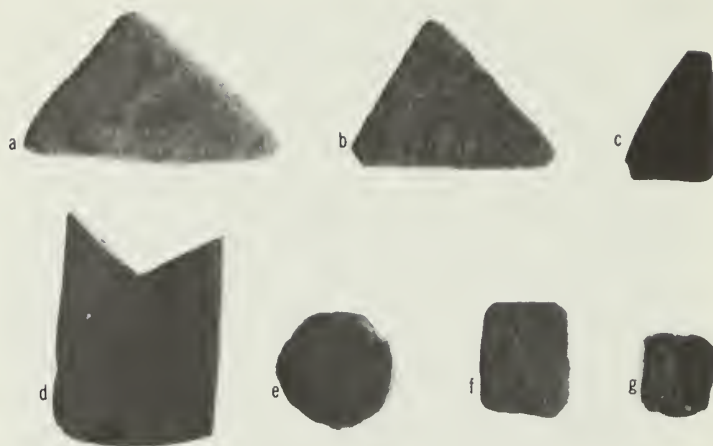


Figure 201. Small sandstone tablets.

and another (fig. 201d), from the lower fill of Kiva B, was carefully ground on the edges and both faces. A shallow trough or groove runs the length of one face. It may have been a whetstone. Two rectangular tablets came from Site 1676—one from the trashy overburden of House 3, and one from Level 2 of the great kiva. Three ground pieces of tabular sandstone in the collections, 0.8, 1.0, and 1.2 cm. thick, may have been fragments of "sandal lasts."

Jar lids

Thin, round slabs have been found often enough in place as jar lids to make it safe to assume that the 21 similar disks in the Badger House vicinity were used the same way. They range from 4.7 to 17.5 cm. in diameter and 0.6 to 2.0 cm. in thickness. All were shaped by bifacial spalling along the edges, and six of them were also ground on the edges. Eleven were ground on one or both faces. Except for one quartzite jar lid from Stratum A, all were sandstone. They were found in trash in Strata A, C, D+, combined D+ and E, and the lower fill of Kiva B at Badger House, in Houses 3, 4, 5, and 6, and Level 2 of the great kiva at Site 1676. Two examples are shown in figure 202; a is from Kiva B fill and b is from Stratum A at Badger House.

Three unusually thick specimens, about 2.0 cm. thick and 6.0 to 8.6 cm. wide, with one or both flat surfaces ground smooth, may have been grinding stones or polishers, or have had a secondary use.

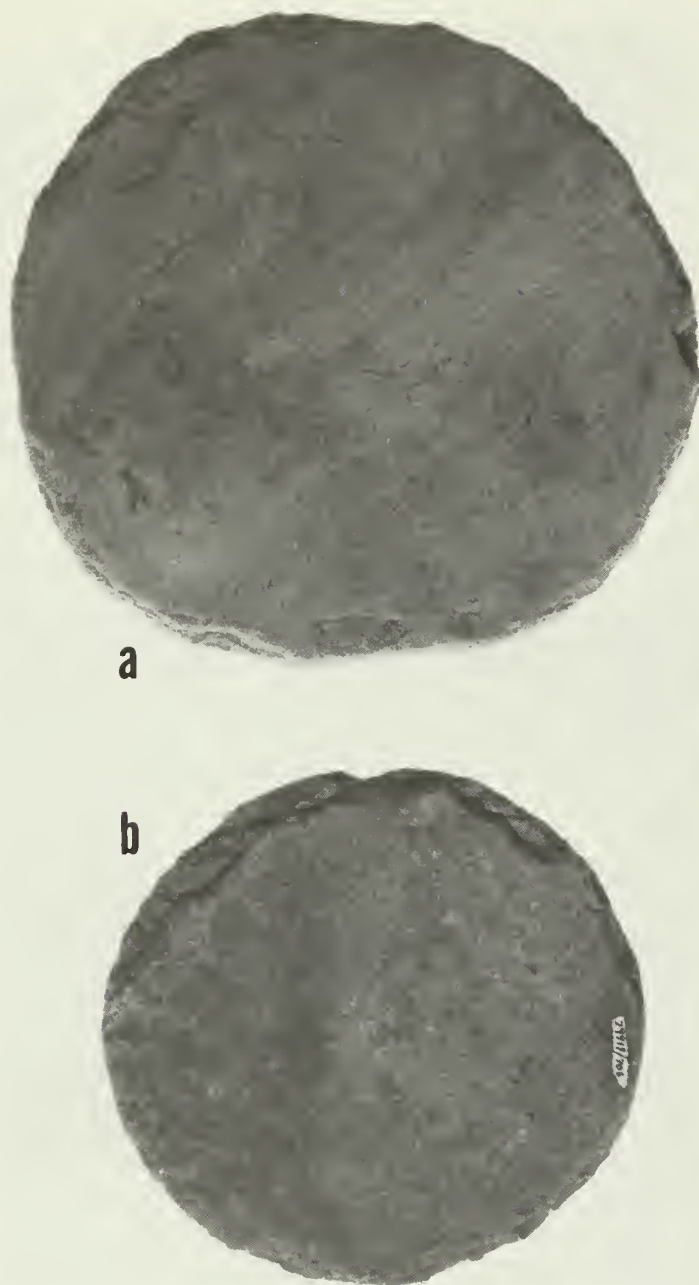
Other small disks

Fourteen smaller sandstone disks, 3.8 to 8.7 cm. across, came from Strata A to E in the Badger House trash mound in more or less even distribution. Their use is unknown though the larger ones may have been pot lids. They were shaped by the same technique as the jar lids, but more of them were ground.

Lapstones and Palettes

Lapstones

Seventeen large discoidal cobbles may have been used as working surfaces in much the same way that leatherworkers use slabs of marble today. They are unmodified oval, alluvial cobbles of dense quartzite, granite, and diorite. Five show scattered marks of pecking on one face, presumably resulting from use. Five cobbles have an oily polish over their entire surfaces, possibly acquired through much handling or from serving some function in hide-working. The rest

Figure 202. *Stone jar lids.*

appear to be completely unmodified.

Only two came from trash deposits—from the Piedra Phase trash in the upper fill of the great kiva, and from the Ackmen Phase levels, combined Strata D+ and E. Eight of the other 15 were found on the floors of pit structures—Pithouses A, B, and G, Protokiva D, and Kiva C. The rest were all from Pueblo I rooms in Houses 1, 2, 4, 5, and 7. This distribution suggests a diminishing use of cobble lapstones, if not their total absence in the later phases. Diminishing use is more likely, inasmuch as six lapstones were found at Mug House (Rohn, 1971).

Palettes

Seven small, thin, tabular pieces of sandstone were classified as palettes. Irregular spalls with unshaped edges, they were ground flat to slightly concave on one or both faces. Some perhaps were small whetstones, but at least one, from the floor of Kiva B, was im-

pregnated with orange ocher. The others were from the upper fill of Pithouse B, the floor of Room 9 in House 4, Stratum D+, the Mancos Phase fill of Kiva C, the lowest level of Kiva A fill at Site 1676, and the subfloor ventilator of Kiva A at Badger House.

Weights

Figure 203 illustrates a representative sample of 11 small sandstone artifacts which are either perforated or girdled by a groove. The largest specimen, a, is 16.6 cm. long and weighs 1,376 gm. The smallest, f, is 4.2 cm. long and weighs only 42 gm. Five of the six specimens for which there are known proveniences are from the later deposits—two were from Stratum A and three from the overburden of Kiva C. One from the fill of House 3 may have been Pueblo I, or could have been intrusive from later Room 10 or Kiva A at Site 1676.

Figure 203. *Grooved sandstone objects, possibly weights.*

It has been speculated that such stone objects are weights, but there is no direct evidence of their use as such. They may have been used to hobble or stake turkeys to keep them near the homestead. Tied to one foot with a yucca cord, they would permit the bird to forage but would prevent his running, just as today a horse is slowed down by a section of trace chain tied to one forefoot. It would seem certain that, without some restraint, turkeys could not have been turned out to graze with much hope of seeing them again. These were probably not truly domestic birds but merely captives. Domestic turkeys ranging on mast near wild turkey country will join their wild brothers unless closely guarded. A hen that wants to build a nest is a sly bird and all are astonishingly fleet of foot. It would take a number of agile herdsmen to contain even a small flock that was not content to forage in the household scraps. Until

someone finds a turkey leg with a stone tied to it, the idea that it was a tether is not likely to be supported, but an object similar to the one shown in figure 203f was found at Waterfall Ruin, on Chinle Wash near Mexican Water, still wrapped with a cord around both circumferences (Kidder and Guernsey, 1919). Similar stones from Cummings Mesa are illustrated by Ambler, Lindsay, and Stein (1964).

The larger, perforated stone may be something else. The stone is so friable that it is impossible to determine whether it has been worked. The cylindrical hole, 1.7 cm. in diameter, may be natural. It could have served as a shaft smoother.

Ornaments

Morris (1939) has pointed out the comparative paucity of ornaments north of the San Juan, and the Badger House sites were no exception. The 600 yards of earth turned over and examined in the trash mound produced 25 beads—about what could be sifted from two or three good ant hills in Chaco Canyon.

Pendants

The 35 tabular stone pendants and pendant blanks had three shapes: rectangular, trapezoidal or teardrop shape, and round, in decreasing popularity. Most were shaped and smoothed by grinding and were drilled biconically.

Three pendants are turquoise and one is soapstone. The others were made of the common pink-to-red shale that occurs in local Mancos shale beds (fig. 204a-c). They average 3.6 cm. long by 0.4 cm. thick and weigh an average 7 gm. Only five were found in Pueblo I houses or areas, and the rest were from Badger House. One was found with the mid-Pueblo II Burial 14, and the rest were evenly divided between the lower two and the upper two strata of the dump. The single complete pendant of turquoise (fig. 204i) accompanied Burial 3 at Badger House. It is a pale blue stone with a yellow-brown matrix, measures 1.1 cm. long, is carefully ground, and has a straight-sided hole at one end. A fragment of another, a green stone with gray-brown matrix, was found in the fill of the vault in Kiva A, and another pale blue fragment without matrix came from the great kiva fill. From Stratum E came a pendant of iridescent, gray-green soapstone (fig. 204j). A drill-hole was at-



Figure 204. Stone ornaments.

tempted at the smaller end but was abandoned when the corner broke off.

The single effigy pendant, from Room 9 in House 4 at Site 1676, is illustrated in figure 205. It is a bird of black lignite or jet, with a biconical hole drilled through the breast. Shallow depres-

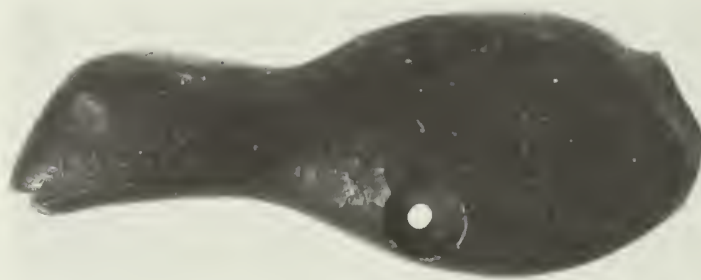


Figure 205. Effigy pendant of black lignite or jet.

sions were carved to represent the eyes and were filled with a bright red paint. Measuring 5.3 cm. in length, it was originally somewhat longer. The tail was broken off.

Beads

The 25 beads in the collections had a more limited distribution. Five shale beads were found with the Mesa Verde Phase Burial 15, and all but one of the others were in Strata A and B. Five beads are shell and the rest are of material obtainable locally—five jet, 13 gray shale, one red shale, and one of an unknown chalky mineral. The red shale bead is an elongated rectangle, drilled biconically at one end like a miniature pendant. The chalky specimen is the only one from a Pueblo I source. All the others are annular, averaging 0.4 cm. in diameter by 0.14 cm. in thickness, and have cylindrical holes. Examples illustrating the range of size of these beads are shown in figure 204l.

The delicate handling necessary for the manufacture of small beads with primitive equipment is always a source of wonder. Part of the answer is found in observations of Pueblo bead making today. The tabular blanks are held in the fingers and ground to rough shape on a piece of sandstone, and then they are set into shallow pits in a board to hold them for drilling. Such a board was found recently in a Bobcat Canyon cliff house (Hayes, 1954). Haury (1931) has demonstrated the drilling of miniscule holes with a cactus spine. The beads are then strung and dragged back and forth through a grooved abradar until they are of the required size, either uniform or graduated. It may be the friction of the string on the inner circumference of the hole that gives the perforations straight sides rather than the conical or biconical shapes that result from the drilling operation.

Rings

Pieces of two onyx finger rings were found in lower levels of the Badger House trash mound. The finest, from Stratum D, is shown in figures 204h and 206. It represents about half of a ring of creamy, translucent stone with a inside diameter of 1.7 cm. Measuring 0.9 cm. wide by 0.3 cm. thick, biconvex in cross section, it is so symmetrical and highly polished as to appear almost machined. A smaller fragment, from Stratum D+, is similar but was not as smoothly ground. Onyx occurs locally in seams in the Cliff House sandstone.

Paint stones

Twenty-nine pieces of stone from the sites were probably used



Figure 206. *Onyx ring.*

for making paint or other coloring matter. Sixteen were nodules or short rods of limonite or hematite, such as are fairly common in most of the Anasazi region and are still used for cheek coloring by Southwestern Indians. There are four lumps of soft yellow ocher and nine small pieces of azurite and malachite. The latter two cannot be crumbled in the hand like ocher, but they are readily ground to a delicate blue powder. Leslie White records the use of ground azurite for painting masks at Zia (White, 1962, p. 249), and Ruth Bunzel mentions that Zunis traded with Santo Domingo for copper ore used for the same purpose (Bunzel, 1932, p. 861).

A test trench at Site 1679, some 50 feet southeast of Pithouse G at Site 1676, turned up a small Mancos Black-on-white canteen containing a squash seed and 158 gm. of azurite pebbles identical to those from Badger House (fig. 207). The canteen lay on the floor of a jacal which could be dated by the pottery as contemporary with the earliest phase at Badger House.

Paint stones came from locations representative of all phases at the sites except La Plata—and the lack there may be simply the result of the small sample. Five pieces came from four adjacent rooms in House 4 at Site 1676.

Fetishes

Though most of the objects described under this heading were probably amulets regarded with reverence, or endowed with magical powers, others may have played a mundane though unrecognized part in the life of the people. If any artifacts here have been mistakenly ascribed a religious function, the precedence of the "ceremonial object" in Southwestern archeology is well established. Everyday Pueblo Indian life is so shrouded in esoterica that the classification is probably more often right than wrong.

Stone balls

Examples of the 88 stone balls in the collections are illustrated in figure 208. They are spherical for the most part, though a few are more nearly egg-shaped, and range from 1.3 to 8.5 cm. One ball of quartzite, apparently shaped only by stream action, is an alluvial cobble. All the others are of sandstone. A few are naturally round geodes commonly found in the upper member of the Cliff House sandstone, but the majority were apparently made by grinding the softer stone of the lower member of the Cliff House. Two were incised around the middle.



Figure 207. *Mancos Black-on-white canteen and its contents of azurite.*

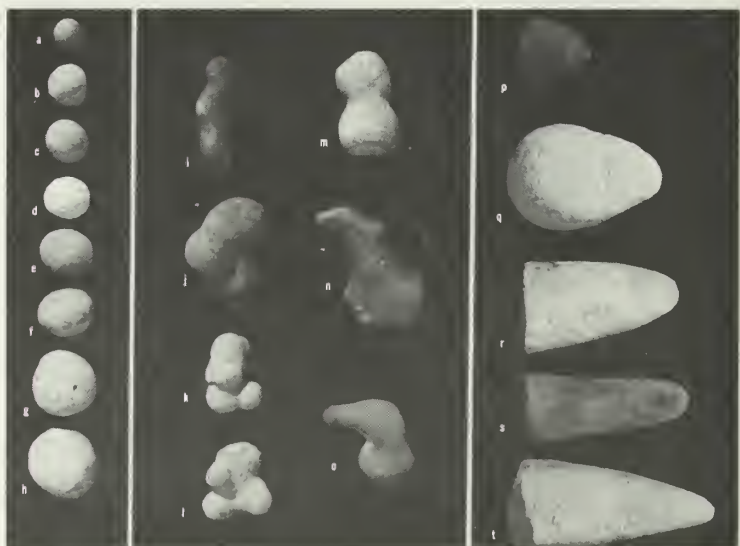


Figure 208. *Sandstone fetishes.*

Stone balls were found in all levels of the Badger House trash mound, on the floor of Room 9 in House 4, and in the shallow fill of many other Piedra Phase rooms. They were found on the floors of Protokivas D and E and in Kiva A—two in the abandoned sub-floor ventilator tunnel, and one on the kiva floor between the deflector and the open, floor-level ventilator opening. This last was part of the unusual aggregation of odd-shaped stones that furnished the kiva. Woodbury (1954, p. 171) describes a collection of 79 similar balls from Awatovi. Twenty-seven came from three kivas, and two of these were found in a ventilator tunnel. Parsons (1939, p. 311) mentions stone balls being kept in the sipapu of Hopi kivas.

Cones

On the floor of Kiva A, between the fireplace and the north wall on the firepit—ventilator axis, lay a large, conical sandstone fetish (fig. 209). Carefully shaped by pecking and grinding to an almost perfect symmetry, it has a flat base, 19.3 cm. wide, and a round top. It is 28.6 cm. high. Such cones are not rare in Anasazi ruins, particularly in those of Pueblo III times and later, although one was found on the floor of a pithouse in the Pueblo I Candelaria site on the Piedra (Dittert and Eddy, 1963).

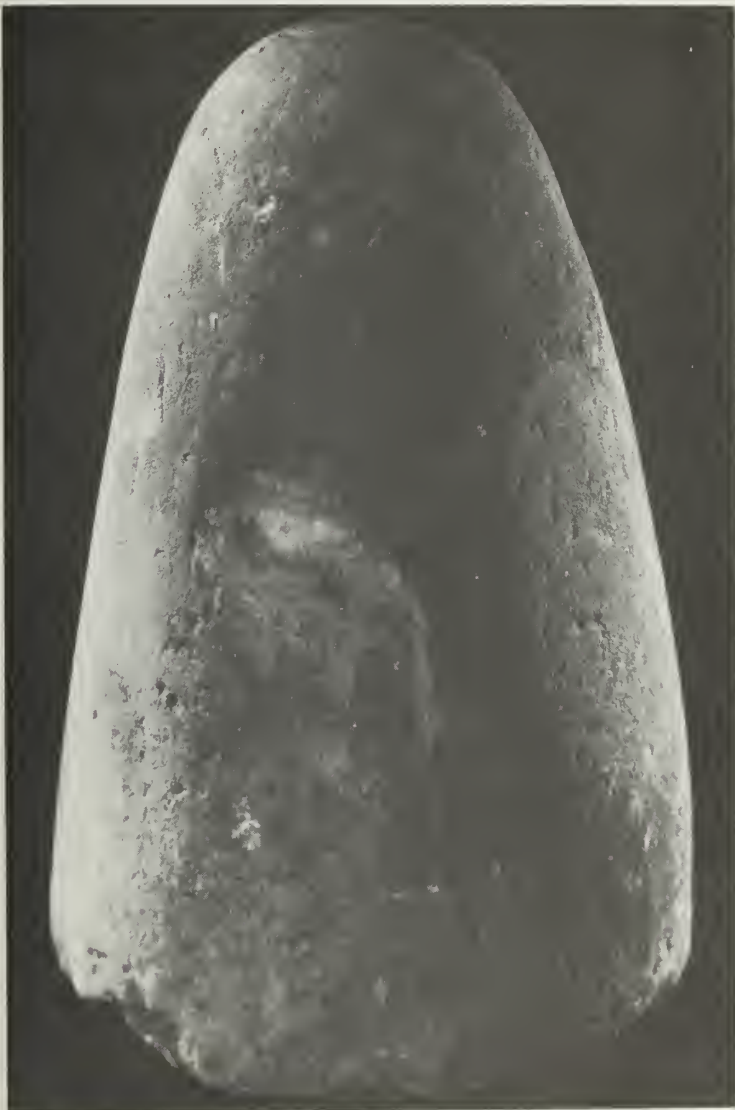


Figure 209. Conical fetish from Kiva A, Badger House.

The earliest archeological reference to such an artifact is by Fewkes (1911), who found one on the floor of Kiva H in Cliff Palace and later an identical cone in Oak Tree House nearby (1916). In connection with the latter find, he quotes the Hopis as saying that "it represents the Germ God or the supernatural being of the Underworld who causes the corn to germinate." In a subsequent discussion of Hopi fetishes, he illustrated two cones of sandstone from Square Tower House, a mile west of the first two ruins. One of these was painted to represent "Muyinwû, the germ god," and he goes on to describe briefly the use of a similar fetish in the Mamzrauti ceremony of the Hopi (Fewkes, 1924). In the space of a few lines, he refers to Muyinwû once as a "goddess" and later as a "god," thus starting a long train of confusions.

Fewkes' information may well have been first hand, or it may have been quoted without credit from Voth (1912), who in more detail describes the cone-shaped clay representation of Muyingwa made for the Mamzrauti ceremony of the Marau society. Muyingwa, "god of germination," also figures prominently in the Powamu ceremony (Voth, 1901). More on this diety is found in Alexander Stephen's account of part of the Hopi creation myth collected in the 19th century but not published until many years later (Stephen, 1940). According to his version, during the period of chaos before the world was formed, a beautiful maiden was the object of the desires of several lesser gods. To protect her from them, the creator transformed her into the earth and "Muingwa who was placed in the interior of the earth, guards the life of this transformed Virgin, hence his special attribute is to guard all germs of life." One wonders if his function was not also to impregnate, and if the blunted cone fetishes associated with him are not phallic.

A small pueblo on the talus near Chetro Keti in Chaco Canyon, excavated by Ripley Bullen, produced supporting evidence (Bullen, 1944). "Standing upright on the bottom of the ventilator opening in one of the kivas was found a sandstone phallus measuring $9\frac{1}{4}$ inches in height. It was oval in cross section, but measured 8 by 7 inches at the base. The bottom was irregular, but the rest had been carefully carved and smoothed to represent most realistically the end of a phallus when erect." The author goes on to suggest that a phallus is the basic idea behind the "corn goddess" cones found in the Pueblo area. A cone similar to that from Badger House was found in a ventilator tunnel at Big Juniper House in nearly the same position as the Chaco phallus (Swannack, 1969).

The "corn mother" idea apparently stems from the excavation at the Village of the Great Kivas of two cones very like the one from Badger House. They stood at either side of a niche in the north wall of a kiva which was, incidentally, quite similar to Kiva A in Badger House in that it was equipped with a subfloor ventilator tunnel and a floor vault. These specimens had concave bases for the hiding of offerings and were referred to by the Zuni workmen as "corn goddess" and "the mother of all corn" (Roberts, 1932). Roberts likens their appearance to the end of an ear of corn. The two stones at the Village of the Great Kivas and their position are similar to two rounded stone posts flanking the ventilator opening of a kiva at Tyuonyi in Frijoles Canyon (Hewett, 1909).

Cone-shaped mounds of adobe were found by Jeancon at Poshuouinge near Abiquiu on the Chama River in northern New Mexico (Jeancon, 1923). These specimens had small holes in the tops and were described as prayer plume bases—perhaps on information from his Santa Clara workmen. He also refers to them as "tiponi." Very similar specimens of clay (nátsi), used in Hopi ceremonies for holding plumes and society emblems, are described and illustrated by Voth (1903). The word "tiponi" for these objects is probably a misnomer. Although both have a connection with corn, a tiponi is a personally owned fetish, a symbol of office or society membership, usually made of an ear of corn wrapped with cotton cord (Voth, 1901, 1903, 1912).

Since Roberts' reference to the corn goddess and Jeancon's use of the word "tiponi," most of the several like objects excavated have been called by one or both of these terms. The mammillary appearance of some specimens has been noted as being appropriate to the earth goddess concept. (See also Jeancon, 1923; Parsons, 1962).

If archeologists assign a hermaphroditic role to cone fetishes, perhaps they only reflect an ambivalence in Pueblo religious concepts. Elsie Clews Parsons, in her survey of Pueblo religion, compares the Hopi god of germination to Iatiku, the corn mother of the eastern pueblos. "Keres are less feminist in many ways than Western Pueblos yet their pantheon is dominated not by the War Brothers but by the

Mother or Mothers of the Underworld, beings of vegetation and of all creation. Analogously, the outstanding spirit of vegetation or germination of Hopi is male, "Müy'ingwa, as much of a maize spirit as Iyatiku of the Keres." She identifies Iatiku with the Hopi Sand Altar Woman, who is thought of as the sister of Müy'ingwa (Parsons, 1939, p. 963). In short, among the Hopi the brother is the chief tutelary of germination, while in the eastern pueblos it is the sister.

Quite similar in shape to the large cone in Kiva A are 48 smaller sandstone cones, five of which are illustrated in figure 208p-t. These range in length from 2.5 to 11.0 cm., and average about 6.0 cm. Several are oval in cross section and are made from the sandstone casts of the fossil ammonoid, *Baculites*, which occurs in the Mesa-verde sediments. All were apparently shaped by grinding though in most instances the stone is so friable that grinding marks no longer remain. Two were also incised. All were made of sandstone except one naturally cone-shaped concretion of ironstone, such as are plentiful in the Menefee formation which forms the talus slopes in the canyons. This, from the floor of Room 9, House 4, was stained at several spots with red paint. Two similar cones made of onyx were found in the great kiva fill and in House 1.

Some of the cones with a flatter cross section may have been abraders, like those from Pueblo Bonito described by Judd (1954, pl. 25), but none show the planes of wear that one would expect to see except for a single specimen from the House 1 trash in the upper fill of the great kiva. (This one has, on the reverse face, traces of fossil shell adhering to the cast.) There is reason to believe that the majority were fetishes rather than tools. Some rather similar objects appear on the altar of the Sword Swallower fraternity at Zuni (Stevenson, M., 1904). Just what was represented by most of the conical fetishes we cannot know, but they were probably whatever the possessors wanted them to symbolize. As to the breastlike cone with its incised nipple shown in figure 208p, there can be little doubt, and the carved phallus from Room 6 in House 7 is equally obvious (fig. 210). This lack of discrimination in sexual symbols was also displayed at Pecos Pueblo where, in a room with two carved stone anthropomorphic idols and several concretions and bits of petrified wood, were a breast-shaped stone and two tumescent phalli (Kidder, 1932, pl. 63a).

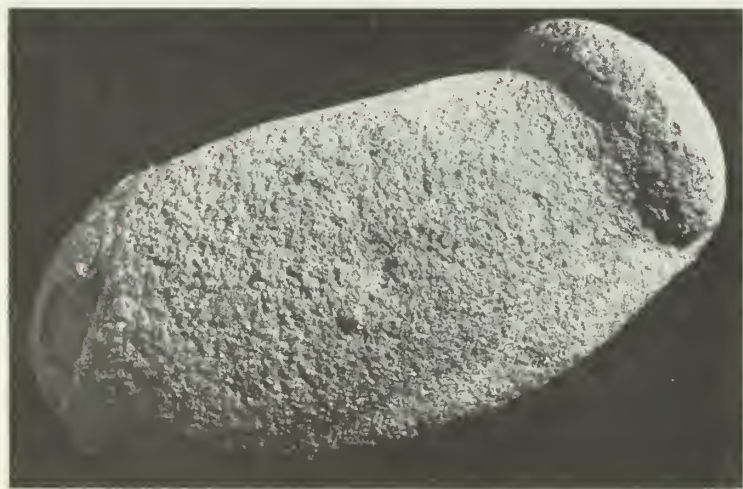


Figure 210. Carved sandstone phallus.

Concretions and geodes

The Cliff House sandstone commonly produces numerous small concretions which are dark red concentrations of manganese and iron. Many of these take the form of subspherical geodes. The

interiors are noncrystalline concentrations of dense black mineral. The larger, unbroken geodes often have off-center projections that give them a duck shape similar to that of effigy pottery. The smaller ones are more nearly round and, when broken, make small dishes. The lower sandstone tongue of the Cliff House frequently weathers out into unmineralized forms, often in grapelike clusters. These peculiarly shaped stones were fetish materials and they also served as sources of sandstone balls.

Ethnographic references to concretionary amulets are plentiful. The oldtime Zuni thought of concretions as being "portions of the gods, of their weapons, implements, or ornaments" (Cushing, 1883, p. 44).

Thirty-nine concretions were found, in addition to those worked into balls or cones. Seven of these were in the large collection of fetishes from Kiva A. Some examples are shown in figure 208.

The hollow cylindrical geode shown in figure 211, left, was ground smooth at the ends and on the outside but was unmodified on the inner surface. It came from the overburden of Kiva B and may have been a plume holder. The unworked geode illustrated in 211, right, from Stratum A, resembles the toe of a moccasin.



Figure 211. Concretions or geodes.

The spherical geode shown in figure 212, from Kiva A, has a narrow slot pecked and deeply incised into the more highly mineralized red center. It seems to be the representation of a vulva similar to those carved in the soft cliff face at Mother Rock, near Zuni, where prospective parents, hoping for a baby girl, make offerings (Stevenson M., 1904).

The object illustrated in figure 213 would not look out of place in an exhibit of abstract sculpture today. It acquired its shape by natural erosion, but apparently it struck the eye of someone who thought the form was significant. It was found in the firepit of Kiva A at Badger House, but, since it was not burned it probably fell from another location, breaking into two pieces in the fall. It may have fallen from the deflector or possibly through the open hatch in the roof. It is 49.5 cm. long and weighs 21 lbs.

Other fetishes

Several pebbles have a high, oily polish on all surfaces, including irregularities on them that could not have come in contact with a rubbed surface if the stones had been used as polishers. The finish is like that on the buckeyes that boys used to carry in their pockets—and perhaps still do. They are of quartzite (3), jasper (2) and quartz and chert (1 each). Regarding similar pebbles, Jeancon quoted his Santa Clara informant as saying that he carried one in

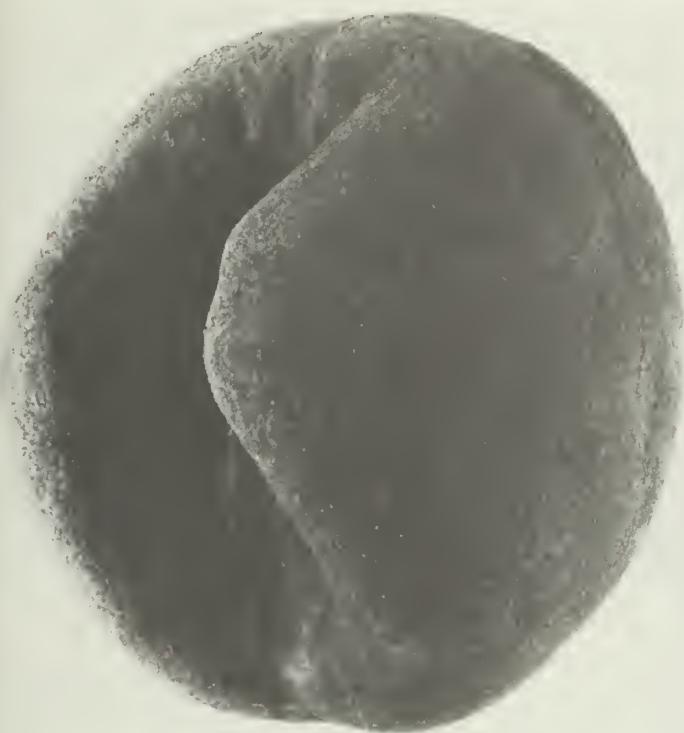


Figure 212. *Worked concretion.*

his pocketbook to make his money increase, and that in old times a man carried one in his mouth to make him brave and give him strength for a long run (Jeancon, 1923).

Three stones illustrated with the beads and pendants in figure 204 were probably also amulets or charms. The disk shown in figure 204f is a highly polished piece of cream and brown onyx from the general fill of the trash deposits. A similar, but rectangular, tablet of onyx, 3.0 by 3.2 cm., from the overburden of Kiva C, had the start of a drill hole in the center of one face. A disk of black shale from Stratum A is shown in figure 204g. A fragment of a jet disk was found on the adobe surface of Feature 3. The quartz crystal illustrated in figure 204k was found with Burial 30. In recent times, Pueblo Indians peered into quartz crystals for the clairvoyant finding of lost objects or the diagnosis of disease (Parsons, 1939).

Other objects which may have been talismans included a curved, cylindrical fossil algae from Kiva A at Badger House, numerous pieces of petrified wood and local travertine, and a fossil pelecypod of *Gryphaea* species which occurs in the lower Mancos shale (identified by Halsey W. Miller, Jr., University of Arizona).

An arrowhead-shaped artifact of black shale or slate was found in several pieces in the Mancos Phase fill of Kiva C (fig. 214). When restored, it measured 14.8 cm. long by 11.4 cm. wide by 1.2 cm. thick, and weighed 209 gm. The notches and base are bifacially flaked and the edges and both faces are ground. Too brittle to be used as a tool, it probably had a ritualistic function. A somewhat similar object of schist, carried in a dance, was collected at Zuni in 1879 by James Stevenson (1883).

Three small pieces of unmodified crystalline rock were a quartz crystal found with Burial 30, a calcite crystal in the Pueblo I fill of Pithouse B, and a smoky gray calcite crystal from the floor of Pithouse A. The last is the only object from a Basketmaker source that we designated as a fetish.

Except for the crystal in Pithouse A, none of the objects described above as fetishes were found in positions indicating contemporaneity with any house earlier than A.D. 815. House 3 con-



Figure 213. *Natural object of sandstone from Kiva A, Badger House.*

tained seven concretions of various kinds in the upper fill which was trash from Houses 4 and 5, but there were none on the floor and there were none at all in House 2. They were fairly numerous in Houses 6 and 7 and in all later structures at Site 1676, and in all levels of the Badger House trash dump.



Figure 214. *Lance-shaped object of slate.*

Miscellaneous Objects

Several classes of stone objects which were not amenable to previous pigeon holings are described under this catchall category.

Pot supports

Three subcylindrical, fire-reddened concretions were found in the trash at Badger House. All were very close in size and averaged 7.6 by 5.6 cm. Similar concretions in Big Juniper House and Mug House were found in groups of three or four in firepits (Swannack, 1969; Rohn, 1971). Concretions from the Cliff House sandstone are more resistant to heat breakage than is the native rock that surrounds them. They were probably used to support a cooking pot above the fire. The three specimens were not parts of a set, however. One came from Stratum D+, one from Stratum A, and a third from the general fill. Two similar stones from Room 2 in House 2 may have been intended for the same use but showed very little discoloring by fire.

Cubes

Three small sandstone cubes of unknown purpose were shaped by spalling and pecking. Two, measuring 5.2 and 6.3 cm. on a side, were found in the general fill of the trash mound and in the fill of Kiva C, respectively. A larger one, from the floor of Kiva C, measures 6.6 by 7.6 by 7.8 cm., and weighs 436 gm.

Petroglyph

A building stone with two adjacent dressed faces—one pecked,

the other ground—from the fill of Room 2 at Badger House was incised with a swastika (fig. 215). A swastika appears in Balcony House on Chapin Mesa, but this motif is rare in Southwestern rock art.



Figure 215. *Petroglyph on a building stone.*

Bowls

A crude stone bowl, about one-half of a concretionary geode, was found in subsoil under the Badger House trash mound associated with Feature 7. It is oval, measuring about 40.0 cm. across the narrow diameter. The exterior was rounded by rough spalling, but the pitting on the inside is natural. Eight similar but smaller bowls were from 3.5 to 14.5 cm. across. Most of them had some spalling or grinding to shape the exteriors, and three were also ground on the interior, but three were completely unworked. They came from overburden or fill in Pithouse G, the great kiva, and Houses 4, 5, and 7 at Site 1676, and in Feature 9 and the trash mound at Badger House. None were found on floors.

Mortar

A single specimen of what might be called a mortar was found on the floor of the large room in Pithouse B, between the firepit and the southeast wall. It is an irregular and unshaped block of sandstone 10.4 cm. thick. An oval depression in the upper face, 22.0 cm. long by 18.0 cm. wide by 2.0 cm. deep, was sharpened by pecking and then lightly ground.

Celt

An unnotched ax, or celt, of black schist with a ground bit was found in the upper fill of Room 14 in House 1. It was 14.2 cm. long.

Gizzard stones

Thirty-six polished gizzard stones were collected from two of the sites. They weigh an average of 1 gm., and range from $\frac{1}{10}$ of a gram to a choking $4\frac{1}{2}$ gm. The materials include chert (19), claystone (6), chalcedony (5), quartzite and banded siltstone (2 each), and porphyry and jasper (1 each). There is a high percentage of eye-catching bright colors. Two were recovered from Stratum E, one from combined Strata D+ and E, and 14 from Stratum A. None were found in the early pithouses. One was found on the floor of Room 12 in House 4 and one came from the area of Room 13 in House 3, at Site 1676. All the rest were from unrecorded spots at Badger House.

Other worked stones

Four irregular blocks of sandstone with a small pit pecked in one facet or, in one case, in two opposing faces, were cataloged. The pits are from 4.3 to 5.0 cm. across at the top and from 1.5 to 2.0 cm. deep. None of the pits are abraded, as they would have been if they had been used as small mortars. They were found in room fill in Houses 1 and 7 and in the general fill of the Badger House trash mound. Similar pits were observed on several building stones still in place, on small broken pieces of sandstone which were left in the field, and on the bottom of a metate and of a large ax-grinding stone. These pits were possibly a step in the quarrying process. They may have been pecked into native rock as drill holes to weaken a slab prior to breaking it out of the ledge with maul or wedge.

A great number of stones, mostly alluvial cobbles, exhibited some degree of modification by pecking, spalling, or grinding, but were not recognizable tools. Probably most of them had been intended to be rubbing stones, manos, or axes, but were discarded before completion.

Chipping Debris

A large number of rejected flakes and cores was retrieved from the excavations. Samples of 2,826 flakes and of 530 cores were selected for their relatively undisturbed and representative proveniences and were studied, along with chipping remains from the other major sites on Wetherill Mesa, by Douglas Osborne, who has reported his conclusions elsewhere (Osborne, 1965). The material from the three sites considered here, particularly the stratified sequence in the trash mound, tended to validate his observations from the other sites. Briefly, there was a preference in the earlier stages for dark claystones with artificially prepared striking platforms. This was followed in the late phases by a steady increase in the use of cherts of lighter gray-green colors and of natural striking platforms. Chalcedony and quartz—never particularly common—were commoner in earlier times, but seemed to fall off in popularity with the increased use of chert.

BONE AND ANTLER

Considering the exposed nature of the sites, a rather large collection of bone artifacts was made and a much smaller one of antler. The majority of the bones identified were deer, and most of those identified only as artiodactyls were probably deer. In view of this, the scarcity of antler is somewhat surprising, but the antler recovered was generally in poorer condition than the bone; probably much of it had rotted away.

Species represented by worked bone in diminishing frequency were:

mule deer	bison
unknown artiodactyl	coyote
unknown mammal	unknown canine
bighorn sheep	unknown cervid
jackrabbit	cottontail
deer (<i>Odocoileus</i>), species unknown	golden eagle
bobcat	ferruginous hawk
turkey	unknown bird
gray fox	unknown bird or mammal

Species of *unworked* bone, again in descending order of importance, show broad similarities to, and minor differences from, species represented by the worked bone:

bighorn sheep	porcupine
unknown artiodactyl	elk
rabbit	marmot
turkey	prairie dog
mule deer	badger
dog	great horned owl
jackrabbit	magpie
rock squirrel	unknown mustelid
dog or coyote	kangaroo rat
bobcat	bear
gray fox	wolf
unknown bird	meadow mouse
bison	red-tailed hawk
unknown carnivore	scrub jay
coyote	sage thrasher
pocket gopher	unknown cervid
wood rat	unknown buteo
red fox	unknown sciuridae
unknown canid	unknown rodent

The use of bone was probably comparable to that of stone in making tools, the smaller numbers found being only a result of the comparatively perishable nature of bone. A comparison of the species used for artifacts, and their relative incidence compared with the species list of unworked refuse bone, indicates that bone was a byproduct and that animals were probably seldom, if ever, killed because their shin bones made good scrapers, though the differences in the lists showed that some bones were obviously preferred over others. The bones of a deer whose flesh might feed a family for several days would possibly provide a year's supply of bone for tools. However, a set of good bone tools was probably valued by its owner, as is indicated by those found with two burials and illustrated in figures 216 and 217.

Refuse bone is discussed further in the summary and all bones are listed in Appendix 1 by number and provenience.

Awls

Pointed tools used for perforating, punching, poking, or stabbing account for three-quarters of all worked bone objects. Although many different bones of eight identified species were used to make awls, there was a decided preference for cannon bones of mule deer (fig. 218a-f). The distal end of the metatarsal was most commonly used, and the manufacturing process possibly started when the bone was split to extract marrow. In figure 218a, the bone was broken and the jagged end sharpened to a point with no alteration of the joint. Much more frequently, the condyle was split lengthwise. In b, the joint was split, but the head was not further modified. In c and d, the articular surface was slightly ground down and in e the articular surface was flattened by grinding and polishing. In f, the cancellous tissue of the joint was almost completely removed. More than half of the awls were of this sort. All metapodials used were from artiodactyls. Two-thirds of those identifiable were deer, and the rest were bighorn sheep.

When bones from the smaller animals were used to make awls, they were most often the long bones with the joint intact, or at least still recognizable, and with the shaft unsplit. Long bones from the larger mammals were usually represented by splinters, but in the case of three deer and two bighorn sheep ulnae, the proximal articular head was left whole or partly intact to serve as a handle or grip. In figure 218g-i are ulnae of unidentified canid, mule deer, and coyote. A bobcat radius and a tibia of gray fox are illustrated in figure 218k and p. Splinter awls are shown in the lower left of the figure. At l and n are bones of unknown mammals; the first is the



Figure 216. Kit of bone tools found with Burial 4. Site 1676.



Figure 217. Bone tools found with Burial 3. Badger House.

only double-ended awl in the collection, n is made from a split rib, and o, though only a splinter, was identified as the radius of a big-horn sheep. The only bird bone awl found, a turkey tibiotarsus from Stratum E, is illustrated in figure 218q.

Although implements classified here as awls range from 4.7 to 25.6 cm. long, the average length is 9.8 cm. and the majority of them are close to this size. Some of the longer ones may have had another purpose. The two mule deer metatarsals shown in figure 219a and b seem too long and unwieldy for use as awls. The points are flattened and bladelike rather than round in cross section, and they could have served as daggers. The perforation for a looped string (fig. 219a) was also found on three smaller awls (fig. 216d). The awl shown in figure 219b is one of very few tools made from the proximal rather than the distal end of a metatarsal. The three long splinters illustrated in figure 219c-e appear to be too fragile for heavy use and may have been pins for clothing or hair; e is a polished bobcat fibula, and the groove encircling the proximal end of d is unique in the collection.

A needle (fig. 217d) was found with a Mancos Phase burial at Badger House, and the tip of what may have been another came from the general fill of the trash mound.

Of the 195 awls in the collection, five came from La Plata

Phase pithouses, 40 had Piedra Phase proveniences, and 150 were found in Pueblo II and III contexts at Badger House. The preference for deer metapodials, though constant, was most pronounced in earlier times. As more use was made of long bones in the later stages, the awls tended to average a few millimeters longer.

Tools with a blunt point and short tip (fig. 218a-c) have been described elsewhere as punches. These points, as distinguished from more tapered, triangular points, are commonest in the earlier stages. They comprise 50 percent of the awls with intact tips in Basketmaker loci, 24 percent of the Pueblo I awls, and 6 percent in the Badger House trash mound in the early Pueblo II Strata D through E, and only 3 percent in the upper levels, Strata A through C. Just what function the elongated tips had is not known. The points are seldom as sharp as those on the more conventional awls, and it is probable that they were, in fact, punches. Whatever their use, something else took their place in late Pueblo I or early Pueblo II. The somewhat shorter measurements of the earlier awls probably result from the narrow tip. If the point was reworked after the fragile tip broke off, the length would be reduced by half an inch. Of course we do not know if the tip was shaped during the initial fashioning of the tool or if it was worn to that shape through specialized use, but the latter seems more likely.



Figure 218. *Bone awls.*

Eighteen awls were grooved or notched on the shank as the result of wear (fig. 218c, h-j, n, and o). The grooves are from one to four parallel marks crossing the shank at right angles to the long axis, and are usually faint and shallow, but occasionally deep enough to weaken the shaft. Several awl fragments were broken off at this point. The grooves seem to have been cut by repeatedly throwing half hitches of fine string around the shaft and pulling the awl back under sufficient tension to cause wear into the bone. Such tools have been called matting or weaving tools, but just how they were used is unknown. It is interesting, but perhaps coincidental, that they first appear in Pueblo II times, when loom weaving of cloth was supposedly introduced and in deposits where the tipped awls described above show a marked drop in popularity. None were found in proveniences earlier than the lower levels of the Badger House trash.

Spatulate Tools

Nineteen tools with proveniences in all of the five phases represented and having a variety of purposes, were classified according to their spatulate shape rather than their functions, which in many cases could only be guessed. All were made from split bones of large mammals. Mule deer, bison, and bighorn sheep were represented in descending order of frequency. The majority were long bones, but there were five ribs. The common attributes of these

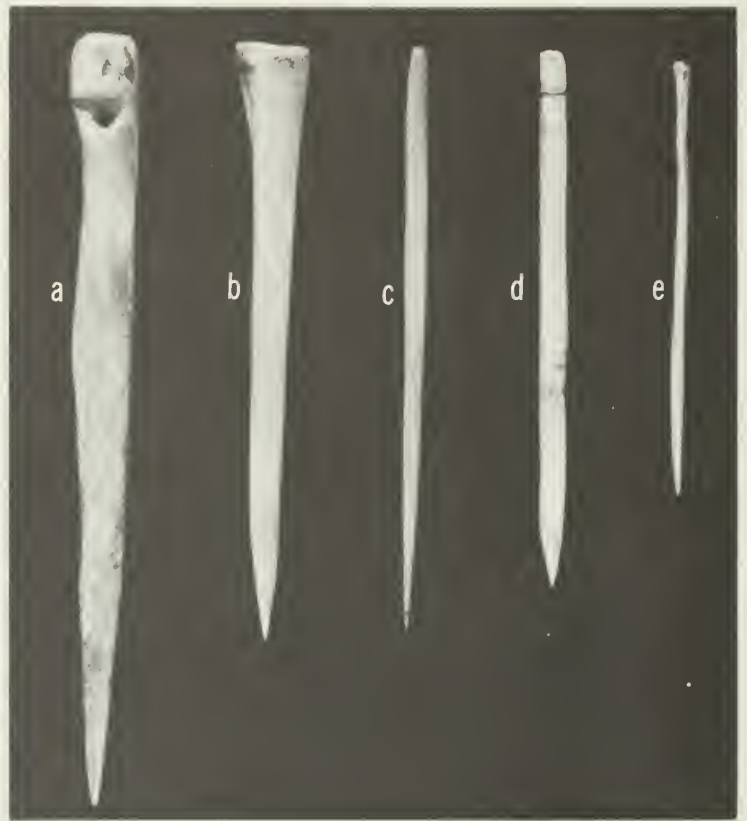


Figure 219. *Bone bodkin, awl, and pins.*

tools are one or two flat and blunt spatulate ends, with no indications of wear or use on the long edges.

Some of them are of a type that has been called scrapers or fleshers (fig. 220b, c, g, and j), but the broad ends showing signs of wear are too blunt to have scraped any but the most friable material. Carolyn Osborne (1965) has suggested a possible use—that of removing the pulpy material from yucca leaves in preparing fiber for cordage. The fleshing of a hide requires a sharp and preferably serrated implement, and none of these tools would be the least bit effective, though they might have been used in dehairing or in the long rubbing process that is part of brain tanning. Figure 220j is worn on the curved inner face and was used at a nearly flat angle to the surface of the material being rubbed, a position that would not afford the leverage necessary in fleshing.

Two objects illustrated in figure 220e and i were possibly used as spoons or paddles, since there are no signs of wear other than the grinding of manufacture. Similar specimens are the spoonlike artifacts shown in figure 216g and i, which have points at opposite ends. The object illustrated in figure 220h may have been some sort of fid. There are "weaving grooves" near the tip and midway on both edges. At 220a is a carefully shaped and polished fragment of bone with squared ends which was possibly intended as a gorget.

The only typological change suggested by our material, and also supported by the literature on Mesa Verde archeology, is that the scraping and rubbing tools of the earlier phases tend to be short splinters with the joint removed, whereas those of the later periods tend to have the articular end left intact to serve as a handle. The familiar humerus scraper of later Pueblo III in the Mesa Verde area, in which the proximal head of the bone was left intact or only slightly ground down (Morris, 1939, p. 121; Rohn, 1971, figs. 255 and 256), is represented here by only one fragmentary specimen from Stratum A.

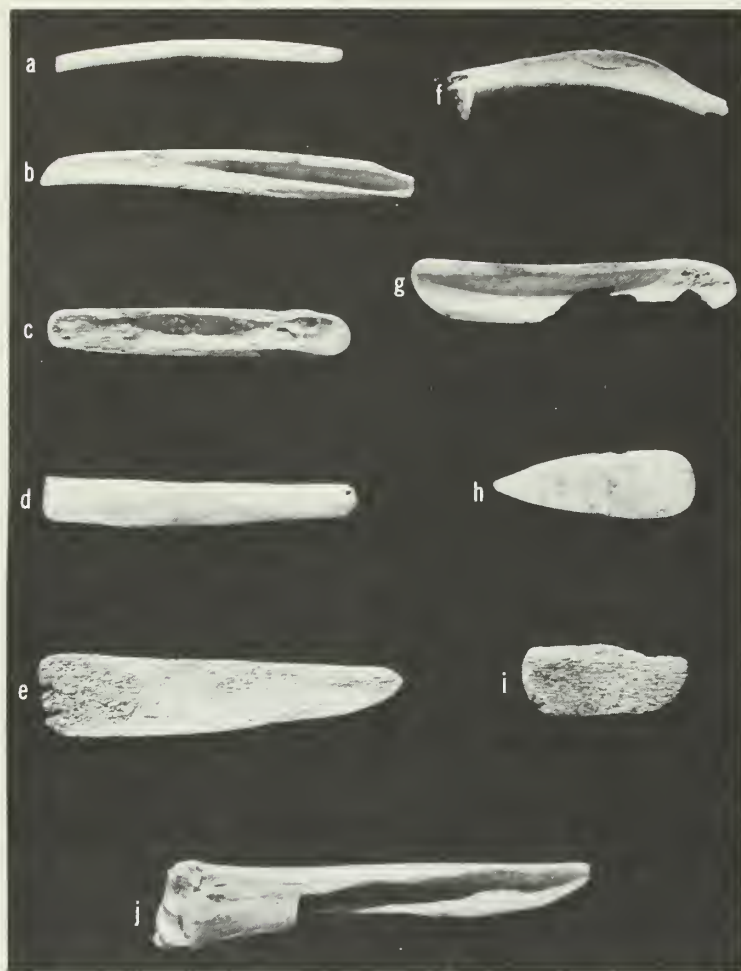


Figure 220. Bone tools with spatulate shape.

Side Scrapers

The long edges of four bones were worn as if from use in scraping or rubbing. Two from a Pueblo I source were a mule deer mandible from House 1 and a deer rib from House 4. Two turkey scapula scrapers were found in the subfloor vault of Kiva A at Badger House (fig. 220f).

Flakers

Six flakers of bone and antler came from Piedra Phase and later sources. The most carefully made one, from Protokiva D, was a splinter of metapodial perforated at the proximal end (fig. 221a). The other bone flakers were splinters of two metapodials and of a bighorn sheep rib, with no shaping except the characteristic blunting of one end as the result of use. The two specimens of antler showed use-blunting at the end of a tine.

Perforated Mammal Tibias

A puzzling artifact that is apparently confined to the San Juan area is made from the tibia of a small mammal. The articular surface of the proximal joint was removed by grinding at right angles to the axis and the cancellous tissue was reamed out. A small hole was then drilled through a wall of the shaft near the distal end. There was no other modification except for occasional polish of the shaft from use or handling.

The 19 specimens in the collections were jackrabbit (13),



Figure 221. Bone flakers, a-c, ornaments, d-i, and gaming pieces, j-l.

fox (3), and bobcat, cottontail, and an unknown canid (1 each). Seven came from Site 1676 in the later Pueblo I structures. The three illustrated in figure 221d-f were found on or near the floors of Protokivas D and E. All of those from Badger House were fragmentary and were found in the trash.

Identical or quite similar artifacts are reported from the Piedra River (Roberts, 1930; Hester, 1963), from numerous sites on the Mesa Verde (O'Bryan, 1950; Lancaster and Pinkley, 1954; Swanack, 1969; Rohn, 1971) and from the Ackmen-Lowry district north of Mesa Verde (Martin, 1939). Fragments of what were probably the same thing were found at Site 13 on Alkali Ridge (Brew, 1946). Though no exhaustive library research has been made, we have found no reference to such artifacts from Basketmaker sites or from the country south of the San Juan River. There were apparently none in the great quantities of bone from Paa-ko (Lambert, 1954), Hawikuh (Hodge, 1920), or Pecos (Kidder, 1932). Richard P. Wheeler, who is preparing a report on the bone and antler artifacts from Awatovi, tells us that there are none in that extensive collection.

Perforated tibias have been variously described as whistles, birdcalls, tinklers, or rattles. However, they cannot be made to whistle, and while a good imitation of a turkey hen can be made with one, it works equally well without the perforation. The tinkler-rattle idea seems the most plausible.

Ornaments

Ornaments of bone were no more plentiful than those of other material. Seven tubular beads were found in the Pueblo II-III trash at Badger House, two of which appear in figure 221g and h. The four complete specimens were from 2.4 to 4.7 cm. long. Four were made from turkey long bones, and there is one each of jackrabbit, ferruginous hawk, and golden eagle.

A bead or ferrule found in Pithouse A was made from a section of tibia of an unknown mammal. It was carefully cut out, and one end was serrated and highly polished (fig. 222).

A round button or pendant with a small perforation in the center also came from Pithouse A (fig. 221i). It was made from the right parietal of a gray fox.



Figure 222. *Bone bead.*

Gaming Pieces

Three counters or gaming pieces are shown in figure 221j-l. Two are small lozenges of cut and ground splinters of unidentified bone—one from Site 1676 and the other from the Badger House trash mound. The small cylinder from an antler tine (fig. 221j) may not belong in this group, but it is too nicely worked to be a waste fragment.

Wrench

The burned main beam of a heavy antler was found on the bench of Pithouse G. It is from a buck killed in the fall or winter, as it is a mature, but uncast, antler. Part of the frontal bone is attached. The brow tine had been removed and a hole, 3.6 cm. in diameter, had been cut at the wide point just below the branching of the first fork (fig. 223).

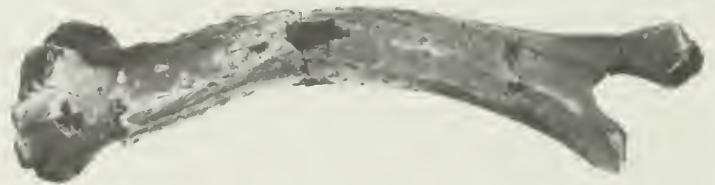


Figure 223. *Antler wrench.*

Human Remains

The remains of 42 individuals and the scattered remains of an undetermined number of others were found. Nine were from Site 1676 and probably date from the Piedra Phase, and the other 33 were Pueblo II and III burials at Badger House. No Basketmaker burials were found. The body of an adult, accidentally cremated, lay on the floor of a burned house at the Pueblo I site. All others were interments. Except for a child placed at the bottom of an unused ventilator shaft, all burials were in shallow pits, usually scraped out at the edge of a trash deposit, and were covered with refuse. Only a few pit outlines were discernible as evidence of an excavation into firm soil, and in only four instances was the grave filled with rock. There was a good deal of disturbance of the graves—largely by burrowing animals, but in at least one case by a subsequent burial.

Comparisons of burial practices and physical data show little change from early to late times. Bodies were flexed except for two extended burials in the Piedra Phase component. The orientation and position of the body were haphazard. Funeral offerings were scant in the early stage but common later. An intriguing but unexplained fact is the preponderance of male skeletons in the total number, and in the two groups taken separately. Of the 25 remains for which sex could be determined, 17 were male. The disparity at Site 1676 was even greater, five males and one female.

About one-quarter of the individuals were immature, averaging 4 years old. Eleven of these were 9 years or less, and there was one youth of 13. Adults ranged from 22 to 50 years and averaged 36. No estimated age is given for 10 burials, of which one was a child and nine were adults.

An estimate of stature was made for three adult females, all of whom were 5 feet 3 inches. Nine adult males averaged 5 feet 5½ inches, with a range of from 5 feet 3 inches to 5 feet 8 inches. Most of the bone was in rather poor condition and nearly all of the skulls were crushed by pressure and fragmented by roots. Deformation or lack of it was determined on 22 skulls and all but one of these exhibited artificial lambdoidal flattening. The skull of one adult male was undeformed.

Ten of the 30 adults were afflicted with degenerative arthritis, and all but the youngest of the adults showed marked tooth wear. Caries, abscesses, and premortem tooth loss were common. Six individuals had healed fractures; these included a crooked wrist and a shortened foot resulting from the fracture of a first metatarsal.

The pertinent details of each burial are shown in table 35. Badger House burial locations are shown in figure 47.



Figure 224. *Burial 2, Site 1676.*

Table 35. Burials from Site 1676 and Badger House

Burial No.	Est. age	Male	Female	Orien- tation	Fully flexed	Semi- flexed	Position**	Arthritis	Stature	Skull deformed	Period
Site 1676											
1	A*	—	x	N	—	x	R	—	—	—	Piedra Phase
2	30-35	x	—	NE	—	x	U	x	5'6"	x	Piedra Phase
3 ¹	A	—	—	—	—	—	—	—	—	—	Piedra Phase
4	A	?	—	—	—	—	—	—	5'5"	—	Piedra Phase
5 ²	30-35	x	—	SE	—	—	U	—	5'4"	x	Piedra Phase
6	40+	—	—	E	x	—	L	x	5'4"	x	Piedra Phase
7 ²	A	—	—	W	—	—	U	—	—	—	Piedra Phase
8	35-40	x	—	SE	x	—	R	x	5'5"	x	Piedra Phase
9	20-30	x	—	S	—	x	R	—	—	—	Piedra Phase
Badger House											
1	A	x	—	SE	—	x	D	—	5'5"	—	Mid PII
2	35	x	—	NE	—	x	U	x	5'3"	—	Mancos Phase
3	28	—	x	SE	—	x	D	—	—	x	Mancos Phase
4	45	x	—	S	—	x	U	x	5'5"	—	Mancos Phase (or later)
5	A	x	—	E	—	—	—	x	5'8"	—	Mancos Phase (or later)
6	2-3	—	—	—	—	—	—	—	—	—	Ackmen Phase
7	A	x	—	E	—	x	R	—	—	—	Mancos Phase
8	45	x	—	N	x	—	L	x	5'6"	x	Ackmen Phase (late)
9	A	—	—	N	—	x	D	—	—	—	Ackmen Phase
10	5-6	—	—	E	x	—	U	—	—	x	Mid PII
11	37	x	—	SW	x	—	L	—	—	x	Mancos Phase (late)
12	27	x	—	NW	—	x	R	x	5'5"	—	Mesa Verde Phase ?
13	48	—	x	N	—	—	U	x	—	x	Ackmen Phase (early)
14	48	x	—	N	x	—	L	—	5'6"	x	Ackmen Phase
15	22	x	—	W	—	x	R	—	5'6"	x	Mesa Verde Phase
16	3-4	—	—	W	—	—	R	—	—	x	Mancos Phase
17	A	—	—	—	—	—	—	—	—	—	Mancos Phase
18	50	—	x	SE	—	—	L	—	—	—	Mancos Phase
19	3	—	—	NE	—	x	D	—	—	—	Mancos Phase
20	30	—	x	—	—	—	—	—	—	—	Mancos Phase (or later)
21	42	—	x	N	—	x	L	—	5'4"	—	Mancos Phase
22	2-3	—	—	SE	—	—	L	—	—	—	Mancos Phase
23	I*	—	—	—	—	—	—	—	—	x	Mancos Phase (or later)
24	30	x	—	SE	—	x	U	x	—	x	Ackmen Phase
25	13	—	—	SE	—	—	U	—	—	x	Ackmen Phase
26	48	—	x	S	—	—	—	—	5'3"	x	Mancos Phase (or later)
27	28	x	—	SE	x	—	L	—	5'6"	x	Mancos Phase
28	2-3	—	—	—	—	—	—	—	—	x	Ackmen Phase
29	25	—	x	S	—	x	U	—	—	—	Ackmen Phase
30	1-2	—	—	NW	—	—	—	—	—	x	Ackmen Phase
31	2	—	—	NE	—	—	—	—	—	x	Ackmen Phase
32	1-2	—	—	NE	—	—	—	—	—	—	Ackmen Phase
33	9	—	—	SW	x	—	U	—	—	x	Mesa Verde Phase

* A = adult; I = infant.

** D = face down; U = face up; L = left side; R = right side.

¹ Not a burial—individual burned on floor of room.² Extended burials.

BURIALS AT SITE 1676

Burial 1

The first burial encountered in the excavation of Site 1676 was in Test Trench II, at the southwest corner of House 3. It lay in the trash, probably from Houses 4 and 5, deposited over the burned remains of House 3. No prepared pit was discernible. The body lay one foot below the present surface, directly under the worn track of the Blowout Trail, an old park trail leading to the southern tip of Wetherill Mesa, a circumstance which probably led to the poor condition of the bone. The body was that of an adult female, the only one at Site 1676, semiflexed on the right side with the right arm extended under the body and the head to the north. The left

arm, which would have been close to the surface, was missing, as were the mandible, hands, and feet. The skull was artificially deformed in the lambdoid region. No artifacts were associated with the burial.

Burial 2

This grave was in the same trash area as Burial 1, south of House 3, and lay partly over Protokiva C (fig. 224). It was excavated through trash into subsoil at its east end. The body lay 1.3 feet below the ground surface, and the bone was in good condition considering the shallow depth. The left hand and foot were missing, possibly because of rodent activity. The burial was of a man from 30 to 35 years old with a stature of 5 feet 6 inches. He had unusually heavy brow ridges and mastoids and pronounced artificial

lambdoidal deformation. More important to the individual was evidence of advanced degenerative arthritis of the pelvis and the glenoid fossa of the scapula, and pyogenic spondylitis of the fifth lumbar and first sacral vertebrae, the result of an infection. He lay on his back with his head to the northeast, his arms extended along his sides, and his legs loosely flexed to the right. The base of a Piedra Black-on-white pitcher, re-used as a bowl, lay next to the skull, above the left shoulder.

Burial 3

On the floor of Room 13 in House 1 were the charred remains of an adult. The burned bones were too fragmentary to tell us more than the individual's position and that they belonged to a physically mature person. The body lay supine on the floor across the firepit, with the arms folded up to the left shoulder. The legs were semi-flexed. The bones were covered with charcoal and the burned rock and adobe of the collapsed southeast wall of the room. This was not a true burial, but rather the remains of an individual who lay dead on the floor when the house burned or who perished in the fire.

Burial 4

This burial was disturbed and incomplete. The bones recovered were one femur, one tibia, two fibulae, one foot, two vertebrae, and eight rib fragments. It was an adult, probably male, with an estimated height of 5 feet 5 inches. All that remained *in situ* were the right leg and foot, which can be seen below Burial 8 in figure 225, left. Apparently the body had been laid on the floor of Pitroom F at House 4 and had been flexed on the left side, next to the north wall. The other bones were found in the fill above this spot and near the floor of Room 13, immediately to the west. There was no soil change to suggest a pit or burrow, but scattered bone in the fill indicated that after the room had filled, though probably still in prehistoric times, a hole was dug down along the north wall and the bones were scattered in the spoil. Though from 3 to 4 feet deep, the hole was narrow, as there was no disturbance of Burials 5 and 8 on the same floor nearby. Perhaps the diggers were discouraged from further work when they encountered the burial.

On the floor, near the probable position of the head and shoulders, were the base of a Piedra Black-on-white pitcher, re-used as a bowl, and a semipolished Chapin Gray pitcher, 20.2 cm. high,



Figure 225. Burials 8, 6, and 5 in Pitroom F, Site 1676.

with a handle made up of two round fillets of clay placed side by side. Inverted in the mouth of the latter was a miniature Chapin Gray pitcher, 6.2 cm. high. The handle had broken off and the areas of the break were ground down. In the fill for 2 feet above the floor, in the vicinity of the feet of Burial 5 but probably associated with Burial 4, were the nine bone tools illustrated in figure 216. Also in the upper fill, and probably associated with Burial 4, was a small pink stone bead.

Burial 5

Also on the floor of Pitroom F, to the west of the firepit and with the head almost touching the wingwall (fig. 225, right) was Burial 5. The body was extended, with the feet crossed at the ankles and the arms over the abdomen. This was a man of 5 feet 5 inches and 30 to 35 years old. He had long since lost eight teeth and there had been alveolar resorption of the bone. The teeth that remained showed caries and considerable wear. He also suffered from arthritis of the facet joints of the spine and had a healing vascular lesion, osteochondritis dessecans, of the knee. A small Piedra Black-on-white gourd-shaped pitcher (fig. 115d) lay against the left thigh, and at the top of the flattened skull was a stone hammer with deeply worn notches (fig. 185i). Next to the upper right arm lay a large Chapin Gray jar sherd covering a crude bowl of the same type. The base of a broken Moccasin Gray jar, which sat in the trough of a metate to the left of the burial, may have been an additional offering, but the metate itself, still in place for grinding, may be a piece of room furniture not removed when the room was abandoned.

Burial 6

This burial of a man over 40 years, fully and tightly flexed on his left side, lay over the firepit of Pitroom F, to the east of Burial 5 (fig. 225, center). His stature was 5 feet 4 inches, his skull shows symmetrical lambdoidal deformation. He had lost four upper molars, and five other teeth were abscessed, and he had advanced arthritis of the clavicle, scapula, pelvis and vertebrae. The only offering was a large trough metate inverted over the skull.

Burial 7

Less than a foot below the surface near the southeast corner of Room 12 in House 3 were the few poorly preserved bones of Burial 7. The burial was probably made after the abandonment of this house. The bones had been disturbed by rodents and the roots of a large juniper. All that remained were the mandible, one vertebra, both tibiae, the right humerus, and the left femur of an adult, probably male, which lay in an extended supine position. No artifacts accompanied the burial.

Burial 8

Lying back to back with Burial 6, tightly flexed on the right side, was the skeleton of a man of 35 to 40 years (fig. 225, left). Like his companions in Pitroom F, he was old and decrepit. He had degenerative arthritis of the pelvis, acetabulum, sacrum, and thoracic vertebrae, and he had a mild bunion. The skull was unusual in showing, in addition to lambdoidal deformation, a slight, centered, artificial flattening of the occiput. The wrists and hands of the burial lay on a sandstone crusher (fig. 196, center). In front of the knees was a large Moccasin Gray jar, 25.0 cm. in diameter. The bands on the neck had been smoothed by dragging the tip of a finger around the circumference. A smaller jar of the same type, with narrow fillets 0.7 cm. wide, lay 1 foot to the east.

Burial 9

This burial lay on the floor in the south corner of Room 15, a storage room in House 7, where the body was apparently placed after the house burned (fig. 226). A small Chapin Gray scoop or dipper (fig. 83p) sat behind the left knee. The body, that of a man 20 to 30 years old, was semiflexed on the right side. The right arm was extended, with the hand between the knees and the left arm flexed. No pathologies were noted beyond the premortem loss of three molars.



Figure 226. *Burial 9, Site 1676.*

BURIALS AT BADGER HOUSE

Burial 1

Near the toe of the trash mound, in the top 0.5 foot of Stratum B, but originating above it, was a well-defined pit, 4 by 1.3 feet. The burial in it had been disturbed by rodents, and the remains consisted of the mandible, part of the right ulna, and the lower long bones. The individual, an adult male, 5 feet 5 inches tall, apparently had been buried in a prone position with the lower legs folded up over the thighs and the face turned to the right. The head was oriented to the southeast. Placed at the head were a Mancos Corrugated pitcher (fig. 94d) and a Cortez Black-on-white ladle (fig. 126b). The burial probably dates from mid-Pueblo II times.

Burial 2

A pit measuring about 3.5 by 2.5 feet, and 0.8 foot deep, started from low in Stratum A and penetrated Stratum B. It contained the nearly complete skeleton of a man of 35 ± 5 years, whose height was 5 feet 3 inches. He lay on his back, face up, with his head to the northeast. Legs were tightly flexed over the body but had fallen to the right. The left arm was extended along the side and the right arm was doubled, with the hand over the throat (fig. 227). He had suffered considerable premortem tooth loss, and had arthritis in the shoulder and in the thoracic vertebrae. Placed to the right of the head was a small Mancos Corrugated pitcher with a reworked rim (fig. 95f). By the right shoulder was a large Mancos Black-on-white bowl, which had been repaired by ties in four pairs of drilled holes. Inside the bowl lay an inverted Mancos Black-on-white dipper with hollow tube handle (fig. 144d). Another Mancos



Figure 227. *Burial 2, Badger House.*



Figure 228. *Burial 3, Badger House.*

Black-on-white bowl (fig. 148a), 2.5 feet from the left shoulder, was undoubtedly associated with the burial but was probably moved by burrowing animals. In the area of the chest was a red shale pendant, and a corner-notched projectile point was in the pit fill. The stratigraphy and the pottery mark this as a Mancos Phase burial. The grave was covered with clay and two flat sandstone slabs were then placed over the vicinity of the head.

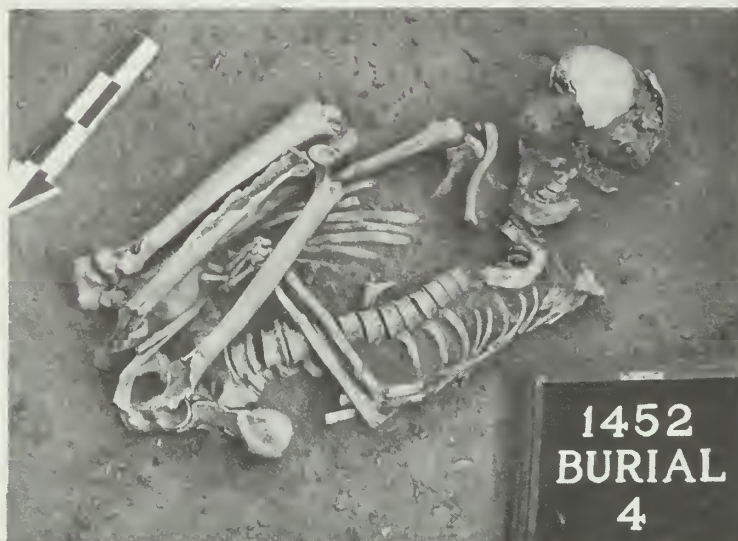


Figure 229. *Burial 4, Badger House.*

Burial 3

This burial also lay in a pit dug from Stratum A completely through Stratum B. A packed, silty layer separating Strata B and C formed the floor. The grave was covered with silt and trash from the hole and with 50 to 60 irregular, fist-sized pieces of sandstone. The body of a 28-year-old woman (± 3 years) had been placed face down with the lower legs flexed over the thighs. The right arm was extended with the hand at the groin, but the left forearm was missing. The skull was deformed and the body was oriented to the southeast (fig. 228). Inverted on the left shoulder was a Mancos Black-on-white bowl (fig. 155d), underlaid by half of another, and a Mancos Black-on-white ladle was on the middle of the back just below the shoulder blades (fig. 144e). A Mancos Corrugated jar lay on its side at the right shoulder (fig. 94d) and a pitcher of the same type sat at the top of the head (fig. 95a). Near the right tibia was a turquoise pendant (fig. 204i), and one pendant of shale lay on top of the large bowl. A kit consisting of a bone needle and three awls (fig. 217), lying 2.5 feet to the left of the knees, was probably associated with the burial. This was a Mancos Phase grave.

Burial 4

The man buried in this undefined pit in Stratum A was poor in flesh and poor in worldly goods or friends, if the lack of grave furnishings is any indication. The bones lay a scant foot below the surface and were badly decomposed. The body lay on its back with the head to the south, the knees pulled tightly up to the chest, and the left arm folded over the abdomen. The right forearm was missing (fig. 229). The individual was old at 45 ± 5 years. He had suffered a compression fracture of the thoracic vertebrae, which may have aggravated or triggered the arthritic condition of the vertebrae, both thoracic and lumbar. Most of the teeth were gone before death and a lone premolar in the mandible was ground flat. His original stature was estimated at 5 feet 3 inches. One-half-foot west of the skull was a slab-lined cist, 0.5 foot square and 0.5 foot deep. Its top was level with the floor of the grave. Although association with the grave could not be proved, it may have been for the purpose of depositing food with the burial, taking the place of the more usual pottery vessels. This burial was Mancos Phase or later.



Figure 230. *Burial 7, Badger House.*

Burial 5

This grave was shallow and much disturbed. The pelvis, left arm, and right radius of an adult male lay only 0.5 foot below the surface in Stratum A. The head was to the east if the body had not been moved after burial, but it is likely that it was disturbed. The arms were crossed under the back with the left hand under the right hip, an unusual position. Using the radius, the stature was computed as 5 feet 8 inches. There was evidence of acetabular arthritis and arthritis of the fourth and fifth lumbar vertebrae. Its position on the top of Stratum A indicates that the burial belongs to one of the late phases, Mancos to Mesa Verde.

Burial 6

The fragmentary skull of a 2- to 3-year-old child was found in Stratum D at the south end of the mound. Though no other bones were present, the skull of Burial 6 had not been disturbed. It lay beneath a large jar sherd which was slipped and polished but unpainted. Stratum D, at this point in the trash, is the bottom cultural level just above subsoil. The skull lay about 3 feet below the surface and there was no evidence that levels above it had been disturbed. It probably dates from the Ackmen Phase.

Burial 7

The upper levels of trash in the vicinity of Burial 7 had been disturbed for a radius of 8 or 9 feet, but if stratigraphy discernible on either side were extended across the disturbed area, the body would lie near the point of contact of Strata B and C. The torn up area above the grave is far more extensive than was necessary for burying the body, and a possible explanation is that a fairly large pit for some other purpose existed there and that the body was placed at the bottom of it and trash was pulled down over it. It is probably a mid-Pueblo II burial, possibly early Mancos Phase.

The body was semiflexed on the right side with the upper torso to the east (fig. 230). The skull was missing, but the rest of the skeleton was fairly complete though in poor condition. The individual was an adult male. Where the head should have been, two nested bowls were placed, a Mancos Black-on-white (fig. 148c) inside of a bowl which may be either Cortez or Mancos Black-on-white (fig. 154).



Figure 231. *Burial 8, Badger House.*

Burial 8

A well-defined pit in Stratum C, which originated there or possibly in the stratum above, measured 2.5 by 3.7 feet and held the remains of a man of 40 to 50 years. He lay on his left side, in a tightly flexed position, with the head to the north (fig. 231). The skull had been moved a few inches to the north and turned 180° by the growth of a large pinyon root. The skeleton was nearly complete. The man suffered from arthritis of the hip, knee, ankle, and lower back, and his teeth showed numerous caries and abscesses. The lambdoid was artificially deformed. Stature was estimated to be 5 feet 6 inches. In front of the body was half of a Cortez Black-on-white bowl (fig. 127). This is a mid-Pueblo II burial, probably late Ackmen Phase.

Burial 9

This burial lay in Stratum D, and, though it was not possible to determine if it was introduced from a higher stratum, it probably dates from the Ackmen Phase (fig. 232). The fill and surrounding area were soft and ashy, and no pit outline was detected. The body was laid face down with the head to the north, the knees pulled up under the body, and the right hand at the right knee. The left arm was disturbed and its original position unknown. The bone was in such poor condition that it was only possible to say that the individual was an adult. Near the left shoulder was a Mancos Black-on-white bowl (fig. 155b).



Figure 232. *Burial 9, Badger House.*

Burial 10

The body of a child of 5 or 6 years was buried on a packed, silty layer which separated Strata C and D. It lay near Burial 9, but a little higher, and the same disturbed nature of the strata above the burial made it impossible to know from what level the pit was started. The body was on its back and tightly flexed, with the arms crossed over the chest and the knees pulled up to the shoulders. Bones were in poor condition. Only fragments of the lower long bones were present and the pelvic area was demolished by a large badger burrow. The lambdoid was deformed. Half of a Mancos Black-on-white bowl lay at the left shoulder (fig. 158), and a small unindented corrugated pitcher lay to the left of the head (fig. 95e). The burial was mid-to-late Pueblo II.

Burial 11

This grave was dug from Stratum A through B, and had its floor in the upper part of Stratum C. The soil was too soft to hold the outline of a pit. The body, that of a 37-year-old man, had been laid on its left side, with the legs tightly flexed and the left arm extended along the side. The right arm, feet, and hands, and several vertebrae were missing or disintegrated. The bones were in poor condition, but produced considerable information. There was fusion of two thoracic vertebrae, an old fracture of the sternum which had healed with malunion, and protrusio acetabuli (a degenerative disease of the hip socket) which must have made walking very painful and halting. Enough skull was present to show lambdoidal deformation. A large sherd, almost half of a late Mancos Corrugated jar, lay behind the head and shoulders (fig. 94a), and in it was half of a bifacial mano used on a slab metate. The artifacts and the stratigraphy both point to a late Mancos Phase burial.

Burial 12

The pit for this burial was introduced from Stratum A and was dug a few inches into the top of Stratum B, which was firm enough to hold a partial outline. The body lay on its right side with the head to the northwest. The legs were loosely flexed and the arms tightly flexed with the right hand under the face (fig. 233). The head faced southwest and rested on a flat piece of sandstone. The

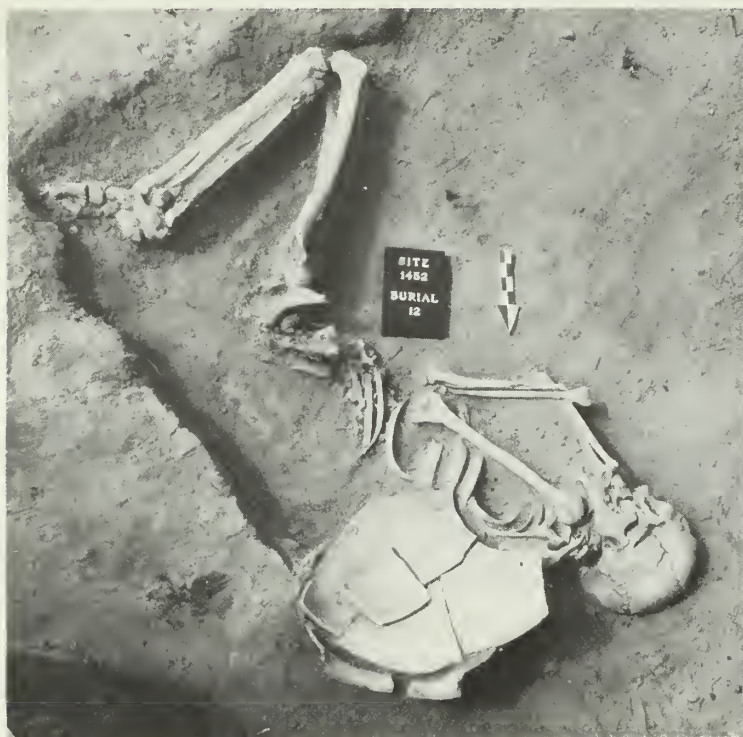


Figure 233. *Burial 12, Badger House.*

burial was that of a man, 24 to 30 years old. This is the youngest of the burials, for which age could be estimated, that exhibited osteoarthritis; in this case, of the knee and mandible. He also had abscessed teeth, a bony growth on the right shin, and the healed fracture of a collarbone. The skull was not deformed. At his back was half of a plain jar (fig. 103), about one-fourth of a very large Mancos Black-on-white olla, and a bowl sherd of the same type. Although the decorated sherds are a Pueblo II type, the plain jar has the shape of Mesa Verde Corrugated and the burial probably dates from the Mesa Verde Phase.

Burial 13

This grave is particularly interesting because of its position and the pottery that was found in it. The burial was in a shallow pit dug into subsoil about 30 feet southeast of Feature 7, the early post and adobe structure beneath the trash mound. The refuse that filled the pit and covered the grave area was that of Stratum D, here the lowest level. The grave was dug about 5 feet outside the southeast perimeter of Stratum D+. The outer edges of the earliest refuse, Stratum E, is some 25 feet to the northwest. The pottery, a Piedra-Cortez Black-on-white bowl (fig. 131) and a Moccasin-Mancos Gray pitcher (fig. 100), is the earliest of the whole pieces recovered from Badger House, and is discussed in the section on ceramics as transitional Pueblo I-II. Although Stratum D is an early Pueblo II layer, it is not the earliest at the site, and the finding of two heirloom vessels together seems extremely fortuitous.

The burial was that of a woman of 48 ± 8 years, with arthritis of the knee and neck, the latter fused at the fourth and fifth cervical vertebrae. The bones had been disturbed by a badger and only the artificially deformed skull and the shoulders were still in their original position, but she apparently lay face up, with her head to the north.

A plausible explanation is that Burial 13 relates to the house of Feature 7 and was dug at a time when only the thinnest of sheet trash covered the area. It lies very near the edge of a shallow drain-

age which ran through the site before the accumulation of trash diverted it to the west. The burial may have been exposed by erosion during the Stratum D era, then covered by trash raked down from that stratum.

Burial 14

This burial was also located at the base of Stratum D, outside of the perimeters of Strata D+ and E. The rectangular pit was dug one-half foot into subsoil. The body, that of a man of 48 ± 8 years, with a stature of 5 feet 6 inches, was tightly flexed, with the knees at the shoulders. He lay on his left side, turned slightly down toward the front of the torso, and his head was to the north. The bones were in poor condition and many were missing. The skull showed lambdoidal flattening. Near the front of the head was a Mancos Black-on-white pitcher (fig. 143b), and near the shoulder was a Mancos Black-on-white bowl (fig. 155c). Two large corrugated sherds were placed in front of the pelvis, and a shale pendant blank from the fill may have been associated. This, too, is an Ackmen Phase burial.

Burial 15

This burial lay completely within Stratum A, only 1 foot below the surface. The soft, ashy fill did not retain a pit outline, but the grave had been deliberately covered with nine large, squared building stones with pecked faces. The body was that of a man, 20 to 24 years old, 5 feet 6 inches tall. He lay on his right side, with legs loosely flexed, arms extended along the torso, and head to the west. His skull was artificially deformed. In the fill, in and near the body cavity, were five shale beads and a small piece of azurite. The pecked-face stones placed over the body and the absence of McElmo Phase material at the site indicate a late Pueblo III burial.

Burial 16

Also entirely within Stratum A, and at a depth of 0.9 foot, were the fragmentary remains of a child, 3 to 4 years old. The shallow grave had probably been disturbed from the surface and only a few long bones, the mandible, and the artificially deformed skull were present. Assuming the few bones were still in their original position, the body lay on the right side with the head to the west. A Mancos Black-on-white pitcher was near the left shoulder (fig. 143c). This was a Mancos Phase grave.

Burial 17

About a foot below the surface in upper Stratum A, in an area measuring 2 by 4.5 feet, were several scattered and badly disturbed bones which probably were all from the same individual. They consisted of the fragment of a mandible, two teeth, two pieces of clavicle, three rib fragments, five vertebrae, three metacarpals, and part of the sternum of an adult. Nearby was one-quarter of a corrugated jar of an unidentified type. The position high in Stratum A indicates a Mancos or Mesa Verde Phase origin for Burial 17.

Burial 18

Two and one-half feet below the surface in Stratum B, but probably intrusive from Stratum A, were the badly disintegrated bones of Burial 18. This was a female about 50 years old. Only the calvarium and eight ribs were present, but the body seemingly lay on the left side with the head to the south. At her back was a late Mancos Black-on-white pitcher (fig. 143a). The pitcher and the stratigraphy indicate a late Pueblo II burial.

Burial 19

This burial was placed in a small, shallow cist at the east side of the trash dump and was covered with refuse pulled down from the mound. The body was that of a child, 2 to 4 years old, with lambdoidal deformation. It lay face down, with the knees flexed under the torso and the head oriented to the northeast. A miniature black-on-white pitcher inside a Mancos Black-on-white bowl (fig. 148b) had been placed above the right shoulder. The grave probably dates from the Mancos Phase.

Burial 20

The pelvis and a few vertebrae, 1.8 feet below the surface in Stratum A, were all that remained of Burial 20. The bones were those of a female about 50 years old. Nothing could be discerned of pit, position, or orientation, and no offerings accompanied the bones. The burial could not be earlier than late Pueblo II and may have been later.

Burial 21

This grave was a 3- by 4-foot pit in Stratum B, intrusive from Stratum A. It was filled above the body with many small, unshaped sandstone slabs. The legs were flexed to the left and the head was apparently placed to the north, but the skull and torso had been displaced by the intrusion of Burial 22 at a later time. The individual was a 42-year old woman (± 3 years) about 5 feet 3 inches tall. The broken distal end of a radius had healed with malunion, and thus the woman may have had a stiff or crippled wrist. A Mancos Black-on-white bowl (fig. 155a), covered by a large corrugated sherd, sat above the pelvic area. It was possibly moved to that position when the intrusive grave was dug. Burial 21 was Mancos Phase.

Burial 22

At a later time during the Mancos Phase, a pit was dug into that of Burial 21 to accommodate the body of a 2-to-3-year-old child. The more recent Burial 22 was then placed at the same level but 2 feet to the west. The body lay on the left side, with the head to the southeast. The legs were removed by the burrowing of a badger so the initial attitude of the body is unknown. A bowl made of a reworked, diagonally ridged corrugated jar was placed in front of the body between chin and chest. In the bowl stood a small effigy pitcher.

Burial 23

The artificially deformed skull of an infant lay on a packed layer of sandy loam, 1.5 feet below the surface at the west center of the mound. The stratigraphy in this section was impossible to relate to that in other areas; but the shallowness suggests an origin in the Mancos Phase or later. A large Mancos Black-on-white jar sherd, probably used as a plate, lay 1 foot to the northeast of the skull.

Burial 24

This was one of the few burials that lay in a clearly defined pit. The grave was dug into subsoil with an irregular outline and measured 4 by 8.3 feet (fig. 234). The stratum at the base of the trash mound could not be positively identified but was probably D+. The body was a male about 30 years old. He had odontoid arthritis which fused the second and third cervical vertebrae, and very bad teeth, both worn and abscessed. The lambdoid was flattened. The



Figure 234. Burial 24, Badger House.

body was buried on its back with the head to the south. The legs were loosely flexed with the knees up, as shown by a red soil line at the top of the pit. Later they fell to the left. At the right shoulder was a Cortez Black-on-white bowl covered with a large corrugated sherd. This is an Ackmen Phase grave.

Burial 25

Buried in Stratum E, but possibly originating a little above, was the body of a youth of 12 to 14 (fig. 235). The unbroken adobe surface of Feature 3 extended across the grave area above Stratum D; therefore the burial was made before Features 3 and 5 were built. It has a definite Ackmen Phase association. The body lay on its back with the right arm flexed and the left lying across the abdomen. Orientation was to the southeast. The pelvis and legs were missing, although the first two sacral vertebrae were in position (and fused by a prenatal anomaly). The missing bones probably vanished into a large burrow immediately to the northwest. There was no disturbance of the rest of the body and the bones were in good condition. If the legs had been flexed over the supine body, some of the bones should have been found. The evidence is not conclusive, but this was possibly an extended burial. The skull showed marked lambdoidal deformation (fig. 236). A diagonally notched projectile point was found in the fill of the grave area and may have been associated with the burial.

Burial 26

The bones of this burial lay on and slightly in the adobe walking surface, Feature 3. The grave was from 1.5 to 2.0 feet below the surface and was probably introduced from Stratum A. Only the skull and the left arm, clavicle, and scapula were present. The skull, which showed lambdoidal deformation, was face down and oriented to the south. The remains were those of a woman, 48 ± 8 years old and about 5 feet 3 inches tall. No artifacts accompanied this Mancos or Mesa Verde Phase burial.

Burial 27

This was another disturbed burial, only 0.5 foot below the surface in Stratum A. The pelvis and legs were missing, probably as a result of prehistoric disturbance. The bones present were re-



Figure 235. Burial 25, Badger House.

markedly solid considering the shallowness of the grave. The body was laid on the left side, with arms flexed over the chest and with the head to the southeast. Four metatarsals immediately below the pelvic area indicate that the legs were probably flexed. The individual was a male of 28 ± 3 years, 5 feet 6 inches tall. His skull showed lambdoidal flattening. Half of a Mancos Black-on-white bowl (fig. 149b) lay over the abdomen. In the fill above the skeleton was half of a bifacial mano of Dakota sandstone used on a slab metate. Whether it was left with the burial purposely, or was merely part of the trashy fill which covered the body, is not known. It was a Mancos Phase burial.

Burial 28

An infant, 2 to 3 years old, was buried in a pit dug into subsoil below Stratum D. The pit measured 0.7 foot wide by 1.4 feet long. The bones were disturbed by small burrowing animals, and body position and orientation could not be determined. Skull deformation was apparent. No offerings were found in the grave. This was probably an Ackmen Phase burial.



Figure 236. Skull of Burial 25, Badger House, showing extreme lambdoidal deformation.

Burial 29

This burial (fig. 237) lay in white, ashy loam in Stratum D, a foot below the walking surface of Feature 3. In the fill just above the body were several large chunks of red soil, probably sections of the packed walking surface which were thrown into the grave when it was filled. The breach in the clay layer was patched after the burial was made. The burial was very likely associated with the occupation of the late Ackmen Phase house, Feature 5. The body was that of a woman about 25 years old. She lay on her back, head to the south, and with the legs flexed tightly and the heels under the buttocks. The right arm was extended along the body, but the left arm was missing. An animal had burrowed along the left side of the body and removed the cranium, left arm, shoulder, ribs, and both feet. The mandible, lying near the hips, showed premortem tooth loss and abscesses, and the woman had a broken rib which had healed. To the right of the hips, with the right forearm lying across them, were parts of two Cortez Black-on-white bowls (fig. 125). At the left side was a mano with finger-grips, used in a trough metate (fig. 193e).

Burial 30

Immediately below the pelvic area of Burial 29 was the badly decomposed skeleton of an infant of 15 to 21 months. The bones had been disturbed by the same burrowing that robbed bones from Burial 29. Though the infant lay beneath the body of the adult, it seems possible that they were mother and child buried together. At any rate, both were Ackmen Phase burials. All that can be said of the body position is that the head was to the northwest. Lying on the body was the quartz crystal shown in figure 204k. Skull flattening was already evident.

Burial 31

In a shallow pit dug into subsoil, and covered by refuse from Stratum E, were two infants—Burials 31 and 32—in a common

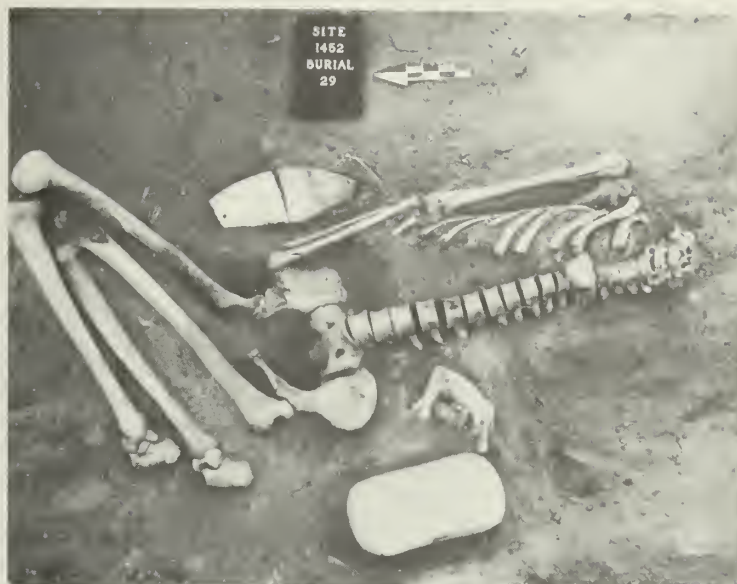


Figure 237. *Burial 29, Badger House.*

grave. Burial 31 lay with the head to the northeast and was possibly extended, but disturbance and the poor condition of the bones made this uncertain. The infant was estimated to be 24 to 30 months old, and the skull showed lambdoidal deformation. The unrestorable pieces of a small Moccasin Gray jar or pitcher had been placed at the left of the head and at the right of the face was a sherd "dish" made from a Cortez Black-on-white jar. The latter piece is good evidence that Stratum E represents the mode of change from the Piedra to the Ackmen Phase. The banded neck piece was probably an heirloom.

Burial 32

Burial 32, which lay 1 foot to the north and right of Burial 31, was undoubtedly buried at the same time but the bones were in even worse condition. Apparently the orientation was also to the northeast and the two were laid side by side. A little younger, the infant was estimated at 18 to 24 months at death. No artifacts accompanied the burial.

Burial 33

This was the only burial found outside the refuse mound. It was of a child of about 9 years old whose body had been tightly flexed, undoubtedly bound, and placed at the back of the ventilator tunnel at the angle of junction with the vertical shaft of Kiva B (fig. 238). The body was face up, with the head to the southwest. It lay across the tunnel floor, here 1.6 feet wide, with the toes touching the east wall and the cranium against the west wall. We had to take the shaft apart to get to it. This suggests that the child was lowered from the top of the ventilator shaft, and probably with some force. Before the rotting of flesh and wrappings, it was an even tighter fit. If the body had been shoved back through the tunnel from inside the kiva, it would have been far easier to align it with the axis of the tunnel. Certainly the kiva was abandoned at the time of the burial, and perhaps soil and debris on the floor already choked the ventilator entrance. Unless the child lived in another pueblo during the McElmo Phase when Badger House was unoccupied, the burial would date from the Mesa Verde Phase. There was slight artificial deformation of the lambdoid, and dental caries were present. No artifacts accompanied the burial.



Figure 238. *Burial 33 in ventilator shaft of Kiva B, Badger House.*

8

Conclusions

The preceding pages have been devoted mainly to an inventory of what we found in the ground. There has been speculation as to how some of the data might fit into the scheme of things set out in reports of other sites, but for the most part our object was to describe the data in sufficient detail so that they could be reinterpreted by others later in the light of information not now available. In this final chapter we will make our own assessment of what we found. Beyond the obvious fact that here a group of sedentary farmers lived in permanent houses for over six hundred years, what did we learn?

Some things didn't change throughout this period. The descendants of 7th-century farmers who supplemented corn with wild game were still making a living in the same way in the 1200's. The basic settlement pattern remained essentially the same. The semi-subterranean house of a nuclear or extended family faced to the southeast and was backed by rectangular storage rooms. Though, as time went on, the people slept in the storage rooms and used the underground chamber for ceremonial purposes, and still later consolidated the separate family units into clusters, the basic unit of a southeast-oriented pit structure with associated rooms did not change. But there were many changes in the minor details of material culture—changes that were relatively unimportant in the day-to-day lives of the people who made them but that are significant signposts to the archeologist. A tired sheep hunter returned from a day in the canyon probably cared not at all if the cup from which he drank his evening gruel was 0.7 cm. thick and painted with carbon paint in the banded pattern or only 0.4 cm. thick, unpolished and painted with a crosshatch design on a red background. However, such facts *can* tell us whether his supper was eaten in the 700's or 800's, or four hundred years later. Some of these small changes, which became apparent through the excavation of these sites and through matching bits of evidence with other bits already recorded from related sites, will be briefly summarized.

Though it may seem to be an obvious statement, it pays us to remind ourselves occasionally that things dug up do not in themselves provide the description of a whole culture or way of life. Except for hints in housing arrangements, we know nothing of social structure. We can apply data supplied by ethnographers of the modern Pueblos, but that varies somewhat from town to town and may have changed considerably in the past six hundred years. Archeologists fall into a habit of speaking of the "Chaco Black-on-white culture" or the "micro-blade culture," but neither pottery nor stone chips tell us what a man thinks about his place in the universe or his relationship to his gods and his neighbors—things that are far more vital in any culture. So in the "cultural" traits described, we will have to confine ourselves to "things," and to those things composed of minerals, or carbonized sufficiently to resist bacterial action.

LA PLATA PHASE

(A.D. ? to 750)

The earliest occupation for which we have solid evidence was during the Basketmaker III period, represented here by Pithouses A, B, and G. The La Plata Phase, the local manifestation of the period, marks the first appearance of fired pottery and is estimated to have begun between A.D. 450 and 550. Although it is probable that still earlier, but unrecognized, sites exist on the mesa, the lack of evidence of them and the fairly numerous pithouses dating in the 600's suggest a marked increase in the population, which was probably an influx from somewhere else. Several individual timbers dating in the last half of the 6th century have been found, but all have been from houses with later dates. The earliest of the several dated pithouses so far known on Mesa Verde contained a roofing timber with the cutting date of 608 (Nichols, 1962).

The three pithouses at Sites 1644 and 1676 were typical of the phase. They were subcircular and were equipped with small antechambers, roofs supported by four posts, narrow benches holding the butts of sidewall poles, and low wingwall partitions on the south side of the main rooms. Small, scattered storage rooms, probably of jacal construction, were found behind one of the pithouses. Trough metates with a wide shelf at one end, and corner-notched projectile points were characteristic. No notched axes or hammers were found. The typical bone awl was the split metapodial of a mule deer with a rather blunt point tipped with a narrow extension.

The pottery of the La Plata Phase was mostly a well made but unpolished or only slightly polished plain ware, Chapin Gray, in a variety of shapes. Painted decoration, on Chapin Black-on-white, was almost exclusively confined to the interiors of bowls. Tubular pottery pipes were present.

If Protokiva C was first built as a Basketmaker III pithouse and if Pithouse B housed a family in each of its rooms, there was evidence of a maximum of five families living in the area of our excavations during the phase. It is possible that other contemporary dwellings existed but were undiscovered.

PIEDRA PHASE

(750 to 900)

The short span of one man's lifetime between 750 and 800 saw numerous changes. Most significant was the movement of the families to rooms of adobe and jacal on top of the ground and the conversion of the pithouse to a religious structure. The antechamber was shrunk to a narrow ventilator shaft, the pit was dug deeper, and the bench was eliminated. Early in the phase, the surface rooms were apartments consisting of large living areas fronting two smaller

storage rooms arranged in rows or arcs behind the pit structures. The ratio of protokivas to surface rooms at Site 1676 was 1 to 11, or, if our interpretation of what constituted a group of related rooms is correct, there was one protokiva to an average of five families. Since presumably the routine religious functions in the earlier phase were the affair of a nuclear family and were performed in the subterranean home, this would indicate some social change equivalent to the more obvious innovations in material culture. Whether the five families sharing a protokiva were an extended family, a grandfather and his grown sons or daughters, or the beginnings of a clan organization, we do not know, but it is interesting to see that the apparent ratio of rooms to kivas remains relatively the same through the rest of the Anasazi centuries on Mesa Verde.

Sometime after 800, the earlier arrangement of large living areas backed by storage rooms was supplanted by smaller living rooms in a single row, each with corner bins replacing the storage rooms.

Wall construction was mostly of adobe, sometimes reinforced with poles or impregnated with random spalls of stone and commonly lined with standing slabs at the base. Shortly after 750, the first "protomasonry," alternating courses of flat but unshaped stone and layers of adobe, was introduced. This technique became increasingly common in the late 800's.

The pottery types of the La Plata Phase, Chapin Gray and Chapin Black-on-white, continued to be made throughout the Piedra Phase, but variations and new types were added. The practice of leaving the neck fillets of plain jars unobliterated probably started a little after the architectural changes were instituted, about 775. Some refinement in the surface treatment of painted pottery and slight changes in design produced Piedra Black-on-white. This type and banded-neck Moccasin Gray became increasingly common. Black-on-white decoration of closed vessels, virtually unknown previously, became more and more popular. Bluff Black-on-red was introduced early in the phase and increased in popularity to become numerically equal to, or slightly greater than, black-on-white pottery.

The projectile point type and the corn-grinding tools of the La Plata Phase remained unchanged, but notched axes and hammers, pitted rubbing stones, and stone fetishes were added. No change was noted in bone tools. Elbow pottery pipes appear late in the phase.

Total population estimates are highly speculative, but estimates of population units are possible. We cannot be sure how many of the houses at Site 1676 were occupied contemporaneously, but the possibilities and probabilities are indicated in figure 239. We know that House 3 was built before any of the others, but it may have been still in use when Houses 2, 6, and 7 were built. This would indicate the presence of five families at the beginning of the phase, perhaps the same five lineages that we postulated for the La Plata Phase pithouses. If all four of the houses were used simultaneously with all rooms and protokivas occupied, there may have been a maximum of 30 families in the area by the year 800. Yet it is more likely that House 3 burned before then and that an estimated 25 families used Houses 2, 6, and 7. We know that, by 860, Houses 1, 4, and 5 were contemporary and used by perhaps 35 families, and it is quite possible that Houses 6 and 7 were still occupied through this period, giving us an estimated maximum of 55.

These estimates are probably too high. We have no way of knowing, for instance, if Room 1 in House 5 had not been abandoned or converted to use for storage while Room 6 was still used by a single family, or that a family may have used two rooms, each with its own cooking fire. Probably 25 families, perhaps one hundred individuals, would be closer to the mark as a maximum population at any one time during the Piedra Phase. It is certain, however, that the population grew steadily from the La Plata Phase until late in the Piedra Phase, which saw the maximum number of people during the history of the sites. At no time during the subsequent occupation of Badger House could the figure have been as high.

It is tempting to speculate about the coincidence of the marked changes in architecture and the introduction of an alien red pottery tradition with the apparent boom in population. The latter may be applicable only to this site, but the much greater number of Pueblo I

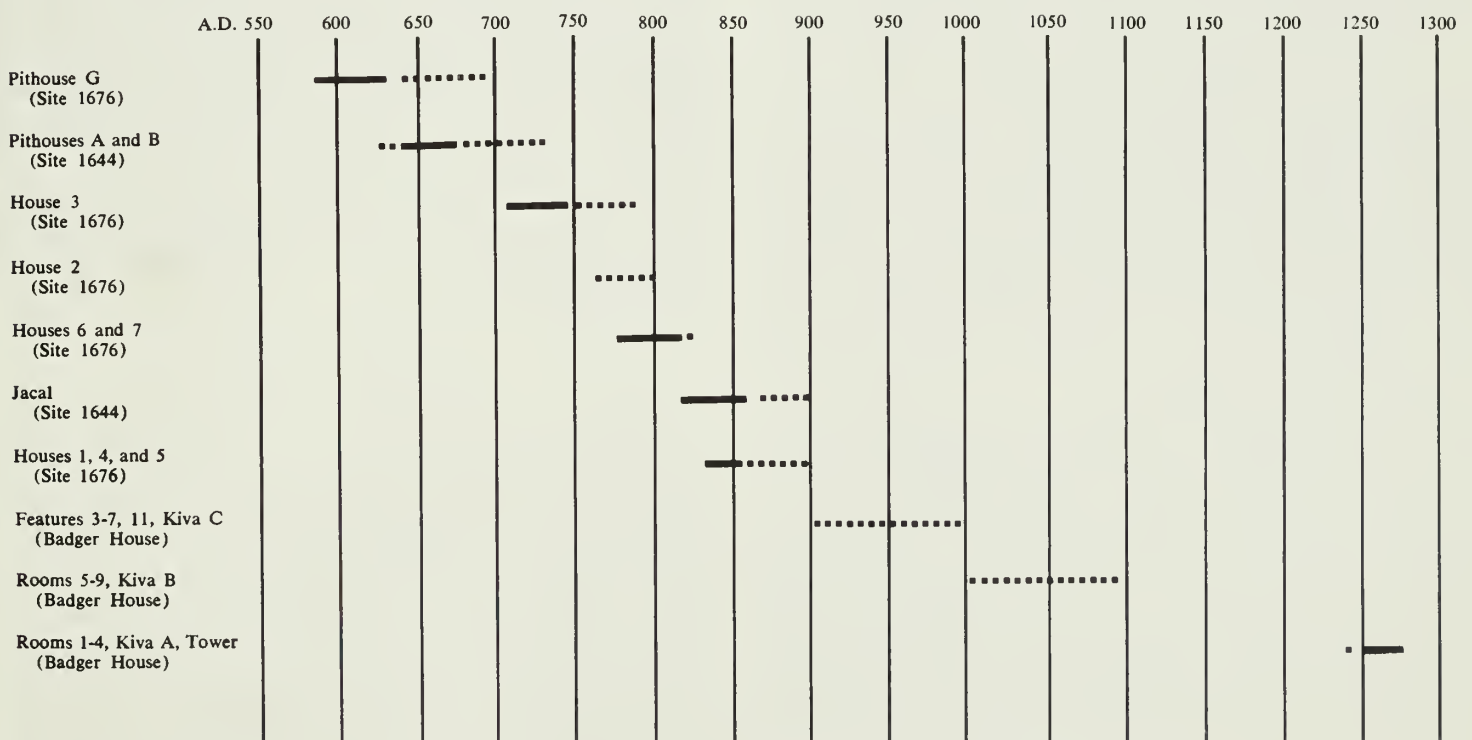


Figure 239. Probable times of occupation of various structures in the Badger House community.

sites was noted in the archeological survey of Wetherill Mesa. However, the scarcity of La Plata Phase sites is undoubtedly partly due to the nature of the structures and their scant surface indications.

Interesting comparisons can be made between the early Piedra Phase House 3 and three other contemporary settlements in the Four Corners country. At Ign. 7-23, 30, and 36 near Falls Creek north of Durango, Colo., the people were still living in pithouses and had neither banded-neck pottery nor red ware. Construction dates were in the 760's (Carlson, 1963). Shabik'eshchee Village, the archetypical Basketmaker III site in the Chaco Canyon area, produced dates as late as 753 and 757 (Vivian and Reiter, 1960), and though contemporary with House 3, it was typologically earlier both in architecture and ceramics. Site 13 on Alkali Ridge in southeastern Utah dated in the 760's and 770's. It was architecturally identical to our Site 1676, but the only painted pottery was red, and banded-neck pottery was very rare (Brew, 1946).

The few dated Pueblo I sites in scattered locations do not establish conclusive evidence, but these comparisons do suggest that the villages on the Animas and Chaco tributaries to the San Juan were lagging behind Mesa Verde and Alkali Ridge in adopting new architectural forms. The exclusive hold that red pottery had on Alkali Ridge and its diminishing frequency to the east suggest that area as the source of some ceramic influence. Banded-neck plain ware, however, seems to be commoner and earlier on Mesa Verde. In House 2, by the late 700's, banded-neck pottery was about 10 percent of the plain ware sherds, but at White Mound Village, on the Rio Puerco in northeastern Arizona, it was not present by 800.

ACKMEN PHASE

(900 to ca. 1000)

During this phase there was rapid evolution in both architecture and pottery to the forms most often associated with conventional pueblos. The dating is conjectural, but the transition to the Ackmen Phase occurred sometime between 872, the latest date from Martin's Site 1 near Ackmen (Martin, 1939), and 947+, a date from the early Pueblo II kiva at Site 102 on Chapin Mesa (O'Bryan, 1950).

The houses of the Ackmen Phase at Badger House were unfortunately so nearly destroyed by later rebuilding on the spot that we can only say that construction practices of the Piedra Phase were continued in the use of spall-filled adobe, jacal, and slab-based walls. True masonry of rough stones, which was seen in only one wall at Site 1676, became more and more popular. During that period the ceremonial pit structure attained the form of a true kiva. Kiva C was circular, earth-lined above the bench, partly lined with masonry below the bench level, and equipped with masonry pilasters. Other, apparently contemporary kivas used posts incorporated in the bench to support the roof. Kiva 2 at Site 16 on Chapin Mesa is an example (Lancaster and Pinkley, 1954).

There was no change noted in the stone artifacts, but the blunt awl with the narrow tip gave way to a gradually tapered awl, which often bore wear-grooves across the shank near the tip.

There was much innovation in pottery making at this time. Very early in the phase the decorated pottery went through a rapid transition in design style which shortly evolved as Cortez Black-on-white. A few slipped sherds were seen in the late Piedra Phase, but by now most bowl interiors, at least, were slipped and well polished. The designs of Bluff Black-on-red evolved into the shorter-lived Deadman's style, often with a red slip. During the first years the culinary pottery was the familiar banded-neck, but with narrower, more finely applied fillets. This pottery, Mancos Gray, was supplanted before the phase was over by indented corrugated pottery.

A count of Ackmen Phase rooms at Badger House is not possible, but the presence of only one kiva suggests that the population was back to from five to 10 families, a figure that remained relatively static in the succeeding phases. This situation is seen from a different vantage point in the data from the survey which found large Pueblo I communities concentrated near the middle latitudes of the mesa, but smaller and more widely scattered sites during early Pueblo II.

In 1946, J. O. Brew briefly described the Ackmen Focus on Alkali Ridge as succeeding his Pueblo I Abajo Focus and cited as an example Martin's Site 1 in the Ackmen-Lowry district north of Cortez, Colo. (Martin, 1939). This was a late Pueblo I site dated at 872, which was quite similar to the later houses at Site 1676. Confused by Martin's practice of assigning a new series of site numbers for each season's operations, Hayes (1964) considered another Site 1 described in Martin's 1938 report as illustrative of early Pueblo II in the area, and used the name Ackmen Phase to describe it. Sites 1 through 4 of Martin's 1937 season near Ackmen were undated, but were estimated by the excavator to range from 800 to 1000 and to be Pueblo I and Pueblo II sites. All were rough masonry or jacal houses behind earth-lined or partly masonry-lined kivas. The pottery was corrugated, Mancos Black-on-white, and what was later described as Cortez Black-on-white. We would consider these all to be early Pueblo II and believe that, in the light of the subsequent dating of Martin's Pueblo I site referred to above, his postulated dates are too early. They would more likely fall between 900 and 1000.

The re-analysis of the Ackmen-Lowry material by Rinaldo shows very close parallels in traits and dates to that from Wetherill Mesa (Rinaldo, 1950).

MANCOS PHASE

(ca. 1000 to ca. 1075)

The late Pueblo II Mancos Phase saw the introduction of fully lined kivas and straight rows of rooms built of scabbled stone, often chipped-edge, laid in simple walls. Kiva B and Rooms 5 through 9 at Badger House represented this development.

During this short phase, trough metates open at both ends were used in slab bins (slab metates were known late in the period), the fully grooved ax and hammer began to replace notched tools, and projectile points with wide bases were notched on the sides rather than at the corners. Pottery was Mancos Corrugated with slightly flared rims, and Mancos Black-on-white.

Dating the phase is still only approximate, but sites dated in the late 900's do not yet exhibit the characteristics of the Mancos Phase, and ruins with dates in the late 1000's began to show traits of the McElmo Phase.

McELMO PHASE

(ca. 1075 to ca. 1200)

Comments on this phase must be based on information obtained at other sites because our community was abandoned for a time between the late 11th and the mid-13th centuries, though Kiva A and Room 10 at Site 1676 may date from this period. The hiatus has been mentioned in the discussion of the silting behind the walls of Rooms 5 through 9 and in Kiva B at Badger House. The time interval can be estimated by inference. The Mancos Phase structures and trash levels showed some Mancos Black-on-white decorated in carbon paint but did not produce the early McElmo Black-on-white found in Component D of Big Juniper House dated at 1080 (Swannack, 1969). The people at Badger House evidently moved out shortly before that date. The later occupation of Big Juniper

House illustrates the characteristics of the phase: the incorporation of the kiva into the house block as part of a unit pueblo, McElmo Black-on-white pottery, complete adoption of flat slab metates, and some refinement in the dressing of building stone. Other traits of this period, but not present at Big Juniper House, were multi-storied houses and probably the first round towers. The Badger House gap ended with re-occupation of the site in the mid-1200's.

MESA VERDE PHASE

(ca. 1200 to 1300)

This was the time of the last four or five generations in the area, the time of the large compact houses of dressed stone, of towers and other esoteric structures, and of increased concentration of the population in the large shelter caves. Every trait in the kivas had been used sporadically in earlier periods, but kiva building had settled into a more or less uniform pattern—full lining with pecked stone, deep southern recess, and often furnished with six or more pilasters.

Utility pottery was the narrow-mouth, flared-rim Mesa Verde Corrugated, and shortly after the beginning of the phase beautifully shaped and carefully painted classic Mesa Verde Black-on-white ware was developed.

Rooms 1 through 4, Kiva A, and the tower at Badger House, and possibly Kiva A at Site 1676 were Mesa Verde Phase structures. The 1258 date from the Badger House kiva must reflect the actual date of construction of the complex. The scarcity of pottery typical of the phase suggests that the return was of short duration. Much of the good building material was removed for re-use elsewhere and, quite probably, much of it can still be seen in Long House.

ECOLOGICAL EVIDENCE

The numerous charred bits of vegetation found, principally construction material, are evidence that the climate of the 7th through 13th centuries at Mesa Verde was essentially that which we have today. The juniper, pinyon, Douglas-fir, ponderosa pine, oak, fendlerbush, and sagebrush found in the ruins are still growing within a half-mile today. The requirements of plants for a comparatively specific combination of environmental factors would rule out any drastic climatic change. The tolerance of birds and mammals of a wide range of conditions is far greater, but bones from the ruins, with few exceptions, are those of species represented today.

The exceptions are probably the result of man's place in the ecology. Jackrabbits, whose natural environment is the open plains and valleys, are not known on the forested mesa top today except as occasional strays, and yet we found jackrabbit bones in significant numbers compared to those of the brush-loving cottontail. At Site 1676, occupied during the supposed peak of population, they actually were more numerous. After a couple of hundred years of concentrated occupation on the broad mesas, one can imagine that the cutting of building timber, accidental fire, or the purposeful burning of brush to clear ground for planting would create a more or less open habitat suitable for jackrabbits. Unless jackrabbit appetites are different today, they were encouraged prehistorically by the unintentional baiting with succulent green corn and bean vines.

The presence of about 70 bison bones in the three sites was a little surprising. Bison no longer exist in southwestern Colorado but, although the area is outside the traditional range of the large herds, they were probably present in small numbers until little more than 100 years ago. A map prepared by W. T. Hornaday shows the Four Corners as the southwest boundary of the area known to have been at one time inhabited by bison, and he dates their extermina-

tion at the junction of the Grand and Colorado Rivers in west-central Colorado at 1850 (Hornaday, 1889). The area was not heavily populated by bison when the first Europeans saw the country, and the remnants were probably reduced quickly by the Utes shortly after they acquired horses.

The majority of the bones identified as bison were ribs. The mesa top is an unlikely setting for buffalo and the animals were probably killed in the valleys. The haunches would be an unnecessary burden on the climb back to the mesa, but if the meat were stripped from the long bones and jerked, a side of ribs could be easily chopped from the vertebrae and carried up the mesa. Most of the bones other than ribs were phalanges, which may have been left on hides carried into the pueblo. Except for the case of a single golden eagle bone, bison was the only species represented in which more bones were worked than unworked.

Also of interest is the fact that bighorn sheep specimens outnumbered mule deer in Pueblo II contexts. The reverse was true in the Pueblo III cliff dwellings excavated by the project and in Mug House bighorn sheep was so scarce that Rohn (1971) questioned whether this species could have been a food source.

Four hundred pieces of wood from Basketmaker III, Pueblo I, and Pueblo III sources were identified as to species. Of these, 75 percent were juniper, and almost all the rest were evenly divided between pinyon and Douglas-fir. There were just two specimens of oak, both from the jacal at Site 1644, and two pieces of ponderosa pine, from a late Pueblo I provenience and from the plank in Kiva A at Badger House. The ratio of juniper to pinyon showed no significant change from early to late, but the use of Douglas-fir steadily decreased, probably as its availability diminished. Douglas-fir made up 29 percent of all the timber in the La Plata Phase pithouses, 7 percent of identified wood in the Piedra Phase houses and proto-kivas, and only 3 percent of the 149 specimens from Kiva A. Douglas-fir was probably a choice building material because of its straight, relatively untapering bole and the ease with which it can be cut and trimmed, but it grows at the foot of the cliffs on northern exposures and could be carried to the top of the mesa only by arduous toil. The decrease resulted from centuries of building within a small area and the elimination of the more accessible trees.

GAPS IN THE RECORD

Three summers of excavation furnished numerous bits of information that help to fill out the picture of ancient life at Mesa Verde. Perhaps the most important contributions were in a better-dated and fuller account of the Pueblo I Piedra Phase and the verification of the Pueblo II ceramic sequences. But there are many answers that we can still search for. Some are answers to questions that were asked before the project started digging in 1959, and others are answers to questions we did not know enough to ask before that time.

One of the blank spots is the story of what happened here before the thriving La Plata Phase population of the 7th century. Although projectile points typical of the Paleo-Indian period have been found on the surface in the park and in the surrounding valleys, and Archaic points have been recovered from Anasazi sites, no proof of the presence of the early hunters has been found. The Mancos River and its upper tributaries and the cuts in upper McElmo Creek should be searched for kill sites. Such sites are usually deeply buried and found only by accident, and it is not surprising that none have come to light. But Basketmaker II houses of the preceramic farming period have been found in the Navajo Reservoir area and on the Animas drainage to the east, as well as in the canyons of southeastern Utah a short distance to the west. Their absence in the

more thoroughly investigated Mesa Verde lying between is puzzling. The much more intensive aboriginal activity here may have destroyed or confused the evidence.

We can pretty well date the end of Basketmaker III at A.D. 750, but the beginning of the period on Mesa Verde has so far proved to be no earlier than about A.D. 600. Earlier sites are known in the San Juan area and we might assume that earlier houses will be found in this vicinity, but to date it could be argued that pottery came late to Mesa Verde.

The question of the origin of the red pottery tradition that appeared out of nowhere in the earlier 700's to flourish alongside the black-on-white types, over which it exercised no apparent influence, only to die out in the 900's, is a problem that bears investigation.

The demonstrable changes in architecture, stone artifacts, and pottery design between early and late Pueblo II justify the separation of the period into the two phases, Ackmen and Mancos. More precise dating of the beginning and the end of the early Pueblo II phase should be possible. No extensive purely Ackmen Phase site has been excavated. Some good prospects, from surface indications, exist both in the park and in the adjacent valleys, and excavation of them should make better dating possible.

Although dry caves have produced numerous specimens of normally perishable materials from Basketmaker II and late Pueblo III, there are almost no textiles from the intervening four or five hundred years. The record of this important segment of the material culture is lacking, and it will continue to be until happy accident reveals a dry cave that was occupied in Pueblo I or II but not subsequently.

When more excavation answers these questions and describes the characteristics of the phases more fully, the phase system may be rendered obsolete. In the 1930's the Pecos Classification offered a broad description of culture change in terms of centuries. As more details were added from limited sections of the Southwest, it became possible to make finer distinctions by describing phases based on time and geography which dealt with change within a few generations. The time will come when change and continuity will be seen so clearly that the present phase descriptions will become more hindrance than help in understanding culture process in the region.

When this stage in our knowledge is reached, the relationships of the people in this area to those in Chaco, on Chinle Wash, and on the Little Colorado may be better determined. There have been numerous attempts in the history of Southwestern archeology to

prove which of the Anasazi people were under the spell of what other people at any given time. Such speculations can be useful but, based as they are on random surveys and a few widely scattered excavations with fewer dates, they can be little more than hunches. In our search for differences, a fact that is often overlooked is that similarities of cultural traits from one side of the Anasazi area to another are greater than the differences, and that the rate of communications was sufficient for ideas and knowledge to be rapidly interchanged across the mountains and plateaus. We will probably never be able to determine whether the Puerco River people planted beans before the people of San Juan. The differences between localities were substantial in the earlier stages and the exchange seems to have been faster and more thorough as time went on.

Influence is seldom in one direction only and, while a people may avidly borrow new styles in the ceramic art from one set of neighbors, they may be exporting notions in architecture or weaving in all directions. From evidence now on hand, as incomplete as it is, it appears that in the earlier stages, the San Juan watershed in the area of the Four Corners was the hearth of Anasazi culture. Until well into the Pueblo I period, dated sites here seem to be in advance of those in the surrounding country. In early Pueblo II, ideas in pottery design may have been exported to the north from the vicinity of the Puerco River in the Little Colorado drainage. The style of White Mound and Kiatuthlana Black-on-white appears on the Puerco as the principal decoration on pottery in the late 700's but did not become the fad north of the San Juan until 100 years later, when it shows up on Piedra and early Cortez Black-on-white. There is no evidence for the leadership of any one area in the development of recognizable traits throughout the rest of Pueblo II.

In the late 1000's, there was a gradual adoption of carbon paint on decorated pottery east of the Lukachukai Mountains in New Mexico and north of the San Juan River in Utah and Colorado—a trait that had long been known in northeastern Arizona. By mid-to-late Pueblo III, the trait was in general use in the north and east. In late Pueblo III, the hearth of the Mesa Verde area between Montezuma Wash and the La Plata River north of the San Juan saw a florescence of architecture in the development of massive walls of dressed stone, the conventionalized kiva with bench, pilasters, and southern recess, and in the building of towers and related esoteric structures. These ideas spread to the south.

These postulations will be verified or refuted as more dated ruins are excavated.

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Appendix 1

List of identified mammal and bird bones by provenience

Cervus canadensis (elk) 6 bones

Site 1644

Pithouse A, upper fill
Pithouse B, overburden

Site 1676

House 3, Room 3, floor
House 3, Room 4, fill
House 3, Room 13, fill
House 4, Room 6, fill
House 4, Room 9, fill
House 4, Room 12, fill
Protokiva E, fill
Kiva A, fill
Burial 5

Badger House

Strata ABC
Stratum A
Strata AB
Stratum B
Strata BC
Stratum C
Strata CD
Stratum D
Strata DD+
Stratum D+
Strata D+E
Stratum E
Strata DD+E
Kiva C, fill
Kiva C, floor
Feature 3
Feature 9
Trash, general

Bison bison 23 bones

Site 1644
Pithouse A, floor

Badger House

Stratum A
Stratum B
Strata BC
Strata CD
Stratum D
Strata DD+
Stratum D+
Kiva C, overburden
Kiva C, fill
Trash, general
Burial 3
Burial 6

Strata BC	1
Stratum E	1
Feature 3	1
Kiva C, overburden	1
Trash, general	2

Site 1676

House 1, Room 11, fill	1
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Site 1644

Pithouse A, fill	6
Pithouse B, Level 1	2

Site 1676

House 1, north test trench	1
House 1, Room 10, fill	1
House 1, Room 12, fill	2
House 1, Room 13, fill	1
House 3, Rooms 1, 2, 3, fill	2
House 3, Room 4, fill	1
House 3, Room 12	1
House 4, Room 7, fill	3
House 4, Room 9, fill	2
House 4, Room 12, floor	1
House 5, Room 4, pit	1
House 7, Room 1, fill	1
House 7, Room 7, fill	2
Great Kiva, Level 2	3
Protokiva D, fill	2
Protokiva E, fill	2
Burial 5	2

Strata ABC	10
Stratum A	28
Strata AB	14
Stratum B	4
Strata BC	12
Stratum C	6
Strata CD	3
Stratum D	20
Strata DD+	23
Stratum D+	30
Stratum E	32

Strata DE	19	<i>Canis lupus</i> (wolf) 1 bone		Site 1676	
Kiva B, fill	1			House 3, Room 1, fill	2
Kiva B, floor	2	Badger House		House 4, Room 4, fill	10
Kiva C, overburden	5	Stratum E	1	House 4, Room 5, floor	1
Kiva C, pit fill	4			Protokiva E	1
Kiva C, floor	2				
Area I	2			Badger House	
Feature 3	1			Strata AB	1
Trash, general	110	<i>Canis latrans</i> (coyote) 14 bones		Stratum C	1
		Badger House		Stratum D+	2
		Stratum A	1	Feature 9	3
		Stratum B	2	Trash, general	1
		Stratum D+	3		
		Strata DD+	1		
		Stratum E	4		
		Trash, general	3		
<i>Lynx rufus</i> (bobcat) 32 bones				Unknown canid 7 bones	
Site 1676				Site 1676	
House 4, Room 9, fill	1			Great Kiva, Level 3	1
House 4, Room 13, fill	1				
House 5, Room 1, fill	2			Badger House	
House 5, Room 1, floor	3			Strata ABC	1
House 5, Room 4, fill	1			Stratum A	1
Protokiva E, fill	1	<i>Canis familiaris</i> (dog) 123 bones		Stratum C	1
Pitroom F, ventilator shaft fill	1			Stratum E	3
Great Kiva, general fill	1	Site 1644			
		Pithouse A, SW bin	1		
		Pithouse B, Room 2, floor	1		
Badger House					
Stratum A	2	Site 1676			
Stratum B	1	House 1, Room 7, floor	1		
Strata BC	1	House 1, Room 9, fill (1 ind.)	2		
Strata DD+	2	House 3, Room 1, fill	1		
Stratum E	8	House 3, Room 9, fill	1		
Trash, general	7	House 4, Room 1, fill	1	<i>Ursus species</i> (bear?) 1 bone	
		House 4, Room 2, fill	1		
		House 4, Room 4, fill	20	Badger House	
		House 4, Room 8, floor	1	Stratum A	1
		(several bones of 1 ind.)			
<i>Urocyon cinereoargenteus</i> (gray fox) 26 bones		House 4, Room 12, floor	4	Unknown carnivore 18 bones	
		House 4, Room 13, fill	5		
		House 4, Room F, floor	1	Site 1676	
Site 1644		House 5, Room 3, fill	1	House 4, Room 4, fill	13
Pithouse A, fill	1	House 6, Room 1, fill	1		
		House 6, Room 3, floor	3	Badger House	
		(several bones of 1 ind.)		Stratum B	1
Site 1676		House 7, Room 1, fill	1	Stratum D+	1
House 1, Room 1, fill	1	House 7, Room 6, fill	1	Kiva C, overburden	1
House 1, Room 10, fill	1	Kiva A, fill	1	Trash, general	2
House 3, Rooms 1, 2, 3, fill	1	Great Kiva, Level 2	2		
House 3, Room 3, floor	1	Great Kiva, Level 3	6		
House 4, Room F, floor	1	Protokiva E, fill	3		
		Protokiva E, floor	1		
Badger House		Pithouse G, overburden	2		
Strata ABC	2	Pithouse G, bench	1		
Strata AB	3	Test trenches	2	<i>Taxidae taxus</i> (badger) 5 bones	
Stratum B	1				
Stratum D	2	Badger House			
(1 worked bone; many bones of single skeleton)		Strata ABC	5	Site 1644	
Stratum D+	1	Stratum A	3	Jacal 1	1
Strata DD+	1	Strata AB	6	Pithouse B, fill	1
Stratum E	2	Strata BC	5		
Kiva C, overburden	1	Stratum D	2	Badger House	
Tower area	1	Strata DD+	4	Stratum A	1
Trash, general	4	Stratum D+	4	Strata AB	1
Burial 2	1	Stratum E	1	Stratum E	1
Burial 6	1	Kiva C, overburden	3		
		Kiva C, fill	2		
		Feature 3	1		
		Trash, general	22		
<i>Vulpes fulva</i> (red fox) 6 bones				<i>Mustelidae species</i> 2 bones	
Badger House		<i>Canis species</i> (dog or coyote) 25 bones		Site 1676	
Stratum A	2			House 3, Room 1, floor	1
Stratum E	3	Site 1644			
Kiva C, floor	1	Pithouse B, Room 2, floor of bin	3	Badger House	
				Strata AB	1

Marmota flaviventris (marmot) 5 bones

Site 1676

House 3, Room 1, floor	1
House 3, Room 9, fill	1
House 4, Room 4, fill	1
House 4, Room 13, fill	1
Protokiva E, floor	1

Cynomys gunnisoni (prairie dog) 5 bones

Site 1676

House 3, Room 1, fill	1
House 5, Room 1, fill	1
Protokiva C, fill	1

Badger House

Stratum A (<i>zuniensis</i>)	1
Kiva C, fill	1

Citellus variegatus (rock squirrel) 42 bones

Site 1676

Great Kiva, Level 3	1
Protokiva D, fill	1
Protokiva D, floor	1

Badger House

Stratum A	4
Strata AB	6
Stratum B	1
Strata BC	5
Stratum D	2
Strata DD+	2
Stratum E	3
Kiva C, fill	1
Tower	2
Feature 9	1
Trash, general	12

Thomomys umbrinus (pocket gopher) 11 bones

Site 1644

Pithouse A, floor	2
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Badger House

Strata ABC	1
Strata AB	2
Stratum D	1
Strata DD+	2
Stratum D+	1
Trash, general	2

Sciuridae species (?)

Site 1676

Protokiva E, floor	1
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Erethizon dorsatum (porcupine) 6 bones

Badger House

Stratum A	1
Strata AB	1
Stratum D+	1
Stratum E	2
Strata DD+E	1

Lepus californicus (jackrabbit) 92 bones

Site 1676

House 1, Room 10, fill	2
House 1, Room 11, fill	2
House 3, Room 1, fill	2
House 4, Room 8, fill	3
House 4, Room 10, fill	1
House 4, Room 10, subfloor pit	3
House 4, Room 12, fill	1
House 4, Room 12, floor	1
House 5, Room 1, fill	1
House 5, Room 6, fill	1
House 6, Room 1, fill	2
House 6, Room 7, fill	1
Great Kiva, Level 2	1
Protokiva C	1
Protokiva D, fill	11
Protokiva D, floor	10
Protokiva E, fill	5

Badger House

Strata ABC	2
Stratum A	6
Strata AB	7
Stratum B	1
Strata BC	5
Strata CD	3
Stratum D	2
Strata DD+	2
Stratum D+	3
Stratum E	1
Strata DD+E	1
Trash, general	9
Burial 6	2

Sylvilagus species (cottontail ?) 276 bones

Site 1644

Pithouse A, floor	1
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Site 1676

House 1, Room 10, fill	3
House 3, Room 9, fill	1
House 4, Room 1, fill	1
House 4, Room 9, fill	1
House 4, Room 9, floor	5
House 4, Room 10, floor	2
House 4, Room 10, subfloor pit	1
House 4, Room 12, fill	1
House 4, Room 13, fill	3
House 5, Room 1, fill	7
House 7, Room 7, fill	1
House 7, Room 8, fill	1
House 7, Room 14, fill	1
Protokiva D, fill	1
Protokiva D, floor	1

Badger House

Strata ABC	3
Stratum A	15

Strata AB	25
Stratum B	3
Strata BC	19
Stratum C	8
Strata CD	3
Stratum D	38
Strata DD+	15
Stratum D+	14
Stratum E	7
Strata DD+E	6
Kiva A, floor	2
Kiva B, fill	1
Kiva C, overburden	1
Kiva C, fill	1
Feature 3	2
Feature 9	1
Trash, general	79
Burial 5	2

Neotoma cinera (woodrat) 7 bones

Site 1676

Protokiva D, fill	1
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Badger House

Strata AB	2
Kiva B, floor	1
Kiva C, overburden	1
Area I	1
Trash, general	1

Neotoma species (?) 3 bones

Badger House

Kiva A, floor	1
Kiva B, fill	1
Kiva B, overburden	1

Dipodomys ordii (kangaroo rat) 2 bones

Badger House

Kiva B, floor	2
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Microtus species (meadow mouse) 2 bones

Badger House

Stratum D	1
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Unknown rodent

Badger House

Stratum C	1
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Unknown mammal 101 bones

Site 1644

Pithouse A, fill	2
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Site 1676			<i>Bubo virginianus</i> (great horned owl) 3 bones	Stratum C	2
House 1, Room 9, fill	1			Stratum D	1
House 1, Room 12, fill	1	Badger House		Kiva A, fill	1
House 3, Room 7, fill	1	Stratum D+	1	Kiva B, overburden	1
House 4, Room 4, fill	3	Stratum E	1	Kiva C, overburden	2
House 4, Room 5, floor	1	Burial Pit 25	1	Feature 9	1
House 4, Room 9, floor	1				
House 4, Room 10, fill	1				
House 5, Room 1, fill	1				
House 5, Room 6, floor	1				
House 6, Room 1, fill	1	<i>Oreoscoptes montanus</i> (sage thrasher) 1 bone		<i>Turritella species</i> (?) (marine gastropod) 1 bone	
Great Kiva, Levels 1 and 2	2			Badger House	
Protokiva E, fill	4	Stratum D	1	Backdirt	1
Test trenches	1				
Badger House					
Strata ABC	1			<i>Unknown bird or mammal</i> 4 bones	
Stratum A	8	<i>Meleagris gallopavo</i> (turkey) 2 1/4 bones		Badger House	
Strata AB	4			Strata ABC	1
Strata BC	2			Kiva A	1
Strata CD	1	Site 1676		Trash, general	1
Stratum D	8	House 1, Room 10, fill	49	Burial 3	1
Strata DD+	7	House 3, Room 7, fill	3		
Stratum D+	2	House 3, Room 9, fill	1		
Stratum E	8	House 4, Room 8, fill	1		
Strata DD+E	1	House 4, Room 12, floor	1		
Kiva B, fill	1	House 4, Room 13, fill	1	<i>Unknown amphibian</i> (toad or frog) 8 bones	
Kiva C, overburden	8	Kiva A, fill	2		
Kiva C, fill	5	Great Kiva, Level 2	5	Badger House	
Kiva C, pit fill	3	Great Kiva, Level 3	6	Strata AB	1
Kiva C, floor	1	Protokiva C, fill	1	Strata BC	2
Feature 9	1	Protokiva E, fill	4	Stratum C	1
Area I	1	Protokiva E, floor	1	Stratum D	1
Trash, general	18	Pithouse G, overburden	1	Strata DD+	1
		Test trenches	1	Kiva A, floor	2
<i>Buteo jamaicensis</i> (redtail hawk) 1 bone		Badger House			
		Strata ABC	1		
Badger House		Stratum A	18		
Feature 9 (several bones of 1 ind.)	1	Strata AB	8		
		Strata BC	3		
		Stratum C	2		
		Strata CD	1		
		Stratum D	6		
		Stratum D+	1		
		Strata DD+	2		
<i>Buteo species</i> (?) 2 bones		Stratum E	3		
		Strata DD+E	1		
Badger House		Room 2, floor	1		
Strata AB	1	Room 3, fill	2		
Kiva C, pit	1	Kiva A, vault	9		
		Kiva A, fill	7		
		Kiva A, floor	10		
		Kiva B, fill	18		
		Kiva B, vault	2		
		Kiva B, floor	6		
<i>Aquila chrysaetus canadensis</i> (golden eagle) 1 bone		Kiva C, overburden	19		
		Kiva C, fill	6		
Badger House		Tower	5		
Stratum E	1	Feature 3	1		
		Area I	11		
		Trash, general	23		
		Burial 5	1		
<i>Pica pica</i> (magpie) 2 bones					
Badger House		<i>Unknown bird</i> 21 bones			
Strata AB	1				
Stratum D	1				
		Site 1676			
		House 1, Room 1, fill	1		
		House 3, Room 4, floor	8		
		House 4, Room 10, fill	1		
<i>Aphelacoma caerulescens</i> (scrub jay) 1 bone		Badger House			
		Strata ABC	2		
Site 1676		Stratum A	1		
House 4, Room F, floor	1				

Appendix 2

List of illustrated artifacts

Pottery

Figure No.	Height (cm.)	Length or Diameter (cm.)	Provenience and Remarks	Figure No.	Height (cm.)	Length or Diameter (cm.)	Provenience and Remarks
84 a	32.4	30.9	Floor, Pithouse A; fugitive red, capacity 16 qts.	n			Strata D and D+
b	21.8	21.8	Floor, Pithouse G; polished	o			Strata D+ and E
c	19.0	18.9	Shelf, NE corner, Rm. 1, House 5	p			General fill, trash mound
d	20.8	17.9	Floor, jacal, Site 1644; capacity 5 qts.	q			General fill, trash mound
e	15.9	19.3	Floor, Pithouse G; capacity 2½ qts.	r			General fill, trash mound
f	15.5	20.3	Floor by firepit, Pithouse A; capacity 3 qts.	s			General fill, trash mound
85 a	11.2	10.1	Floor, Rm. 3, House 3	t			Stratum A
b	9.4	8.0	Floor near firepit, Rm. 10, House 1	u			General fill, trash mound
c	8.0	6.3	Outside NW corner, Rm. 10, House 1; applique tits	v			Stratum A
d	5.7	5.4	Floor, Rm. 2, House 3	w			Stratum E
e	11.0	14.4	Edge of bin, NW corner, Rm. 1, House 5	x			General fill, trash mound
f	8.0	13.0	Floor of bin, Room 1, House 5; polished, incised	y			Stratum A
g	8.2	9.6	Probably floor, Rm. 12, House 3	z			Stratum A
h	5.7	6.5	Large bin, Rm. 9, House 1; (two views)	a ¹			General fill, trash mound
86 a	3.5	16.5	Floor, Rm. 10, House 1; Interior	b ¹			Stratum E
b	3.5	13.8	Overburden, Pithouse B; Sand temper	c ¹			Strata D+ and E
c			Made in laboratory, gourd (<i>Lagenaria</i>)	d ¹			General fill, trash mound
87			Badger House trash mound; Chapin Gray handles	e ¹			General fill, trash mound
88 a	39.8	32.9	Floor, jacal, Site 1644; Capacity 17 qts.	f ¹			Strata D and D+
b	23.0	22.4	Firepit, jacal, Site 1644; Incised at fillet breaks	g ¹			Strata A and B
c	24.1	22.1	Floor near firepit, Rm. 10, House 1	92 a			General fill, trash mound
d	19.4	18.7	Level 3, Protokiva D	b			Stratum E
e	17.1	17.6	Floor, Rm. 9, House 4	c			Stratum C
90			Subfloor, Feature 5, (Stratum D?); Diameter of mouth 22 cm.	d			Strata A and B
91 a			Fill, Feature 8 (Stratum E)	e			General fill, trash mound
b			General fill, trash mound	f			Stratum A
c			General fill, trash mound	g			General fill, trash mound
d			Stratum E	h			Stratum A
e			Strata D and D+	i			General fill, trash mound
f			Stratum E	j			Strata C and D
g			Stratum B	k			Stratum E
h			Strata D+ and E	l			General fill, trash mound
i			Strata D+ and E	94 a			Burial 11, Badger House
j			Stratum E	b		20.3	Area I
k			General fill, trash mound	c	44.8	37.2	Area I
l			General fill, trash mound	d	21.8	18.7	Burial 3, Badger House
m			Fill, Feature 9	e	20.6	19.0	Area I
				f			Feature 5
				95 a	15.3	14.7	Burial 3, Badger House
				b			Strata D and D+
				c	14.2	12.0	Ventilator shaft, Kiva C
				d	14.0	12.8	Burial 1, Badger House
				e	11.0	9.7	Burial 10, Badger House
				f		10.4	Burial 2, Badger House
				96 a			General fill, trash mound
				b			Strata D and D+
				c			Strata D and D+
				97 a			Stratum A
				b			Stratum A
				c			Stratum E
				d			Stratum E
				e			Stratum A

Figure No.	Height (cm.)	Length or Diameter (cm.)	Provenience and Remarks	Figure No.	Height (cm.)	Length or Diameter (cm.)	Provenience and Remarks
f			Strata B and C	b	7.6	22.6	Outside SE wall, jacal, Site 1644
g			Strata A and B	110 a	10.9	16.4	Floor, Pithouse A; fugitive red
h			General fill, trash mound	b	9.5	18.9	Roof or bench, Pithouse A; fugitive red
i			Strata A and B	c	9.5	17.5	Fill, Rm. 9, House 3; basket impression
j			Stratum A	d	8.3	18.2	Floor, Rm. 1, House 3
k			Stratum A	e	7.4	19.2	Fill, Rms. 4 and 9, House 4
l			General fill, trash mound	f	8.2	17.5	Fill, Rm. 4, House 5
m			General fill, trash mound	111	3.0		Subfloor, jacal, Site 1644
n			General fill, trash mound	112 a			Stratum E
o			General fill, trash mound	b			General fill, trash mound
98 a			Stratum A	c			Strata A and B
b			Stratum A	d			General fill, trash mound
99 a			General fill, trash mound	e			General fill, trash mound
b			Subfloor, Rm. 3, Badger House	f			General fill, trash mound
c			General fill, trash mound	g			General fill, trash mound
d			Fill, Kiva C	h			Fill, Feature 9
e			Stratum E	i			General fill, trash mound
f			General fill, trash mound	j			Stratum E
g			Strata B and C	k			General fill, trash mound
h			Strata B and C	l			General fill, trash mound
i			Overburden, Kiva C	m			Stratum D+
j			Upper fill, Feature 9	n			General fill, trash mound
k			Overburden, Kiva C	o			Overburden, Kiva C
l			Overburden, Kiva C	p			General fill, trash mound
m			Strata D and D+	q			General fill, trash mound
n			Strata B and C	r			General fill, trash mound
o			Fill, Kiva C	s			Fill, Feature 9
p			Strata B and C	t			General fill, trash mound
q			Strata B and C	u			Stratum E
r			Area I	113 a			Stratum A
s			Kiva C, fill	b			Strata A and B
100	16.0	15.0	Burial 13, Badger House	c			Stratum E
101 a			General fill, trash mound	d			Stratum E
b			Stratum A	e			Strata D and D+
c			Stratum A	f			Strata D and D+
d			Stratum A	g			General fill, trash mound
e			Stratum D+	h			Stratum D+
f			Stratum B	i			Stratum E
102	25.0	26.0	Floor, Rm. 2, Badger House	j			Stratum E
103	17.7	22.9	Burial 12, Badger House	k			Stratum E
104	10.5		Trash, Badger House	l			Stratum E
105 a			Stratum D+	m			Stratum E
b			General fill, trash mound	n			Strata D and D+
c			General fill, trash mound	114 a	7.0	18.0	Fill, Rm. 4, House 7
d			Stratum D	b			Level 4, Protokiva D
e			Stratum E	115 a	19.0	16.8	Floor, Rm. 10, House 1
f			General fill, trash mound	b	18.8	17.6	Roof, Rm. 4, House 4
g			Stratum D	c	21.0	20.5	Floor, Rm. 1, House 5
h			Stratum D+	d	13.4	10.4	Burial 5, Site 1676
i			Stratum D+	116 a			Strata C and D
j			Strata A and B	b			Stratum A
k			General fill, trash mound	c			General fill, trash mound
l			Stratum D+	d			Stratum D+
m			General fill, trash mound	e			General fill, trash mound
106			General fill, trash mound	117 a			General fill, trash mound
108 a			Fill, Rm. 4, House 3	b			General fill, trash mound
b			Fill, Rm. 13, House 4	c			Stratum E
c			Test Trench II, Site 1676	d			General fill, trash mound
d			Fill, Rm. 1, Pithouse B	118			General fill, trash mound
e			Upper fill, Rm. 9, House 3	119			Goodman Point (Hewett Collection)
f			Fill, Rm. 4, House 3	120			Atarque, N. Mex. (Deane Collection)
g			Fill, Rm. 4, House 3	121			Stratum D+
h			Level 1, Protokiva E	122		7.9	Stratum A
i			Test Trench I, Site 1676	123 a			General fill, trash mound
j			Overburden, Pithouse G	b			Strata B and C
k			Fill, Rm. 9, House 4	c			General fill, trash mound
l			Fill, Rm. 12, House 4	d			General fill, trash mound
m			Floor, Rm. 2, Pithouse B				
n			Fill, Rm. 4, House 3				
109 a	10.0	22.6	North bench, Pithouse A; fugitive red				

Figure No.	Height (cm.)	Length or Diameter (cm.)	Provenience and Remarks	Figure No.	Height (cm.)	Length or Diameter (cm.)	Provenience and Remarks
e			General fill, trash mound	c			Stratum A
f			General fill, trash mound	d			General fill, trash mound
g			General fill, trash mound	e			General fill, trash mound
h			Stratum A	f			Stratum A
i			Stratum E	g			Stratum A
j			Stratum A	h			General fill, trash mound
k			Strata D and D+	i			Strata B and C
l			General fill, trash mound	j			Strata B and C
m			Stratum E	k			Stratum A
n			General fill, trash mound	l			Strata A and B
o			Stratum E	m			Stratum B
p			General fill, trash mound	134 a			General fill, trash mound
125	10.7	29.8	Burial 29, Badger House	b			General fill, trash mound
126	6.3	12.8	Burial 1, Badger House	c			General fill, trash mound
127	7.5	13.1	Burial 8, Badger House	d			General fill, trash mound
128	10.4	24.7	Burial 29, Badger House	e			Stratum A
129 a			Stratum D	f			Strata C and D
b			General fill, trash mound	g			General fill, trash mound
c			Stratum A	h			Stratum D
d			Stratum D	i			Stratum D+
e			General fill	j			General fill
f			Stratum E	k			Stratum E
g			General fill, trash mound	l			General fill, trash mound
h			Stratum E	m			Stratum A
i			Stratum B	n			Stratum A
j			Stratum D	o			General fill, trash mound
k			General fill, trash mound	p			Stratum A
l			General fill, trash mound	q			General fill, trash mound
n			General fill, trash mound	135 a			Stratum D+
130 b			Strata B and C	b			Strata A and B
c			Stratum E	c			Strata D and D+
d			Stratum D+	d			Stratum D+
e			General fill, trash mound	e			Strata A and B
f			General fill, trash mound	f			General fill, trash mound
g			General fill, trash mound	g			General fill, trash mound
h			Stratum E	h			General fill, trash mound
i			Strata B and C	i			General fill, trash mound
j			Strata D+ and E	j			Strata B and C
k			Stratum E	k			General fill, trash mound
l			General fill, trash mound	l			Strata D+ and E
m			Stratum D	m			General fill, trash mound
n			Stratum E	n			General fill, trash mound
o			General fill, trash mound	o			Stratum E
p			Stratum A	p			General fill, trash mound
q			Stratum A	q			Strata C and D
r			Stratum D+	r			Strata D and D+
s			Stratum A	136 a			General fill, trash mound
131	9.1	18.8	Strata A and B	b			Strata C and D
132 a			Burial 13, Badger House	c			Strata D and D+
b			Stratum E	d			Stratum A
c			General fill, trash mound	e			Stratum D
d			Stratum E	f			General fill, trash mound
e			Stratum D	g			General fill, trash mound
f			Strata A and B	h			General fill, trash mound
g			General fill, trash mound	i			General fill, trash mound
h			General fill, trash mound	j			General fill, trash mound
i			Stratum A	k			Stratum A
j			Strata B and C	l			Stratum A
k			Stratum E	m			General fill
l			General fill, trash mound	n			Stratum A
m			Strata D+ and E	o			Stratum E
n			General fill, trash mound	p			General fill, trash mound
o			Strata D and D+	q			Stratum D+
p			Stratum D+	r			Strata D+ and E
q			Stratum A	s			General fill, trash mound
r			General fill, trash mound	t			Stratum A
s			Stratum E	u			Stratum D
t			General fill, trash mound	137 a			Stratum E
133 a			General fill, trash mound	b			General fill, trash mound
b			Strata D and D+	c			Stratum A
			Stratum B	d			General fill, trash mound

Figure No.	Height (cm.)	Length or Diameter (cm.)	Provenience and Remarks	Figure No.	Height (cm.)	Length or Diameter (cm.)	Provenience and Remarks
e			Stratum A	148 a	10.5	19.5	General fill, trash mound
138 a			Strata D and D+	b			Burial 19, Badger House
b			Retaining wall, Step House	c	9.2	17.7	Burial 7, Badger House
c			Strata C and D	149 a		25.7	Stratum A
d			Test Trench VI, Step House	b			Burial 27, Badger House
139 a			Stratum A	150 a			Stratum D
b			Stratum A	b			Strata B and C
c			Stratum D	c			Stratum A
d			Stratum E	d			General fill, trash mound
e			General fill, trash mound	e			Stratum A
f			General fill, trash mound	f			General fill, trash mound
g			General fill, trash mound	g			Stratum A
h			Stratum A	h			Stratum A
i			Stratum A	i			Stratum B
j			Stratum D+	j			General fill
k			Stratum D+	k			General fill
l			Stratum A	l			Stratum A
m			Stratum A	m			Stratum A
n			General fill, trash mound	n			Stratum A
140			Stratum A	o			Stratum A
141 a			Stratum A	p			Strata B and C
b			Stratum A	q			Stratum A
c			Area I	r			General fill
d			Stratum A	s			Stratum A
e			Stratum A	t			Stratum A
f			Stratum A	151 a			Stratum A
142 lt.	26.8	27.5	Floor, Rm. 8, Badger House	b			Strata B and C
rt.		32.0	Subfloor cist, Kiva B	c			General fill, trash mound
143 a	15.7	12.3	Burial 18, Badger House	d			Stratum D+
b	13.6	16.7	Burial 14, Badger House	e			General fill, trash mound
c	13.4	10.1	Burial 16, Badger House	f			Strata C and D
144 a			Stratum A	g			General fill, trash mound
b			Area I	h			General fill, trash mound
c			General fill, trash mound	i			General fill, trash mound
d	28.7	12.4	Burial 2, Badger House	j			General fill, trash mound
e		9.9	Burial 3, Badger House	k			Stratum A
145			General fill, trash mound	l			Stratum A
146 a			Stratum A	m			Strata C and D
b			Strata A and B	n			General fill, trash mound
c			Stratum B	o			Stratum A
d			Stratum C	p			Stratum A
e			General fill, trash mound	q			Stratum A
f			General fill, trash mound	r			Stratum D
g			General fill, trash mound	s			Strata A and B
h			General fill, trash mound	t			Stratum A
i			Stratum A	u			Stratum E
j			Stratum A	152 lt.			Stratum E
k			General fill, trash mound	rt.			Stratum A
l			General fill, trash mound	153 a			Overburden, Kiva B
m			General fill, trash mound	b			Stratum A
n			Stratum A	c			Fill, Kiva A, Badger House
o			Stratum A	d			General fill, trash mound
p			Stratum A	e			Stratum A
q			Stratum A	f			General fill, trash mound
147 a			General fill, trash mound	g			Stratum A
b			General fill, trash mound	h			Stratum A
c			Stratum C	i			Stratum A
d			Stratum D+	j			Stratum D+
e			Strata C and D	k			Overburden, Kiva B
f			General fill, trash mound	l			Stratum A
g			General fill, trash mound	m			Stratum A
h			Stratum A	154	10.4	20.3	Burial 7, Badger House
i			Strata A and B	155 a	12.7	28.0	Burial 21, Badger House
j			Stratum A	b	9.1	18.9	Burial 9, Badger House
k			Stratum A	c	10.2	19.6	Burial 14, Badger House
l			General fill, trash mound	d	14.4	24.3	Burial 3, Badger House
m			General fill, trash mound	156 a			Stratum A
n			Stratum A	b			Strata A and B
o			General fill, trash mound	157		16.1	Floor, Kiva C
p			Stratum A	158	11.3		Burial 10, Badger House
q			General fill, trash mound	159			Overburden, Kiva C

Figure No.	Height (cm.)	Length or Diameter (cm.)	Provenience and Remarks	Figure No.	Maximum dimension (cm.)	Clay Provenience
160 a			Area I			
b			Stratum A	170 a	5.8	Floor, Room 2, Pithouse B
c			General fill, trash mound	b	6.2	Bench, Pithouse A
d			Stratum A	c	5.3	Floor, Room 2, Pithouse B
e			General fill, trash mound	d	4.4	Floor, Room 2, Pithouse B
f			Stratum A	e	5.9	Floor, Rm. 1, House 5
g			Area I	f	5.9	Floor, Rm. 6, House 5
h			Area I	g	11.3	Test Trench VII (east of House 4)
i			Stratum A	h	8.0	Floor, Rm. 7, House 1
j			Stratum A			
k			Area I	171 lt.	5.5	General fill, trash mound
l			General fill, trash mound	rt.		Stratum A
m			Stratum A			
161 a			Stratum A	172 a	4.8	Strata D and D +
b			Overburden, Kiva C	b	3.3	General fill, trash mound
163 a			Stratum A	c	3.2	Stratum D
b			Stratum A	d	2.9	Stratum A
c			General fill, trash mound	e	3.2	Stratum A (near Burial 27)
d			Upper fill, Kiva A, Badger House	f	2.9	Strata C and D
e			Subfloor, Rm. 2, Badger House	g		Stratum A
f			Stratum A	h	4.2	General fill, trash mound
g			General fill, trash mound	i	2.4	Stratum A
h			Overburden, Kiva B	j	3.4	Stratum D +
164 a			Fill, vault, Kiva A, Badger House	k	4.2	Stratum D
b			Subfloor, tower	l	3.0	Stratum A
c			Stratum A	m	4.0	Strata D and D +
d			Subfloor, tower	n	5.0	General fill, trash mound
e			Subfloor ventilator, Kiva A,	o	3.3	General fill, trash mound
			Badger House			
f			Stratum A	173 a	6.4	General fill, trash mound
g			General fill, trash mound	b	5.4	General fill, trash mound
h			Strata A and B	c	5.7	General fill, trash mound
i			Stratum B	d	5.3	General fill, trash mound
j			Stratum A	e	4.1	Stratum E
k			General fill, trash mound	f	4.1	Upper levels, trash mound
l			General fill, trash mound			
166 a	23.9		Floor, Rm. 2, House 6	174 a	8.5	Stratum A
b	19.5		Shelf, Rm. 1, House 5	b	7.5	Stratum D +
c	25.0		Roof?, Rms. 10-11, House 1	c	7.5	Stratum B
	21.0		Floor, Rm. 6, House 5	d	7.3	General fill, trash mound
167 a			Level 2, Protokiva E	e	5.4	General fill, trash mound
b			Level 1, Protokiva E	f	7.4	General fill, trash mound
c			Level 3, Protokiva E	g	7.7	General fill, trash mound
d			Fill, Rms. 1-3, House 3			
e			Overburden, Protokiva C	175 a	3.3	General fill, trash mound
f			Overburden, Protokiva C	b	3.6	Stratum C
g			Overburden, Protokiva C	c	2.6	Stratum D +
h			Fill, Rms. 1-3, House 3	d	3.0	Stratum D +
i			Level 2, Protokiva E	e	1.8	General fill, trash mound
j			Overburden, Protokiva C	f	2.1	General fill, trash mound
k			Fill, Rms. 1-3, House 3	g	2.6	Strata D and D +
l			Fill, Rms. 1-3, House 3	h	1.7	Stratum A
m			Level 2, Protokiva E	i	1.3	General fill, trash mound
n			Overburden, Protokiva C			
o			Overburden, Protokiva C	176	3.3	General fill, trash mound
p			Level 2, Protokiva E			
q			Fill, Rms. 1-3, House 3	177	15.7	Surface to floor, Pithouse G
168 a			General fill, trash mound			
b			General fill, trash mound			
c			General fill, trash mound			
d			General fill, trash mound			
e			Stratum D			
f			General fill, trash mound			
g			General fill, trash mound			
h			Strata B and C			
i			General fill, trash mound			
j			General fill, trash mound			
k			General fill, trash mound			
l			Strata A and B			
m			Stratum E			
n			General fill, trash mound			

Figure No.	Length (cm.)	Width (cm.)	Thickness (cm.)	Weight (gm.)	Material	Provenience
Stone						
179 a	2.7	1.7	0.3	1.0	Shale	Stratum D
b	2.9	1.8	0.2	1.0	Jasper	Upper fill, Rm. 8, House 4
c	3.6	1.5	0.3	1.1	Siltstone	Floor, Rm. 10, House 1
d	3.7	2.7	0.6	2.5	Siltstone	Floor, Great Kiva
e	4.2	1.9	0.3	1.6	Siltstone	Upper fill, Rm. 9, House 1
f		1.8	0.2	1.7+	Quartzite	Upper fill, Rm. 9, House 1
g	5.1	1.7	0.4	3.7	Chalcedony	Surface between Houses 1 and 6
h	4.1	1.9	0.5	3.4	Quartzite	Fill, Rm. 13, House 4
i	2.4	1.3	0.3		Quartzite	Lower fill, Pithouse A
j	4.0	1.9	0.3	1.9	Quartzite	Stratum E
k	2.9				Quartzite	Bench, Rm. 2, Pithouse B
l	4.7	1.7	0.5	3.6	Chalcedony	Overburden, Rm. 2, Pithouse B
m	3.5	2.6	0.4	4.3	Chert	Fill, Rm. 1, House 2
n	3.9	1.9	0.7	6.1	Quartzite	Fill, Rm. 2, House 3
o	3.3	1.8	0.5	2.3	Siltstone	Floor, Rm. 3, House 3
p	2.5	2.0	0.4	1.0	Jasper	Sheet trash, SE of House 2
q	3.2	1.8	0.4	2.6	Chalcedony	Fill, Rm. 13, House 4
r	2.9	1.8	0.7	3.4	Obsidian	General fill, trash mound
s	3.3	1.4	0.3	1.3	Chert	General fill, trash mound
t				5.0	Claystone	Overburden, Kiva C
u	3.0	2.8	0.8	7.4	Quartzite	Stratum E
180 a	4.5	2.7	0.5	5.9	Petrified wood	Stratum E
b	4.4	2.8	0.6	8.3	Petrified wood	Overburden, Kiva B
c	5.8	3.3	0.5	12.0	Jasper	Stratum A
d	3.4	3.1	0.5	6.7	Chalcedony	Tower Rubble
e		3.1	0.5		Chalcedony	Fill, Rm. 1, House 5
f	3.6	2.6	0.5		Petrified wood	Stratum E
g	4.1	3.0	0.5	6.0	Chalcedony	Strata D and D+
h	4.8	3.6	1.8	2.7	Chert	Stratum A
i	6.3	2.0	0.3	5.5	Quartzite	Fill, Kiva B
j	4.6	2.2	0.6	6.3	Chert	General fill, trash mound
k	4.8	2.9	0.7	6.4	Chert	Level, 3, Protokiva E
l	3.4	2.2	0.8	6.9	Siltstone	Level, 3, Protokiva E
m	4.2	3.2	1.1	1.7	Siltstone	General, fill, trash mound
n	2.1	1.2	0.4		Chert	Stratum A
181 a	2.6	2.1	0.6	4.3	Quartzite	Stratum A
b	4.7	2.2	0.5	6.0	Quartzite	Stratum D
c	6.0	1.6	0.8	8.5	Quartzite	General fill, trash mound
d	3.8	2.4	1.2	9.4	Quartzite	Stratum A
e	4.3	1.2	1.2	10.0	Siltstone	Strata A and B
f	4.8	3.0	0.5	7.0	Chert	Level 2, Great Kiva
g	3.7	2.3	0.5	3.4	Chalcedony	Overburden, Kiva C
182 a	9.5	0.4	0.9		Petrified wood	General fill, trash mound
b	6.6	3.7	1.9		Claystone	Stratum A
c	5.5	4.5	2.1		Basalt	Stratum A
d	6.3	3.2	1.4		Siltstone	General fill, trash mound
e	5.4	4.1	2.2		Chert	Stratum A
f	7.1	3.6			Claystone	General fill, trash mound
g	7.0	4.3			Chert	General fill, trash mound
h	4.0	4.0			Chert	Strata D and D+
i	3.0				Chert	General fill, trash mound
j	5.0	4.0			Chert	General fill, trash mound
k	6.0	4.0			Quartzite	Stratum A
l	4.0	2.0			Chert	Stratum A
183	5.0	4.0			Claystone	Level 1, Protokiva E
184 a	13.3	12.8	4.6		Quartzite	Strata D and D+
b	14.5	12.2	5.2	822	Quartzite	Feature 11
c	8.2	7.3	2.3	210	Claystone	General fill, trash mound
d	6.7	5.5	2.2	99	Basalt	General fill, trash mound
e	6.6	6.0	3.4	164	Claystone	Overburden, Kiva C
f	7.3	5.3	2.2	89	Quartzite	Strata B and C
g	11.4	11.2	2.6	444	Sandstone	Stratum A
h	12.6	7.6	3.0	405	Porphyry	Stratum E
i	5.0	4.5	3.1	84	Basalt	General fill, trash mound
185 a	12.3	9.3	2.8	531	Granite	Fill, Rm. 6, House 6
b	11.1	7.2	2.8	345	Porphyry	Fill, Rm. 4, House 5
c	19.0	9.8	2.6	730	Granite	Fill, Rm. 12, House 3
d	17.1	10.6	3.6	1017	Diorite	General fill, trash mound

Figure No.	Length (cm.)	Width (cm.)	Thickness (cm.)	Weight (gm.)	Material	Provenience
e	17.2	10.1	3.8	1049	Porphyry	Lower levels of trash mound
f	10.3	7.0	3.4	390	Claystone	Tower rubble
g	14.5	7.9	2.8	561	Quartzite	Fill, Rm. 2, House 5
h	13.5	8.7	3.8	682	Quartzite	Fill, Rm. 2, House 7
i	14.0	7.9	4.4	717	Granite	Burial 5, Site 1676
j	12.4	7.4	5.8	743	Porphyry	Upper fill, Kiva B
k	13.7	8.9	5.7	1065	Porphyry	General fill, trash mound
l	12.1	9.1	6.2	1038	Granite	General fill, trash mound
m	16.0	8.1	3.5	601	Porphyry	General fill, trash mound
n	11.5	5.3	2.2	228	Porphyry	Fill, Kiva C
o	19.8	6.3	2.9	606	Sandstone	Floor, Rm. 1, House 2
186 lt.	16.6	9.5	7.0	1660	Quartzite	Fill, Rm. 6, House 6
ctr.	18.1	9.3	6.9	1653	Quartzite	Fill, Rm. 4, House 5
rt.	17.1	9.3	7.2	1660	Granite	Fill, Rm. 5, House 1
187 a	7.5	5.9	5.5	388	Quartzite	Level 1, Great Kiva
b	6.9	6.1	4.8	282	Claystone	Upper fill, Pithouse A
c	7.4	6.2	4.2	265	Claystone	Floor, Rm. 2, Pithouse B
d	6.9	5.6	4.9	263	Claystone	General fill, trash mound
e	5.2	4.8	4.6	130	Chert	General fill, trash mound
f	6.0	4.5	4.0	165	Quartzite	Trench near Kiva C
188 a	46.5	45.0	15.0	33,765 (74 lbs.)	Sandstone	Doorway, Rm. 4, House 5
b	55.0	43.5	20.0	35,835 (79 lbs.)	Sandstone	Floor, Pitroom F, House 4
189	45.9	32.0	8.7	17,492 (39 lbs.)	Sandstone	Area I
190 a, b	51.5	28.8	10.9	16,528 (36 lbs.)	Sandstone	Lower fill, Kiva B
191	36.5	25.3	7.2	10,291 (23 lbs.)	Sandstone	Subfloor ventilator, Kiva A, Badger House
193 a	13.1	10.2	2.6	518	Quartzite	Strata D and D+
b	20.4	12.0	3.6	1323	Sandstone	Floor, Kiva B
c	19.4	9.1	3.6	726	Quartzite	Fill, Kiva C
d	19.5	11.7	3.7	1302	Quartzite	Floor, Kiva C
e	20.0	12.0	3.5	1464	Quartzite	Burial 29, Badger House
f	18.5	12.1	3.7	1408	Quartzite	Fill, Kiva C
g	24.7	14.1	2.3	1493	Sandstone	Lower fill, Kiva B
h	21.0	12.4	2.9	1287	Sandstone	Feature 11
i	19.3	11.7	2.2	755	Sandstone	Floor, Feature 9
j	17.6	9.1	2.4	550	Sandstone	Stratum A
k	21.0	10.4	2.7	807	Sandstone	Area I
l	18.8	8.5	2.2	533	Sandstone	General fill, trash mound
194 a	20.5	13.2	3.5	1704	Sandstone	Floor, Feature 9
b	15.8	12.0	2.4	882	Sandstone	Area I
c	17.0	11.7	3.2	1101	Sandstone	Floor, Kiva C
d	22.7	14.5	3.9	2063	Sandstone	Area I
e	22.0	12.6	3.3	1471	Sandstone	Floor, Kiva B
f	24.6	11.8	4.7	1657	Breccia	Subfloor, tower
195 t.	7.6	7.2	5.2	420	Quartzite	Strata D and D+
ctr.	9.1	7.6	3.8	395	Quartzite	General fill, trash mound
bt.	11.5	9.0	4.9	787	Quartzite	General fill, trash mound
196 t.	27.6	13.8	8.9	6350 (14 lbs.)	Sandstone	Floor, Rm. 9, House 4
ctr.	23.1	12.7	8.3	4847 (11 lbs.)	Sandstone	Floor, Pitroom, F, Burial 8, House 4
bt.	23.7	14.4	9.6	6265 (14 lbs.)	Sandstone	Fill, Rm. 2, House 6
197 a	12.0	9.5	5.5	1025	Granite	Strata D+ and E
b	11.6	8.4	6.0	920	Quartzite	Feature 11
c	12.9	10.3	5.4	1140	Quartzite	Stratum E (Feature 8 fill)
d	12.2	8.2	5.6	733	Quartzite	General fill, trash mound
e	11.1	8.1	4.0	659	Quartzite	Overburden, Kiva C
198 a	10.4	9.1	4.9	411	Sandstone	General fill, trash mound
b	12.5	10.8	4.9	822	Sandstone	Overburden, Kiva C
c	7.3	3.9	2.5	110	Sandstone	Stratum A
d		.1	1.9		Sandstone	Stratum A

Figure No.	Length (cm.)	Width (cm.)	Thickness (cm.)	Weight (gm.)	Material	Provenience
e		2.9	2.5		Sandstone	Strata A and B
f	6.4	3.4	1.7		Sandstone	Stratum A
199	9.0	7.6	6.8	451	Sandstone	General fill, trash mound
200 a	61.4	47.5	3.8		Sandstone	Bin, Pitroom F, House 4
b	43.9	38.5	1.1		Sandstone	Floor, Rm. 1, House 5
201 a	7.9	6.9	1.3	91	Sandstone	General fill, trash mound
b	7.0	6.2	0.7	39	Sandstone	General fill, trash mound
c	5.1	3.5	0.5	10	Sandstone	Area I
d		6.3	0.8		Sandstone	Tower fill, Kiva B
e	4.7	4.7	1.0	28	Sandstone	Fill, Feature
f	4.5	3.5	0.4	11	Sandstone	Stratum A
g	3.2	3.0	1.0	19	Onyx	Overburden, Kiva C
202 a	17.5	17.5	1.5	750	Sandstone	Lower fill, Kiva B
b	13.7	13.2	1.4	415	Sandstone	Stratum A
203 a	16.7	11.8	7.1	1375	Sandstone	Overburden, Kiva C
b	6.7	6.3	6.6	291	Sandstone	Overburden, Kiva C
c	11.9	5.2	3.9	277	Sandstone	Stratum A
d	8.5	4.2	4.0	207	Sandstone	General fill, trash mound
e	7.8	4.1	3.3	155	Sandstone	General fill, trash mound
f	4.2	3.8	3.0	42	Sandstone	Stratum A
204 a		4.5	1.5		Shale	Stratum A
b					Shale	General fill, trash mound
c	4.6	3.2	0.5	13.0	Shale	Stratum E
d	2.5	2.4	0.3	5.0	Shale	Lower fill, Kiva B
e	2.1	1.9	0.3	1.5	Shale	Stratum A
f	4.3	4.3	0.9	29.0	Onyx	General fill, trash mound
g	3.3	3.3	0.4		Shale	Stratum A
h		0.9	0.3		Onyx	Stratum D
i	1.9	0.9	0.2	2.0	Turquoise	Burial 3, Badger House
j	1.5	1.1	0.4	0.9	Soapstone	Stratum E
k	3.1	1.3	1.0	5.2	Quartz	Burial 30, Badger House
l					Jet, shale	General fill, trash mound
205	5.3	2.0	1.2	6.7	Jet	Bin, north corner, Rm. 9, House 4
206		0.9	0.3		Onyx	Stratum D
207					MancosB/w Azurite	Site 1679 Site 1679
208 a	1.9	1.9	1.8	8.2	Sandstone	Upper fill, Rm. 9, House 3
b		2.6		16	Sandstone	General fill, trash mound
c	2.9	2.7	2.5	24	Sandstone	Level 3, Great Kiva
d	2.9	2.7	2.8	25	Sandstone	General fill, trash mound
e	3.5	3.0	2.7	37	Sandstone	Lower levels, trash mound
f	3.7	3.6	2.5	42	Sandstone	Level 3, Great Kiva
g	4.2	4.0	3.8	72	Sandstone	Upper fill, antechamber, Protokiva C
h	4.2	4.2	3.9	79	Sandstone	Stratum A
i	6.2	1.8	2.0	28	Sandstone	Fill, Pithouse A
j	5.0	4.2	2.8	58	Sandstone	Lower fill, Rm. 13, House 3
k	4.3	3.0	3.1	33	Sandstone	General fill, trash mound
l	3.8	3.8	3.1	31	Sandstone	Strata D and D+
m	5.5	3.2	3.0	63	Sandstone	Level 1, Rm. 2, Pithouse B
n	7.3	4.5	1.4	53	Sandstone	Stratum E
o	4.6	4.4	1.7	35	Sandstone	General fill, trash mound
p		2.5	2.2	13	Sandstone	General fill, trash mound
q	5.3	3.7	3.6	77	Sandstone	Level 3, Great Kiva
r	5.5	3.1	2.9	56	Sandstone	Test Trench III, Site 1676
s	6.0	2.4	2.3	40	Sandstone	Lower levels, trash mound
t	7.1	2.9	2.3	51	Sandstone	Overburden, Kiva C
209	28.6	19.3	18.8		Sandstone	Floor, Kiva A, Badger House
210	6.6	3.1	2.7	68	Sandstone	Fill, Rm. 6, House 7
211 lt.	7.3	3.1	4.7		Sandstone	Upper fill, Kiva B
rt.	8.6	7.5	3.7	158	Sandstone	Stratum A
212	8.4	6.5	5.3	306	Sandstone	Floor, Kiva A, Badger House

Figure No.	Length (cm.)	Width (cm.)	Thickness (cm.)	Weight (gm.)	Material	Provenience
213	19.5	17.1	14.7		Sandstone	Floor, Kiva A, Badger House
214	14.8	11.4	1.2	209	Slate	Fill, Kiva C
215	20.2	19.2	13.5		Sandstone	Fill, Rm. 2, Badger House

Figure No.	Length (cm.)	Species	Element	Provenience
Bone				
216 a	10.2	<i>Odocoileus hemionus</i>	Tibia	Burial 1, Site 1676
b	10.1	<i>O. hemionus</i>	Metatarsal	Burial 1, Site 1676
c	7.5	<i>O. hemionus</i>	Tibia	Burial 1, Site 1676
d	10.0	<i>Artiodactyla</i> sp.	Metapodial	Burial 1, Site 1676
e	7.4	<i>Ovis canadensis</i>	Radius	Burial 1, Site 1676
f	7.5	<i>Odocoileus</i> sp.	Metatarsal	Burial 1, Site 1676
g	8.2	<i>Odocoileus hemionus</i>	Tibia	Burial 1, Site 1676
h	8.5	<i>Artiodactyla</i> sp.	Tibia (?)	Burial 1, Site 1676
i	16.0	<i>Odocoileus hemionus</i>	Tibia	Burial 1, Site 1676
217 a	9.8	<i>Bovidea</i> sp.	Rib	Burial 3, Badger House
b	8.6	Unknown mammal	Unknown bone	Burial 3, Badger House
c	6.6	<i>Ovis canadensis</i>	Ulna	Burial 3, Badger House
d	7.7	Unknown bird or mammal	Long bone	Burial 3, Badger House
218 a	8.2	<i>Ovis canadensis</i>	Metatarsal	Stratum A
b	8.0	<i>Odocoileus hemionus</i>	Metatarsal	Strata D and D+
c	7.4	<i>O. hemionus</i>	Metatarsal	General fill, trash mound
d	12.4	<i>Ovis canadensis</i>	Metatarsal	Level 1, Kiva A, Site 1676
e	11.0	<i>Odocoileus hemionus</i>	Metapodial	Strata C and D
f	9.9	<i>Odocoileus</i> sp.	Metatarsal	Strata D and D+
g	7.9	<i>Canidae</i> sp.	Ulna	Stratum C
h	10.8	<i>Odocoileus hemionus</i>	Ulna	Stratum D+
i	11.4	<i>Canis latrans</i>	Ulna	Stratum E
j	10.1	<i>Odocoileus hemionus</i>	Ulna	Overburden, Kiva C
k	11.1	<i>Lynx rufus</i>	Radius	Stratum E
l	13.0	Unknown mammal	Long bone	General fill, trash mound
m	11.0	<i>Artiodactyla</i> sp.	Metapodial	General fill, trash mound
n	8.4	<i>Artiodactyla</i> sp.	Rib	General fill, trash mound
o	9.0	<i>Ovis canadensis</i>	Radius	General fill, trash mound
p	9.4	<i>Urocyon cinereoargenteus</i>	Tibia	Fill, tower
q	9.2	<i>Meleagris gallopavo</i>	Tibiotarsus	Stratum E
219 a	23.1	<i>Odocoileus hemionus</i>	Metatarsal	Lower fill, Kiva B
b	17.6	<i>Odocoileus hemionus</i>	Metatarsal	Area I
c	17.3	Unknown mammal	Long bone	Lower fill, Kiva B
d	15.8	<i>Artiodactyla</i> sp.	Metatarsal	Stratum A
e	12.8	<i>Lynx rufus</i>	Fibula	Fill, Rm. 13, House 4
220 a	11.6	Unknown mammal	Unknown bone	General fill, trash mound
b	15.1	<i>Ovis canadensis</i>	Tibia	Stratum D+
c	12.1	<i>Artiodactyla</i> sp.	Femur	Area I
d	12.7	<i>Odocoileus</i> sp.	Rib	Subfloor pit, Rm. 10, House 4
e	14.8	<i>Bovidae</i> sp.	Rib	Floor, Pithouse A
f	11.3	<i>Meleagris gallopavo</i>	Scapula	Subfloor vault, Kiva, A, Badger House
g	13.1	<i>Artiodactyla</i> sp.	Femur	Fill, Rm. 12, House 3
h	8.1	Unknown mammal	Unknown bone	Overburden, Kiva C
i	6.7	<i>Bovidae</i> sp.	Rib	Overburden, Kiva C
j	17.5	<i>Odocoileus hemionus</i>	Radius	Lower fill, Kiva B
221 a	5.6	<i>Artiodactyla</i> sp.	Metatarsal	Level 1, Protokiva D
b	7.4	<i>Odocoileus hemionus</i>	Metatarsal	Stratum A
c	7.4	<i>Cervidae</i> sp.	Antler tine	Overburden, Kiva C
d	14.2	<i>Lepus</i> sp.	Tibia	Floor, Protokiva E
e	14.7	<i>Lepus</i> sp.	Tibia	Floor, Protokiva D
f	14.1	<i>Lepus</i> sp.	Tibia	Fill, Rm. 12, House 4
g	4.4	<i>Buteo regalis</i>	Tibiotarsus	Fill, Kiva C
h	2.0	<i>Lepus californicus</i>	Femur	Stratum B
i	3.0	<i>Urocyon cinereoargenteus</i>	Parietal	Fill, Pithouse A
j	2.1	<i>Odocoileus</i> sp.	Antler	Fill, Kiva C
k	3.3	Unknown mammal	Long bone	Level 1, Great Kiva
l	2.3	Unknown mammal	Long bone	Strata D and D+
222	2.7	Unknown mammal	Long bone	Fill, Pithouse A
223	35.5	<i>Odocoileus hemionus</i>	Antler	Bench, Pithouse G

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