

UNIVERSITY OF COLORADO STUDIES

SERIES IN ANTHROPOLOGY

No. 12

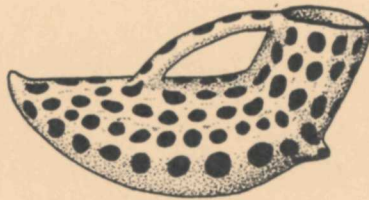
CONTRIBUTIONS TO MESA VERDE ARCHAEOLOGY: III
SITE 866, AND THE CULTURAL SEQUENCE AT
FOUR VILLAGES IN THE FAR VIEW GROUP,
MESA VERDE NATIONAL PARK, COLORADO

BY

ROBERT H. LISTER

COLLABORATORS

Elaine Anderson
George J. Armelagos
Florence C. Lister
William D. Wade



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BOULDER, COLORADO, DECEMBER, 1966

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PREFACE

This is the third and final report of a series considering the archaeological investigations conducted between 1953 and 1956 by University of Colorado Field Sessions in Archaeological Research in Mesa Verde National Park, Colorado. During those four field sessions, three ruins identified by numbers assigned them during archaeological surveys were excavated: sites 499, 875, and 866. Reports upon sites 499 and 875 have been published (Lister, 1964, 1965).

The excavation of Site 866 and the results of the analyses of materials and data from the ruin are described in this report. Additionally, comments upon the cultural sequence exemplified by all three sites and upon certain features of the villages are included in this paper.

Site 866, with the exception of the protokiva, was excavated and much of the preliminary processing and examination of specimens from the site was accomplished by students of the 1954 field session. The protokiva was cleared in 1955. Following the work in the field the materials from the site were brought to Boulder where final studies were made and the report was prepared.

The field program was directed by the writer assisted by Glen Cole. The following students participated in the session: Cynthia Almy, Betty Ball, Mary Jean Bates, Robert Bowen, Nelda Cade, Robert Campbell, Dolores Douglas, Joanna Finstad, Sally Foster, John Heinz, Edward Jay, Joan Johnson, Phyllis Joscelyn, Thomas Landauer, Mary Mackay, Clifford Merithew, Mary Lou Paskvan, Jean Rodeck, Lois Ann Smith, Marian Stephens, Nancy Stuart, and Dolores Torres. Shirley Gorenstein, a student of the 1955 field session, undertook the excavation of the protokiva. My thanks are extended to Glen Cole and all students of the session for a highly competent job of excavation.

Florence C. Lister did the preliminary analysis of the potsherds recovered from Site 866 in the field and completed her studies later in the archaeological laboratory of the University of Colorado. The fact that she also examined the pottery from sites 499 and 875 has standardized the classificatory system used throughout the project. Her observations upon the pottery of Site 866 and some comments about ceramics of the Mesa Verde area and the San Juan Basin are presented in the chapter on pottery.

Thomas P. Harlan, of the Laboratory of Tree-ring Research of the University of Arizona, has provided the tree-ring dates and Elaine Anderson, of the Uni-

versity of Colorado Museum, has identified the animal bones and provided the section upon faunal remains from the three sites. William D. Wade, of the Museum of Northern Arizona, and George J. Armelagos, of the University of Utah, prepared the report upon human skeletal remains while both were resident graduate students in our department. I sincerely appreciate the contributions these individuals have made to the report.

Financial support during the laboratory and report writing stages of the project was provided by the University of Colorado Council on Research and Creative Work. Their assistance is gratefully acknowledged.

Special thanks are due Don Watson and Al Lancaster, who served as Park Archeologist and Archeologist respectively during the work at Site 866. They and Mrs. Jean Pinkley, now Park Archeologist, advised and assisted in the planning for and excavation of the site and provided facilities and equipment without which we could not have accomplished the work at Mesa Verde. Oscar W. Carlson, then Superintendent of Mesa Verde National Park, supported our project and provided housing facilities for our staff and students. Through Jesse L. Nusbaum, former Department of the Interior Consulting Archeologist, permission was granted to conduct excavations in Mesa Verde National Park.

ROBERT H. LISTER
Boulder, Colorado
February, 1966

CONTENTS

Preface	iii
SITE 866, MESA VERDE NATIONAL PARK	
Introduction and Summary	1
Excavation of the Refuse Deposit	5
Excavation of the Pueblo	7
Architectural Development	29
Pottery	33
Artifacts and Ornaments	41
Burials	57
Foodstuffs	60
Dating the Occupation	61
THE CULTURAL SEQUENCE AT FOUR VILLAGES IN THE FAR VIEW GROUP, MESA VERDE NATIONAL PARK	
Introduction	65
Settlement Pattern and Architecture	71
Probable Sequence of Kiva Development	77
Pottery	88
Artifacts and Ornaments	92
Funeral Practices	96
Anthropometrical Data and Observations upon Human Skeletal Material	97
Animal Remains	113
Bibliography	115

FIGURES

Figure 1. Location of Mesa Verde National Park	2
Figure 2. A Portion of Mesa Verde National Park	3
Figure 3. Pueblo and Trash Mound	6
Figure 4. Site 866	10

Figure 5. Profiles, Site 866	12
Figure 6. Protokiva	20
Figure 7. Kiva A	24
Figure 8. Kiva B	27
Figure 9. Burials in Trash Mound	56
Figure 10. Kiva Development, 1 and 2	78
Figure 11. Kiva Development, 3 and 4	80
Figure 12. Kiva Development, 5 and 6	82
Figure 13. Kiva Development, 7 and 8	84
Figure 14. Pottery Complexes	89

TABLES

Table 1. Pottery Distribution, Site 866	34
Table 2. Metates	42
Table 3. Manos	44
Table 4. Rubbing Stones	46
Table 5. Flat Abraders	47
Table 6. Polishing Pebbles	47
Table 7. Pecking Stones	48
Table 8. Jar Lids	48
Table 9. Grooved and Notched Axes	49
Table 10. Hammers	50
Table 11. Lapstones	51
Table 12. Projectile Points	51
Table 13. Miscellaneous Stone Artifacts	52
Table 14. Fleshers	52
Table 15. Awls	53
Table 16. Weaving Tools	54
Table 17. Ornaments	55
Table 18. Cranial Measurements	98
Table 19. Post-cranial Measurements	99
Table 20. Anomalies and Pathologies	108
Table 21. Unmodified Animal Remains	113

PLATES

Plate 1. Site 866, Before Excavation	8
Plate 2. Site 866, After Clearing	8
Plate 3. Site 866, After Excavation	9
Plate 4. Site 866, After Excavation	9
Plate 5. Rooms 3, 4, 5, 6, and 11, During Excavation	14
Plate 6. Rooms 2, 3, 4, 9, 10, and 11, After Excavation	14

Plate 7. Room 11	16
Plate 8. Site 866, After Excavation	16
Plate 9. Protokiva	18
Plate 10. Floor of Protokiva	18
Plate 11. Kiva A	22
Plate 12. Dog Skeleton, Floor of Kiva A	22
Plate 13. Kiva B	26
Plate 14. Kiva B, Floor Features and Banquette	26
Plate 15. San Juan White Ware and Mesa Verde Gray Ware, Complete or Partial Vessels	38
Plate 16. Burial 5, BL1	58
Plate 17. Skull, Burial 5, Site 866	102
Plate 18. Skull, Burial 1, Site 875	104
Plate 19. Skull, Incomplete Burial, Room III, Site 875	106
Plate 20. Anomalies and Pathologies	110

SITE 866
MESA VERDE NATIONAL PARK, COLORADO

I. INTRODUCTION AND SUMMARY

The 1954 University of Colorado Field Session in Archaeological Research excavated Site 866 in Mesa Verde National Park. The ruin is on Chapin Mesa just north of sites 499 and 875 also excavated by the University of Colorado. It is situated in the same setting described and referred to in previously published reports upon those sites (Lister, 1964, 1965). Site 866 was selected for excavation to provide additional information about the complex of sites forming the Far View Group and in hopes that it would be worthy of exhibition to Park visitors after it had been cleared. The latter did not prove to be the case, and the site was back-filled after excavation. The predominance of Mancos Black-on-white sherds on the surface of the ruin before excavation suggested that it was occupied slightly earlier than Site 499, which had been cleared in 1953. Therefore, it was expected that Site 866 would give us an insight into the culture pattern of the area somewhat before the existence of the pueblo at Site 499.

Site 866 was briefly described and given its identifying number in 1951 when Al Lancaster and Leland Abel conducted an archaeological survey of Chapin Mesa for the National Park Service. From surface indications and the types of sherds observed at the site, they recorded on the site survey form that it was a small house of three or four rooms and two associated kivas of Pueblo II age. The almost total destruction of the walls of the pueblo led the surveyors to underestimate its original size, but the surface sherds accurately indicated its age.

A description of the architectural elements of the site, its accompanying refuse deposit, and the artifacts and data obtained from the excavations of these features are presented in the following pages. This information may be briefly summarized as follows:

Site 866 consists of the ruins of a small village which existed in Pueblo II times. At its maximum size it included 10 rectangular, single-storied rooms arranged in a double-rowed line oriented approximately east-west. South of the unit of rooms was a row of three subterranean structures, and still farther south the trash from the pueblo was deposited. Walls of the rooms were built of roughly shaped blocks of sandstone set in irregular courses a single stone in width. The three subterranean units are similar in that the pits are unlined, otherwise they differ from one another in most other respects. Two are

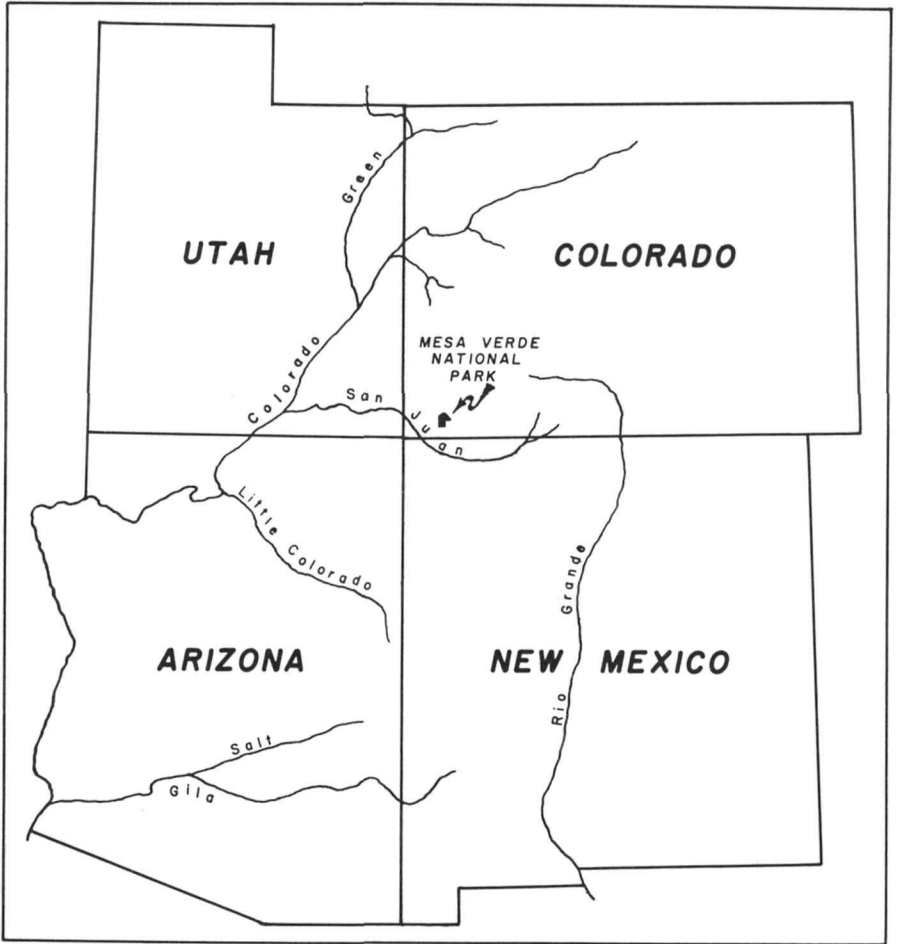


FIGURE 1. Location of Mesa Verde National Park in Southwestern United States.

considered to have been kivas and to have served as ceremonial chambers for the village, but the third—which has been labeled a protokiva—might have been a pithouse rather than a kiva. In fact, all features may have been pithouses originally.

This village was deserted and, in what appears to have been a short time, its roofs and walls were stripped of most of their components by individuals who were constructing dwellings in the vicinity and who took advantage of the ready source of building materials. Then, a single large room was built over the center of the remains of the earlier rooms. It was three times as large as the rooms in the first structure and had thick masonry walls in which fairly well shaped sandstone blocks were laid in courses two stones wide. The function of this single

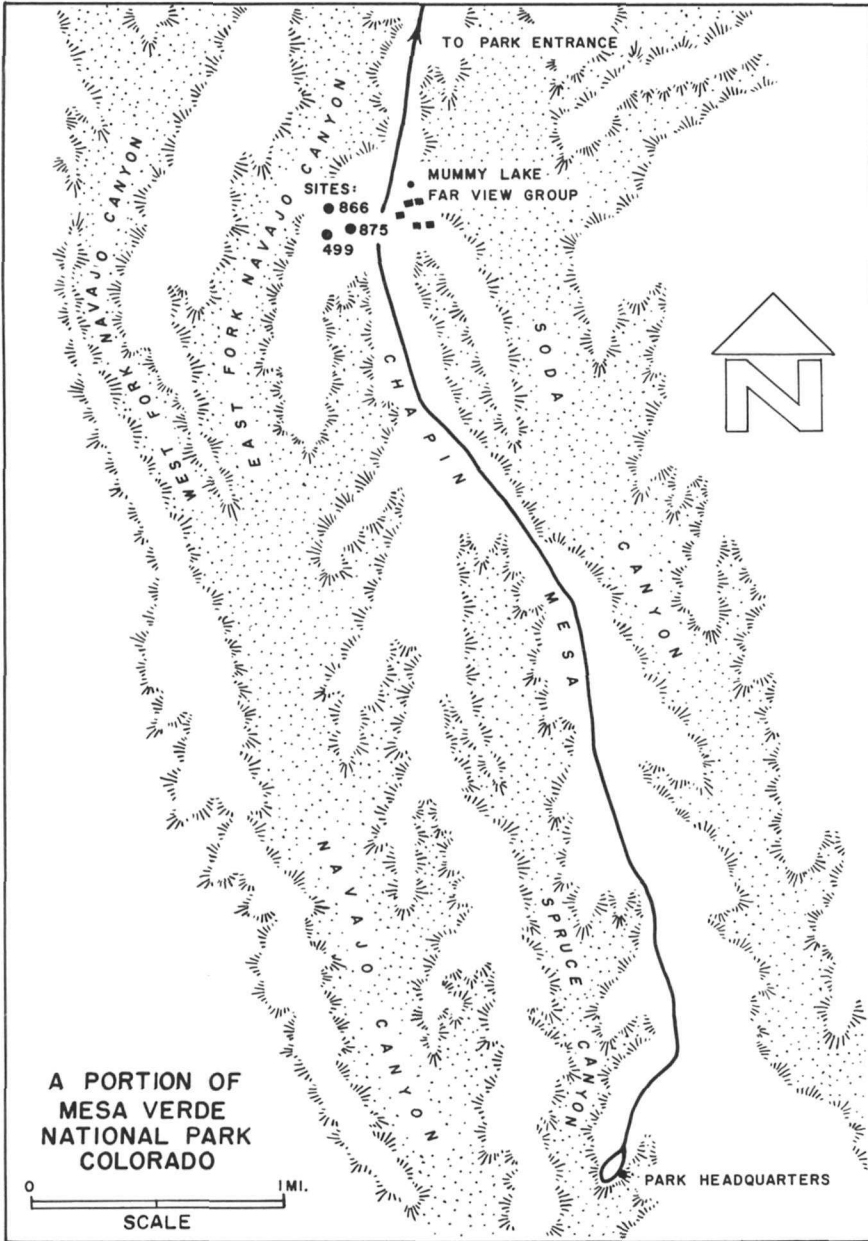


FIGURE 2

large room is problematic. Whether one of the kivas used by the initial inhabitants was repaired and reused by those who lived in the one-roomed structure cannot be determined. After what appears to have been a brief period of use, the large room was abandoned and its roof and walls suffered the same fate as those of the first unit.

The initial habitation may have housed 25 to 35 individuals. It appears to have been less advanced in some respects than other contemporaneous villages in the vicinity. The later single-roomed structure could have been employed by only one family, but it is large enough to have accommodated a larger group.

The over 25,000 potsherds and 10 whole or partial vessels from the pueblo are of surprising uniformity. Mancos Corrugated and Mancos Black-on-white make up almost three-quarters of the total, and if our estimation of the number of undecorated white ware sherds which should be assigned to Mancos Black-on-white is correct, approximately 97 percent of the sherds and all of the whole or partial vessels from Site 866 are of Mancos Corrugated or Mancos Black-on-white types. These types are characteristic of the Pueblo II period in the Mesa Verde.

Only one tree-ring specimen, a charred beam fragment from Kiva A, yielded a cutting date—A.D. 1060. The date coincides with about the middle of the span of time during which Mancos Corrugated and Mancos Black-on-white are said to have been manufactured, and probably relates to the later part of the pueblo's history.

The stone and bone artifacts and ornaments are types characteristic of Pueblo II culture in the Mesa Verde area. Grinding implements, pecking stones, axes, and hammers are much more numerous than chipped stone artifacts. Awls are the most common implement made of animal bone.

Fourteen human burials, most of which were found in a poor state of preservation, were taken from the refuse deposit. Six were accompanied by one or more whole or partial pottery vessels; three had large sherds as burial offerings.

The subsistence pattern of the times featured corn, beans, and squash, supplemented by edible wild plant products. Deer and turkey provided the bulk of the meat, but other animals also were hunted.

EXCAVATION OF THE REFUSE DEPOSIT

The trash mound associated with Site 866 is situated south of the architectural remains. It was distinguished by a slight mound, the presence of dark ash-impregnated soil, a concentration of potsherds and stone flakes, and by the fact that a heavy stand of sage brush had grown on its surface.

After the sage and other brush was cleared from the area, a grid system was established and excavation proceeded. A base line was surveyed through the long axis of the midden (North 6° West) and parallel lines at six feet intervals were established. Those to the left of the base or zero line were designated L (left) 1, L2, etc., and those to the right R (right) 1, R2, etc. Another set of lines, at right angles to the first and also at six feet intervals, was surveyed dividing the refuse into squares six feet on a side. They were assigned letters, A, B, etc. from south to north. Wooden stakes were placed at the corners of the squares. A square was identified by lines intersecting at its lower left hand corner as one faced north, AL1, AO, AR1, etc. (See Figure 3.)

Each square was carefully excavated as a unit down to the undisturbed red earth subsoil. It was planned to excavate the squares stratigraphically in horizontal levels but the trash mound proved to be so shallow, its greatest depth was 12 in. and in most places only 7 in. of trash were present, that the refuse was removed in a single level. Twenty-eight squares were dug, covering an area 24 ft. by 42 ft. Small test pits surrounding the rectangular excavated area proved that the bulk of the trash was contained in the gridded sections.

A collection of bone and stone artifacts and almost one-half of the potsherds obtained from the site were removed from the trash mound. Fourteen human burials or portions of skeletons, some with associated burial furnishings, also were found in the refuse deposit. These items are described in later sections of the report.

Conditions for the preservation of specimens, other than those of stone or pottery, were very poor in the refuse deposit. Not only was the midden quite shallow, which allowed for the penetration of water from rains and melting snows, but the denser nature of the red subsoil caused much of the moisture which seeped into the refuse deposit to remain in the soil above the zone of contact with the subsoil. The lower part of the refuse, where most of the burials were found, therefore remained damp for considerable periods of time following absorption of moisture into the deposit.

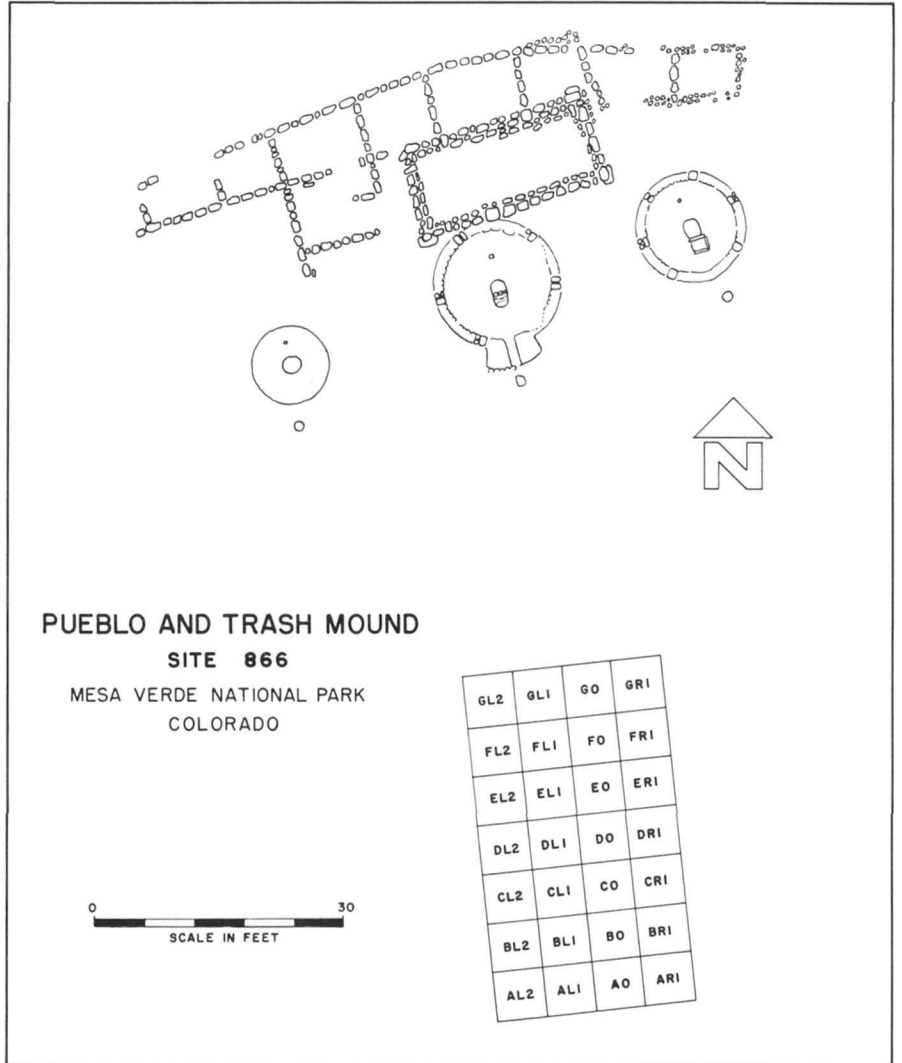


FIGURE 3

EXCAVATION OF THE PUEBLO

Site 866 consists of 11 complete or partial rooms, two kivas, and one structure we have identified as a protokiva. The complex of rooms is arranged in a curved row extending from east to west; the subterranean features are located in a line to the south of and adjacent to the rooms. A rubble covered mound marked the location of the better preserved center section of the site; however, the eastern and western extremities were hardly discernable before excavation. A growth of brush and pinyon pine had to be removed from the surface of the ruin before excavation could be undertaken. Each room and underground structure was excavated stratigraphically as a unit. Exploratory trenches defined the limits of the site. The descriptions and measurements of each unit, the observations made during excavation, and a list of the specimens recovered from each unit follows.

ROOM 1

DIMENSIONS

In listing dimensions of all architectural features, inside measurements are given for wall lengths; wall heights are in relation to the floor level of the room. Thus, the lengths and heights of some walls common to two rooms may vary depending upon the room in which the measurements were taken.

North wall—length of standing wall, 2 ft. 9 in.; greatest height, 5 in.

Only two stones of wall remain in place at west end.

South wall—length, 7 ft. 6 in.; greatest height, 7 in.

East wall—length of standing wall, 3 ft. 2 in.; greatest height, 6 in. Only two stones of wall remain in place at south end.

West wall—length of standing wall, 2 ft. 6 in.; greatest height, 7 in. Two stones at south end of wall remain in place.

Average thickness of walls—7 in.

ARCHITECTURAL DETAILS

Walls: The coursed masonry walls of Room 1 as well as those of all rooms to be described in this section—through Room 10—are constructed of sandstone slabs roughly shaped into rectangular form and set horizontally in mud mortar. The building stones are of varied sizes and exhibit irregularly chipped edges probably resulting from blows of hammerstones or stone mauls. The removal of spalls from the sides of the blocks resulted in their edges being much thinner than their centers. The variation in the thickness of the stones results in uneven courses. All walls are a single stone in width and appear in places to have been built upon a crude foundation of small unshaped stones placed along the wall line. In other places no prepared foundation is evident.

Only a single course of masonry marks the walls of Room 1. The south wall is intact for its entire length but



PLATE 1. Site 866, before excavation, looking north.



PLATE 2. Site 866, after clearing, looking north. Village remains marked by mound of stones; refuse area in foreground.



PLATE 3. Site 866, after excavation, looking north. Refuse area in foreground.



PLATE 4. Site 866, after excavations of 1954, looking north. Test trenches at left had revealed the presence of a third subterranean structure but it had not been excavated.

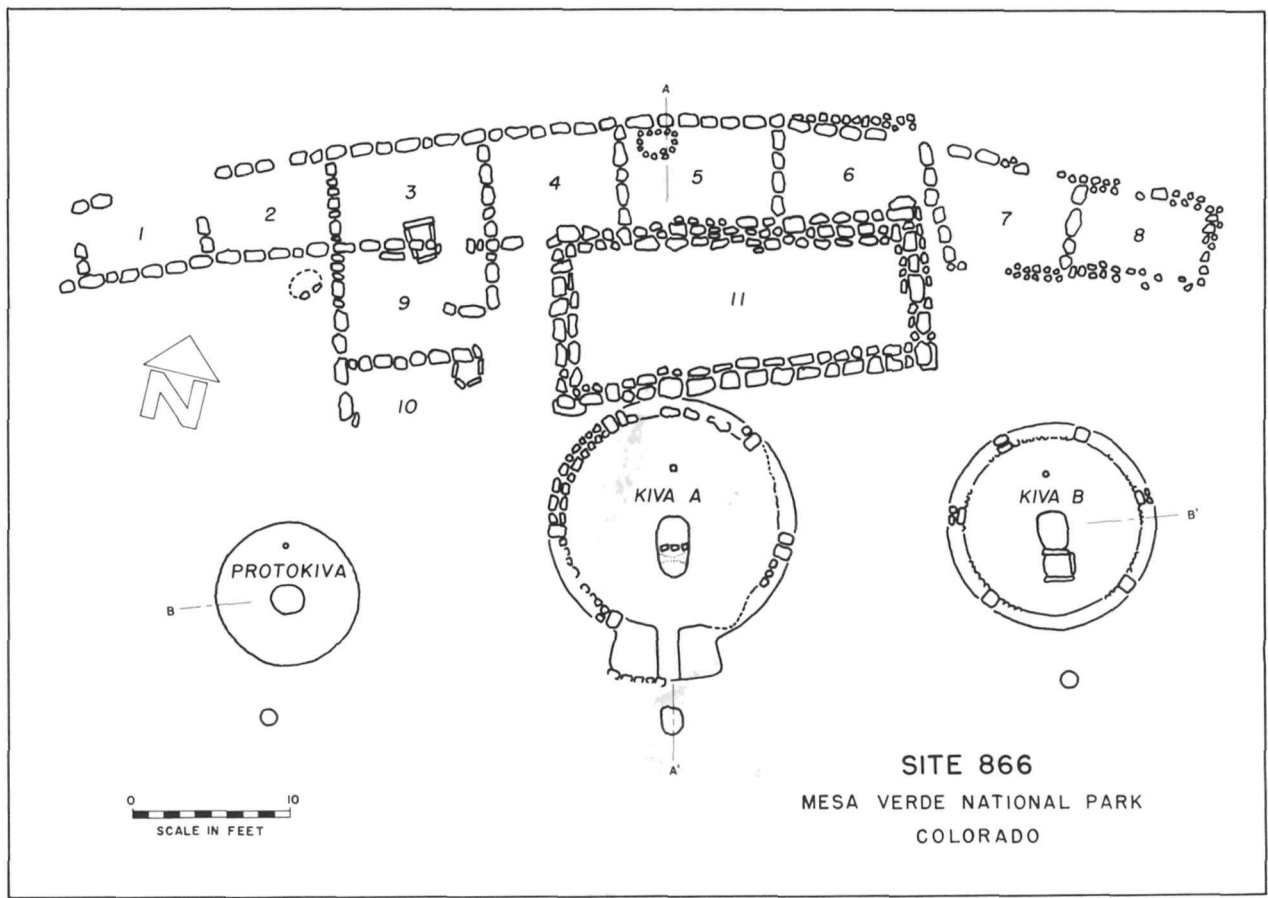


FIGURE 4

the other three walls are fragmentary. No apparent doorways.

Floor: The excavation was levelled at the base of the walls since the floor was not preserved. No floor features.

OBSERVATIONS DURING EXCAVATION

The scarcity of debris from fallen walls of this and all other rooms of Site 866 indicates that builders of later structures in the vicinity reused most of the masonry blocks originally employed in the construction of this village.

SPECIMENS RECOVERED

A fragmentary metate, 1 sandstone disc which could have served as a vessel lid, and a few potsherds were recovered from the fill of this room. Since an analysis of the potsherds reveals no significant differences between types and frequencies obtained from the rooms, kivas, or refuse it is not felt that a tabulation of sherds from each unit is warranted. Sherds from rooms 1-10 have been combined and a record of their occurrences included in the tabulation of sherds from the entire site in the chapter on pottery.

ROOM 2

DIMENSIONS

North wall—length of standing wall, 7 ft.; greatest height, 5 in. Wall not complete.

South wall—length, 8 ft. 2 in.; greatest height, 10 in.

East wall—length, 5 ft. 10 in.; greatest height, 9 in.

West wall—length of standing wall, 2 ft. 10 in.; greatest height, 5 in. Only two stones of wall remain.

Average thickness of walls—8 in.

ARCHITECTURAL DETAILS

Walls: Walls are represented by a single course of masonry except at the northeast and southeast corners where two courses are still intact. The north

and west walls are fragmentary. All walls one stone wide. No apparent doorways.

Floors: The room contains a poorly preserved hard packed mud floor exhibiting no features.

OBSERVATIONS DURING EXCAVATION

A flat stone slab covered by a layer of charcoal was encountered a few inches below the floor level of the room just outside the south wall. It appears to have been a firepit situated in the open adjacent to the room.

SPECIMENS RECOVERED

No artifacts, other than a few potsherds, were recovered from this room.

ROOM 3

DIMENSIONS

North wall—length, 9 ft.; greatest height, 1 ft. 3 in.

South wall—length, 9 ft. 2 in.; greatest height, 10 in. Wall not complete.

East wall—length, 6 ft. 6 in.; greatest height, 9 in.

West wall—length, 6 ft. 1 in.; greatest height, 10 in.

Average thickness of walls—9 in.

ARCHITECTURAL DETAILS

Walls: The south, east, and west walls stand to a maximum height of two courses in places; however, over one-half of the north wall has three courses *in situ*. Several stones in the eastern half of the south wall are missing. Whether this opening served as a doorway could not be determined. All walls are one stone in width.

Floor: Small sections of a mud floor were encountered. No floor features.

OBSERVATIONS DURING EXCAVATION

The south wall is built over a rectangular slab lined firepit which undoubtedly had served as an outdoor cooking feature before this room was constructed. It measures 2 ft. by 2 ft. 5 in. and is 7 in. deep.

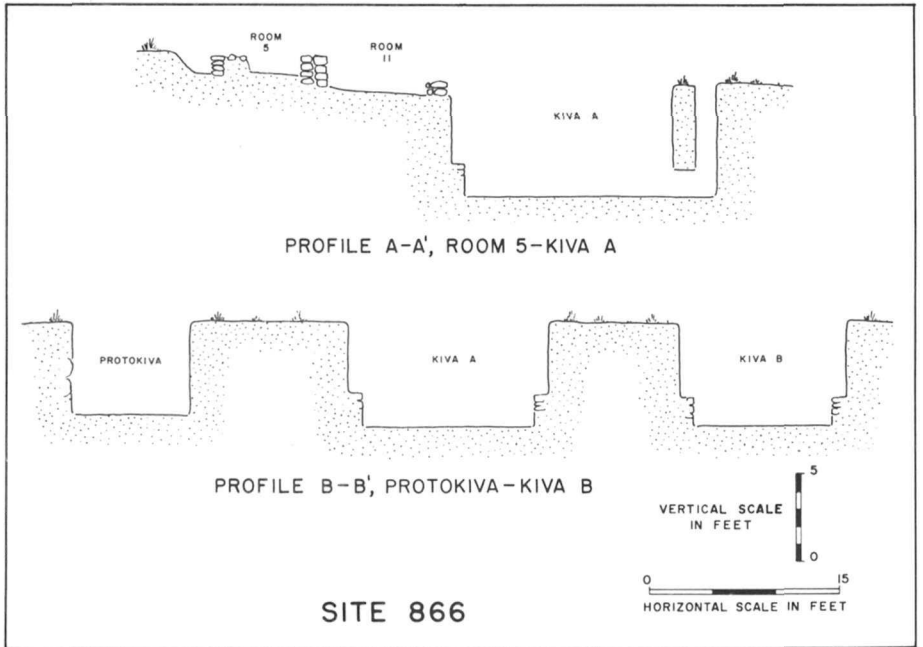


FIGURE 5

SPECIMENS RECOVERED

Some potsherds, a piece of a metate, 1 axe, and 1 polishing stone were collected from the fill of this room.

ROOM 4

DIMENSIONS

North wall—length, 8 ft. 10 in.; greatest height, 1 ft. 1 in.

South wall—length, 9 ft.; greatest height, 9 in. Several stones missing from center of wall.

East wall—length, 7 ft.; greatest height, 5 in.

West wall—length, 7 ft. 2 in.; greatest height, 8 in.

Average thickness of walls—8 in.

ARCHITECTURAL DETAILS

Walls: The east wall has only a single course of masonry remaining; the south and west walls have sections with two courses standing and the north

wall has three courses in places. The break in the south wall does not appear to be a doorway. All walls are a single stone in width.

Floor: No floor was encountered, so the fill was levelled at the base of the walls. No floor features.

OBSERVATIONS DURING EXCAVATION

The eastern half of the south wall of Room 4 is covered by a portion of the north wall of Room 11. Room 11, as will be pointed out later, was built after rooms 1 through 10 had been abandoned and had fallen into ruins. Numerous large stones, which apparently had fallen from walls of Room 11, were scattered over the top of the remains of Room 4.

SPECIMENS RECOVERED

One mano, 1 circular sandstone vessel lid, and a collection of potsherds were obtained from this room.

ROOM 5

DIMENSIONS

North wall—length, 10 ft. 2 in.; greatest height, 1 ft. 10 in.

South wall—length, 10 ft.; greatest height, not observable, wall covered by north wall of Room 11.

East wall—length, 6 ft. 8 in.; greatest height, 1 ft. 5 in.

West wall—length, 6 ft. 11 in.; greatest height, 6 in.

Average thickness of walls—7 in.

ARCHITECTURAL DETAILS

Walls: The west wall is but a single course high; the east wall stands two courses in places and the north wall has four courses in part. The south wall is not visible. No apparent doorways. All walls are one stone wide.

Floor: A small portion of a mud plastered floor was encountered. A shallow, circular firepit lined on the sides with stones is adjacent to the north wall.

OBSERVATIONS DURING EXCAVATION

The south wall of Room 5 is covered by the north wall of Room 11. Numerous building stones scattered over the room represent debris from the north wall of Room 11.

SPECIMENS RECOVERED

Four manos, 1 hammerstone, 1 pecking stone, 1 fragmentary axe, and a number of large potsherds were recovered from Room 5.

ROOM 6

DIMENSIONS

North wall—length of standing wall, 6 ft. 8 in.; greatest height, 7 in. Wall not complete.

South wall—length, 9 ft.; greatest height, not observable.

East wall—length of standing wall, 4 ft. 5 in.; greatest height, 5 in. Wall not complete.

West wall—length, 8 ft. 6 in.; greatest height, 1 ft. 5 in.

Average thickness of walls—8 in.

ARCHITECTURAL DETAILS

Walls: Walls of this room are poorly preserved. Remains of the north wall appear to have slumped to the south and are not resting in their original position. The north and east walls contain only one course of masonry. The west wall has three courses standing in one section. The south wall is not visible. No apparent doorways. All walls one stone wide.

Floor: The floor is not preserved. Fill from the room was removed to the level of the base of the walls. No floor features.

OBSERVATIONS DURING EXCAVATION

The position of the remnants of the north wall suggests that it collapsed inward and even the lower course of masonry, which is all that remains of the wall, is slightly south of the small stone foundation upon which it originally rested. The east wall also is not in its original alignment. The north wall of Room 11 covers the south wall of Room 6. A number of stones from that later wall were found in the fill of Room 6.

SPECIMENS RECOVERED

One stone axe and an assortment of potsherds were obtained from the room.

ROOM 7

DIMENSIONS

North wall—length, 9 ft. 8 in.; greatest height, 11 in. Several stones are missing from sections of this wall.

South wall—length of standing wall, 3 ft. 7 in.; greatest height, 3 in. Wall not complete.

East wall—length, 6 ft. 3 in.; greatest height, 5 in.

West wall—length, 6 ft.; greatest height, 7 in. Wall not complete.



PLATE 5. Rooms 3, 4, 5, 6, 11 during excavation, looking west. Room 6 in foreground.



PLATE 6. Rooms 2, 3, 4, 9, 10 and west wall of 11 after excavation, looking northwest.

ARCHITECTURAL DETAILS

Walls: The walls are in a poor state of preservation. The single remaining course of the west wall is not in its original position. Fragments of the north wall stand two courses high; the east wall contains only one course, and a stub of the south wall is defined by a few small foundation stones. No apparent doorways. All walls one stone in width.

Floor: The room was arbitrarily levelled at the base of the walls as no floor was encountered. No floor features.

OBSERVATIONS DURING EXCAVATION

It is clear that the base of the west wall is not in its original position. Due to the almost complete lack of debris from fallen walls, it also is evident that stones from the walls of this room were carried away and reused elsewhere.

SPECIMENS RECOVERED

Only a small number of sherds were collected from this room.

ROOM 8

DIMENSIONS

North wall—length, 8 ft. 2 in.; greatest height, 5 in.

South wall—length, 8 ft. 3 in.; greatest height, 3 in.

East wall—length, 5 ft. 2 in.; greatest height, 4 in.

West wall—length, 6 ft. 3 in.; greatest height, 5 in.

Average thickness of walls—6 in.

ARCHITECTURAL DETAILS

Walls: Masonry is present only in the west wall, where it stands one course high and is one stone wide; the north, south, and east walls contain only the small foundation stones upon which the building blocks had rested. No apparent doorways.

Floor: No floor is present. Remains of a small, ill-defined subfloor cist is located in the southeast corner of the room. It is circular in plan, has a par-

tial lining of small stones, and is 12 in. deep. Nothing was found in it.

OBSERVATIONS DURING EXCAVATION

The complete removal of building stones from the walls of this room is evident. No fallen wall debris covered the structure.

SPECIMENS RECOVERED

In this room 1 axe, 1 circular sandstone disc which may have served as the lid for the subfloor cist, and a collection of potsherds were found.

ROOM 9

DIMENSIONS

North wall—length, 9 ft. 4 in.; greatest height, 10 in. A section of this wall is missing.

South wall—length, 9 ft. 2 in.; greatest height, 11 in.

East wall—length, 4 ft.; greatest height, 10 in.

Wall extending west into room from south end of east wall—length, 3 ft. 4 in.; greatest height, 5 in.

West wall—length, 6 ft. 11 in.; greatest height, 1 ft.

Average thickness of walls—7 in.

ARCHITECTURAL DETAILS

Walls: All walls have sections that stand two courses high, except the wall stub that protrudes into the room from the east which consists of only one course. The break in the southern part of the east wall may have served as a doorway and the area between the wall stub adjacent to it and the south wall could have formed a small entryway into the room. All walls one stone in width.

Floor: A few areas of packed mud floor were revealed. No floor features.

OBSERVATIONS DURING EXCAVATION

The slab lined firepit which is beneath the north wall of Room 9 has been described in the consideration of Room 3 which abuts Room 9 on the north.



PLATE 7. North wall of Kiva A and Room 11, looking north. Note slumped nature of south wall of Room 11 adjacent to the kiva.



PLATE 8. Looking west across site after excavation. Three kiva pits on left, Room 11 in center. Note double coursed masonry of Room 11 and single alignments of stones in walls of other rooms.

SPECIMENS RECOVERED

In addition to potsherds, 1 hammerstone was collected from the fill of this room.

ROOM 10

DIMENSIONS

North wall—length, 9 ft. 2 in.; greatest height, 11 in.

South wall—missing.

East wall—missing.

West wall—length of standing wall, 3 ft. 6 in.; greatest height, 5 in. Only a portion of the wall is present.

Average thickness of walls—7 in.

ARCHITECTURAL DETAILS

Walls: Only the north wall of this room, which is made up of two courses for the most part, is complete. A short section of the west wall a single course high remains, but the south and east walls are not present. All walls are one stone wide.

Floor: A small section of a packed earth floor is present along the north wall. A rectangular, subfloor firepit lined with stone slabs is built against the north wall. It measures 2 ft. 4 in. by 1 ft. 8 in., and is 10 in. deep.

OBSERVATIONS DURING EXCAVATION

This unit is designated a room although but little of it exists. Almost all stones used in its construction were re-employed elsewhere.

SPECIMENS RECOVERED

A few potsherds, 1 fragmentary mano, 1 maul, and 1 sandstone disc were obtained from Room 10.

ROOM 11

DIMENSIONS

North wall—length, 20 ft.; greatest height, 2 ft. 5 in.

South wall—length, 20 ft. 5 in.; greatest height, 1 ft. 10 in.

East wall—length, 7 ft. 2 in.; greatest height, 2 ft. 1 in.

West wall—length, 7 ft. 4 in.; greatest height, 2 ft. 4 in.

Average thickness of walls—1 ft. 8 in.

ARCHITECTURAL DETAILS

Walls: The method of constructing this large room differs from that employed in all other units of Site 866. The walls are two to three times as wide as in the other rooms and consist of both large and small blocks of sandstone and irregular stones set in mud mortar. The lack of uniformity of the building material results in uneven courses of masonry. Portions of the walls are two stones thick—resulting in a crude version of so-called “double coursed” masonry—but other sections employ a single large stone or numerous small stones to achieve the desired thickness. Some of the rectangular blocks used in the masonry were pecked to even their surfaces. The walls stand four to five courses high. The north wall is built over a portion of the south wall of Room 4 and over all of the southern walls of rooms 5 and 6. Both the north and south walls tilt markedly to the south. No apparent doorways.

Floor: No well defined floor was encountered. Fill from the room was removed to the base of the walls. No floor features.

OBSERVATIONS DURING EXCAVATION

It is obvious from the superposition of room walls that Room 11 was built later than rooms 4, 5, and 6, and the type of masonry used in its construction demonstrates that it postdates all other rooms of the site.

A considerable amount of fallen wall debris covered the room and was found adjacent to it. This in addition to the fact that the walls stand four to five courses high suggest that few, if any, building stones were taken from this structure following its abandonment.

Although no firepits were found on the room floor, two areas of charcoal



PLATE 9. Protokiva, looking north. Note large subsurface stones whose edges had been chipped to conform to curvature of pit, the sipapu, and the firepit.



PLATE 10. Floor of protokiva, looking south. Note firepit, entrance to ventilator tunnel, and sandstone slab used to close ventilator tunnel.

concentrations—one in the northwest corner and the other in the southeast corner—imply that fires were built inside the structure.

The south wall of Room 11 was built almost tangent to the northern edge of Kiva A. Following abandonment of the room and kiva, a section of the wall fell into the kiva.

SPECIMENS RECOVERED

From the fill of Room 11 there were obtained a collection of potsherds and the following artifacts: 2 axes, 2 hammerstones, 3 manos, 1 fragmentary metate, 2 bone awls, 1 bone scraper, and 1 arrowpoint. The frequencies of sherds from the room are shown in the chart accompanying the following chapter on pottery.

PROTOKIVA

DIMENSIONS

Diameter, floor level—9 ft. 4 in.

Greatest depth of kiva, floor level to present surface—6 ft.

Ventilator tunnel—height of entrance, 1 ft. 3 in.; width of entrance, 1 ft. 4 in.; length from entrance to rear of ventilator shaft, 4 ft. 4 in.

Ventilator shaft—height, 4 ft. 9 in.; surface opening, 1 ft. 6 in. diameter.

Firepit—diameter, east—west, 2 ft. 2 in.; diameter, north—south, 2 ft.; depth, 7 in.

Sipapu—diameter, 3 in.; depth, 5 in.

Axis, ventilator tunnel—firepit, North 2° East.

ARCHITECTURAL DETAILS

Walls: The walls of this circular structure are formed of red earth into which the pit is cut. There is no banquette. Several large rocks are incorporated in the wall, especially on the west. Their protruding edges have been chipped and pecked to conform roughly to the surface and curvature of the protokiva wall. It looks as though the rocks were encountered by the diggers of the pit and, because they did not

extend greatly into the pit, were trimmed flush with the walls and left in place. No plaster was found on the walls and there are no niches in them.

Floor: The pit was dug to bedrock. Rock forms the floor except on the north where a layer of mud plaster was placed upon the rock as a means of levelling the bottom of the pit. An unlined, circular firepit in the center of the protokiva, and a sipapu north of the firepit, were cut into the floor. The sipapu is slightly west of the axis of the structure formed by a line through the centers of the ventilator tunnel and the firepit. There are no postholes in the floor.

Ventilator: The ventilator system consists of a horizontal tunnel and a vertical shaft. The entrance to the tunnel is at floor level. Both the tunnel and the shaft are circular or oval in cross-section and are unlined except for three stone slabs set in the roof of the tunnel next to its entrance.

OBSERVATIONS DURING EXCAVATION

There were no indications of the presence of this structure before excavation. It was revealed by a test trench west of Kiva A. After its limits had been established, it was excavated in two levels. Level 1 extended from the surface to a depth of 60 in., Level 2 consisted of the lower 12 in. of deposits.

This structure has been labelled a protokiva; others might prefer to call it a pithouse or a kiva. In fact it originally was referred to as a pithouse in our notes and on the accompanying map, but a careful evaluation of its features and lack of features and its relationship to other structures at the site leads us to call it a protokiva. It is one of those architectural features transitional between a characteristic pithouse of earlier times and a true kiva of later date. It lacks features diagnostic of both.

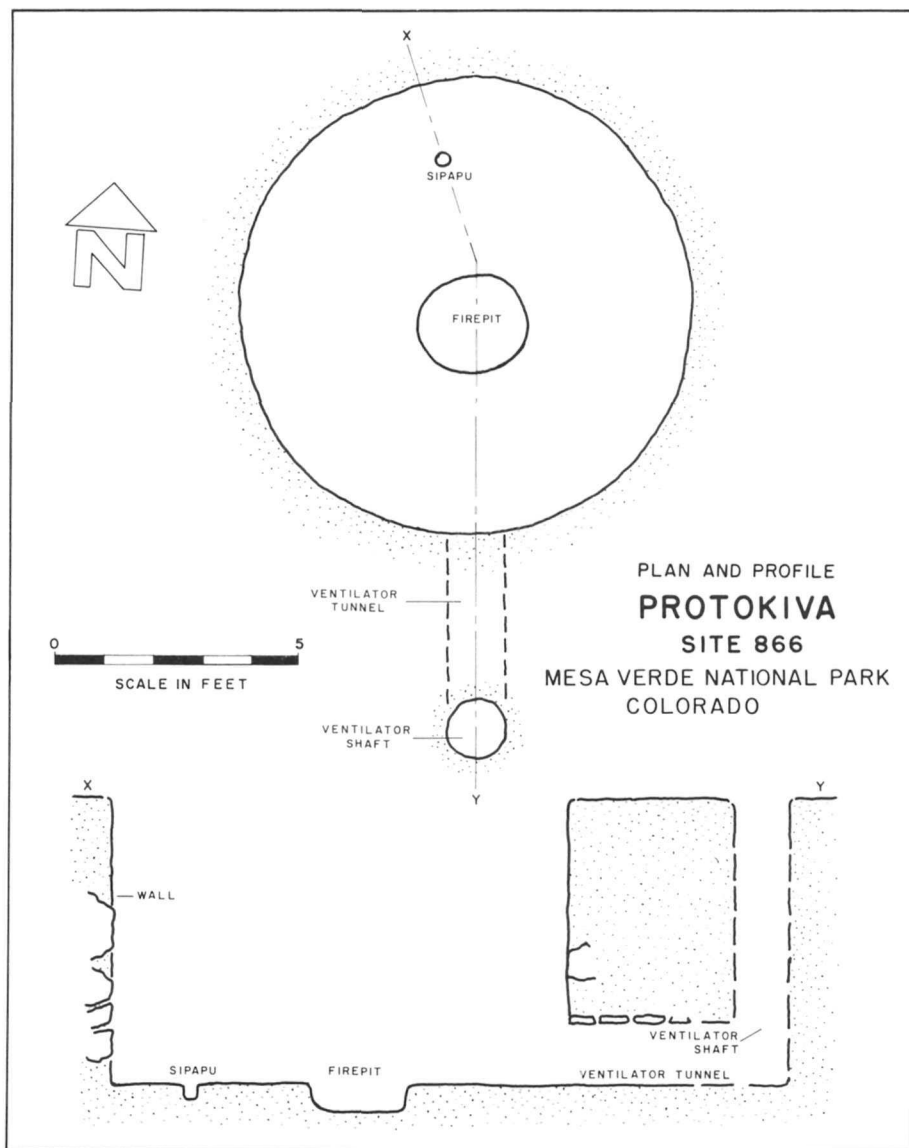


FIGURE 6

The protokiva did not burn, hence none of the wood used in constructing the roof is preserved. However, since there are no post holes in the floor of the pit it would appear that it had a flat roof supported by beams laid across the top of the pit and was entered through a hatchway in the roof.

Resting on the floor was a thin, dark layer of ash and fine bits of charcoal which must have been scattered about the firepit and compacted into the floor by occupants of the house. A sandstone slab, probably used as a cover for the ventilator tunnel entrance, was found on the floor.

SPECIMENS RECOVERED

Level 1 yielded 6 whole or fragmentary manos, 2 metates, 1 stone arrow-shaft smoother, 1 axe, 3 rubbing stones, 1 hammerstone, 1 bone awl, and several fragments of worked animal bone and antler too small to classify; Level 2 contained 1 metate, 1 axe, 1 rubbing stone, 1 hammerstone, 1 tcamahia, and a portion of a turquoise bead. In the ventilator shaft 2 manos were found. Potsherds obtained from the two levels are tabulated in the pottery chart in a following section of the report, as are the sherds from Kivas A and B.

KIVA A

DIMENSIONS

Diameter, floor level—13 ft. 7 in.

Diameter, above banquette—16 ft.

Greatest depth of kiva, floor level to present surface—6 ft. 4 in.

Average height of banquette above floor level—2 ft. 9 in.

Average width of banquette—1 ft. 2 in.

Southern recess—height above floor level, 2 ft. 6 in.; width at north, 6 ft. 4 in.; width at south, 7 ft.; average depth of recess (north to south), 2 ft. 7 in.; height from floor of southern recess to top of ventilator shaft, 3 ft.

Ventilator tunnel—height of entrance, 2 ft. 2 in.; width of entrance, 1 ft. 8 in.; length from kiva entrance to rear of ventilator shaft, 7 ft. 2 in.

Ventilator shaft—height, 5 ft. 3 in.; surface opening, 2 ft. 4 in. by 2 ft.

Pilasters—average width, 1 ft. 7 in.; average height, 10 in.

Firepit—length, 4 ft. 3 in.; width, 2 ft. 5 in.; depth, 3 in.

Sipapu—diameter of stone set in floor, 4 in.

Niches—No. 1: height, 4 in.; width, 4 in.; depth, 5 in.; No. 2: height, 6 in.; width, 7 in.; depth, 5 in.

Axis, ventilator tunnel—firepit—sipapu—Niche No. 2, North 11° West.

ARCHITECTURAL DETAILS

Walls and banquette: The pit for Kiva A was dug through a layer of red earth, through a tilting lense of soft sandstone and caliche, and into a second layer of sandstone. The walls of the kiva and southern recess originally were unlined but during its occupation a lining of roughly coursed masonry was placed in part of the rear wall of the southern recess, undoubtedly to stabilize that section of the dirt wall. The floor of the southern recess is levelled off on top of the layer of caliche through which the kiva pit was dug.

The banquette has a veneer of stones around most of its edge and between pilasters 2 and 3 the entire top of it is covered with slabs of stone. The face of the banquette is strengthened in two places. Beneath Pilaster 1 a few courses of masonry are embedded in the dirt and caliche, and nine slabs of sandstone are placed on edge along the base of the banquette for a distance of six feet below Pilaster 5. Apparently considerable difficulty was experienced in maintaining the banquette in proper repair. After abandonment it collapsed in two places, east of Pilaster 4 and beneath Pilaster 6.

Six pilasters were spaced at fairly regular intervals upon the banquette.



PLATE 11. Kiva A, looking north. Note opening to ventilator shaft, southern recess, ashpit, deflector, firepit, and stone which had been embedded in the sipapu. Also visible are the unlined kiva wall, the banquette cut in part into caliche and sandstone, and four of the pilasters.



PLATE 12. Dog skeleton found on floor of Kiva A.

Remnants of all but Pilaster 6 are present. They are rectangular in plan, extend from the kiva wall to the front edge of the banquette, and now consist of only two or three courses of masonry. Two of them tilt decidedly toward the center of the kiva. Their original height cannot be determined.

Two small, rectangular niches are located in the northern part of the banquette. One is beneath Pilaster 3, the other is midway between Pilaster 3 and Pilaster 4. Both are just below the row of stones which form the veneer on the edge of the banquette. They were not sealed when encountered and were empty.

Ventilator: The ventilator system associated with the southern recess consists of a horizontal tunnel extending beneath the southern recess to a point outside the kiva wall where it is met by a vertical shaft leading to the surface south of the kiva. The tunnel through the southern recess had been made by digging a trench through the floor of the recess to the level of the floor of the kiva and roofing it with timbers some of which ran lengthwise of the trench. Charred remains of a few of the timbers were found. Aside from a stone lintel in the opening of the tunnel at the rear of the southern recess, the tunnel is unlined. The vertical shaft also has no lining.

Floor: The floor of the kiva proper had been dug into bed rock. Mud plaster had been put on some sections of the floor apparently in order to level it. A firepit and a stone placed where the sipapu normally occurs are present on the floor.

The firepit appears to have been remodeled. It was first an oval depression in the floor with slightly raised edges of clay. Subsequently it was divided into two unequal parts by a ridge of clay. The smaller area may have served as an ash pit. No deflector was found; however, three slabs of stone were found in the large part of the pit.

They possibly had been set on edge on the clay ridge to have formed a low deflector. Both sections of the pit contained gray wood ash and bits of charcoal.

Midway between the firepit and the north wall of the kiva a stone measuring 4 in. on each side is embedded in the floor. It protrudes 1 in. above floor level. The stone is located where the sipapu usually is found and appears to have served as the sipapu or as a means of closing that feature.

OBSERVATIONS DURING EXCAVATION

An obvious circular depression marked the location of Kiva A prior to excavation. It was trenched to define its limits and then excavated in horizontal units. During the trenching of the kiva and the removal of fill from it, controls were established which separated materials into two levels—from the surface to 14 in. above the floor and the 14 in. resting on the floor. Analysis of the potsherds from these two levels shows no differences between them in types or frequencies of types.

It is evident that the kiva roof burned at some time; however, the conflagration did not cause the roof to collapse as a unit, or even in large part, into the bottom of the kiva. Scattered sections of charred beams were encountered throughout the fill in the kiva. A few occurred on the floor, but the majority were recovered at various heights above the floor. This would indicate that the roof collapse took place at intervals during the period in which the pit was filling with dirt and debris.

In the northern section of the kiva fill, at a depth of 36 in. from the surface, a small section of a masonry wall was encountered. In all likelihood it is a portion of the south wall of Room 11 which toppled into the kiva as a unit after both features had been abandoned.

It also appears as though a low

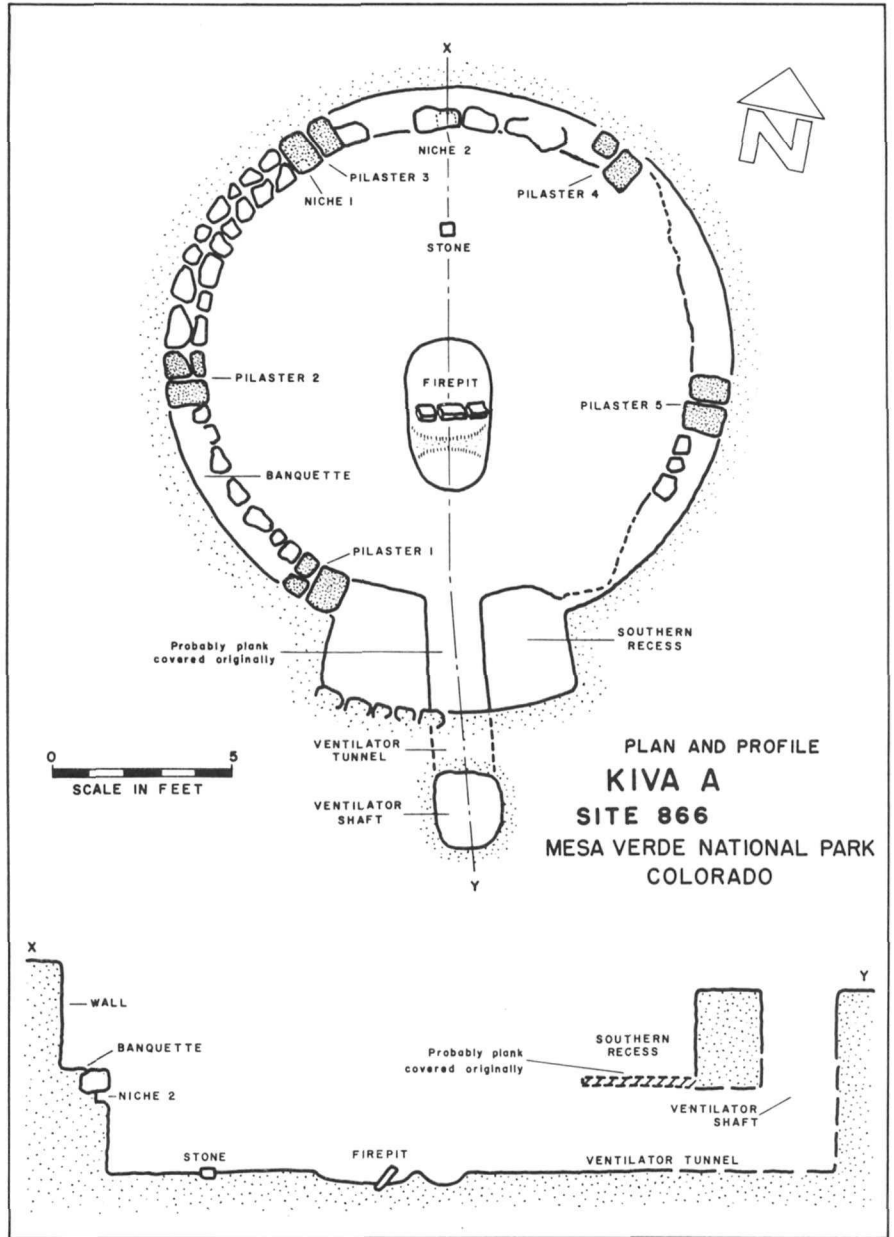


FIGURE 7

retaining wall had been built on the ground surface around the northern edge of the kiva, probably as support for the dirt foundation upon which the south wall of Room 11 was built. Sections of this wall, two courses in height, were found.

SPECIMENS RECOVERED

From Level 1, the upper level, the following artifacts were obtained: 5 complete and 3 fragmentary manos, 1 metate, 2 lapstones, 1 broken axe, 2 hammerstones, 1 pecking stone, 1 ab-raiding stone, and 1 bone awl. Level 2 yielded 2 manos, 1 metate, and 1 hammerstone. Potsherds were collected from both levels. A dog skeleton was found on the kiva floor east of the fire-pit.

KIVA B

DIMENSIONS

Diameter, floor level—11 ft. 4 in.
 Diameter, above banquette—13 ft. 8 in.
 Greatest depth of kiva, floor level to present surface—6 ft. 2 in.
 Average height of banquette above floor level—2 ft. 2 in.
 Average width of banquette—1 ft.
 Ventilator tunnel—height of entrance, 1 ft. 2 in.; width of entrance, 1 ft. 2 in.; length from kiva entrance to rear of ventilator shaft, 4 ft. 8 in.
 Ventilator shaft—height, 6 ft.; surface opening, 11 in. diameter.
 Pilasters—average width, 1 ft.; average height, 10 in.
 Firepit—length, 2 ft. 5 in.; width, 2 ft.; depth, 7 in.
 Ashpit—length, 2 ft.; width, 1 ft. 2 in.; depth, 6 in.
 Sipapu—diameter, 3 in.; depth, 7 in.
 Niches—No. 1: height, 7 in.; width, 12 in.; depth, 1 ft. 6 in.; No. 2: height, 6 in.; width, 7 in.; depth, 9 in.
 Axis, ventilator tunnel—ashpit—fire-pit—sipapu—Niche No. 2, North 21° West.

ARCHITECTURAL DETAILS

Walls and banquette: Kiva B is approximately circular in plan and does not have a southern recess. Neither the walls nor the banquette are lined with stones. It is simply cut into hard red earth down to sandstone bedrock. It appears as though areas of the dirt wall in several places had slumped while the kiva was in use and repairs were accomplished by placing sections of crude stone masonry in the damaged areas. The walls and the banquette had been covered with mud plaster and a few sections of this remained in place in the eastern part of the kiva. The banquette has a veneer of stones around its edge and small spalls of stones are embedded horizontally in the banquette below the two niches and above the entrance to the ventilator tunnel.

Six stone pilasters are located on the banquette. Those on the east side of the kiva are better preserved than those on the west. Pilaster 5 still stands 18 in. high. They generally are square in plan—although most are slightly narrower at the front than at the rear—and extend from the kiva wall to the front edge of the banquette. They are made of poorly coursed masonry employing both large and small blocks of sandstone embedded in mud mortar.

Two niches are situated in the banquette just below the stone veneer on its edge. Niche No. 1, between pilasters 1 and 2 is large and deep; Niche No. 2, between pilasters 3 and 4, is smaller. Both have rectangular openings and were empty when excavated.

Ventilator: The ventilator system extends at floor level through the banquette on the south side of the kiva to a point outside the kiva where it turns at a right angle and reaches the ground surface. Both the ventilator tunnel and shaft are approximately circular in plan and are unlined. The floor of the tunnel is formed of bedrock. A vertical stone slab was found leaning against



PLATE 13. Kiva B, looking north. Note unlined walls, firepit, sipapu, banquette, Niche #2, and four of the pilasters.



PLATE 14. Kiva B, looking southwest. Note firepit, ashpit, slab closing ventilator tunnel, Niche #1, and partial facing of banquette with small stones.

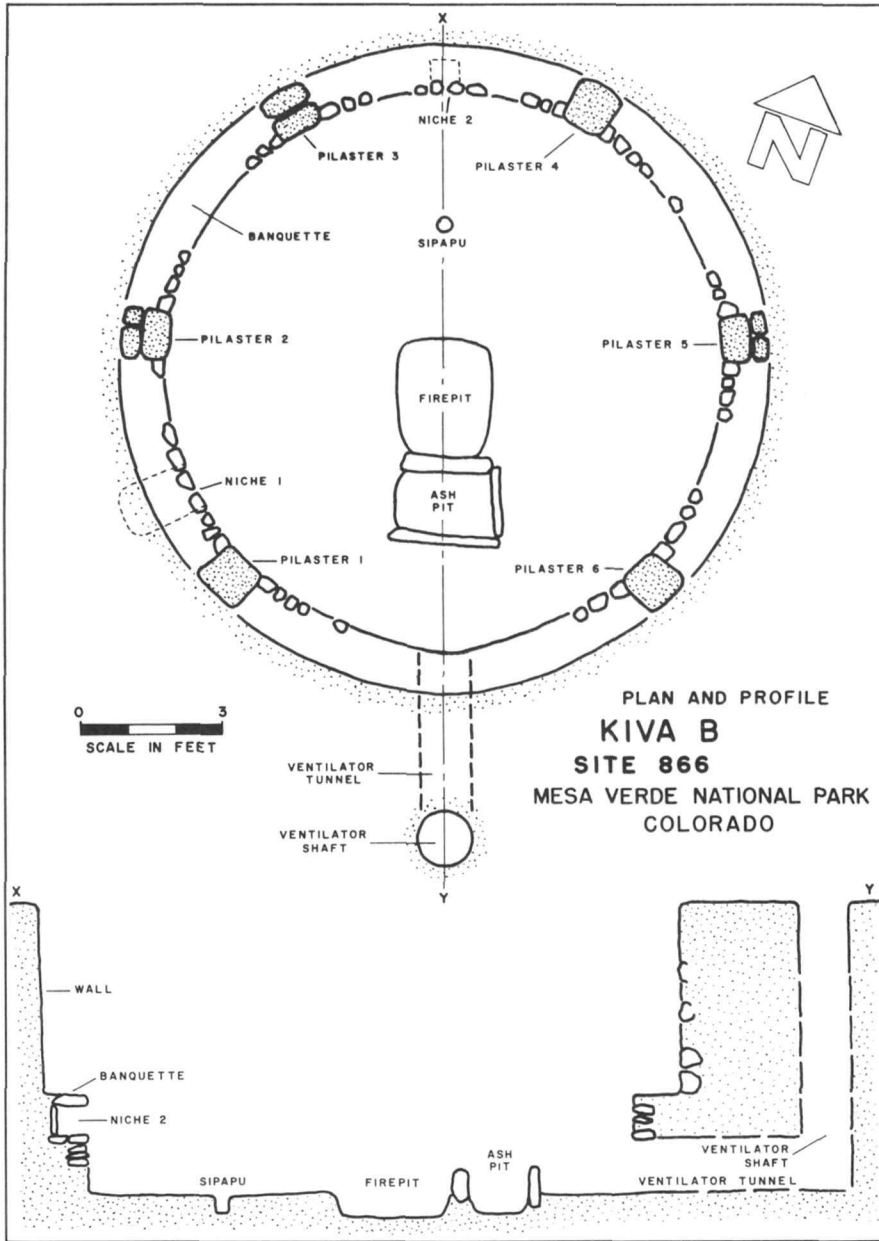


FIGURE 8

the entrance to the ventilator tunnel and obviously served as a means of closing the tunnel entrance and cutting off the draft through the ventilator.

Floor: The floor of the kiva consists mainly of bedrock; however, because of its uneven nature it had been covered in part by mud plaster. A large, rectangular firepit with rounded edges is located in the center of the floor. It is unlined. Adjacent to it on the south is a smaller, rectangular ashpit lined on three sides with vertical stone slabs.

There is no deflector, but a large stone slab was found resting on the ashpit. It is of correct size to have served as a deflector but there is no indication as to where it may have been placed.

The sipapu is cut into the rock floor midway between the firepit and the north wall of the kiva.

A line through the centers of the ventilator tunnel, ashpit, firepit, sipapu, and Niche No. 2 coincides with the general north-south orientation of the kiva.

OBSERVATIONS DURING EXCAVATION

A very slight circular depression suggested the existence of Kiva B. Two test trenches proved its presence and located its walls. Fill was taken from it in two levels as was done in Kiva A. Level 1 extended from the surface to within 12 in. of the floor; Level 2 consisted of the lower 12 in. of fill.

There is no evidence that the structure burned. Neither charred wood nor fire-reddened walls were encountered.

SPECIMENS RECOVERED

Other than potsherds, which show no stratigraphic distinctions, the following artifacts were collected from the kiva: Level 1 contained 12 whole or fragmentary manos, 1 metate, 5 complete or partial axes, 2 hammerstones, 3 pecking stones, 4 stone scrapers, 6 bone awls, 2 weaving tools, and 1 antler flaker. Level 2 produced 3 manos, 3 pecking stones, 1 hammerstone, 1 axe, 5 bone awls, and some fragments of egg shell—probably turkey.

ARCHITECTURAL DEVELOPMENT

During and following the excavation of Site 866 it became evident that the site was not the result of a single building period and that, although two stages of construction are apparent in the rooms and three types of kivas are present, it was not occupied for a long period of time.

Rooms 1 through 10 (see Figure 4) exhibit a similar technique of construction in which poorly coursed masonry a single stone in thickness was employed. The basal courses of walls sometimes were laid upon a foundation of small rocks. Edges of the building stones were shaped by the removal of large chips and the resulting blocks were set in mud mortar. Room 11 has wider, heavier walls which are more regularly coursed. They are built of stones which had been better shaped, in some instances by pecking, and most courses are two stones thick. Mud mortar also was employed in these walls. The style of masonry used in the construction of Room 11 is known to be more advanced and a later form than was used in rooms 1 through 10. Moreover, the stratigraphic position of Room 11 over the remnants of rooms 3, 4, and 5 demonstrates its later date.

There are no obvious wall openings in any of the masonry rooms. In some instances the remaining walls are not sufficiently high to determine whether or not doorways had been present, but in other cases enough of the walls are standing to contain the lower portions of doorways had they been incorporated in the walls. From evidence at hand it appears that access to the rooms was gained through hatchways in the flat roofs which covered the structures. It is doubtful if the walls of the pueblo were ever more than one story high.

Only one firepit definitely is contained within a room, Room 5. Room 10 also may have had a firepit but the incomplete nature of the structure makes it impossible to be certain about the matter. In any case, the majority of the rooms do not contain firepits and therefore must have been used primarily for domiciliary and storage purposes. Several firepits are located in the open adjacent to the cleared rooms and it is not unlikely that others may exist outside the excavated areas. Thus it seems certain that the majority of the culinary activities took place around firepits outside the houses.

Reference has been made in a previous section to the fact that most of the building stones used in the walls of the surface rooms had been removed from the site. Only the lower sections of masonry remain in place. Building blocks

used in the upper portions of the walls are not present and undoubtedly were removed for reemployment in other nearby villages. In fact, some of the stones from the earlier rooms were likely used in the building of Room 11. There is no evidence that any of the rooms were destroyed by fire.

It is difficult to judge with certainty whether any of the earlier rooms, rooms 1 through 10, were occupied contemporaneously with Room 11 but, basing an opinion upon the position of Room 11 in respect to the other rooms, the lack of any ties between the walls of Room 11 and others, and the marked difference in the masonry of the late and early rooms, it seems almost certain that Room 11 was constructed and used after the abandonment of the other rooms. Perhaps it represents the return to the first village site of a few of the original inhabitants who found the location chosen for a new village less desirable than that of the old one. Or, maybe the occupants of the original village retained their old farming lands although they had established a community elsewhere and found it necessary to maintain surveillance over these lands—hence built a house for those tilling or guarding their fields. It also could have served as a place for the storage of harvests before they were transported home. Rohn (1963: 447-448) describes the prevalence of one to three room structures, identified as field houses or “farmhouses,” on Chapin Mesa. Kiva A, the later kiva, may have served as a ceremonial structure during the final stage of the site when only Room 11 was used for domestic purposes.

Each of the three subterranean structures at the site are of different form. On typological grounds we assume that the protokiva which lacks a banquette is earliest, Kiva B, with a banquette but lacking a southern recess is next, and Kiva A with both a banquette and a southern recess is the latest. From the following comments it will be noted that we have experienced the same difficulties other workers have encountered in dealing with kivas. There is such a great individual variation among them that it is difficult to accurately place a given kiva in the developmental sequence commonly agreed upon except in a general way, and sometimes even that is impossible. Brew (1946: 208-209) makes some excellent points concerning individual preferences, erratic diffusion, and human relationships which must be taken into consideration when dealing with the development of the kiva, and of course with other culture elements as well. An attempt has been made to correlate the kivas at Site 866 with the previously suggested sequence for kiva development in the Mesa Verde area, especially that of Lancaster and Pinkley in Lancaster *et al.* (1954: 55-61) without too much success. I do not consider this to reflect adversely upon those who have proposed the sequence but rather to emphasize the great irregularity and complexity as regards not only kivas but Anasazi architecture in general, a point which most previous discussants of kiva development also have stressed.

As mentioned elsewhere, the classification of the protokiva is open to question. It is merely an unlined circular pit with ventilator, firepit, and sipapu. It had

neither a banquette nor any obvious means of interior roof support. The roof must have been constructed upon beams laid across the top of the pit and had contained a hatchway which served both as entrance and smoke hole. This structure lacks features usually attributed to the earliest kivas in the Mesa Verde region as well as to those in surrounding areas. Discussions of Anasazi house and kiva architecture presented by Roberts (1929: 81-90), Morris (1939: 36-38), Brew (1946: 203-204), Smith (1952: 154-165), and Lancaster *et al.* (1954: 55-61) have outlined steps in the development of the Mesa Verde kiva. There is general concurrence among these authors that the earliest kiva can be characterized as possessing banquette, firepit, sipapu, and ventilating system consisting of a vertical shaft joining a horizontal tunnel which enters the kiva under the banquette on the south side. The roof is supported by four posts set upon the banquette. Most of the early kivas do not have a deflector, but rather have a movable stone slab which was used to close the ventilator tunnel when need arose. A banquette cist also is a common feature of early kivas. The proto-kiva at Site 866 has a firepit, sipapu, ventilating system, and a slab for closing the ventilator tunnel, but lacks the banquette, roof support posts, and banquette cist. Since there is no precedent for this type of structure in the Mesa Verde no approximate date can be suggested for it upon typological grounds.

It is equally difficult to classify the structure designated a protokiva as a pithouse, for it does not follow the standards set up for pithouses. As a rule late pithouses are deep, have an intersecting shaft and tunnel ventilating system, a deflector, and are entered through a hatchway in the roof. The floor space normally is divided into two areas by low partitions of poles, mud, or stone, or combinations of these materials. It generally is agreed that this division of the pithouse floor separated an area on the south, which was used primarily for domestic activities and perhaps secondarily as an area from which persons not taking part in ceremonies could witness the performance, from the northern area which was devoted mainly to ceremonial functions. Generally there are four roof support posts set in the floor and one or more pits or cists are cut into the floor. A sipapu frequently is present. Of these typical pithouse features, our protokiva lacks a partition, a deflector, roof support posts, and subfloor pits or cists. Our decision to call this structure a protokiva is based in part upon the features it contains as well as those it lacks, and upon its relationship to the other structures of the site.

Kiva B is without doubt a kiva and comes close to possessing the features designated for Step 3 in the development of the Mesa Verde kiva by Lancaster *et al.* (1954: 57). It contains the following typical characteristics: banquette, six stone pilasters, tunnel and shaft ventilator, firepit, sipapu, and a niche in the north wall of the banquette. In addition, the kiva wall originally was unlined, although masonry later was placed in several locations to strengthen them, and the banquette has a veneer of stones on its edge and in places several courses of

masonry extend down the face of the banquette. It has a movable deflector and may also have possessed a built in deflector. Kiva B has a secondary firepit or ashpit adjacent to the firepit and has pilasters which are narrower in front than at the rear, both traits not considered characteristic of kivas of Step 3. Generally speaking, however, Kiva B conforms fairly well with the type of kiva described for Step 3 which is believed to have been in vogue in the Mesa Verde about A.D. 1000 in Pueblo II times.

Kiva A is atypical according to the developmental sequence proposed by Lancaster *et al.* (1954: 55-61). Although it has a southern recess, in other features it closely resembles Kiva B. The southern recess is an element said to have made its appearance in Step 4 of Mesa Verde kiva development. Other innovations of that time are listed as stone pilasters which are narrower in front than in the rear and which are slightly set back from the front edge of the banquette, and the frequent lining of the kiva wall with masonry to the height of the pilasters—with the exception of the southern recess.

Kiva A has a southern recess, but has neither pilasters which flare from front to rear nor a masonry lining above the banquette except in the southern recess where a portion of the wall was repaired with masonry.

In my opinion Kiva A closely resembles Step 3 despite its having a southern recess. It has a banquette which has a stone veneer on its edge and is partially lined with masonry, six stone pilasters, tunnel and shaft ventilator, firepit, sipapu, and a niche in the north wall of the banquette. It may have had a deflector. Like Kiva B it contains an ashpit contiguous to the firepit. The presence of several vertical stone slabs in a section of the banquette must have been a strengthening mechanism.

POTTERY

FLORENCE C. LISTER

Seldom is a site encountered where the pottery is so completely that of one relatively brief unit of time as Site 866. Particularly is this true of Mesa Verde where advantageous dwelling spots commonly were utilized for long periods of time usually spanning several cultural stages or were abandoned to be reoccupied once or twice during ensuing generations. However, the pottery recovered from Site 866 is a nearly pure Pueblo II complex and moreover does not exhibit the early design attributes observed in some Pueblo II pottery as was the case in the neighboring village, Site 875 (Lister, 1965: 63-64). Although various Pueblo II Mesa Verde types are dated by Abel (1955) to range from about A.D. 875 to 1150, only a trace of what can be considered early Pueblo II pottery was recovered. Likewise, at the other end of the time scale, only a few sherds showing an evolution into McElmo Black-on-white of early Pueblo III times can be separated from the pottery lot.

Of a total yield of 25,054 sherds, almost three-fourths, or 73 percent, are either Mancos Corrugated, the principal utility type of the mainstream of the Pueblo II period, or Mancos Black-on-white, its primary companion decorated type. Furthermore, an additional 25 percent of the sherds from the site are undecorated sherds of black-on-white vessels. Judging from the frequencies of decorated sherds which can be classified as Chapin, Cortez, or McElmo Black-on-white to Mancos Black-on-white, it is assumed that probably 24 percent of the undecorated black-on-white sherds are in fact Mancos Black-on-white. Therefore approximately 97 percent of the sherds from Site 866 are of Mancos Corrugated or Mancos Black-on-white types. The time of manufacture of Mancos Corrugated is generally believed to extend from A.D. 900 to 1100, and that of Mancos Black-on-white from 950 to 1150. Both are considered hallmarks of traditional Mesa Verde Pueblo II times. As was expected a few scattered sherds of both gray and white wares of slightly earlier or later periods do occur; however, they represent only a minor figure in the total percentages.

The single exception might appear to be Chapin Gray, a type Abel (1955) terms Basket Maker III—Pueblo I. The larger number of sherds in this category, as compared to other gray categories likewise considered early such as Moccasin and Mancos Gray, can be explained by arbitrary classification methods.

TABLE 1. Pottery distribution, Site 866. T refers to trace—less than 1 percent.

POTTERY TYPES Whole or partial vessels shown in <i>italics</i>	MESA VERDE GRAY WARE: Chapin Gray		Moccasin Gray		Mancos Gray		Mancos Corrugated		SAN JUAN WHITE WARE: Chapin Black-on-white		Cortez Black-on-white		Mancos Black-on-white		MESA VERDE WHITE WARE: McElmo Black-on-white		UNDECORATED WHITE WARE:		SAN JUAN RED WARE: Abajo Red-on-orange		La Plata Black-on-red		TOTALS		TOTALS AND PERCENTAGES OF MANCOS CORRUGATED, MANCOS BLACK-ON-WHITE, AND UNDECORATED WHITE WARE	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Rooms 1-10	12	T	1	T	0	.00	1,292	.62	0	.00	18	.01	276	.13	1	T	465	.23	0	.00	2	T	2,067	2,033	.98	
Room 11	5	T	0	.00	1	T	606	.56	1	T	0	.00	205	.19	5	T	268	.24	0	.00	0	.00	1,091	1,079	.99	
Kiva A, level 1	70	.03	1	T	3	T	1,288	.49	3	T	3	T	492	.19	2	T	730	.28	0	.00	4	T	2,596	2,510	.96	
Kiva A, level 2	9	.01	0	.00	0	.00	715	.65	0	.00	0	.00	147/1	.13	0	.00	224	.21	0	.00	0	.00	1,095/1	1,086/1	.99	
Kiva B, level 1	107	.03	0	.00	5	T	2,045	.52	2	T	7	T	757	.19	10	T	959	.24	0	.00	8	T	3,900	3,761	.96	
Kiva B, level 2	16	.03	0	.00	0	.00	375	.60	0	.00	3	T	60	.10	2	T	162	.26	0	.00	3	T	621	597	.96	
Protokiva, level 1	68	.03	0	.00	1	T	1,415	.52	1	T	3	T	556	.20	2	T	653	.24	1	T	3	T	2,703	2,624	.96	
Protokiva, level 2	0	.00	0	.00	0	.00	16	.55	0	.00	0	.00	5	.17	0	.00	8	.28	0	.00	0	.00	29	29	100	
Refuse	205	.02	4	T	10	T	5,614/1	.51	0	.00	33	T	2,272/8	.21	11	T	2,785	.25	0	.00	18	T	10,925/9	10,671/9	.97	
TOTALS	492	.02	6	T	20	T	13,366/1	.53	7	T	67	T	4,770/9	.19	33	T	6,254	.25	1	T	38	T	25,054/10	24,390/10	.97	

At the time of sorting, all plain gray body sherds were put into a Chapin Gray grouping because of lack of distinctive surface treatment which would indicate a different type. These included some with a faint polish and occasional sherd or mica inclusions in the temper. A half dozen of these plain gray sherds may be regarded as belonging to Mummy Lake Gray by Rohn and Swannack (1965: 14-18) because they possess a narrow fillet rim. Such an unsatisfactory typing process, functioning as it does on negative evidence, points up again the lack of sound controls for classification of plain gray sherds. There is no way to distinguish body sherds of the plain gray types because categorization suggested by various workers, and hence implied time differentials, is made almost wholly on vessel form and the presence or absence of neck banding, attributes which sherds possess only on fortuitous occasions. Neck banding seems never to have been popular in the Mesa Verde area, and use of a narrow fillet rim such as is considered typical of Mummy Lake Gray is encountered very infrequently. Chapin Gray is described by Abel (1955) as including at least eleven shape variations, an experimentation in form in early phases of Pueblo pottery manufacture which was supplanted by experimentation in painted designs during later times, particularly in Pueblo II the time of the occupation of Site 866. Mancos Gray saw a refinement of the band treatment as bands of this type were consistently narrower than those on earlier Moccasin Gray and occasionally were emphasized by grooving between coils. Such neck banding no doubt was a preliminary step to the over-all banding plus indentations of bands to follow in the corrugated tradition. It must be admitted that some of the narrow banded sherds here regarded as Mancos Gray may in fact have been unindented coils left as a decorative device on Mancos Corrugated.

To return to the general typing, to put all plain gray sherds in a Chapin Gray category naturally emphasizes the early end of the chronology, and in this instance this practice probably results in a distortion of the true picture. However, such arbitrary methods used for convenience are not to be condemned as long as both the classifier of the sherds and the readers of the report study the statistics with caution. With almost one-half of the sherds recovered from the site being Mancos Corrugated, there can be no doubt that that type was the one most frequently made and utilized, and the so-called earlier sherds are of interest only because they indicate that plain gray pottery either continued to be made during the lifetime of the site or was transported to the houses and trash heap from surrounding areas of earlier occupation.

Mancos Corrugated at Site 866 represents a cohesive unit although admittedly some examples tend through fine execution to merge into the later Mesa Verde Corrugated. It appears to be consistently tempered with crushed rock usually in fairly abundant amounts, and exhibits from five to six rows of coils per inch. Although on this early corrugated type it is known to have been common practice to alternate groups of plain bands with indented bands, only 279 sherds of more than 13,000 corrugated sherds were observed to be of this style. One

must presume that this particular fashion did not meet with favor at Site 866. Only one complete specimen of Mancos Corrugated, a small jar associated with Burial 4, was recovered. However, eleven large fragments of rims and portions of upper body walls show that large wide mouthed jars with smooth rim bands up to $\frac{3}{4}$ in. in width were popular.

Mancos Black-on-white conforms to previous descriptions of the type as found elsewhere in the Mesa Verde district. At Site 866 it appears never to have been painted in vegetal paint, although this variation from the usual mineral pigment has been noted in other places. As an estimate, at least 60 percent of the sherds reveal the growing practice of using sherds rather than crushed rock in the temper of non-utility vessels. It might seem that potters of Site 866 were satisfied to continue making paints of mineral derivation as had been done for the several preceding centuries, but were increasingly experimenting with the addition of a new kind of nonplastic, a practice which was soon to become standard for all Mesa Verde decorated pottery. Slip is observed on a large percentage of the sherds, particularly on surfaces which bear decoration. However, some dull dark gray unslipped sherds are noted. These are a sort which formerly would have been called Morfield Black-on-white but which are now considered merely an unslipped variation of Mancos Black-on-white. In form Mancos Black-on-white from this site provides no new information. Only seven complete or nearly complete vessels were recovered and, with the exception of the bird-form vessel, none is particularly distinctive. Sherds indicate the use of bowls of varying sizes, large jars with flat lugs, and both large and small pitchers. It is of interest that most ladle handles recovered are heavy, solid, and either round or flattened in cross-section. They usually have a checkerboard, cross hatched, or squiggled hatched upper surface. The few handles found have designs down the handle length or around it. Several portions of scoop type ladles, which Abel considers an earlier San Juan form, are noted in the Mancos Black-on-white collection. Less than 100 sherds of the 4,770 Mancos Black-on-white have corrugated exteriors. This was a decorative treatment employed to some extent in the far western reaches of the Anasazi during Pueblo II and Pueblo III times (Lister and Lister, 1961: 84) but apparently was not commonly employed at Mesa Verde. Interestingly enough, the corrugations are more precisely made than on contemporary gray corrugated.

Mancos Black-on-white has been regarded as a handy catch-all category for Pueblo II pottery in the northern San Juan. The range of design casually appears to be great and includes such elements as large dots on sides of stepped triangles, cross hatching, squiggly hatching, straight hatching, polka dots, wavy lines, broad lines in chevron patterns, sun bursts, heavy solid triangles and diamonds, checkerboard, and parallel lines pendant from rims. In spite of such motif variety, Mancos Black-on-white does in fact have an amazing degree of uniformity when seen in a large unadulterated lot such as was secured from this site. The apparent variability often reduces itself to skill of execution or lack of

same. A certain amount of divergence also exists in technological aspects such as paint, temper, and slip. These differences are indications of a healthy vigor and curiosity on the part of the people who were likewise exhibiting exploratory characteristics in other aspects of their daily life.

One gets the impression that precisely drawn designs simply were not important to Pueblo II potters here or in most of the rest of the Anasazi area. This attitude seems remarkable when one sees the strict adherence to set patterns and the almost mathematically exact execution of design layout which were to follow in Pueblo III, practices which made for handsome vessel decoration but which also stifled artistic expression. Pueblo II potters have been maligned as poor artisans largely because of their careless control in application of design. Uneven rims and asymmetrical contours have added to the impression of badly or hastily made ceramics. Yet their pots, being generally thin walled, harder, and bound together with more angular paste inclusions, probably were more serviceable than many which came from the hands of Pueblo III women.

There are so few sherds of Pueblo II type (33) from Site 866 that they are very insignificant. A few have the flat, thick, ticked rim of late phases of the period. However, they could have been scattered in the trash and kiva and house fill at some time long after the village was abandoned.

No intrusive pottery from either the Kayenta region to the southwest of Mesa Verde or the Chaco area to the southeast can be seen in the Site 866 pottery collection. This apparent lack of ceramic exchange is typical of other Mesa Verde towns on the mesa proper. It does not necessarily mean that intercourse between the various Anasazi peoples did not take place, but at least as far as pottery is concerned, evidence for such trade can now seldom be found. Part of the reason must have been the sheer fact of isolation of the Mesa Verde, but also we must realize that few modern pottery analysts are equipped with enough acumen to consistently recognize intrusive pieces because up to the cultural climax of Pueblo III, pottery from divergent localities in the San Juan was of a generalized sort which does not allow for quick or easy separation. Whole pieces present a different appearance than do random sherds and are more easily categorized. Pueblo III Kayenta pottery, because of different tempering and painting methods as well as the design conventionalizations, is easily distinguishable from Mesa Verde pottery of the same period. However, during the previous Pueblo II stage both groups used the same assortment of design motifs put together in the same general way. If a very careful study of the sherds is not made, often requiring a microscopic examination of a sizeable portion of any collection, it is easy for classifiers to overlook in a Mesa Verde lot the occasional sherd which may have originated in the Kayenta. Likewise, Chaco Pueblo II pottery, especially in sherd form, is so like Mesa Verde Pueblo II pottery that it is virtually indistinguishable in most cases. So, some sherds called Mancos Black-on-white here could be Escavada Black-on-white or the slightly later Gallup Black-on-white of the Cibola White Ware sequence from Chaco Canyon. The similarity

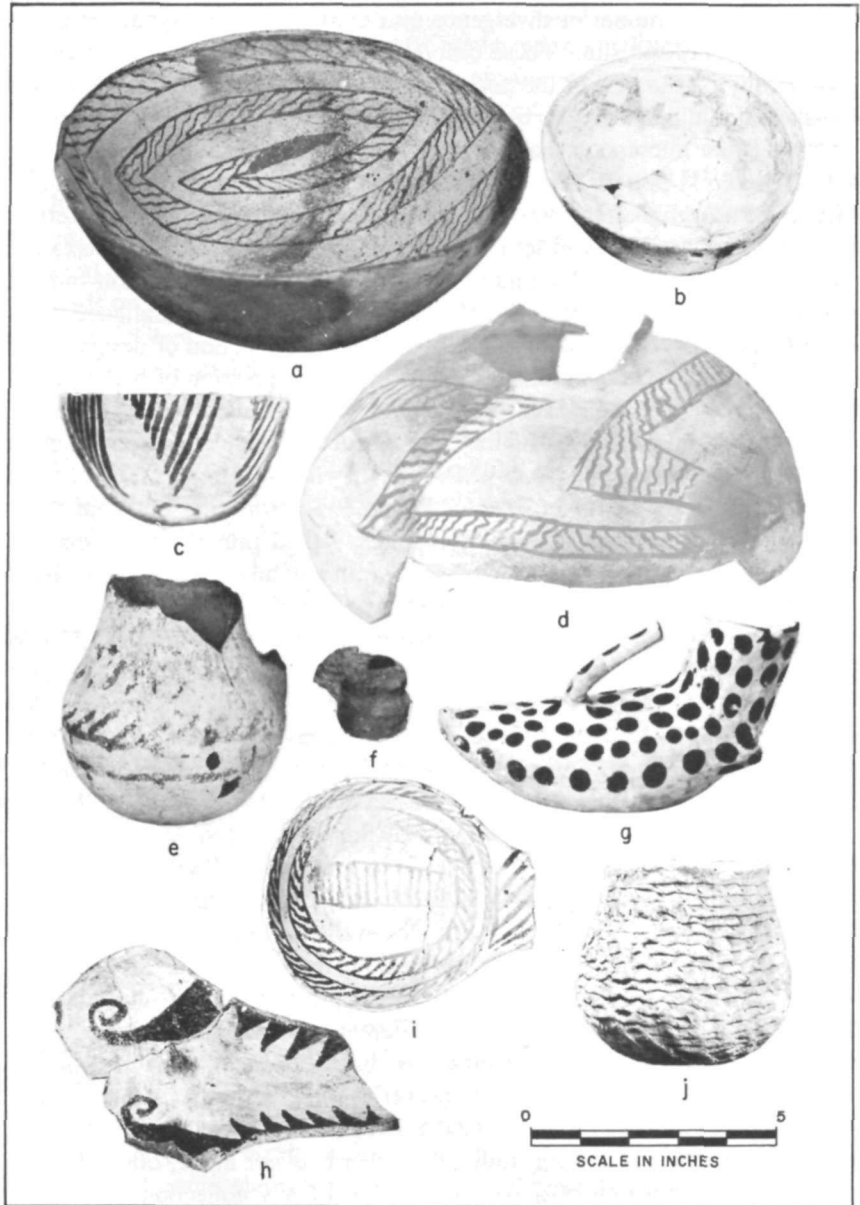


PLATE 15. San Juan White Ware and Mesa Verde Gray Ware, complete or partial vessels. Specimens a through i are Mancos Black-on-white; j is Mancos Corrugated. (a, e, f) Bowl, pitcher, and miniature jar, Burial 13. (b) Bowl, Burial 4. (c) Bowl fragment, Kiva A, level 2. (d) Water jar fragment, Burial 5. (g) Bird-form vessel, Burial 8. (h) Partial scoop ladle, Burial 10. (i, j) Bowl of ladle and small corrugated jar, Burial 14.

between the painted Pueblo II pottery of the Mesa Verde and that of Chaco is even greater than that found between Mesa Verde and Kayenta because of the same type of mineral paints employed. Ceramic trade with Chaco Canyon proper, with the known Chaco colonies off on Mesa Verde's western flank, or with possible Chaco outposts on the mesa itself, may have been carried on by the ancient inhabitants of Site 866 and neighboring villages but at the present time we are not astute enough to recognize it.

COMPLETE OR PARTIAL VESSELS

Only ten complete or partial vessels were obtained from Site 866. Nine are Mancos Black-on-white, one is Mancos Corrugated, reflecting the same predominance of these two types as is demonstrated by the collection of potsherds. Nine of the vessels were associated with burials in the refuse heap, the other came from Kiva A. Their descriptions follow:

SAN JUAN WHITE WARE

MANCOS BLACK-ON-WHITE

Bowl: Tapered rim, uneven. Rim line. Interior design of two opposed flattened spiral bands with poorly executed squiggly hatching. Field of design unevenly divided so that designs do not match. Centers of spiral solid, forming crude triangles. Exterior undecorated. Paint iron, gray in color. Both surfaces slipped, but worn off of undulating exterior surface, not polished. Flat base, vessel walls flare outward. Construction coils not completely obliterated. Vessel warped. Greatest height, 4 $\frac{1}{4}$ in.; greatest diameter, 9 in.; rim thickness, $\frac{1}{8}$ in. Provenience: Refuse, EO, associated with Burial 13. (Plate 15, a)

Bowl: Nearly complete. Tapered rim, uneven. No rim line. On bowl exterior is a band of six stepped triangle banners. Bottom of bowl interior undecorated. Exterior not decorated. Paint iron, but so badly weathered that it is light gray in color. Slip present on both surfaces, interior crackled, not polished. Flat base, flaring walls. Walls irregular and not well smoothed. Two pairs of holes drilled on opposite sides of cracks in vessel wall. Originally string had been threaded through each pair of holes and tied in an attempt to mend the vessel. Greatest height, 2 $\frac{1}{2}$

in.; greatest diameter, 5 in.; rim thickness, $\frac{1}{8}$ in. Provenience: Refuse, BL2, associated with Burial 4. (Plate 15, b)

Bowl: Fragmentary. One-half of vessel only. Rounded rim, uneven. Rim line. Bowl interior had design of four triangles pendant from the rim. Each triangle made up of series of broad parallel lines, no framing elements. Circle in bottom of vessel. Exterior undecorated. Black iron paint. Both surfaces slipped, interior slightly polished. Base somewhat flattened, walls of vessel flare outward. Greatest height, 2 $\frac{5}{8}$ in.; greatest diameter, 4 $\frac{3}{4}$ in.; rim thickness, $\frac{1}{8}$ in. Provenience: Kiva A, level 2, (Plate 15, c)

Water jar: Fragmentary. Only part of vessel, from shoulder to neck, present. Neck and bottom missing. Had been a globular-bodied, small-mouthed vessel. Exterior decoration consists of carelessly drawn zigzag band with squiggly hatching on upper part of jar body. Iron paint, reddish in places. Slipped, no polish. Surface crazed. Greatest height, unknown; greatest diameter, approximately 11 in.; diameter of orifice, approximately 3 $\frac{1}{2}$ in. Provenience: Refuse, BL1, associated with Burial 5. (Plate 15, d)

Pitcher: Incomplete. Rim and handle missing. Design on exterior of

pitcher body consists of three encircling horizontal lines. A series of short parallel slanting lines are attached to the two upper horizontal lines. Design weathered and obscured by firing cloud in one area. Iron paint, dark gray in color. Exterior slipped, no polish. Indented base. Solid, flattened handle had extended from shoulder probably to below rim. Neck of vessel slopes inward from shoulder to rim. Greatest height, $5\frac{5}{8}$ in.; greatest diameter, $5\frac{1}{8}$ in.; diameter of orifice, approximately $2\frac{3}{4}$ in. Provenience: Refuse, EO, associated with Burial 13. (Plate 15, e)

Miniature jar: Small vessel resembles a toy, perhaps made by a child. Jar constricted in middle, wide mouth. Effigy handle extends from shoulder to above rim. It apparently represents a four legged animal although head and tail broken. Body of animal has incised lines. Three relatively large dots encircle lower part of vessel body. Reddish iron paint. Neither slipped nor polished. Base flattened, uneven walls. Greatest height, $1\frac{1}{2}$ in.; greatest diameter $1\frac{3}{8}$ in.; rim thickness, $\frac{1}{8}$ in. Provenience: Refuse, EO, associated with Burial 13. (Plate 15, f)

Bird-form vessel: Nearly complete. Vessel resembles the body of a bird, with protuberances to represent wings and a nub to depict the tail. A single strand handle had curved back from the rear edge of the vessel mouth to join the body in the center of the back. Rim line. Rows of large dots cover the upper body, wings, neck and handle of the vessel. Dense black iron paint. Exterior slipped but not polished. Flat bottom. Length $6\frac{1}{2}$ in.; height to mouth, $3\frac{7}{8}$ in.; rim thickness, $3/16$ in. Provenience: Refuse CL2, associated with Burial 8. (Plate 15, g)

Ladle: Scoop type. Fragmentary. Portion of bowl and handle of what originally had been a large specimen. Interior design made up of series of small solid triangles pendant from edges of handle and large solid hooked triangles extending downward from rim of bowl. Black iron paint. Slipped but not polished. Deeply troughed handle slightly distinct from bowl. Length of fragment, 7 in.; width at juncture of bowl and handle, $3\frac{3}{8}$ in.; diameter of bowl, approximately $4\frac{3}{4}$ in. Provenience: Refuse, DO, associated with Burial 10. (Plate 15, h)

Ladle: Bowl-and-handle type. Fragmentary. Bowl and small portion of handle present. Rim of bowl tapered, uneven. Bowl interior has two encircling bands of squiggly hatched lines and a rectangular figure in the bottom also containing squiggly hatching. The top of the solid flat handle appears to have had a series of parallel slanting lines. Grayish black iron paint. Slipped and faintly polished on interior. Base of bowl flattened. Depth of bowl $2\frac{1}{2}$ in.; greatest diameter of bowl, $4\frac{1}{4}$ in. Provenience: Refuse, EL1, associated with Burial 14. (Plate 15, i)

MESA VERDE GRAY WARE

MANCOS CORRUGATED

Small jar: Wide-mouthed, rounded bottom. All-over indented corrugations, except for smooth rim band. Coils uneven in width, range from four to five per inch. Pair of holes drilled on opposite sides of crack in vessel wall for repairing it. Height, $4\frac{1}{8}$ in.; greatest diameter, $4\frac{1}{8}$ in.; diameter of orifice, 3 in. Provenience: Refuse, BL2, associated with Burial 4. (Plate 15, j)

ARTIFACTS AND ORNAMENTS

A small collection of 157 classifiable artifacts and ornaments, other than pottery vessels, was obtained from the pueblo and refuse deposit at Site 866. All specimens are of stone or bone with the exception of a pendant which is made of pottery. No artifacts of perishable materials were preserved.

Metates and manos, used primarily for grinding foodstuffs, were the most common artifacts. Trough metates outnumber the flat slab variety four to one, which is to be expected in a Mesa Verde Pueblo II village. The slab type became popular in late Pueblo II-early Pueblo III times. The manos are rectangular, relatively thin, and exhibit a variety of grinding surfaces. The great majority of them are of proper size to have been used with trough metates. One example of another type of grinding device, a mortar accompanied by a pestle, was recovered.

Hand-held stone implements for rubbing, polishing, abrading, and pecking were present and could have been used for a variety of purposes including the smoothing of mud floors and walls of houses, the construction of pottery, and the shaping of wooden, bone, and stone artifacts and ornaments.

Several circular sandstone discs are considered to be lids for pottery jars. A tcamahia, or skinning knife, apparently had broken during use and had been reshaped by rough chipping to resemble the blade of a hoe.

Four large, smooth, fine grained slabs of stone with circular depressions worn in one side are classified as lapstones. They are thought to have been used to shape and polish small delicate objects of shell, bone, or stone such as beads or pendants. Three of the specimens came from kivas suggesting that the preparation of ornaments, and perhaps the wearing of them, was associated with ceremonial activities.

Heavy duty cutting and pounding implements are represented by axes and hammers. These tools were equipped with wooden handles when in use. To facilitate hafting, most specimens are notched on their edges.

Only two projectile points were recovered. Both are small and are triangular bodied with side notches.

From turkey and mammal bones, fleshers, awls, and weaving implements were fashioned.

Four ornaments, three beads and one pendant, were found. Two beads are of stone and are discoidal in shape, the third is a bone tube. The pendant had been ground from a buff-colored potsherd.

The following tables summarize the occurrences of the various types of artifacts and ornaments, their provenience, size, and material. A drawing of a characteristic specimen of each type is presented.

TABLE 2

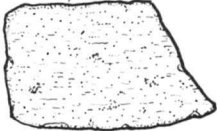





METATES - SITE 866						
TYPE	LOCATION	LENGTH	WIDTH	THICKNESS	MATERIAL	REMARKS
FLAT SLAB:  Top  Side  End	Room 8 Room 11	8 5/8"	4 7/8"	1 3/4"	Sandstone Sandstone	Fragmentary Unusually small specimen
TROUGH:  Top  Side  End	Room 2 Room 11 Kiva B, fill West Test Trench	10 1/4"	9 1/2"	3"	Sandstone Sandstone Sandstone Sandstone	Fragmentary Fragmentary Fragmentary

TABLE 2 (continued)




METATES (cont.)- SITE 866						
TYPE	LOCATION	LENGTH	WIDTH	THICKNESS	MATERIAL	REMARKS
<p>TROUGH, OPEN AT BOTH ENDS:</p>  <p>Top</p>  <p>Side</p>  <p>End</p>	Room 8	7"	6 3/4"	2 1/8"	Sandstone	Unusually small specimen
	Kiva A, floor	12 3/8"	12 5/8"	2 3/4"	Sandstone	
	West Test Trench				Sandstone	Fragmentary
	West Test Trench				Sandstone	Fragmentary

TABLE 3

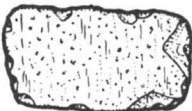





MANOS - SITE 866							
TYPE	LOCATION	NUMBER	LENGTH	WIDTH	THICKNESS	REMARKS	
SINGLE GRINDING SURFACE:  Top  Side  End	Room 3	1	7 1/4"	4 7/8"	2 1/4"	Sandstone	
	Room 4	3	7 3/4"	4"	1 3/8"	All of sandstone. Two fragmentary.	
	Room 8	1	6 1/4"	4 1/2"	3/4"	Sandstone	
	Room 11	1	7 1/4"	4 1/2"	1 7/8"	Sandstone	
	Kiva A, test trench	1	7 7/8"	5 1/8"	1 3/8"	Sandstone	
	Kiva A, level 1	1	8 3/8"	4 1/2"	1 1/4"	Conglomerate	
	Kiva A, floor	1	8 1/8"	4 7/8"	1 5/8"	Sandstone. Finger grips on one edge.	
	Kiva B, test trench	2	7 1/2"	5 1/8"	1 3/8"	One sandstone; one conglomerate.	
						One fragmentary.	
	Kiva B, level 1	7	8 3/8"	4 1/2"	1 1/4"	Measurements indicate range in size.	
				8 1/2"	3 1/2"	1"	One conglomerate, others sandstone.
	West Test Trench	4					Five fragmentary. All of sandstone. All fragmentary.
	TWO GRINDING SURFACES, PARALLEL:  Top  Side  End	Room 11	1				Sandstone. Fragmentary.
Kiva A, level 1		2	5 7/8"	3 1/4"	1 1/2"	Both sandstone. One fragmentary.	
Kiva A, floor		1	8 1/2"	4 3/4"	1 3/4"	Sandstone	
Kiva B, level 1		4	4 3/8"	3 1/2"	1 3/4"	All of sandstone. Three fragmentary.	

TABLE 3 (continued)

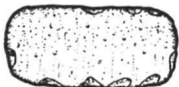





MANOS (cont.)- SITE 866						
TYPE	LOCATION	NUMBER	LENGTH	WIDTH	THICKNESS	REMARKS
TWO GRINDING SURFACES, NOT PARALLEL:  Top  Side  End	Room 8	3	9 1/8"	4 3/4"	2 7/8"	All of sandstone. Two fragmentary.
	Room 11	3	7 7/8"	4 1/2"	7/8"	One conglomerate, two sandstone. Two fragmentary.
	Kiva A, level 1	1				Sandstone. Fragmentary.
	Kiva A, banquette	1	7 5/8"	4 1/4"	3/4"	Sandstone
	Kiva A, floor	1	5 1/8"	3 1/8"	2 1/4"	Sandstone
	Kiva B, level 1	2	7 1/8"	4 1/8"	7/8"	Both sandstone. One fragmentary.
TWO ADJOINING GRINDING SURFACES:  Top  Side  End	Room 9	1	7 7/8"	4 3/8"	1"	Conglomerate
	West Test Trench	2				Both sandstone. Both fragmentary.

TABLE 4



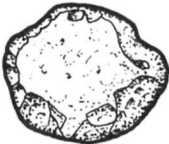
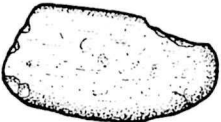

RUBBING STONES- SITE 866					
TYPE	LOCATION	GR. DIA.	LEAST DIA.	MATERIAL	REMARKS
OVAL: 	Room 4 Kiva A, fill Kiva B, fill Kiva B, floor West test trench West test trench	4 5/8" 4 1/2" 4 5/8" 3 1/2" 2 3/8" 2 7/8"	1 1/8" 1 7/8" 1 1/2" 2 1/8" 1 7/8" 2"	Basalt Basalt Sandstone Basalt Sandstone Basalt	Most specimens of all types made of water worn pebbles. One rubbing face One rubbing face
DISCOIDAL: 	West test trench	2 1/4"	1 1/2"	Basalt	
IRREGULAR: 	Room 4 Room 11 Kiva A, level 1 Kiva A, level 1 Kiva A, level 1 Kiva B, fill Kiva B, level 1 Kiva B, level 1 Kiva B, level 1 Kiva B, level 1 Kiva B, level 1 Kiva C, fill BO, refuse BL1, refuse	2 1/2" 3" 2 3/4" 2 1/4" 4 3/8" 2 7/8" 2 5/8" 2" 2 1/4" 2 5/8" 2 3/4"	1 1/8" 1 1/4" 1 3/8" 1 3/8" 1 5/8" 1 1/2" 1 3/8" 1 1/4" 1 1/8" 1 3/8" 1 1/4"	Basalt Diorite Basalt Basalt Chert Basalt Andesite Basalt Basalt Basalt Basalt Basalt Diorite Basalt	Fragmentary; reworked axe. Two rubbing faces Also used as pecking stone Fragmentary; reworked axe.

TABLE 5

FLAT ABRADERS- SITE 866						
TYPE	LOCATION	LENGTH	WIDTH	THICKNESS	MATERIAL	REMARKS
OVAL: 	Room 3	1 3/4"			Sandstone	Fragmentary; encircled by V-shaped grooves.
	Room 8	3 3/8"	2 1/4"	3/4"	Sandstone	One face and one edge smoothed
	EO, refuse	4 1/4"	2 7/8"	7/8"	Sandstone	Fragmentary; one end broken and large spall removed from one face.
PARALLEL SIDED: 	BRI, refuse	1 1/2"	3/4"	1/2"	Sandstone	Three smooth abrading surfaces

47

TABLE 6


POLISHING PEBBLES- SITE 866						
TYPE	LOCATION	LENGTH	WIDTH	THICKNESS	MATERIAL	REMARKS
POTTERY POLISHER: 	Room 2	2 3/4"	1 3/8"	1/2"	Basalt	One facet
	CR1, refuse	2 1/4"	1 1/8"	5/8"	Basalt	Two facets Both are water worn pebbles

TABLE 7


PECKING STONES- SITE 866					
TYPE	LOCATION	GR. DIA.	LEAST DIA.	MATERIAL	REMARKS
	Room 4	2 1/2"	1 5/8"	Basalt	Both ends battered
	Room 8	3 1/8"	2 1/8"	Diorite	
	Room 8	2 1/8"	1 1/4"	Basalt	
	Room 8	2 7/8"	2 1/8"	Basalt	
	Room 10	3 5/8"	2"	Basalt	One end battered
	Room 11, floor	2 1/2"	1 3/8"	Basalt	
	Room 11	3 3/4"	1 1/2"	Quartzite	
	Kiva A, level 1	3"	1 5/8"	Basalt	
	Kiva A, level 2	2 7/8"	1 3/4"	Basalt	
	Kiva B, level 1	2 7/8"	1 1/4"	Quartzite	
	Kiva B, level 1	4 7/8"	1 7/8"	Quartzite	
	Kiva B, level 1	3 1/2"	1 5/8"	Andesite	Reworked hammer or axe
	Kiva C, test trench	3"	2 1/4"	Basalt	
	Kiva C, test trench	2 3/4"	2 1/2"	Basalt	
	A0, refuse	2 1/4"	1 1/2"	Flint	Most made of water worn pebbles
	ELL, refuse	3 5/8"	2 1/4"	Quartzite	

TABLE 8

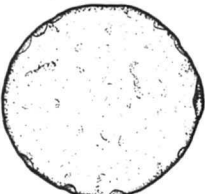
JAR LIDS- SITE 866				
TYPE	LOCATION	GR. DIA.	THICKNESS	REMARKS
	Room 2	8 1/8"	1/2"	All specimens of thin slabs of sandstone; edges chipped and ground smooth.
	Room 5	8"	3/4"	
	Room 7	9 1/4"	3/8"	
	Room 9	7 7/8"	3/8"	
	Room 11	7"	5/8"	

TABLE 9

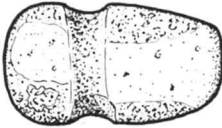

GROOVED AND NOTCHED AXES- SITE 866						
TYPE	LOCATION	LENGTH	WIDTH	THICKNESS	MATERIAL	REMARKS
FULL GROOVED, SINGLE BITTED: 	Room 5	6 7/8"	3 5/3"	2 1/4"	Basalt	
NOTCHED, SINGLE BITTED: 	Room 2 Room 3 Room 4 Room 7 Room 11 Room 11 Kiva B, level 1 Kiva B, level 1 Kiva C, test trench Kiva C, test trench ERL, refuse ELL, refuse CLL, refuse ERL, refuse	4 3/4" 3 3/4" 3 1/2" 6 7/8" 4 3/8" 5 5/8" 3 3/4" 5 1/2" 3 5/8" 4 1/4" 4 3/4"	2 3/4" 2 1/2" 2" 3 5/8" 3" 2 1/2" 2 1/4" 3" 2 1/2" 2 7/8" 3"	1 3/4" 1 1/4" 3/4" 1 5/3" 1 3/8" 1 1/2" 1 1/4" 1 5/8" 7/8" 1" 1 1/4"	Basalt Basalt Diorite Diorite Basalt Diorite Basalt Andesite Basalt Basalt Basalt Sandstone Andesite	Bit and poll battered Fragmentary Bit broken One notch wider than the other Bit broken One notch wider than the other Bit and poll battered Bit broken; one notch wider than the other. Ends battered; parallel faces. Fragmentary Fragmentary Parallel faces One notch wider than the other
UNCLASSIFIED:	Room 8 Kiva A, level 1 Kiva B, level 1 Kiva B, level 1 Kiva B, level 2 EL1, refuse				Diorite Basalt Basalt Basalt Andesite Basalt	All fragmentary; too small to classify.

TABLE 10


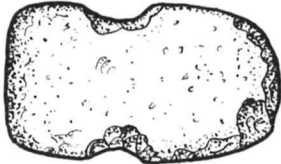
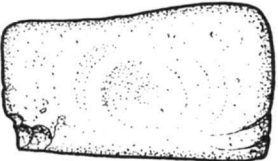
HAMMERS - SITE 866						
TYPE	LOCATION	LENGTH	WIDTH	THICKNESS	MATERIAL	REMARKS
OVAL, NOTCHED: 	Kiva A, fill Kiva B, fill BL1, refuse	2 5/8"	1 7/8"	1 1/4"	Basalt Sandstone Basalt	Fragmentary; deep pecked notches. Fragmentary; deep notches.
FLAT, NOTCHED: 	Room 11	9"	5 1/4"	2 5/8"	Sandstone	Large specimen; parallel faces.

TABLE 11

LAPSTONES- SITE 866						
TYPE	LOCATION	LENGTH	WIDTH	THICKNESS	MATERIAL	REMARKS
	Room 8	7 3/4"	5 7/8"	2"	Quartzite	Oval; both faces smoothed.
	Kiva A, level 1	9 1/2"	7 3/8"	1 7/8"	Quartzite	Oval; slightly concave on both smoothed faces.
	Kiva A, level 1				Sandstone	Fragmentary
	Kiva C, floor	12 3/4"	8 1/2"	1 1/2"	Sandstone	Rectangular; slight wear on one face.

51

TABLE 12




PROJECTILE POINTS- SITE 866						
TYPE	LOCATION	LENGTH	WIDTH	THICKNESS	MATERIAL	REMARKS
SIDE NOTCHED: 	Room 11	7/8"	1/2"	1/8"	Chalcedony	Made from flake
	AR1, refuse	7/8"	1/2"	1/8"	Quartzite	Edges of blade ground

TABLE 13

MISCELLANEOUS STONE ARTIFACTS- SITE 866							
TYPE	LOCATION	LENGTH	WIDTH	THICKNESS	MATERIAL	REMARKS	
MORTAR AND PESTLE: 	MORTAR:	BL2, refuse	9 7/8"	6 3/4"	3 5/8"	Sandstone	Depression pecked in unshaped block of rock.
	PESTLE:	BL2, refuse	2 1/2"	2 1/4"	2 1/4"	Sandstone	Fragmentary; cylinder shaped rock associated with mortar.
REWORKED TCAMAHIA: 	West test trench	3 7/8"	3"	1/4"	Siltstone	Fragmentary; flakes have been removed from both edges.	

52

TABLE 14


FLESHERS- SITE 866				
TYPE	LOCATION	LENGTH	WIDTH	REMARKS
MAMMAL BONE: SPLINTER: 	Room 8 Room 11 BL2, refuse D0, refuse	5 1/8" 2 3/8"	1 1/8" 1 1/8"	All specimens made of splinters of large bone; blunt working edge bevelled on one side. Fragmentary Fragmentary

TABLE 15





AWLS- SITE 866			
TYPE	LOCATION	LENGTH	REMARKS
BIRD BONE: HEAD OF BONE INTACT: 	Room 11	3 1/4"	Turkey tibia
MAMMAL BONE: HEAD OF BONE PARTLY REMOVED: 	Kiva B, level 1 Kiva B, level 1 CR1, refuse	7 1/8" 2 5/8" 3 5/8"	Stubby, massive. Head perforated
HEAD OF BONE REMOVED: 	Kiva A, level 1 Kiva A, banquette CL1, refuse	2 3/4" 7 1/8" 6 1/8"	Stubby
SPLINTER: 	Kiva B, level 1 Kiva B, level 1 Kiva B, level 1 Kiva B, level 1 CO, refuse	3 7/8" 4"	Fragmentary Fragmentary Fragmentary

TABLE 16






WEAVING TOOLS - SITE 866			
TYPE	LOCATION	LENGTH	REMARKS
MAMMAL BONE: HEAD OF BONE PARTLY REMOVED: 	Kiva B, level 1	3 5/8"	Specimens of both types have deep grooves in their points. Head perforated
	Kiva B, level 1	4 3/4"	
HEAD OF BONE REMOVED: 	Kiva B, level 1	4 1/2"	Fragmentary; tip of point missing.

TABLE 17

ORNAMENTS - SITE 866						
TYPE	LOCATION	LENGTH	WIDTH	THICKNESS	MATERIAL	REMARKS
BEAD: BIRD BONE:  STONE: 	Kiva B, fill	1"	1/4"	1/4"	Bone	Fragmentary
	Kiva C, level 2	1/8"	1/8"	1/16"	Turquoise	
	CL1, refuse	3/16"	3/16"	1/16"	Jet	
PENDANT: 	ER1, refuse	1 5/8"	1 1/16"	1/4"	Pottery	Fragmentary; made of fine tempered buff sherd.

55

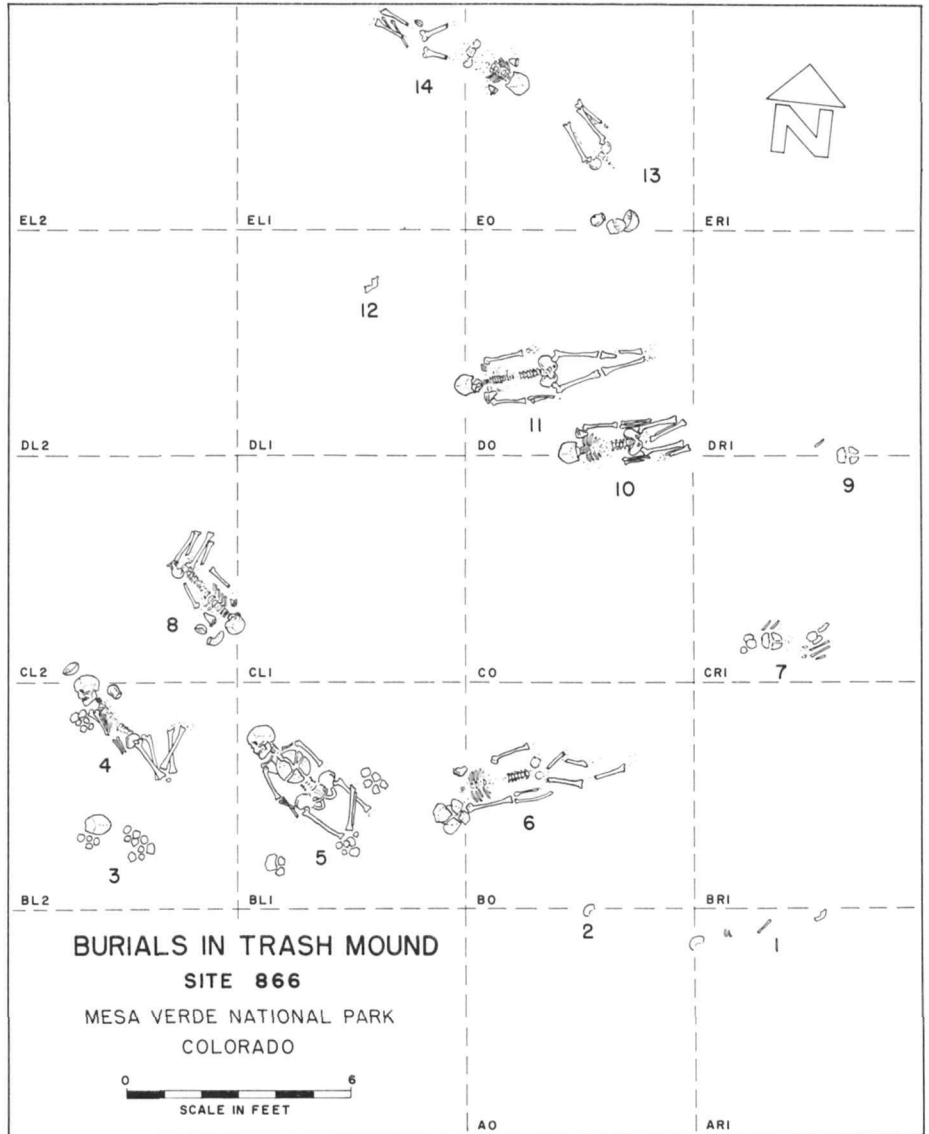


FIGURE 9

BURIALS

Fourteen human burials, in various degrees of completeness, and finds of isolated portions of human skeletons were encountered in the refuse deposit. They all have been referred to as burials in the following account.

Burial 1: Square AR1, refuse. Only a few scattered fragments of an infant cranium, mandible, ribs, and some long bones remained of this burial which was found at a depth of 10 in. Its original position could not be determined. No associated artifacts.

Burial 2: Squares AO and BO, refuse. This small fragment of an infant cranium was found 8 in. below the surface. No other bones were encountered and there were no associated artifacts.

Burial 3: Square BL2, refuse. This find, uncovered 6 in. beneath the surface, consisted of a poorly preserved adult cranium. Associated with it were large sherds of several corrugated and black-on-white vessels.

Burial 4: Square BL2, refuse. The grave pit into which these remains were placed had been cut down into the red subsoil to a depth of 16 in. below the surface. The fairly well preserved, but fragmentary, skeleton is that of an adult. It rested on its right side, was oriented northwest-southeast, head to the northwest, and faced west. The arms extended down along the front of the body and the knees were bent. A small Mancos Corrugated jar, a Mancos Black-on-white bowl, and a group of potsherds had been placed with the burial. One vessel was found above and the other to the rear of the skull.

The sherds were in front of the individual.

Burial 5: Square BL1, refuse. This nearly complete adult skeleton was recovered a few inches below the surface and was in a fair state of preservation. It was covered with a layer of small rocks. The skeleton was on its back, was oriented northwest-southeast, arms extended to the sides, head to the northwest, and the skull was turned to face southwest. Lower leg bones of only the right leg were found. They were crossed over the femur of the left leg. A fragmentary Mancos Black-on-white jar rested on the chest of the individual.

Burial 6: Square BO, refuse. A fragmentary adult skeleton found just beneath the ground. All bones badly decayed and somewhat disturbed. It appears to have rested on its stomach, was extended in an east-west direction, head to the west, and faced down. Several large sherds covered the skull fragments.

Burial 7: Square CR1, refuse. This burial consisted of a few small parts of an infant's cranium and long bones. It was exposed 6 in. below the surface and was so badly decayed that its burial position could not be determined. A few large sherds were found near the bones and may have been associated with the burial.

Burial 8: Square CL2, refuse. At a



PLATE 16. Burial 5, Refuse, BL1, arrow points north.

depth of 8 in. in this square a fairly complete adult skeleton in poor condition was exposed. It had been placed face downward with knees bent to the left side of the body in a semiflexed position. It was oriented northwest-southeast, head to the southeast, face down. To the right of the skull was a bird-form vessel of Mancos Black-on-white and the bottom of a Mancos Corrugated jar.

Burial 9: Squares CR1 and DR1, refuse. This was another instance of the occurrence of an isolated adult cranium in the refuse deposit. It was only 4 in. below the ground and was badly crushed. A bone awl was found nearby, but probably had no relationship to the cranium.

Burial 10: Square DO, refuse. A poorly preserved, incomplete adult skeleton. The left humerus and scapula, the hands and feet bones, and a portion of the cranium were missing. The skull was encountered 3 in. below the ground. The body had been placed face down and the lower legs were bent back upon

the upper legs in a semiflexed position. It was oriented east-west, arms extended to the sides, head to the west, facing downward. A fragmentary Mancos Black-on-white scoop ladle accompanied the remains.

Burial 11: Square DO, refuse. This adult burial was found just beneath the surface and, although parts of most bones of the skeleton except the hands and feet were present, was in a bad state of preservation. The body had been placed in an extended position, face down. It was oriented east-west, head to the west, arms extended along sides of body. No associated artifacts.

Burial 12: Square DL1, refuse. This find only consisted of an isolated adult mandible. No associated artifacts.

Burial 13: Square EO, refuse. A fragmentary, disturbed adult burial the bones of which were in poor condition. It was in a burial pit which had been cut down into the red subsoil to a depth of 18 in. Only the skull and parts of the pelvis and lower legs bones were recovered. It appears to have been ori-

ented northwest-southeast, head to the southeast. Other details of the burial position could not be observed. A Mancos Black-on-white pitcher and a miniature vessel of the same type were adjacent to the skull.

Burial 14: Squares EL1 and EO, refuse. This was another poorly preserved

skeleton of an adult. Many bones were missing and those present were fragmentary. It had been placed in an extended position upon its stomach. It was oriented northwest-southeast, head to the southeast, face down. The bowl of a small Mancos Black-on-white ladle was found next to the lower leg bones.

FOODSTUFFS

The only positive evidence of foodstuffs recovered from Site 866 was a small number of animal bones. No specimens of vegetal remains were found. The shallowness of both the refuse deposit and the floors of the rooms were not conducive to the preservation of either bone scraps or plant remains. The finding of a few small fragments of turkey egg shell do not reveal whether turkey eggs were utilized as food.

As in other archaeological sites in the vicinity, mule deer (*Odocoileus hemionus*) and wild turkey (*Meleagris gallopavo*) bones occurred with greatest frequency suggesting that these animals provided the major supply of meat. Cottontail rabbit (*Sylvilagus* sp.) remains were next in number. Also identified from the site were bones of bison (*Bison bison*), ground squirrel (*Citellus* sp.), pocket gopher (*Thomomys* sp.), and jackrabbit (*Lepus* sp.). All of these animals, with the possible exception of the bison, could have been hunted locally. A longer hunting trip, perhaps to the San Luis Valley to the east, may have been necessary to obtain bison. Turkeys may have been kept in pens as well as hunted. Bones of at least two domesticated dogs (*Canis familiaris*) were recovered, but it cannot be stated whether or not the dog was used as a food animal.

The principal supply of food for the village undoubtedly was provided by the three domesticated plants so important to the Anasazi—corn, beans, and squash. Although no actual remains of any plants were recovered at Site 866, it is a well established fact that corn, beans, and squash were widely cultivated and basic to the economy during the period in which the village was inhabited. In all likelihood these plants were cultivated in garden plots near the community. The large quantity of metates and manos found in the pueblo attest to the importance of the grinding of corn. Wild plants provided edible roots, seeds, berries, and nuts to supplement the vegetable diet.

DATING THE OCCUPATION

Considering all features exhibited by Site 866, the specimens recovered from it, and the data gathered during its excavation, it is felt that the village was occupied during the Pueblo II period of the Pecos Classification or in the Mancos Mesa Phase as proposed by Gila Pueblo (O'Bryan, 1950). Brew (1946) and Reed (1958) prefer to call the period the Mancos Focus, and Hayes (1964) refers to it as the Mancos Phase. The pueblo probably was occupied during the period between A.D. 1000 and 1070.

Site 866 is the first purely Mancos Phase site to be excavated and reported upon in the Mesa Verde. Heretofore, sites of this period have been complicated by occupation during other phases.

TREE RINGS

The only specimens suitable for tree-ring analysis were found in the fill of Kiva A. They consisted of five charred fragments of Douglas Fir, pinyon, and juniper which had been parts of the kiva roof. Thomas P. Harlan, of the Laboratory of Tree-ring Research of the University of Arizona, has dated the specimens. Four of them, however, which yielded dates of A.D. 993, 1014, 1051, and 1053 have such variable outer surfaces that it cannot be determined how far the last ring is from the true outside. One specimen gives a bark or cutting date of A.D. 1060. Since Kiva A was the latest kiva at Site 866, the date of A.D. 1060 is believed to mark a time toward the end of the village's existence.

POTTERY

Florence Lister has demonstrated in the chapter on pottery that an almost pure association of Mancos Corrugated and Mancos Black-on-white pottery was made, used, broken, and discarded by the inhabitants of Site 866.

Dates assigned these two types of pottery, which are considered hallmarks of Pueblo II in the Mesa Verde area, range from approximately A.D. 900 to 1150; however, the span of time during which the Mancos types were neither associated with Cortez Black-on-white nor McElmo Black-on-white can be limited to about A.D. 1000 to 1070. The relative insignificance of Cortez Black-on-white and McElmo Black-on-white at Site 866 places the life of the

village during the period when both Mancos types were in vogue but after Cortez Black-on-white went out of popularity and before McElmo Black-on-white assumed importance.

ARCHITECTURE

The three subterranean structures at the site may originally have been pit-houses; however, had a pithouse village existed at the site we were unable to locate any concentrations of refuse containing sherds of types normally related to such dwellings. Furthermore, the fact that potsherds from both the surface rooms and the below ground units are practically identical suggests that all features were occupied at least in part contemporaneously. Had pithouses been present initially it would appear that builders of the later Pueblo II village remodeled three of them and used them as ceremonial chambers.

Stone masonry used in the walls of rooms 1-10, the original village of Pueblo II times, featured sandstone blocks whose four sides had been shaped by removal of spalls from their edges. Stones were set in mud mortar in irregular courses a single stone wide. Room 11, built over a portion of the ruins of the 10-roomed structure, has walls twice as thick as those of the earlier rooms. Larger building blocks with fairly smooth edges, sometimes finished by dimpling with a hammer or pecking stone, were laid in mud mortar. For the most part the walls are two stones wide but in a few places a single large stone extends the width of the wall.

Building stones shaped by the removal of large spalls from their four edges, and setting them in narrow walls a single stone in thickness, are typical of Pueblo II times (Hayes, 1964: 94). The better shaped, sometimes dimpled, blocks of the later room which are incorporated into wider walls is an architectural feature which has been demonstrated to come into practice slightly before A.D. 1100 (Lancaster *et al.*, 1954: 103).

ARTIFACTS

The best time indicators among this category of archaeological remains from Site 866 are the grinding implements, metates and manos. The preponderance of trough type metates and thin, rectangular manos manifest a Pueblo II occupation. Also, the great preference for notched axes is indicative of Pueblo II times (O'Bryan, 1950: 108). Only one grooved axe was found at the site.

THE CULTURAL SEQUENCE AT FOUR VILLAGES
IN THE FAR VIEW GROUP
MESA VERDE NATIONAL PARK, COLORADO

INTRODUCTION

The four villages in Mesa Verde National Park excavated by the University of Colorado between 1953 and 1956, Site 499 (Lister, 1964), the two pueblos at Site 875 (Lister, 1965), and Site 866 (this report), provide us with data which allows us to reconstruct the cultural sequence in a limited area for a period of about 200 years.

The sites are located within one-eighth of a mile of one another at the northern end of Chapin Mesa at an elevation of about 7,700 ft. The narrow mesa top, flanked by steep sandstone cliffs, is covered by a pinyon-juniper woodland cover. The ruins are included within a complex of about 16 sites of Pueblo II and Pueblo III age which have become known as the Mummy Lake or Far View Group. About one-half of the sites in the group have been excavated. In addition to those cleared by the University of Colorado, J. W. Fewkes, of the Smithsonian Institution, excavated Far View House, Pipe Shrine House, and several smaller pueblos including One Clan House and Megalithic House between 1916 and 1922 (Fewkes, 1917a, 1917b, 1922, 1923).

An important feature of the Far View Group, and one which contributed significantly to the density of settlement in the region, is the presence of a prehistoric water collection system, a series of ditches, and a reservoir. The reservoir is known as Mummy Lake. Descriptions of various aspects of these water conservation devices and their significance have been presented from the time of Nordenskiöld's explorations in the Mesa Verde (Nordenskiöld, 1893: 74) until the present. Rohn (1963: 441-445) recently has summarized the data and added information he has gathered about the reservoir and related ditches. He concludes that a series of water collection ditches at the uppermost end of Chapin Mesa led into a feeder ditch which extended one-half mile south to Mummy Lake. At that point water, which was used primarily for domestic purposes, was taken from the ditch. Just before the feeder ditch reached Mummy Lake, a distributionary ditch led off to the west, terminating in a long draw containing a large number of agricultural terraces. Another ditch runs from the vicinity of Mummy Lake south along Chapin Mesa for four miles or more. It is likely that it was fed by the same feeder ditch that supplied Mummy Lake; however, it undoubtedly collected additional water of its own from sheet runoff. Rohn (1963: 453) believes it also carried water primarily for domestic purposes.

The Mummy Lake water conservation system is said to have been built in Pueblo II (Rohn, 1963: 451). All of the sites in the vicinity reveal Pueblo II and Pueblo III occupations. The availability of a reservoir of water for household purposes, as well as a series of ditches to provide irrigation water for farming terraces in the vicinity, undoubtedly influenced the settlement pattern on this part of Chapin Mesa.

There is no need to repeat full descriptions of the four sites being considered. Details may be found in the reports referred to above. However, brief summaries will set the stage for the remarks to follow. Ages assigned the sites are based upon a few tree-rings, and the dates attributed to the ceramic complexes, architectural forms, and certain types of artifacts found in the sites.

The first village at Site 875 is the earliest. It is presumed to have existed between A.D. 950 and 1000, or in the Pueblo II period. During its history this village of one story masonry rooms grew from a rectangular arrangement of ten rooms to one containing seventeen rooms built in an L-shaped block. Early in the history of the pueblo three subterranean kivas, located south of the room block, were employed. By the end of the occupation only one ceremonial chamber was in use. Walls of the rooms were fashioned of sandstone slabs whose edges were shaped by the removal of large spalls from both faces. These were laid up in rough courses a single stone in width. Trash was dumped in an area south of the village, as it was in the other villages under consideration. The ceramic complex from the site is characterized by Cortez Black-on-white, Mancos Black-on-white, and Mancos Corrugated and also contains a few examples of Piedra Black-on-white, La Plata and Bluff Black-on-red, and some plain grays such as Chapin, Moccasin, and Mancos Gray. A collection of stone and bone artifacts was recovered from the excavations. Several secondary burials were taken from the fill of rooms.

The second village in the series is Site 866. Its occupation is dated between A.D. 1000 and 1070 during Pueblo II. It consisted of ten single-storied rooms arranged in a double-rowed line. South of the domestic structure was a row of three kivas. One of these, and perhaps the others as well, originally had been a pithouse. The rooms were constructed of the same sort of masonry employed in the first village at Site 875. Following abandonment of this structure, a single large rectangular room was constructed over its ruins. Walls of the later room were made of large shaped sandstone blocks laid in courses two stones wide. An almost pure complex of Mancos Black-on-white and Mancos Corrugated pottery came from the site. A small collection of artifacts and fourteen human burials were recovered from the pueblo and its associated trash deposit.

Third in the sequence is the second village at Site 875 which is believed to have been extant between A.D. 1025 and 1075. In time and in cultural contents it appears transitional between Pueblo II and Pueblo III. Chronologically it is partially contemporaneous with Site 866; in architectural form and in ceramic content it is more advanced than Site 866. The habitation evolved from an

inverted U-shaped unit of nine single-storied rooms built around a kiva to a rectangular structure of fifteen rooms enclosing a central plaza containing the kiva. It was superimposed upon the remains of a large part of the first village. Masonry throughout the unit was of rectangular sandstone blocks whose faces had been shaped by grinding and in some cases by pecking. The majority of the walls were two stones in width. A dirt platform, retained in part by a rock wall and ascended by a set of stone steps, was built in order to level the ground upon which the village was placed. It was increased in size as the village expanded. Mancos Black-on-white, Mancos Corrugated, and McElmo Black-on-white were the principal kinds of pottery used by the inhabitants of this pueblo. Artifacts exemplifying the everyday activities of the Indians were secured from the excavations. Only one complete human burial was recovered from the refuse deposit which obviously had been partially disturbed by previous diggers.

Site 499 is the last in our sequence. Its occupation occurred between A.D. 1100 and 1150 in early Pueblo III times. The structure exhibits a characteristic practice of the times in which the rooms of the pueblo were situated around a courtyard or plaza in which the subterranean ceremonial chambers were placed. It grew into a compact approximately rectangular settlement of twelve ground-floor rooms, and perhaps six second story rooms, surrounding a plaza in which there were two kivas connected by an underground tunnel. A tower, probably taller than two stories, was an integral part of the village and was connected to one of the kivas by a passage. The faces of the majority of the sandstone building blocks in the walls of all of the architectural units had been dressed by blows of stone implements to produce a dimpled effect. Walls were two stones wide. The pottery complex from Site 499 features Mancos Black-on-white, McElmo Black-on-white, some Mesa Verde Black-on-white, and Mancos and Mesa Verde Corrugated. As was the case in the other pueblos, an assortment of artifacts was recovered from the village and its refuse dump. Ten fragmentary or almost complete human burials also were obtained from the site.

Comments concerning the cultural and temporal characteristics observed during the excavation of the sites and revealed by analysis of the specimens obtained from the ruins will follow. Attention will be focused upon how individual elements or objects, or in some instances culture patterns or complexes, changed through time, how they fit into the classificatory systems established for the Mesa Verde Anasazi, and what these archaeological data tell us about the lives of the Indians who lived in the four communities between approximately A.D. 950 and 1150. Cultural contents of the sites place the occupations in the Pueblo II and early Pueblo III periods or in the late Developmental Pueblo and early Great Pueblo stages. Following the system of phases adopted by Hayes (1964: 86-111) for classification of sites upon Wetherill Mesa in Mesa Verde National Park, which is a modification of several earlier systems of classification for the area, our sites contain cultural criteria representative of the Ackmen, Mancos, and McElmo phases.

We are not dealing with the entire period of prehistoric occupation of the Mesa Verde, but are considering only a segment of a cultural continuum which had progressed through earlier developmental stages and which was yet to reach a climax. Summations of the known sequential development of Mesa Verde culture and its relationships to San Juan Anasazi culture and Southwestern prehistory in general, based upon archaeological excavations, surveys, and reviews of literature, have been presented by Brew (1946: 15-88), Watson (Lancaster *et al.*, 1954: 1-6), Reed (1958: 158-169), Herold (1961: 15-30, 124-131), and Hayes (1964: 86-110).

Before discussing the specific assemblages of archaeological data from the four sites, a few comments about the bases for the assignment of the sites to particular culture stages or foci will be made.

A number of years ago Clyde Kluckhohn (Kluckhohn and Reiter, 1939: 151-162) discussed the problem of fitting archaeological evidence into classificatory schemes. His statements and speculations are as pertinent to interpretation of archaeological data today as when he originally wrote them. He pointed out that when one uses the Pecos Classification or the Roberts Classification (and the more recent systems of classification by Gila Pueblo, Brew, Morris, Reed, Hayes, etc. where phases or foci are employed may be included) as a mechanism for describing the cultural position of a site, difficulties are encountered. Basically the matter appears simple enough. Diagnostic traits have been published and generally accepted for the various Anasazi subdivisions. It might appear, then, that the archaeologist merely has to determine whether the material from a given site conforms to a particular set of specifications. But it is not that easy. Kluckhohn states that a number of questions arise when one works with a specific assemblage of data which would seem to require clarification: "—is it absolute presence or absence of the criteria which count or merely predominance—or does the answer to this question vary in the case of various traits? Must the culture or 'culture period' check with all or how large a majority of the diagnostics? Are certain of the criteria indispensable and others not?" (Kluckhohn and Reiter, 1939: 151)

Kluckhohn also writes of the "time problem" and notes that some archaeologists have classified sites primarily by their tree-ring dates rather than by their cultural contents (Kluckhohn and Reiter, 1939: 152).

The real difficulty in classification, he believes, is that the criteria are not consistently used. Either they are mingled in a manner which is not made explicit, or one set is used on one occasion and a different set on another.

In this report, I have relied upon as many elements of the cultural complex as possible, as well as the available tree-ring dates, in assigning these sites to culture periods or foci. Perhaps more reliance has been placed upon pottery complexes than upon any other type of evidence. The sequential development of ceramics in the San Juan is fairly well established. The succession of types in the Mesa Verde has been demonstrated at numerous sites, and the time spans

of the types are fairly well demonstrated. I have attempted to explain why a few examples of pottery of an earlier age appear in our Mesa Verde sites and why adjustments should be made in ages of certain types. But a situation will seldom, if ever, occur where a given site will have all of the pottery typical of one cultural stage and no other. In employing pottery complexes as determinants of culture periods I have based the classification, to a certain degree, upon the criterion of predominance.

Architectural features, especially masonry types and village form, also have been relied upon since, like pottery, their courses of development have been demonstrated on many occasions in the Mesa Verde. The hazard of basing classification upon kiva types alone has been demonstrated at our four villages.

Other elements of the cultural complexes of the sites such as metates and axes, which are believed to have value as diagnostics of culture stages, have influenced our judgment. Many types of artifacts recovered appear insignificant as stage indicators.

Finally, those tree-ring specimens which have provided cutting dates have been accepted and have supported the choice of culture periods established by the contents and characteristics of the sites.

I doubt, in dealing with the products of the activity of human beings which notably fails to exhibit exceptionless uniformities, that archaeologists ever will be able to set up a taxonomic system precise enough to require absolute presence or absence of a certain association of traits, or even particular individual traits, as always diagnostic of a given period. Similarly, time spans attributed to certain culture stages do not always take into consideration the fact that a particular culture complex which is identified with a certain period, as in the Pecos Classification, has dates which range over a wide spread in various areas. The setting up of a system of phases or foci attempts to restrict the classificatory system to smaller and more meaningful units and to better cope with temporal differences. To a degree it is more realistic than the employment of pan-Anasazi stages, but even then problems of assigning sites to a particular phase or focus are not unknown to experience.

SETTLEMENT PATTERN AND ARCHITECTURE

The results of the recently completed archaeological survey of Wetherill Mesa (Hayes, 1964) indicate a steadily increasing movement of villages from mesa top locations to neighboring canyons during Pueblo II and Pueblo III times. Whether this situation occurred throughout the Mesa Verde cannot be stated with certainty, but it is highly likely that it did since surveys of other Mesa Verde areas such as Chapin Mesa, an area between White's and Morfield canyons, and the southern half of Wildhorse Mesa have revealed a site density comparable to that on Wetherill Mesa (Hayes, 1964: 110). By A.D. 1000 there had been an intensive use, by large numbers of people for about 300 years, of the more favorable mesa top locations. Prolonged cutting of trees for firewood and construction purposes, and the clearing of lands for agricultural reasons, must have brought about erosion and denuding of much of the mesas. A search for better lands and less populated areas caused an increasing number of individuals to build their habitations on the talus slopes, in cliffs, and on the canyon bottoms. The rise of terrace farming at this time undoubtedly may be correlated with the decrease in amount of arable land on the tops of the mesas.

The four ruins we have excavated were villages during Pueblo II and early Pueblo III times. Their existence covered a period of about 200 years, although no village was occupied for the entire length of time. Their combined histories, however, outlines an almost uninterrupted cultural continuum. Site 866 and the second village at Site 875 appear to have been in part contemporaneous during the middle of the sequence, with the first village at Site 875 earlier than either, and Site 499 following the abandonment of the second village at Site 875.

The sites considered here were occupied when conditions on the mesa tops were as described above and their inhabitants undoubtedly were subjected to the pressures and problems inherent in such a situation. Initially, local soil and climatic conditions, and later the Mummy Lake water collection system, were advantageous to those who resided on this portion of Chapin Mesa and were factors contributing to the density of settlement in this locality. Watson (in Lancaster *et al.*, 1954: 5-6) has commented upon an apparent shift in population from farther south on Chapin Mesa to this area during the 12th century and has suggested that it was due to greater precipitation at the higher elevation of the northern end of the mesa. It now appears that the concentration of population at the upper end of Chapin Mesa began well before the 12th century.

Although certain favorable conditions were instrumental in creating a center of population on the mesa top, the increasing number of inhabitants soon led to problems not faced by the original settlers. Once villages became numerous individuals likely vied with their neighbors for fertile lands, useful animals and wild plants, satisfactory building stones and other lithic materials required for a variety of artifacts and ornaments, wood for construction purposes and for household needs, pottery clay, possibly even for the limited domestic and irrigation water supplies, and for other resources of the Mesa Verde necessary to life of the times.

Each village was relatively short lived, which is interpreted as demonstrating that the cultural and natural environment did not foster long continued occupation of a given community. The cultural situation is mentioned for one must not overlook factors such as intravillage discord, fragmenting of social or religious units, expansion or decline of kinship groups, external pressures, and other events which have led to village growth, decline, and abandonment among the historic Pueblo Indians. However, it is not unlikely that the fundamental problem of obtaining a livelihood through the utilization of the diminishing natural resources would have greatly influenced the length of village occupancy on this and many other of the mesa tops of the Mesa Verde during Pueblo II and early Pueblo III.

Following abandonment of the first three villages their walls, and probably their roofs as well, were razed apparently by individuals living in the vicinity who reemployed the materials in units they were constructing. Thus it would appear that between about A.D. 950 and 1075 this part of Chapin Mesa witnessed a succession of small villages, none of which existed for any length of time. On the other hand, Site 499 must have been deserted following this period in which numerous short lived villages were built, for its collapsed walls were not plundered for the materials they contained. By A.D. 1150 there seems to have been a full-scaled movement away from the mesa top and only a few large communities in the area, such as Far View House and Pipe Shrine House, managed to exist beyond that time. They, too, soon were deserted as part of the widespread movement to the caves which is said to have begun about A.D. 1200. Several factors, in addition to those related to natural resources, have been suggested as causes for this shift in population. Jett (1964) and others (Davis, 1965; Goss, 1965; Hester, 1962; Kayser, 1965) recently have commented upon or summarized some of the proposed explanations, both physical and cultural, for the abandonment of the San Juan and other areas by the Anasazi at the end of Pueblo III. In the Mesa Verde, at least, causes which led to ultimate abandonment must have become operative by A.D. 1200 and were at least partly responsible for the movement from the mesa tops to the caves. The defensive nature of the cliff dwellings certainly supports the notion that unfriendly forces existed, be they neighboring Mesa Verde villagers, Anasazi from elsewhere, Athapascans, Shoshoneans, or others.

Domestic architectural features, such as types of masonry and village plan employed in the four villages, fit fairly well into the building stages established for the Mesa Verde. The kivas and their probable sequence of development are considered in a following section.

Walls of the earliest pueblo, the first village at Site 875, are constructed of flat sandstone blocks whose four edges had been roughly shaped by the removal of large spalls to produce a bevelled cross section. These are laid in abundant mud mortar in irregular courses one stone wide. Sometimes small spalls are embedded in the thick mud joints. Walls of the original unit at Site 866 are constructed in the same manner. The later practice of building double-coursed walls, in which each course is two stones wide, is employed in the second village at Site 875, at Site 499, and in the late room at Site 866. Stones in these walls are rectangular sandstone blocks whose edges had been smoothed by grinding and in some instances by pecking. They are set in relatively small amounts of mud mortar. Stones in the outer face of the tower at Site 499 have slightly convex outer surfaces to produce a smooth circular wall.

Village plan shows a progression from pueblos consisting of rows of contiguous one story rooms with kivas located some distance to the south of the habitations to those in which the kivas are surrounded in part or completely by the village. The latest community contains some sections which originally stood two stories high and contains a tower which probably was even higher. The tower is connected to a nearby kiva by a passage. All villages were enlarged during their lifetimes by the addition of rooms to the original complex. Refuse from the settlements was deposited in middens to the south of the villages.

The second pueblo at Site 875 is built upon a low dirt platform, faced in part with stone masonry, and ascended by a set of stone steps. Although I am fully aware of the gross similarity of this feature to Mesoamerican platform mounds, and as much as I would like to think of it as clear evidence for Mesoamerican influence in this area, I cannot do so with confidence. All evidence indicates that the platform was prepared in order to level the rubble of a previous village and the sloping ground adjacent to it so that a new village could be set upon a fairly level plane. As the pueblo grew and additional flat space was required, the platform was enlarged. The narrow stairs associated with the platform do not resemble the broad type of stairways found on Mesoamerican platform mounds. Artificial platforms, apparently for similar purposes, are present at Far View House and Pipe Shrine House which are located a short distance from Site 875. One, however, must not completely rule out the possibility that the idea of building stone retained platforms with stairways, an unusual feature in Anasazi villages, may ultimately have been derived from Mesoamerica. Although these Mesa Verde platforms apparently served a practical, non-religious purpose, as opposed to most of those of Mesoamerica which functioned as bases for ceremonial

structures, there are certain structural resemblances. Had the dirt platform at Site 875 been situated upon level terrain, rather than obviously serving the purpose of levelling an irregular surface, there would be a stronger suggestion of Mesoamerican influence.

During Pueblo II and Pueblo III times in the San Juan it has been observed that a frequent arrangement of villages consisted of a complex of several small pueblos clustered about a larger structure. This has been noted in the Mesa Verde (Hayes, 1964), on Alkali Ridge (Brew, 1946), in the La Plata District (Morris, 1936), and in the Chaco Canyon (Kluckhohn and Reiter, 1939). Such a situation apparently existed in the Far View Group where Far View House, which was occupied in Pueblo II and Pueblo III times and in its ultimate form was a large multi-storied pueblo of approximately 100 rooms, was contemporaneous at least in part with numerous smaller villages in the near vicinity such as some of the sites excavated by Fewkes, the four we have cleared, and several unexcavated ruins.

The contemporaneity of pueblos varying in size, complexity, and apparent levels of cultural development frequently has led to confusion in fitting the sites and their contents into established stages of cultural development. Kluckhohn (Kluckhohn and Reiter, 1939) was faced with this problem in Chaco Canyon when he sought to explain why two small villages, Bc 50-51 which are situated just across the canyon from the pueblos of Pueblo Bonito and Chetro Ketl, appear to have been used synchronously with the occupation of the great multi-storied many-roomed towns. According to Kluckhohn, the architecture and masonry, and to a degree the pottery, of Bc 50-51 establish the villages as Pueblo II. Tree-ring dates and some evidence from pottery, however, would place the sites in Pueblo III times and would support the hypothesis that Indians were almost certainly living in Pueblo Bonito and Chetro Ketl during at least part of the time that Bc 50-51 were occupied. In other words, during a certain time interval, the cultures on the north side of Chaco Canyon were Pueblo III, or Great Pueblo, while the at least partially contemporaneous ones less than a mile away on the south side were Pueblo II or Developmental Pueblo (Kluckhohn and Reiter, 1939: 154-157).

Speculating upon how this situation could be interpreted, Kluckhohn had several opinions. The inhabitants of Bc 50-51 were either "poor relations" or conservatives who refused to adopt the progressive architectural styles of their congeners across the canyon. The occupants of Bc 50-51 might have been migrants from another region, representatives of a related but less advanced cultural heritage drawn to the Chaco by the prosperity of its inhabitants, or by the reputation for magnificence and power of their ceremonialism, or by the protection which these populous towns could afford. He rules out the notion that the smaller villages might have been farming colonies related to the larger towns because of the nearness of the settlements to one another (Kluckhohn and Reiter, 1939: 158-159).

Comparable explanations for the divergent archaeological complexes of contemporaneous villages in the Far View Group can be offered. The influences of some of the very same factors which probably were operative in the past can be observed in an examination of present day communities. In the United States, a town established in the 18th century still retains some features, particularly in architecture and town plan, typical of its period of initial development although in most other respects the culture of the inhabitants of the town is identical to that found in adjacent younger or more progressive communities. The recognizable differences between the material culture of neighboring modern communities frequently is even greater when a comparison is made between a large urban center and the smaller communities about it. The same irregular rate of change obvious in present day seats of population must have been influential in prehistoric times.

On Chapin Mesa, not only can differences be noted between the cultural contents of simultaneously occupied villages of varying size, but an examination of the four villages we have excavated demonstrates considerable variation between the pueblos of approximately the same size. Two of the ruins, Site 866 and the later village at Site 875, appear to have been occupied in large part at the same time. Site 866 differs markedly from the other village in masonry, kiva form, and village plan. Much of the pottery from the two sites is similar; however, at Site 875 the second village has a significant amount of a later type than is found at Site 866 supporting the belief that it continued in use after the demise of the other village. Tree-ring dates from the two sites differ by only 13 years.

My comments above, and in the previous section of this paper, concerning the difficulties of using the taxonomic systems set up for the Anasazi culture are not intended to be new and different. All of these opinions have been expressed before. However, many of the previous statements have concerned the archaeological remains of fairly large areas such as the San Juan, the La Plata District, or the Mesa Verde area. We have encountered the same problems in dealing with only four small villages occupied over a relatively short span of time in a very restricted part of the Mesa Verde. I fully concur with Kluckhohn who wrote, "Surely, all classifications can but, at best, express modal tendencies and must be used purely heuristically, with constant awareness that they are most crude categorizations of the human acts we are trying to reconstruct." (Kluckhohn and Reiter, 1939: 162)

PROBABLE SEQUENCE OF KIVA DEVELOPMENT

Eight kivas, small subterranean rooms which were the centers of ritual observances for a religious society or small village, are included in this discussion; two at Site 499, three at Site 866, and three at Site 875. One structure, the second stage of Kiva A at Site 875, is reconstructed from data obtained during the excavation and stabilization of the unit. Other kivas exhibit evidences of remodeling, but only in the one instance is there sufficient information for a reliable approximation of a period of construction prior to the final form of a kiva.

I will neither discuss in detail the development of the Anasazi kiva nor the specific evolution of the Mesa Verde kiva. General and specific statements on these subjects have been presented by Roberts (1929: 81-90), Morris (1939: 36-38), Brew (1946: 203-214), Smith (1952: 154-165), and Lancaster *et al.* (1954: 53-61). I will deal with the probable sequence of eight kivas at the four villages herein considered, and will comment upon how they fit into the established pattern of kiva development and some of the difficulties encountered in placing them in this framework. Plans and profiles of the kivas and descriptions of their features are presented in the following pages (Figures 10-13).

I have experienced the same frustrations in analyzing and placing in sequence these eight kivas as most other Southwestern archaeologists have had in dealing with their kivas. The kiva, like all of Anasazi architecture, did not follow a neat chronological development which will allow us, except in a very general way, to establish a step by step evolutionary sequence. The remodeling of pithouses into kivas, the retention of an older form of kiva in a more recently built village, the building of a new modeled kiva in an older village, the periodic refurbishing of kivas wholly or only in particular elements, the acceptance or rejection of new kiva features as they were introduced, the conditions of the soil into which the pit was dug, and the vagaries of human nature are some of the factors that have led to this complex situation. We are dealing with a continuum which varied from site to site and which progressed unevenly.

The postulated sequence of the eight kivas in these four Mesa Verde pueblos fits into the steps in the development of the Mesa Verde kiva proposed by Lancaster and Pinkley (Lancaster *et al.*, 1954: 55-61) in many respects but differs in others. Our sequential arrangement, outlined below, is based upon a combination of considerations of architectural typology, the ages of the sites as deter-

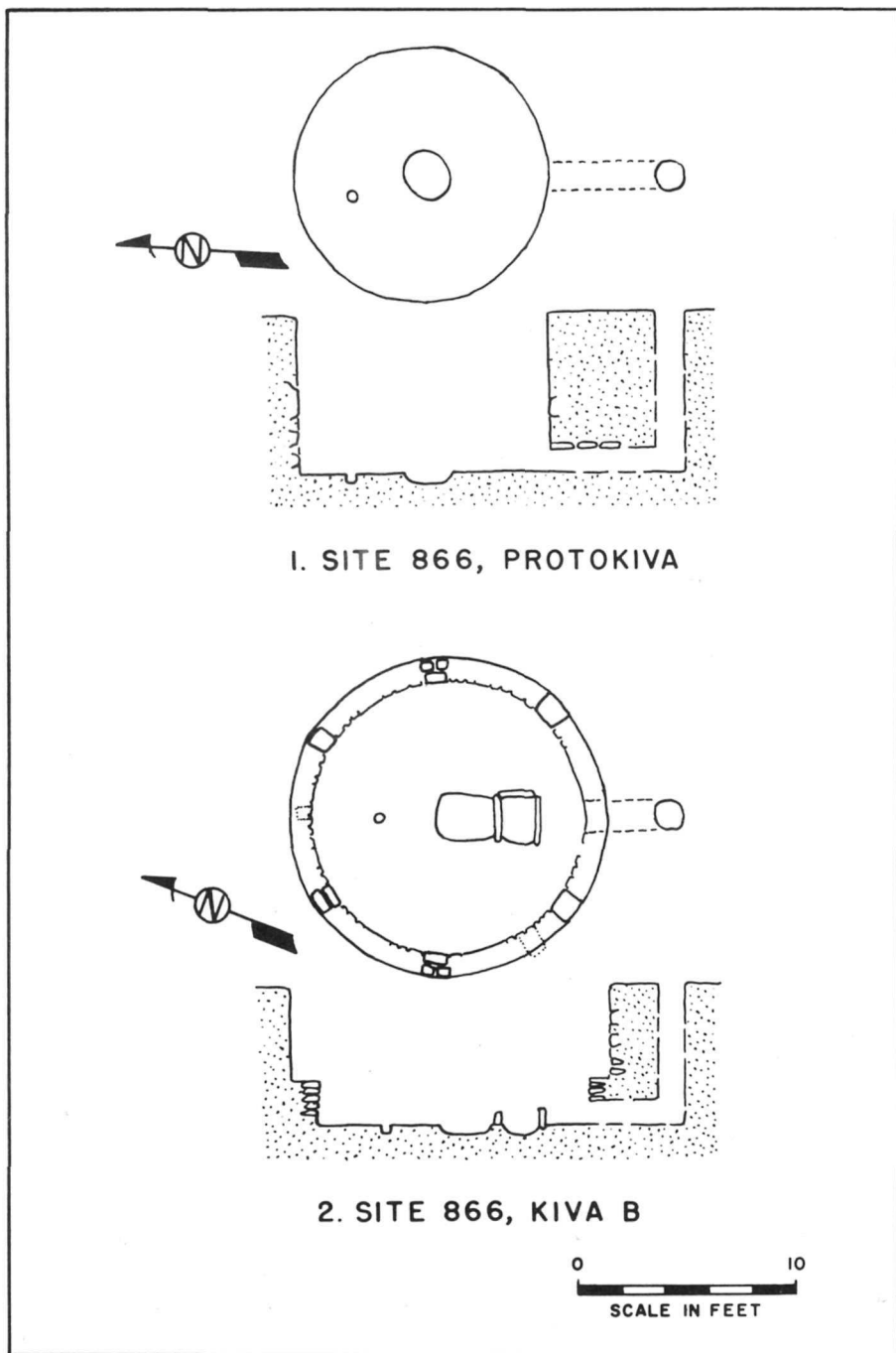


FIGURE 10. Postulated kiva development.

mined by ceramic complexes and diagnostic artifacts, and tree-ring dates for the sites or the kivas. Not one of these factors considered alone would provide us the order we have established.

1. We believe the earliest form of ceremonial chamber in the four sites is the protokiva at Site 866 (Figure 10). This brings us face to face with the problem of whether to call a structure a pithouse, a kiva, or compromise by calling it a protokiva. In this case I have finally taken the latter course after having referred to it both as a pithouse and a kiva in field notes and earlier drafts of this paper. I do not doubt but that it was built and originally used as a pithouse, but its present characteristics and relationships to the surface habitations at Site 866 lead me to believe that its ultimate use was for ritual purposes.

The protokiva is simply an unlined circular pit with standard ventilating system consisting of a horizontal tunnel joining a vertical shaft, a firepit, a slab to close the ventilator tunnel, and a sipapu. It does not contain partitions, floor ridges, subfloor cists, or postholes, all elements usually found in pits used for domiciliary purposes. On the other hand, it lacks the banquette and roof support posts or pilasters of early kivas. Its roof must have rested upon beams extending horizontally across the top of the pit. Presumably a hatchway in the roof served as smoke hole and entrance.

Potsherds from the protokiva are of the same complex (Mancos Black-on-white and Mancos Corrugated) as occurred in all the kivas and rooms of the site, as well as the trash deposit, showing that this structure was contemporaneous with the remainder of the Pueblo II village. That this protokiva continued in use into Pueblo II times is suggestive of its ceremonial nature. Deep pithouses

← FIGURE 10. Postulated kiva development.

1. SITE 866, PROTOKIVA. *Features*: Circular unlined pit without banquette. No southern recess. Horizontal tunnel-vertical shaft ventilating system enters kiva on south; passage is unlined. Ventilator shaft some distance back of south wall. Firepit; unlined. Sipapu cut into mud floor. No wall niches. No deflector; sandstone slab used to cover entrance to ventilator. No floor ridges, partitions, subfloor cists, or postholes. *Observations*: This structure is transitional between a pithouse and a true kiva. Its flat roof must have been supported by beams laid across the top of the pit.

2. SITE 866, KIVA B. *Features*: Circular with banquette which has a veneer of stones around its edge; otherwise unlined. No southern recess. Horizontal tunnel-shaft ventilating system enters kiva beneath banquette on south side; passage unlined. Vertical shaft some distance back of south wall. Firepit, unlined; ashpit, slab lined. Sipapu cut into rock floor. Two banquette niches; one in ventilator-firepit-sipapu axis, other between pilasters 1 and 2. No deflector; sandstone slab used to cover entrance to ventilator. Six masonry pilasters on banquette; most slightly narrower at front than at rear and extend to front edge of banquette. *Observations*: The kiva wall and banquette contain a few sections of crude masonry apparently placed there during use of the structure to strengthen weak places in the walls.

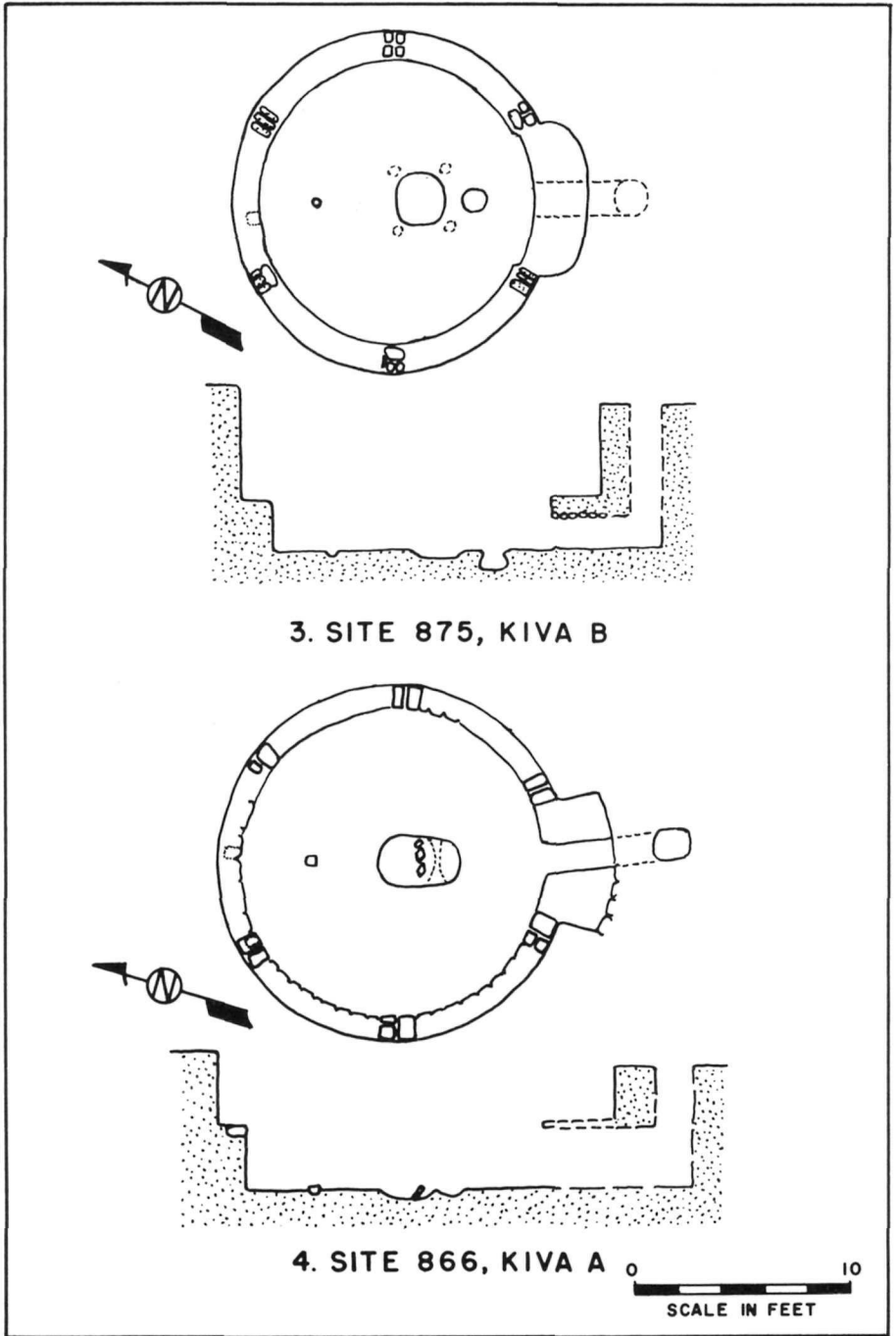


FIGURE 11. Postulated kiva development.

seem to have lost favor in Pueblo I times when residence in subterranean structures changed to life in substantial above ground houses. Therefore, it is felt that the protokiva at Site 866 represents the retention of an earlier pithouse for ceremonial purposes. Perhaps some of the original nonreligious floor features of the room were removed to free the space for the performance of religious rites. It probably was the first ceremonial room at Site 866 and likely was used for that purpose from the beginning of the village's existence, estimated at about A.D. 1000. From a purely architectural standpoint it precedes all steps proposed in the evolutionary sequence of the Mesa Verde kiva (Lancaster *et al.*, 1954: 55-61).

2. Kiva B at Site 866 (Figure 10) exhibits the addition of a banquette, six stone pilasters, an ashpit, and two banquette niches. The kiva walls and banquette are unlined except for a veneer of stones around the edge of the banquette. An intersecting tunnel—shaft ventilator, a sandstone slab to cover the ventilator entrance, a firepit, and a sipapu also are present. In several places sections of crude masonry had been set into the walls, undoubtedly to strengthen them. The roof probably was cribbed and was supported by the pilasters.

This kiva resembles Step 3 in Mesa Verde kiva development (Lancaster *et al.*, 1954: 57) although it does not have a built in deflector, said to be

← FIGURE 11. Postulated kiva development.

3. SITE 875, KIVA B. *Features*: Circular with banquette; both unlined. Shallow southern recess; curved wall, unlined. Horizontal tunnel-vertical shaft ventilating system enters kiva beneath southern recess; tunnel originally roofed with small poles and stone slabs, shaft unlined. Vertical shaft some distance back of southern recess. Firepit, unlined, clay rim; ashpit, unlined. Sipapu cut into dirt floor. One banquette niche in ventilator-firepit-sipapu axis. No deflector; entrance to ventilator is recessed to accommodate a slab cover. Ladder holes in floor. Six masonry pilasters on banquette; each slightly narrower at front than at rear and do not extend to front edge of banquette. White designs painted on plastered walls, banquette, and pilasters. *Observations*: It is apparent that Kiva B was built by enlarging a previously existing pithouse and remodeling its ventilator system.

4. SITE 866, KIVA A. *Features*: Circular with banquette which has a veneer of stones around most of its edge; otherwise unlined. Southern recess; curved rear wall, unlined. Horizontal tunnel-vertical shaft ventilating system enters kiva beneath southern recess; horizontal tunnel originally roofed with wood below southern recess, otherwise passage is unlined. Vertical shaft some distance back of southern recess. Combination ashpit some distance back of southern recess. Combination ashpit and firepit separated by clay ridge; clay rim. Stone embedded in floor where sipapu normally occurs. Two banquette niches; one in ventilator-firepit-sipapu axis, other beneath Pilaster 3. Probable stone slab deflector between ashpit and firepit. Six masonry pilasters on banquette; each is rectangular and extends to front of banquette. *Observations*: During occupancy sections of the wall of the southern recess and the banquette were strengthened by the addition of simple stone masonry. A fragment of a roof element from the kiva dated A.D. 1060.

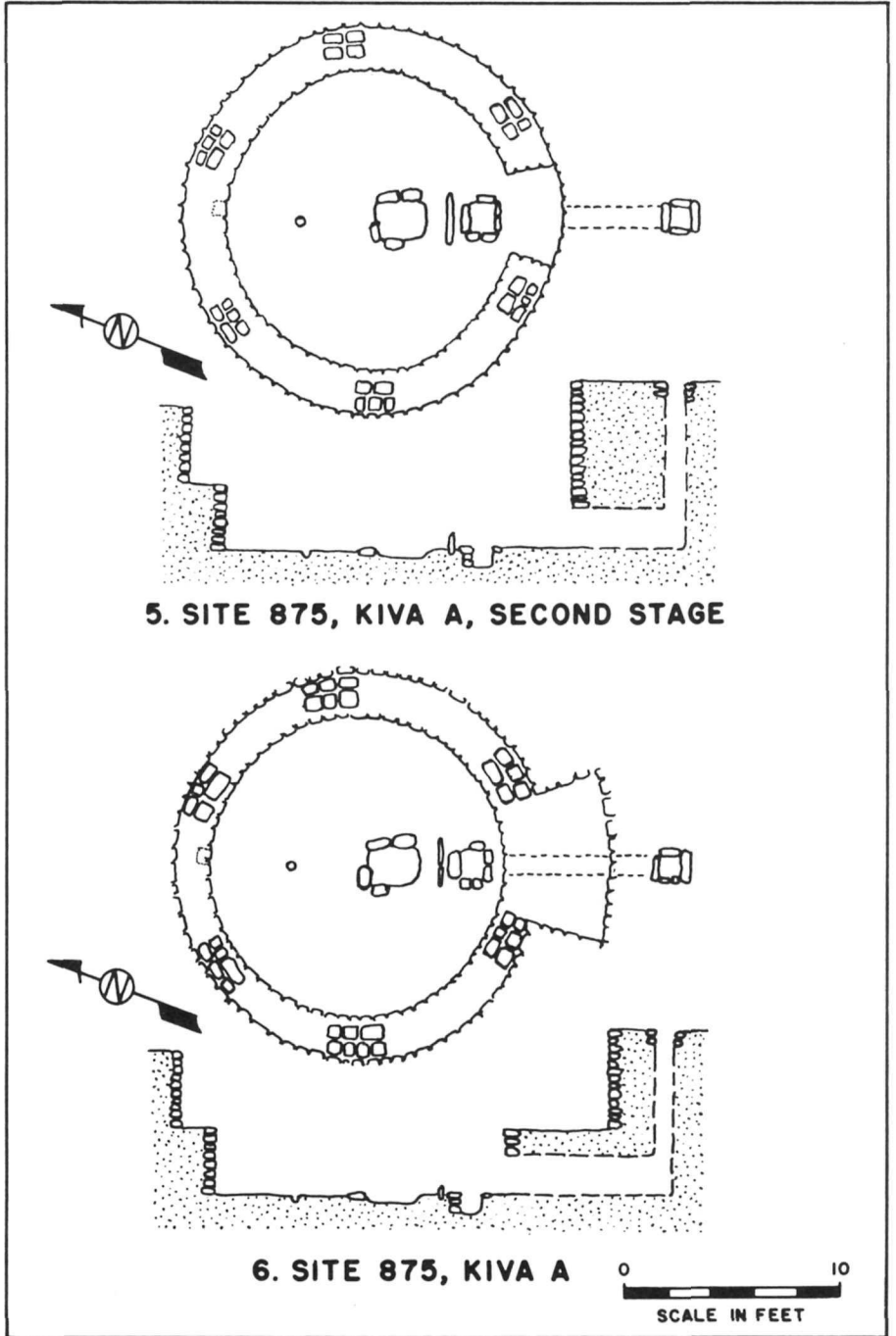


FIGURE 12. Postulated kiva development.

present in most kivas of this type, or a completely lined banquette. The Step 3 kiva, exemplified by Kiva 3 at Site 16, is dated approximately A.D. 1000. Kiva B at Site 866 was in use sometime between A.D. 1000 and 1070. Potsherds from the kiva fill are of the Mancos Black-on-white—Mancos Corrugated complex.

3. In this postulated sequence of kiva development in villages in the Far View Group, Kiva B at Site 875 (Figure 11) is next. The principal addition here is a shallow southern recess, a widening of the banquette between the two southern pilasters. Otherwise the structure contains most of the features noted for the kiva just described: unlined kiva walls and banquette, tunnel—shaft ventilator, firepit, ashpit, sipapu, slab to cover entrance tunnel, six masonry pilasters, and a niche in the north face of the banquette. There are four shallow depressions about the firepit. These are thought to have been worn in the floor by the base of a two-poled ladder which led to the hatchway in the roof. Apparently the ladder was set between the ashpit and firepit at times and north of the firepit on other occasions, producing the two sets of depressions. Designs in white clay are painted on the wall, banquette face, and pilasters of the room.

This kiva resembles Step 4 in the development of the Mesa Verda kiva (Lancaster *et al.*, 1954: 57-58) in having a banquette, pilasters, firepit, sipapu, ventilator, and banquette niche.

← FIGURE 12. Postulated kiva development.

5. SITE 875, KIVA A, Second Stage (a reconstruction). *Features*: Circular with banquette; both kiva wall and banquette lined with masonry. No southern recess, break in banquette on south. Horizontal tunnel-vertical shaft ventilating system enters kiva on south where banquette is not present; passage unlined. Vertical shaft some distance back of south wall. Firepit, partly slab lined, stone rim; ashpit, partly slab lined, stone rim. Sipapu cut into clay floor. One banquette niche in ventilator-firepit-sipapu axis. Stone slab deflector between ashpit and firepit. Six masonry pilasters on banquette; each is slightly narrower at front than at rear and is set back from the front edge of the banquette. *Observations*: This stage of Kiva A is based upon evidence found in the excavation of the southern recess and in stabilizing the kiva wall. The floor features of this kiva are assumed to be similar to those incorporated in the ultimate form of the kiva.

6. SITE 875, KIVA A. *Features*: Circular with banquette; both kiva wall and banquette lined with masonry. Southern recess; curved rear wall lined with masonry. Horizontal tunnel-vertical shaft ventilating system enters kiva beneath southern recess; passage unlined. Vertical shaft some distance back of southern recess. Firepit, partly slab lined, stone rim; ashpit, partly slab lined, stone rim. Sipapu cut into clay floor. One banquette niche in ventilator-firepit-sipapu axis. Stone slab deflector between ashpit and firepit. Six masonry pilasters on banquette; each is slightly narrower at front than at rear and is set back from the front edge of the banquette. *Observations*: Fragments of roof beam dated A.D. 1047.

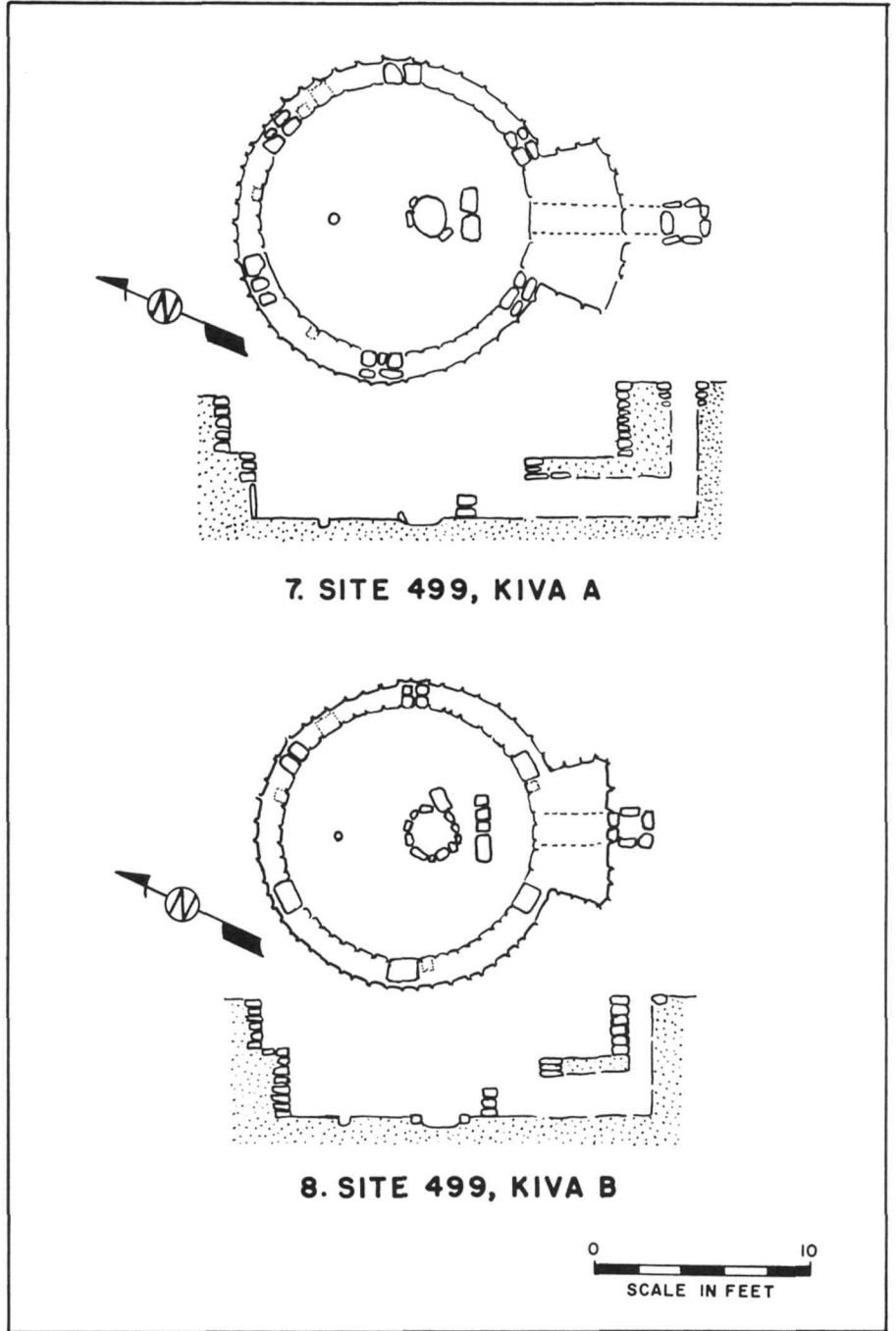


FIGURE 13. Postulated kiva development.

However, the structure differs from Step 4 in having an ashpit and a very shallow southern recess, and in lacking both a permanent deflector and partial lining of the banquette and kiva wall. It actually seems to fall between steps 3 and 4.

Kiva B at Site 875 is presumed to date between A.D. 950 and 1000. Despite appearing to be somewhat earlier than the protokiva and Kiva B at Site 866, this subterranean unit is felt to represent a more advanced architectural form than those due to the presence of the southern recess. Obviously rate of change in kiva design and construction was irregular. This would especially have been true in cases where older structures were remodeled or redecorated without the incorporation of all of the newer elements which might have been available at the time, and could have created a situation such as this where an earlier kiva shows more advanced elements than do structures thought to be more recent. Potsherds from the kiva fill are characterized by a predominance of Cortez Black-on-white, Mancos Black-on-white, and Mancos Corrugated.

4. Kiva A at Site 866 (Figure 11) follows in our sequence. It shows an advance over the previous form in that it has a better defined southern recess with straight sides and a curved rear wall giving the kiva a "keyhole" outline. Its walls are unlined but the banquette is edged with masonry. It contains a tunnel—shaft ventilator, six masonry pilasters, a combination ashpit—firepit, a sipapu, two banquette niches, and probably had a slab deflector.

← FIGURE 13. Postulated kiva development.

7. SITE 499, KIVA A. *Features*: Circular with banquette; both kiva wall and banquette have slab and masonry lining; vertical slabs confined to bases of wall and banquette. Southern recess; curved rear wall, lined with masonry. Horizontal tunnel-vertical shaft ventilating system enters kiva beneath southern recess; entrances to both tunnel and shaft lined with masonry, remainder of passage unlined. Vertical shaft some distance back of southern recess. Firepit; unlined, two stones set in rim. Sipapu cut into rock floor. Four banquette niches; one between pilasters 2 and 3, one between pilasters 3 and 4, and two between pilasters 4 and 5. Coursed masonry deflector. Six masonry pilasters on banquette; each is narrower at the front than at the rear and is set back from the front edge of the banquette. *Observations*: In an earlier stage this kiva had a passage which led from it possibly to an adjacent surface room. In its final form, as described here, Kiva A was connected by passages to a tower on the west and to Kiva B on the south.

8. SITE 499, KIVA B. *Features*: Circular with banquette; both kiva wall and banquette lined with masonry. Horizontal tunnel-vertical shaft ventilating system enters kiva beneath southern recess; passage unlined except for the two entrances and part of the vertical shaft. Vertical shaft adjoins rear wall of southern recess and consequently is stone lined on its north side. Firepit; lined with small stones. Sipapu cut into caliche and bedrock. Four banquette niches; one adjacent to Pilaster 2, one between pilasters 3 and 4, one between pilasters 4 and 5, and one adjacent to Pilaster 6. Coursed masonry deflector. Six masonry pilasters on banquette; each is slightly narrower at front than at the rear and is set back a little from the edge of the banquette. *Observations*: Kiva B is connected to Kiva A by an underground passage.

Compared to steps in the development of the Mesa Verde kiva (Lancaster *et al.*, 1954: 57-58), this kiva is similar to Step 4 despite its lack of wall and banquette linings. Kiva 1 at Site 16 is set forth as an example of Step 4. It has a tree-ring date of A.D. 1074. Kiva A appears to be the latest kiva at Site 866 and has been dated A.D. 1060 by tree-rings. Undoubtedly it was used for at least a few years after that date. A terminal date of about 1070 is suggested for the site. The pottery from the kiva fill is primarily Mancos Black-on-white and Mancos Corrugated.

5. The second stage of Kiva A at Site 875 (Figure 12) follows. During the digging and stabilization of this kiva it was apparent that the chamber had been renovated at least three times. Sufficient evidence to reconstruct the second stage was recovered. Its walls and banquette are lined with masonry, and it has six stone pilasters, a tunnel—shaft ventilator, an ashpit, a firepit, a slab deflector, a sipapu, and a banquette niche. It is unusual in not possessing a standard type of southern recess; however, the banquette does not completely encircle the structure. There is a gap in it extending to the floor between the two southern pilasters. Therefore, the floor of the kiva has a “keyhole” plan.

This kiva also correlates best with the Step 4 type of kiva (Lancaster *et al.*, 1954: 57-58) even though it lacks a true southern recess and has an ashpit in addition to a firepit. The masonry lining is of good quality. It is presumed that this feature served as a ceremonial room during the period between A.D. 1000 and 1047.

6. Kiva A at Site 875 in its final form (Figure 12) comes next. It is very similar to the second stage of the kiva, but most of the kiva wall was relined with a layer of masonry, the pilasters were made slightly wider, and a normal type of southern recess was added.

This last stage of Kiva A at Site 875 comes closest to fitting the description of Step 4 (Lancaster *et al.*, 1954: 57-58) than do the two aforementioned kivas which also have been compared with Step 4. It has a tree-ring date of A.D. 1047, and probably was occupied as late as 1075. The ceramic complex taken from the kiva fill features Mancos Black-on-white, Mancos Corrugated, and McElmo Black-on-white.

7. In our scheme, Kiva A at Site 499 (Figure 13) is next in order. It is a well constructed unit having stone linings on the wall, banquette, and southern recess. The bases of both the kiva wall and the banquette contain a number of large vertical slabs. Between and above them the masonry is of good quality. There are six masonry pilasters, a tunnel—shaft ventilator, a masonry block deflector, a firepit, sipapu, and four banquette niches. Two passages lead from the chamber; one to a tower, the other to Kiva B.

With the exception of the location of the vertical shaft of the ventilator, this unit compares with the Step 5 stage of the Mesa Verde kiva (Lancaster *et al.*, 1954: 58). In this example the vertical shaft reaches the surface about two feet behind the southern recess. In typical Step 5 kivas the shaft is

immediately behind the rear wall of the recess and is an integral part of the kiva. Site 499 is believed to have been occupied between approximately A.D. 1100 and 1150. This is the earlier of the two kivas at the site and consequently is presumed to date in the early 1100's. Potsherds from both this kiva and Kiva B, described below, consist mainly of Mancos Black-on-white, Mancos Corrugated, McElmo Black-on-white, Mesa Verde Black-on-white, and Mesa Verde Corrugated.

8. The last kiva in this series is Kiva B at Site 499 (Figure 13). Its walls, banquette, and southern recess are lined with stone masonry, some of which is in neat courses. Within it are six masonry pilasters, a masonry block deflector, a firepit, sipapu, and four banquette niches. The vertical shaft of the tunnel—shaft ventilator is adjacent to the rear wall of the southern recess, so that the back side of the south wall of the southern recess becomes the inner side of the north wall of the shaft. The rear wall of the southern recess is straight so that the ventilator shaft could be constructed against it. In the earlier kivas the rear walls of the recesses were curved, roughly parallel to the curvature of the kiva proper. In those the vertical shaft always was located some distance behind the southern recess. An underground passage connects this kiva with Kiva A.

The structure closely resembles Step 5 in Mesa Verde kiva evolution (Lancaster *et al.*, 1954: 58). The Sun Point Pueblo kiva is considered characteristic of this step and is dated late in the A.D. 1100's. Kiva B at Site 499 relates to the later period of the village's history and probably may be dated between 1125 and 1150.

Aside from the protokiva, which originally was a pithouse, the proposed sequence reflects a fair correlation between architectural form and the ages of the kivas as determined from tree-rings and the dated ceramic complexes found at the sites. Kiva B at Site 875 is not in proper chronological order, but a possible explanation for this has been given above.

The protokiva does not correspond with any of the steps proposed by Lancaster and Pinkley (Lancaster *et al.*, 1954: 55-61); however, the other seven structures may be equated with steps 3, 4, or 5 even though they seldom correspond exactly. Steps 3 and 4 are ceremonial rooms of Pueblo II times. Our kivas assigned to these steps are in Pueblo II villages. Two of our kivas are in an early Pueblo III pueblo. They are similar to Step 5 structures, which are said to be characteristic of the early Pueblo III period.

The orientation of the seven kivas, determined along the ventilator-firepit-sipapu axis, varies only 16 degrees, ranging from North 10° West to North 26° West. The protokiva is oriented North 2° East, well outside this range.

POTTERY

The principal types of pottery made and used during the combined histories of the four villages, their postulated ranges in time, and their groupings into complexes are charted in Figure 14. A total of 88,479 classifiable potsherds were obtained from the excavations of the villages. 83,068, or 94 percent, consist of Cortez Black-on-white, Mancos Corrugated, Mancos Black-on-white, McElmo Black-on-white, Mesa Verde Corrugated, and Mesa Verde Black-on-white, and undecorated sherds of these white wares. These six types represent the most diagnostic pottery types in the area during the time increment involved. Seventy-seven of the complete or restorable vessels out of a total of 82 collected are assignable to one or another of these types.

The remaining six percent of the potsherds include small amounts of several locally produced types. Gray wares include Chapin Gray, Moccasin Gray, and Mancos Gray. Two additional black-on-whites, Piedra Black-on-white and Chapin Black-on-white, are represented. Red wares are exemplified by Abajo Red-on-orange, Bluff Black-on-red, and La Plata Black-on-red. Seventy-four intrusive sherds manifest contacts with the Kayenta area to the southwest and the Chaco Canyon region to the southeast. Represented in the collection are Sosi Black-on-white, Tusayan Black-on-red, Citadel Polychrome, Tusayan Polychrome, Escavada Black-on-white, Gallup Black-on-white, Wingate Black-on-red, and Reserve Indented Corrugated, Smudged Interior Variety.

In Figure 14 it will be noted that there is a correspondence in the assigned ages of the pottery types found at each site, and that the complexes identified at each site fit into a proper chronological arrangement. The few reliable tree-ring dates from the sites and evidence based upon architectural elements and types of artifacts further support this sequential ordering of the sites. In the chart, the temporal spans assigned two types, McElmo Black-on-white and Mesa Verde Black-on-white, are given earlier initial dates than proposed by some workers for reasons which have been stated earlier (Lister, 1964: 56-57; Lister, 1965: 66-67). The dashed lines in the chart indicate our adjustments of these dates. Hayes (1964: 65) has a table correlating the various systems of Mesa Verde pottery classification and the dates assigned the types.

At each village a small collection of sherds was recovered which, according to the dates generally associated with them, are earlier than the age proposed for the pueblo. These sherds include the types listed above which make up the six percent which remains of the grand total after accounting for the six major types at the sites. Most of these gray and red wares are believed to be characteristic of Basket Maker III and Pueblo I periods, but it has been suggested (Lister, 1964: 49-50, 51, 56) that some of these types are poor time markers

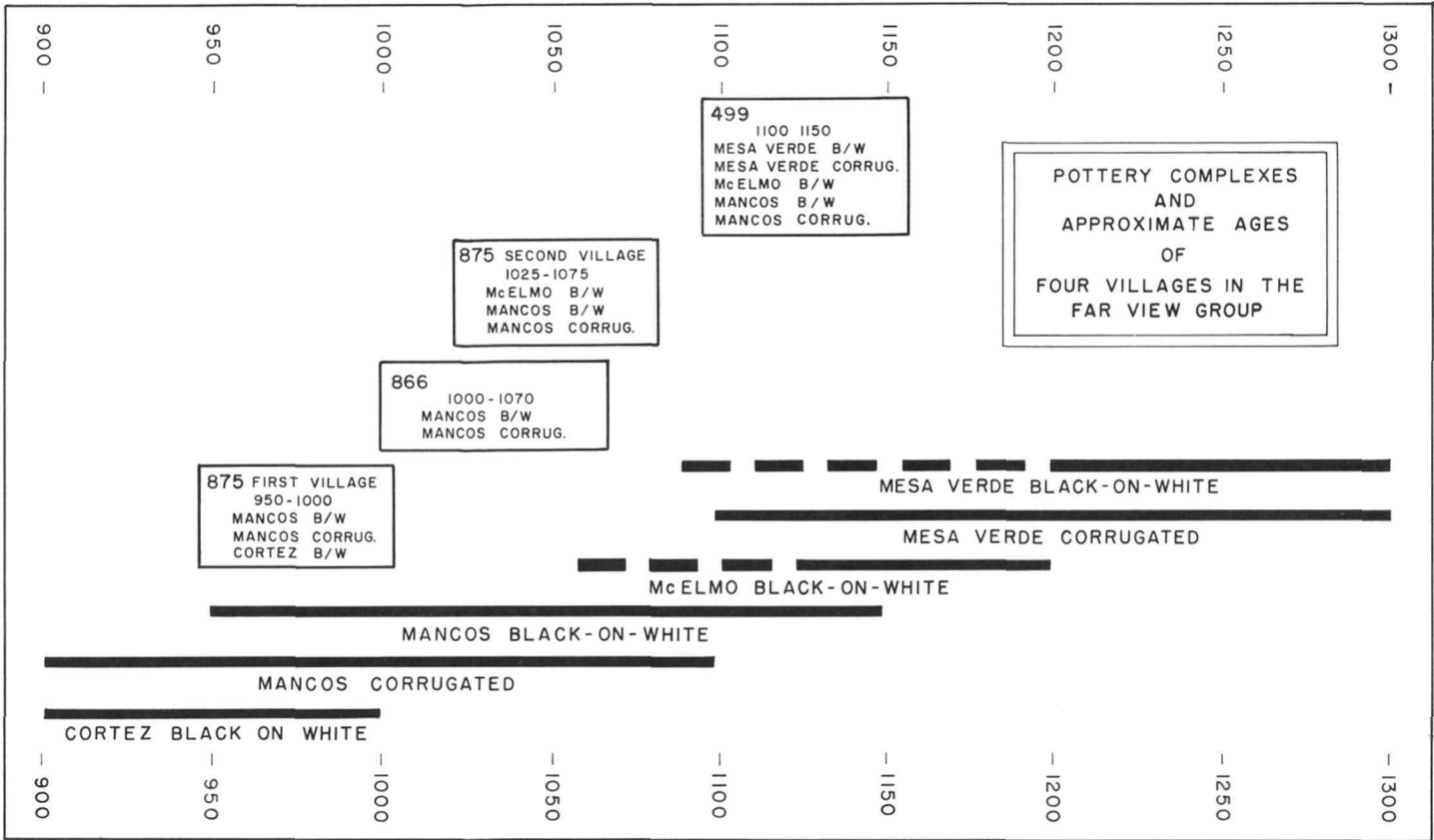


FIGURE 14

for it is not uncommon to find them in Pueblo II and even Pueblo III contexts. I do not mean to imply that whenever an earlier type of pottery is found in a later village that the age of the pottery need be adjusted. Obviously, the retention of heirloom pieces, uneven rate of stylistic change, drift from refuse of earlier villages in the vicinity, and other reasons frequently resulted in these situations. Nor do I infer that these pottery types are not characteristic of the time or culture stage to which they are assigned. However, when the occurrence of so-called early gray and red types frequently are noted in later villages over a widespread area their period of manufacture should be reexamined and adjusted if warranted.

Florence Lister has analyzed all of the pottery from the pueblos. She generally has followed the system of classification described by Abel (1955), but has incorporated some of the revisions set forth by Rohn (1959). A restatement of the characteristics of the various types is not necessary for reasons have been given (Lister, 1964, 1965, this volume) wherever our classification has differed from that of Abel. Also, Hayes (1964) has just published up-to-date descriptions of most of the types of pottery found in the Mesa Verde area in his report upon the archaeological survey of Wetherill Mesa. Most of his descriptions and statements agree with our beliefs, although each pottery analyst will vary somewhat when it comes to separating sherds from a continuum such as exists in the black-on-whites and the corrugated types at Mesa Verde.

Despite the fact that large assortments of potsherds and some whole vessels were obtained from each site, and that they have been studied in detail, few new or divergent ideas about Mesa Verde ceramics can be derived from them. In most respects our findings simply substantiate those previously set forth, and reveal the pottery of sites 499, 866, and 875 to be typical of Mesa Verde during Pueblo II and early Pueblo III times. Results of the pottery analysis, however, have contributed significantly to the dating of the sites, to establishing details of village growth and abandonment, and to demonstrating relationships between these sites and others in the Mesa Verde as well as elsewhere in the San Juan drainage.

We feel that the pottery complexes at the four neighboring ruins illustrates very well the succession of Mesa Verde black-on-whites from Cortez to Mancos, to McElmo, to Mesa Verde, and that each of these is a valid type. We have questioned (this volume: 35) the present classificatory system for certain gray wares and the validity of gray wares as time markers. If only neck and rim sherds of such types can be used to separate them, and the body sherds are so similar that they cannot be distinguished between, classification must be based upon whole vessels. Most potsherds of these types cannot be segregated. Reasons have been given (Lister, 1965: 56-57; Lister, 1965: 66-67) for adjusting the time range of several Mesa Verde types to better reflect the contemporaneity and/or overlapping of types, rather than adhering strictly to

the proposed ages of pottery types determined from a series of tree-ring dates of sites in which the pottery has been found.

Some of the basic similarities existant between Anasazi pottery of the San Juan drainage during Basket Maker III, Pueblo I, and Pueblo II have been reiterated in our Mesa Verde publications (Lister, 1965: 62-65; this volume: 37-39) and especially in the comprehensive discussion of San Juan ceramics by Florence Lister in the report upon the Coombs Site at Boulder, Utah (Lister and Lister, 1961: 32-90). Throughout the area, the history of ceramics ran the same general course. Certain technological aspects varied from place to place, but the presence of widespread stylistic traditions during those times resulted in an apparent long, corresponding sequence in the pottery craft of Mesa Verde, Chaco Canyon, and the Kayenta district. It is particularly difficult to distinguish between varieties of this early pottery from Mesa Verde and Chaco, which has made it hard to conclusively demonstrate trade relationships between the areas or whether Chaco colonists ever made pottery in the Mesa Verde or Mesa Verde migrants produced their wares in Chaco. Additional confusion in dealing with this ceramic complex has been created by calling some identical pottery by several names. In Pueblo III times, regional specializations became crystallized among the San Juan Anasazi, and pottery as well as most facets of material culture became highly distinctive. Pottery from sites in the Mesa Verde in these times shows very few examples of intrusive or trade pieces. When they do occur they show contacts with other districts of the San Juan.

Pottery was a most important part of the cultural inventory of these Anasazi people. To produce the number of vessels represented by the quantity of potsherds found at the four villages must have required a large amount of time and the expenditure of considerable energy. Much more than just shaping and decorating the clay was involved. Suitable clay and tempering material had to be located, the clay had to be properly processed, vessels had to dry before being decorated and fired, and suitable fuel and conditions were necessary for the firing to be successful. Pottery vessels were fashioned by the coiling technique. When desired the coils were obliterated by smoothing and scraping while the clay was still plastic. At all sites an assortment of small, water-worn pebbles, believed to have been used in smoothing and polishing clay vessels, was obtained.

If we assume that pottery making was a responsibility of women, as it is among modern Pueblo Indians, it certainly added a large chore to the busy life of the Anasazi housewife. However, the importance of pottery to the Anasazi must have been worth the effort. It was used for preparing, serving, and storing foods; water was carried and cooled in it; seeds for future planting and other objects were placed in it for safekeeping, it was used in ceremonies; and vessels probably containing food and drink were placed with the dead. Children's toys, pipes, and ornaments also were made of clay.

ARTIFACTS AND ORNAMENTS

Like pottery, the artifacts of stone and bone from our excavations tend to support previous concepts about the types of tools used during Pueblo II and early Pueblo III in the Mesa Verde. An assortment of artifacts adequate enough to provide us with insights into several aspects of culture, and to allow for comparison with comparable remains from other sites, was obtained. However, there is an almost complete absence of perishable remains, which places limitations upon cultural reconstruction. Some of the statements which follow, therefore, draw upon information about perishable materials gained from other sites in the vicinity.

Analysis of the implements used in grinding foodstuffs shows a marked preference for trough type metates in the earlier Pueblo II villages, the first village at Site 875 and Site 866, and a shift to utilization of the flat slab type in the two later pueblos, the second occupation at Site 875 and Site 499. At Site 499, an early Pueblo III community, slab metates outnumbered the trough type better than seven to one. Furthermore, at Site 499 the practice of setting slab metates in mealing bins is exemplified. There is a correspondence between the trough metate and the shorter one-hand type mano, and the slab metate and a longer two-handed mano which reached from one edge to the other of the metate surface. Two examples of crude mortars, one with an accompanying pestle, were found in Pueblo II villages.

The frequency of metates and manos in all sites clearly reflects the importance of ground vegetable food in the diet of the Indians. Corn, or maize, undoubtedly was the principal crop. Most of it must have been consumed after it had matured, been shelled from the cob, and ground to a meal upon metates. However, some "green" corn likely was eaten directly from the cob when the ears first ripened. Other plant products, both domesticated and indigenous, probably were processed on metates. Dried squash and beans may have been pulverized for certain dishes, and certainly numerous kinds of seeds, nuts, leaves, and possibly dried meat were crushed upon these milling tools. It further is not unlikely that metates and manos were brought into use from time to time to pulverize pottery clay and tempering materials. Mortars do not appear to have been popular.

The variety of uses to which grinding implements were placed suggests that Anasazi women spent a considerable amount of time each day kneeling behind

a metate and monotonously propelling a mano back and forth upon its surface. A room in Site 499 was devoted specifically to milling operations, and probably was built so that several women could chat together while engaged in lengthy, laborious tasks.

Other artifacts in our collection associated with food procurement and preparation are not numerous. Two specimens resemble stone hoe blades and could have been used for agricultural activities. There also are fragments of three slender, well-polished blades, identified as *teamahias*, which may have served as planting, cultivating, or weed cutting tools. However, many *teamahias* are so well shaped and polished that their use as skinning knives or for ritual purposes have been suggested (Reed, 1958: 148-149). Their presence in the Mesa Verde is said to begin in Pueblo II (Watson, in Lancaster *et al.*, 1954: 4). Hoe blades and *teamahias*, if they were used as agricultural implements, must have been attached to wooden handles.

Stone projectile points, which can be related to hunting activities, are almost a rarity in Mesa Verde sites. Earl Morris (1939: 125) in attempting to account for a similiar situation in the La Plata District, which may apply to the Mesa Verde as well, points out that arrow foreshafts of hard wood were more numerous than stone tipped foreshafts in all periods. Thus, a small number of arrowpoints is not necessarily expressive of a limited use of arrows. Of the few projectile points collected, most are small, side-notched specimens, a type stated to occur repeatedly in Pueblo II — Pueblo III times (Brew, 1946: 233; O'Bryan, 1950: 109-111). The use of snares, traps, throwing sticks, clubs, and rocks also must have played their part in taking game.

Cutting tools, embracing chipped knives and unretouched stone flakes, were used to skin and butcher game and to aid in gathering and processing vegetal foods. Stone scrapers likewise may have proven useful in these activities. Pounding implements, such as specimens identified as pecking stones, hammers, and even axes may have been useful in breaking apart sections of animal carcass, cracking large bones, shelling nuts, and other tasks connected with food processing.

The important role of pottery in preparing, serving, and storing food has been mentioned previously. Certainly basketry, although not represented at our sites, was extensively utilized for transporting and storing foodstuffs. Bone tools, thought to have served in basket weaving, were found at all sites.

No remains of clothing were recovered hence inferences as to the probable use of deerskin robes, turkey feather or woven cotton blankets, and woven yucca fiber sandals by both sexes, breech cloths and kilts by males, and pubic aprons by females must be drawn from other ruins of comparable age where such items have been found. A few implements used in preparing clothing were obtained. Bone awls, for piercing hides in the sewing process, were numerous. Cutting tools consisted of stone knives and flakes. Stone scrapers, fleshers, rubbing stones, and perhaps *teamahias* were used in tanning hides.

Ornaments were scarce, a situation that previously has been noted for Mesa Verde sites (Lancaster and Pinkley in Lancaster *et al.*, 1954: 66). Only two definitely were associated with burials; a few others were found in the refuse and in room and kiva deposits. Pendants were most numerous. Three rectangular ones, two shaped from potsherds and one of turquoise, one spherical specimen of stone, and one circular stone pendant were recovered. A polished piece of lignite may represent an unfinished pendant. Two stone disc beads and several bird bone tubes, which may have served as beads, are in our collection. Fragments of five bracelets, made by cutting the center from a *Glycymeris* shell, were found at Site 875. Six lapstones, presumed to have served as fine abrading stones for shaping and polishing beads, pendants and the like were recovered. Five of them came from kivas suggesting that the fashioning of jewelry may have taken place in the ceremonial chambers. Ornaments may have been worn only on special occasions and perhaps by a few respected individuals. One stone drill, suitable for drilling holes in beads and pendants, was found.

Artifacts for heavy duty cutting and pounding are represented by axes and hammers, which originally were hafted to wooden handles, and hand held instruments such as pecking stones. Axes exhibit two forms, based upon the arrangement for hafting. One has two notches in opposite edges and is termed notched, the other has a groove which completely encircles the axe and is called full grooved. It has been shown that the notched axe preceded the full grooved type, and that the change from one to the other occurred about the beginning of Pueblo III (O'Bryan, 1950: 108-109; Woodbury, 1954: 35-37; Reed, 1958: 160).

A gradual switch in preference of types is apparent in the collection from our sites; however, both types were found at all sites. The earlier villages yielded a much larger proportion of notched axes, but Site 499, the early Pueblo III settlement, had an almost equal number of both types. Although axes were used primarily for chopping, the battered and dull nature of many examples indicates their use for pounding, stoneworking, and other rough uses.

To judge from the few hammers we recovered, they were notched, full grooved, and three-quarter grooved. As was the case with axes, preference for the notched type apparently preceded the use of the grooved varieties. Any number of jobs requiring pounding could have been performed by these heavy, wooden-handled hammers. However, stone quarrying and the shaping of rough slabs of sandstone into building blocks probably were the primary uses of such implements.

Pecking stones were fairly numerous at all sites. They were grasped in the hand and were used for pounding and pecking. Most are made of ovoid, water worn cobbles and have been further shaped only through use. Their scarred edges reflect the uses to which they were placed. Implements of this sort were employed when blows lighter than those delivered by a hafted axe or hammer

were needed. Such jobs as the dimpling of building stones, the shaping of various stone tools, the roughening of the surfaces of metates and manos, the processing of hides, and the breaking of large animal bones likely were performed by pecking stones.

Rubbing and abrading stones of several types and of various kinds of materials were collected. They are shaped almost entirely by wear and are prepared from both water worn pebbles and irregular chunks of rock. One or more surfaces of these artifacts have been smoothed through use. The coarse grained specimens would have been useful in grinding the faces of building stones, shaping tools of stone, bone, or wood, roughing out ornaments of various sorts, and other jobs where an abrasive tool was needed. Fine grained rubbing stones may have served as floor polishers, plaster smoothers, for dressing hides, and the like. A few of these have one battered end and obviously were used for both rubbing and pounding.

All ruins excavated provided fair collections of bone artifacts. Various kinds of awls, made of mammal and bird bone, were common. They were fashioned from a shaft or a splinter of bone and had been initially shaped by an abrading stone. The points of most specimens had been worn smooth and were polished through use. Their basic use undoubtedly was in sewing. A few stubby examples have series of parallel grooves near their points, and have been identified as weaving tools following Kidder (1932: 225-227).

At Site 866 there were six examples of flat circular sandstone discs which we have called jar lids. They are of the right size to have fit over the tops of pottery jars. On occasion, such jars were placed beneath room floors to form a small storage cist and were covered by stone lids.

FUNERAL PRACTICES

A few cultural practices may be deduced from a review of the funerary practices at the villages. However, it must be kept in mind that our series of burials is small and that preservation generally was poor.

Twenty-five primary burials and an assortment of secondary and incomplete burials were recovered. An adult male skeleton, found on the floor of one of the kivas at Site 499, obviously was not a normal burial (Lister, 1964: 37, 79). The skeleton was in an unnatural position, had a bone awl in its rib case, and the head had been crushed by large rocks. All other primary burials were found in trash heaps.

There is more diversity than uniformity in those interments which were intact enough for observation of burial customs. At all sites the majority of the burials were oriented along axes ranging between northwest-southeast and north-south; however, the bodies had been interred with their heads at either end of the grave pit. A few burials were oriented east-west, head to the west. Skeletons were found flexed, semiflexed, and extended, and were on their backs, sides, or face down. Offerings of pottery vessels accompanied all but two of the adult burials. The majority of the child and infant burials had no associated objects, and when they did the offering usually consisted only of several large potsherds.

Three fairly complete dog skeletons were found. Two were in refuse deposits and the third rested upon the floor of a kiva. One of the dogs, found in the trash of Site 499, was purposely buried for it was accompanied by a pottery vessel.

From the few human burials, it is indicated that interment in simple grave pits in the village refuse deposits was common practice. Orientation of the corpse was most frequently in a general north-south direction, but position of the body varied. Adults normally had burial furnishings consisting of one or more pottery vessels, but this practice was seldom extended to infants and children. Ornaments and artifacts, other than pots, were rarely placed with the dead. The secondary burials at Site 875, which we believe took place when the builders of the second village encountered these remains of the deceased inhabitants of the first village, show a feeling of respect or reverence for the decedents. The presence of the unusual human burial upon the floor of one kiva, and a dog skeleton in another, may have interesting implications. Such occurrences are not infrequent at Anasazi sites and may be found to be associated with socio-religious ceremonies related to the abandonment of a kiva. A complete compilation of instances of such finds, from the published data, might be revealing. Anthropometrical data and observations upon anomalies and pathologies of the skeletal materials are presented in the following section of this paper.

ANTHROPOMETRICAL DATA AND OBSERVATIONS UPON HUMAN SKELETAL MATERIAL

WILLIAM D. WADE AND GEORGE J. ARMELAGOS

This account of the human skeletal remains from sites 499, 866, and 875, upon which observations and measurements can be made, has been prepared jointly by the authors. William D. Wade wrote the descriptions and measured the remains and George J. Armelagos studied the pathological and anomalous conditions of the specimens. It is realized that we are dealing with a small series of skeletons and that these measurements and observation will only prove significant when more comparative data from the Mesa Verde, such as has been reported upon recently by Erik Reed (1965: 31-45) and is anticipated from the analysis of skeletal remains from the Wetherill Mesa Project, are made available.

Following are descriptions and observations of the series of skeletons from the three sites. Cranial and post-cranial measurements are presented in Tables 18 and 19.

SITE 499

BURIAL 1. KIVA B

Sex: Male.

Age: Undetermined; mature.

Stature: 156.0 cm.; determined from femur and tibia.

Condition: The calvarium is badly fragmented but the mandible is intact. The post-cranial skeleton is nearly complete and in fair to good state of preservation.

Pathologies and anomalies: The only apparent pathologies are impacted third molars in the mandible, crowding of the mandibular canines by the first premolars and lateral incisors, and a pierced olecranon fossa of the right humerus.

BURIAL 6. SQUARE JL8, REFUSE

Sex: Male.

Age: 35-39; determined from pubic symphyses.

Stature: Undetermined; no complete long bones.

Condition: This burial consists of a few fragmentary ribs, vertebrae, scapula, sacrum, innominates, and a left calcaneous and talus. No measurements are possible.

Pathologies and anomalies: There is slight lipping of the lateral margins of the body of the sacrum and on the posterior portion of lumbar one and two.

TABLE 18. *Cranial measurements.*

SITE NUMBER	499			866						875		
	BURIAL NUMBER	1	7	10	3	4	5	8	10	11	1	Misc. Rm. III
MEASUREMENTS												
Maximum length	—	—	16.2	17.4	16.9	17.5	17.3	—	16.7	15.9	16.3	18.4
Maximum breadth	—	—	—	14.6	14.5	14.4	14.1	—	13.3	14.4	14.0	13.6
Basion-bregma height	—	—	—	14.6	13.9	14.0	14.1	—	13.0	13.6	13.1	14.6
Minimum frontal	—	13.1	13.9	—	9.7	9.9	9.2	9.1	8.7	8.9	8.4	9.5
Bizygomatic breadth	—	—	9.5	9.2	13.2	7.2	—	—	—	12.4	12.1	13.1
Nasion-prosthion height	—	—	6.6	—	7.2	9.8	—	7.5	—	6.7	6.9	6.7
Basion-nasion diameter	—	—	10.5	—	10.2	—	9.8	9.5	9.5	9.6	9.6	10.5
Basion-prosthion diameter	—	8.9	9.9	—	9.8	9.1	—	9.0	—	9.5	9.6	9.7
Nasal height	—	—	4.8	—	5.2	5.2	—	5.4	—	4.8	5.1	4.8
Nasal breadth	—	—	2.4	—	2.6	2.6	—	2.7	—	2.2	2.3	2.4
Inter-orbital breadth	—	—	2.4	—	2.4	2.8	—	2.2	2.4	1.7	2.0	2.3
Mean diameter of foramen magnum	—	3.0	2.6	—	3.2	3.2	—	2.6	3.0	3.1	2.8	3.1
Maximum cranial circumference	—	—	—	50.4	50.1	50.3	—	—	47.8	47.7	47.0	50.9
Gnathion-nasion height	—	—	—	—	—	—	—	—	—	11.0	11.3	—
Bicondylar breadth of mandible	11.1	—	—	—	—	—	—	—	—	10.7	10.8	—
Bigonial diameter of mandible	9.6	—	—	—	—	—	—	—	—	9.2	10.1	—
Height of ascending ramus (L)	6.1	5.7	—	—	—	6.9	—	—	—	5.5	6.2	—
Minimum breadth of asc. ramus (L)	4.1	4.0	—	—	—	3.9	—	—	—	4.2	4.1	—
Cephalic index	—	—	—	83.9	85.8	82.3	81.5	—	79.6	90.6	85.9	73.9
Height-length index	—	81.4	85.8	—	82.2	80.0	81.5	—	77.8	85.5	80.4	79.3
Height-breadth index	—	—	—	—	95.9	97.2	100.0	—	97.7	94.4	93.6	107.4
Fronto-parietal index	—	—	—	63.0	66.9	68.8	65.2	—	65.4	61.8	60.0	69.9
Facial index	—	—	—	—	—	—	—	—	—	88.7	93.4	—
Upper facial index	—	—	52.8	—	54.5	—	—	—	—	54.0	57.0	51.1
Cranio-facial index	—	—	—	—	91.0	—	—	—	—	86.1	86.4	96.3
Nasal index	—	—	50.0	—	50.0	50.0	—	50.0	—	45.8	45.1	50.0

TABLE 19. *Post-cranial measurements.*

SITE NUMBER	499						866												875	
BURIAL NUMBER	1		7		10		4		5		6		8		10		11		1	
MEASUREMENTS	Left	Right	Left	Right	Left	Right	Left	Right	Left	Right	Left	Right	Left	Right	Left	Right	Left	Right	Left	Right
Humerus length	29.4	29.1	—	—	27.0	27.8	—	—	30.5	30.5	30.1	30.2	27.9	—	—	27.6	29.3	29.5	28.8	29.1
Humerus head dia.	4.0	4.0	—	—	—	3.7	—	—	4.5	4.7	3.6	3.5	3.9	—	—	3.9	4.0	4.1	3.7	3.8
Humerous Prox. end breadth	4.5	4.6	—	—	—	4.2	—	—	5.2	—	3.9	3.9	4.5	—	—	4.4	—	4.6	4.2	4.1
Humerus dist. end breadth	5.6	5.6	—	—	4.8	5.4	—	—	6.0	—	5.9	5.7	5.2	—	—	—	—	5.3	5.3	5.4
Ulna length	23.9	23.9	—	—	—	21.5	—	—	26.2	—	25.5	—	—	—	—	—	—	—	24.4	24.7
Ulna shaft length	21.6	21.5	—	—	—	18.9	—	—	23.4	23.6	22.7	—	—	—	—	—	21.2	—	21.6	21.8
Trochlear notch height	2.3	2.3	—	2.1	—	2.1	2.1	—	2.4	—	2.2	—	—	—	—	—	—	—	2.3	2.1
Ulna dist. end breadth	1.8	1.8	—	—	—	1.6	—	—	2.1	—	1.9	—	—	—	—	—	1.7	—	1.6	1.7
Radius length	22.5	—	—	—	—	—	—	—	—	24.6	24.0	—	—	—	—	—	—	22.5	22.4	22.9
Radius head dia.	2.0	—	—	—	—	1.8	—	—	2.2	—	2.0	2.0	1.9	—	—	—	—	2.0	1.9	2.0
Radius distal end breadth	2.9	—	—	3.1	—	—	—	—	—	—	2.9	—	—	—	—	—	—	2.9	2.8	2.8
Femur length	40.6	39.9	—	—	37.4	37.3	—	—	44.2	44.3	—	—	40.3	40.6	—	—	41.6	41.3	40.4	—
Femur bicondylar length	40.3	39.6	—	—	37.3	37.2	—	—	43.7	44.1	—	—	40.0	39.7	—	—	41.1	40.9	39.6	—
Sub-trochanteric dia. (A-P)	2.3	2.4	—	—	2.7	2.3	2.2	2.3	2.7	2.9	2.8	—	2.6	2.5	2.5	2.5	2.7	2.6	2.9	—
Sub-trochanteric dia. (M-L)	2.5	2.5	—	—	2.8	2.6	2.5	2.5	3.2	3.0	2.7	—	2.3	2.1	2.4	2.3	2.5	2.4	2.4	—
Epicondylar width	7.3	7.3	—	—	6.5	—	—	—	8.1	8.3	7.8	—	—	—	—	—	6.9	6.8	6.7	—
Tibia length	33.6	33.4	—	—	30.4	30.3	—	—	37.0	37.6	—	—	33.7	33.7	—	—	33.1	—	34.2	34.4
Tibia max. dia. of prox. end	7.0	7.0	—	—	6.1	—	—	—	7.7	8.0	—	—	—	—	—	—	6.4	6.4	6.2	6.3
Fibula length	33.2	32.5	—	—	—	29.5	—	—	35.2	35.4	—	—	33.1	—	—	—	31.8	—	33.2	—
Innominate height	18.4	—	19.5	—	—	18.2	—	—	20.9	21.0	—	—	—	—	18.8	18.7	—	—	19.4	19.4
Innominate breadth	14.1	—	—	—	—	—	—	—	—	14.8	—	—	—	—	—	13.9	—	—	—	14.1
Sacrum height	#	10.4	#	9.5	#	10.4	#	—	#	10.1	#	—	#	—	#	8.4	#	9.0	#	11.3
Sacrum breadth	#	—	#	11.4	#	—	#	10.2	#	12.0	#	—	#	11.7	#	11.5	#	11.2	#	10.9
Clavicle length	14.3	14.5	—	12.9	11.8	—	—	—	16.0	—	—	—	—	—	—	12.5	13.6	13.5	13.5	—

BURIAL 7. SQUARE KL6, REFUSE

Sex: Female.

Age: 35-40; determined from suture closure.

Stature: Undetermined; no intact long bones.

Condition: The cranial and post-cranial skeleton are badly fragmented. few measurements are possible.

Cranial morphology: The skull has a slight median brow ridge, medium post-orbital constriction, no gabbling of the parietals, fairly pronounced mastoid development, medium supramastoid crests, a small occipital torus, slight prognathism, and medium shovelling of the incisors.

Pathologies and anomalies: There appears to be a medium degree of cranial deformation. There also is extreme wear on all of the teeth present and a large cavity on the lingual and occlusal surfaces of the right third molar.

BURIAL 8. SQUARE KL7, REFUSE

Sex: Undetermined.

Age: 2-6 years.

Stature: Undetermined.

Condition: Skull displays pronounced post-burial deformation. Post-cranial skeleton very fragmentary.

Pathologies and anomalies: None noted.

BURIAL 9. SQUARE KL7, REFUSE

Sex: Undetermined.

Age: 15-21 months.

Stature: Undetermined.

Condition: Skull displays pronounced post-burial deformation. Post-cranial skeleton very fragmentary.

Pathologies and anomalies: Skull shows evidence of spongy hyperostosis. The superior medial portion of both orbits display moderate pitting. The central incisors are fused.

BURIAL 10. SQUARE LL7, REFUSE

Sex: Male.

Age: 45-50; determined from suture closure.

Stature: 152.1 cm.; determined from femur and tibia.

Condition: This burial consists of a nearly complete cranial and post-cranial skeleton in fair condition.

Cranial morphology: The skull has a medium divided brow ridge, a slight forehead slope, medium post-orbital constriction, no gabbling of the parietals, fairly pronounced mastoid development, medium supramastoid crests, a medium occipital torus, a concave-convex nasal profile, and is slightly prognathic.

Pathologies and anomalies: There are several wormian bones in the area of lambda (obscured by suture closure), a lesion on the left parietal which may have resulted from an injury which became infected before healing, and medium cranial deformation. Thoracic vertebrae eleven and twelve and lumbar one and two show slight lipping on the anterior portions of their bodies. There are dehiscences in both tympanic plates. In the maxilla, the left first molar is the only tooth present. It displays extreme and uneven wear which has exposed the dentine. The second and third molars on both the right and left sides were lost. The alveolar margins have been resorbed in these areas.

BURIALS 2, 3, 4, and 5

These burials, all from the refuse deposit, are extremely fragmentary, poorly preserved infant or child skeletons. Neither observations nor measurements are possible.

MISCELLANEOUS FINDS

Miscellaneous finds of human skeletal remains from Site 499 include the following:

Kiva B, fill: A fragmented mature calvarium which was partially reconstructed. Neither measurements nor determination of sex or age are possible. Cranial morphology—There is a slight median brow ridge, a medium forehead slope, slight post-orbital constriction, no gabbling, medium mastoid development, medium supramastoid crests, and a small occipital torus. Pathologies and anomalies—There appears to be a small

amount of cradleboard deformation in the occipital region. The frontal, parietals and occipital bones show slight osteoporotic pitting. It occurs uniformly on the frontal and parietals except adjacent to the sutures and where the temporal muscles attach. The pitting on the occipital extends to the nuchal line.

Square IL6, refuse: Disarticulated cranial fragments of a child of undetermined age, sex, or stature. Pathologies and anomalies—Both orbits show moderate spongy hyperostosis on the superior medial borders (Plate 20b). The frontal bone just above the left orbital border also shows involvement. Both parietals display moderate pitting over 40 percent of their areas, and the portion of the occipital below the lambdoid suture is similarly affected (Plate 20a). There is dehiscence in both tympanic plates.

Square IL7, refuse: Disarticulated cranial fragments of a 15-21 months old child of undetermined sex or stature. Pathologies or anomalies—There is dehiscence of the right tympanic plate. The pronounced deformation of the lambdoid region may be cradleboard deformation or posthumous.

SITE 866

BURIAL 3. SQUARE BL2, REFUSE

Sex: Undetermined.

Age: 25-30; determined by suture closure.

Stature: Undetermined; no intact long bones.

Condition: This burial consists of a partial calvarium with no dentition and no post-cranial skeleton.

Cranial morphology: The skull has a very slight median brow ridge, a slight trace of a metopic suture, a bulging forehead, a slight post-orbital constriction, a moderate degree of gabbling of the parietals, medium mastoid development, small supramastoid crests, and a fairly pronounced occipital torus.

Pathologies and anomalies: There is

a healed traumatic lesion 35 mm. above the left eye; the lesion is 9 mm. long and 4 mm. wide. There is one wormian bone in the area of lambda, numerous extra foramina, and a pronounced cradleboard deformation of the occipito-parietal region.

BURIAL 4. SQUARE BL2, REFUSE

Sex: Female.

Age: 25-30; determined by suture closure.

Stature: Undetermined; no intact long bones.

Condition: The burial is represented by a nearly complete calvarium with no mandible, and a fragmentary post-cranial skeleton.

Cranial morphology: There is a very slight median brow ridge, a slight forehead slope, a medium post-orbital constriction, slight gabbling, medium mastoid development, small supramastoid crests, a medium occipital torus, a concave-convex nasal profile, slight prognathism, and medium shovelling of the incisors.

Pathologies and anomalies: There are third trochanters present on both femora and several extra foramina in the calvarium. All teeth except the right third molar are worn to the dentine. There is a pit carie on the right third molar. The right first and second molars have caries on their occlusal surfaces. The left first molar has a large carie which has destroyed half of the tooth causing an abscess on the alveolar margin. There is medium cradleboard deformation.

BURIAL 5. SQUARE BL1, REFUSE

Sex: Male.

Age: 50-55; determined by suture closure.

Stature: 169.2 cm.; determined from femur and tibia.

Condition: This interment consists of a nearly complete cranium and post-cranial skeleton in fair to good state of preservation.



PLATE 17. Skull, Burial 5, Site 866.

Cranial morphology: The skull has a fairly pronounced median brow ridge, a slight trace of a metopic suture in the bregmatic region, a slight forehead slope, medium post-orbital constriction, no gabbling, pronounced mastoid development, medium supramastoid crests, medium occipital torus, a concave-convex nasal profile, and is slightly prognathic.

Pathologies and anomalies: The right mastoid process displays evidence of infection which has destroyed a portion of the bone. Only the canine and second premolar are present and both are worn to the dentine in the maxilla. The right alveolar margin is resorbed in the area of the premolars and molars. Near the left premolars there is evidence of infection with some resorption. In the mandible, only the right canine and premolars are present. The second premolar has a large cavity on the occlusal surface. The alveolar margins on the right (in the area of the molars) and left sides (in the area of the premolars and molars) have completely resorbed. The frontal, parietals, and occipital display osteoporotic pitting in the regions above the temporal and nuchal lines. The left parietal has a large round traumatic lesion 20 mm. in diameter (Plate 20c). The right femur displays arthritic exostosis on the lateral epicondyle. The posterior portion of the right condyle of the tibia has a large eburnation. There also is a slight exostosis in both trochanteric fossae where the external obturator muscle inserts. The right facet of the third cervical vertebra shows evidence of arthritis and the third and fourth lumbar show slight arthritic lesions on both facets and osteophytosis on the left inferior margin of the third lumbar. There is a similar lesion on the left superior portion of the fourth lumbar.

BURIAL 6. SQUARE B0, REFUSE

Sex: Male.

Age: Undetermined; mature.

Stature: Undetermined.

Condition: There is no cranium and only a partial fragmented post-cranial skeleton. The preservation is fair to poor.

Pathologies and anomalies: One lower thoracic vertebra has an anterior compression fracture of the body.

BURIAL 8. SQUARE CL2, REFUSE

Sex: Female.

Age: 30-35; determined by suture closure.

Stature: 155.6 cm.; determined from femur and tibia.

Condition: There is a nearly complete calvarium with no mandible and a badly fragmented post-cranial skeleton.

Cranial morphology: There is a very slight median brow ridge, a bulging and bossed forehead, slight post-orbital constriction, medium gabbling, medium mastoid development, small supramastoid crests, a fairly pronounced occipital torus, and a concave nasal profile.

Pathologies and anomalies: There is a pronounced cradleboard deformation. Both humeri have pierced olecranon fossae. The right frontal bone has a traumatic lesion 9 mm. in diameter. There are dehiscences in both tympanic plates. The cervical vertebrae display a lesion which may have been caused by congenital fusion. Three of the cervicals are fused in one instance and two in the other.

BURIAL 9. SQUARES CR1 and DR1,
REFUSE

Sex: Undetermined.

Age: 18-25; determined from erupted third molar.

Stature: Undetermined; no long bones.

Condition: The remains consist only of numerous cranial fragments. Preservation is poor.

Pathologies and anomalies: Slight tooth wear and a small degree of cranial deformation.



PLATE 18. Skull, Burial 1, Site 875.

BURIAL 10. SQUARE D0, REFUSE

Sex: Female.

Age: 50-55; determined from suture closure.

Stature: 151.8 cm.; unreliable, determined from humerus.

Condition: There is a badly broken calvarium, no mandible, and a partial fragmentary post-cranial skeleton. It is in very poor condition.

Cranial morphology: The calvarium has a poorly developed median brow ridge, a slight forehead slope, medium post-orbital constriction, no gabling, medium mastoid development, a fairly pronounced occipital torus, a concave-convex nasal profile, and slight prognathism.

Pathologies and anomalies: There is a small exostosis in both trochanteric fossae where the external obturator muscle inserts. There is slight osteophytosis on the body of a lumbar vertebra. All teeth present in the maxilla exhibit extreme wear. There is the beginning of resorption in the areas of the molars. Resorption of the alveolar margin in the areas where teeth are present is evidence that this individual suffered from pyorrhea.

BURIAL 11. SQUARE D0, REFUSE

Sex: Male.

Age: 45-50; determined by suture closure.

Stature: 159.9 cm.; determined from femur and tibia.

Condition: The calvarium is nearly complete and fairly well preserved; however, the mandible is absent. The post-cranial skeleton is partial and poorly preserved.

Cranial morphology: There is a small median brow ridge, a slight forehead slope, little post-orbital constriction, fairly pronounced gabling, pronounced mastoid development, medium supra-mastoid crests, a fairly pronounced occipital torus, and a concave-convex nasal profile.

Pathologies and anomalies: There appears to have been an infection of the

right mastoid sinus. The left first molar, the only tooth present in the maxilla, shows extreme wear to dentine. Resorption is complete in the regions of the second and third molars. There is slight spongy hyperostosis on the parietals and occipital above the temporal and nuchal lines. A healed traumatic lesion 11 mm. in diameter occurs in front of the coronal suture. Another healed traumatic lesion 21 mm. in diameter is present on the left parietal. There are numerous wormian bones along the lambdoid suture and several extra foramina in the calvarium. There is congenital fusion of two of the thoracic vertebrae. The right humerus has a pierced olecranon fossa, and the anterior portion of the distal end of the left humerus has an exostosis which may have been caused by trauma (Plate 20d, e).

BURIAL 14. SQUARES EL1 and E0,

REFUSE

Sex: Male.

Age: Undetermined; mature.

Stature: Undetermined; no intact long bones.

Condition: This partial skeleton consists of fragments of zygomatic and maxillary bones with a very fragmentary and incomplete post-cranial skeleton.

Pathologies and anomalies: Both humeri have pierced olecranon fossae.

BURIALS 1, 2, 7, 12, and 13

The five remaining burials and a few isolated finds of skeletal material from the trash mound of this site consist of various fragments too small for measurement, observations, or sex, age, and stature determinations. They exhibit no obvious pathologies.

SITE 875

BURIAL 7. SQUARE BL2, REFUSE

Sex: Female.

Age: 17-23; determined from pubic symphyses.

Stature: 155.6 cm.; determined from femur and tibia.



PLATE 19. Skull, incomplete burial, Room III, Site 875.

Condition: The calvarium and the post-cranial skeleton are nearly intact and well preserved.

Cranial morphology: The skull has a very slight median brow ridge, a slight forehead slope, medium post-orbital constriction, no gabbling, medium mastoid development, a concave-convex nasal profile, medium prognathism, and medium shovelling of the incisors.

Pathologies and anomalies: The most significant pathological feature is the slight osteoporotic pitting on the frontal, parietals, and occipital. The involvement is restricted to the area between the temporal lines on the frontal and parietals and above the nuchal line on the occipital. The dental wear is slight on all teeth present except the medial incisors which are worn to the dentine. The third molars are unerupted and may have been impacted. Both tibiae display squatting facets. The two scapulae exhibit pronounced teres processes. The left humerus has a pierced olecranon fossa. The left femur has a distinct third trochanter. There is fairly pronounced cranial deformation of the occipito-parietal region.

MISCELLANEOUS FINDS

Miscellaneous examples of human skeletal material from Site 875 include the following:

Room III: A calvarium and a mandible of an adult male, 35-40 years of age as determined from suture closure. Preservation is good. Cranial morphology—There is a medium median brow ridge, a medium forehead slope, medium post-orbital constriction, slight gabbling, medium mastoid development, medium supramastoid crests, a fairly pronounced occipital torus, a concave (perhaps concave-convex) nasal profile, medium prognathism, and medium shovelling of the incisors. Pathologies and anomalies—The only pathologies

present are dental. The first and second molars on the right side and the first molar on the left side are missing and there is resorption. The incisors and canines in the mandible are worn to dentine. The third molars of the maxilla are missing and the alveolar margin is resorbed. The incisors and canines are worn to dentine.

Room IX: A complete adult male calvarium without a mandible, and the shaft of a left femur. Suture closure of calvarium indicates an age of 30-40. Preservation is fair to good. Cranial morphology—There is a fairly pronounced median brow ridge, a medium forehead slope, medium post-orbital constriction, no gabbling, fairly pronounced mastoid development, medium supramastoid crests, a pronounced occipital torus, a concave-convex nasal profile, and slight prognathism. The incisors show medium shovelling. Pathologies and anomalies—There is a healed trauma above the mid-point of the right orbital border. The lesion is 15 mm. long and 7 mm. wide. There is a little pitting on the frontal bone becoming more noticeable on the parietals and occipital. The lesion is restricted to the areas above the temporal and nuchal lines. The incisors in the maxilla are worn to the dentine while the molars and premolars show only moderate wear. There are numerous wormian bones along the lambdoid suture and extra foramina in the calvarium. Cranial deformation is medium.

Room I: Room I contained the partial remains of at least six individuals. However, since they were secondary burials the bones are extremely fragmentary and in poor condition. No observations as to the age and sex or measurements are possible. No pathologies are observable.

TABLE 20. *Anomalies and Pathologies*

SITE NUMBER	499							866							875					
BURIAL NUMBER	1	6	7	9	10	Misc. Kiva B	Misc. IL6	Misc. IL7	3	4	5	6	8	9	10	11	14	1	Misc. Rm. III	Misc. Rm. IX
ANOMALIES AND PATHOLOGIES																				
Cradleboard cranial deformation			X		X	X		X	X				X	X				X		X
Wormian bones					X			X								X				X
Dehiscence of tympanic plate, temporal					X		X	X					X							
Extra foramina, calvarium									X							X				X
Spongy hyperostosis (symmetrical osteoporosis)				X			X									X				
Osteoporotic pitting						X					X									
Abcessed mastoid											X							X		
Congenital fusion of vertebrae													X							
Compact fracture of vertebrae												X								
Osteophytosis of vertebrae		X			X						X				X					
Osteophytosis of sacrum																				
Squatting facets, tibiae									X									X		
Third trochanter, femurs			X		X													X		X
Pierced olecranon fossa, humeri	X												X			X	X	X		
Teres processes, scapulae																		X		
Traumatic lesions					X			X		X		X				X				X
Traumatic exostosis																				
Arthritic exostosis on joints											X			X						
Dental wear to dentine			X		X				X	X				X	X			X	X	X
Dental caries			X						X	X										
Impacted third molars	X																	X		
Resorption of alveolar margin					X					X				X	X					X
Fused central incisors				X																

SUMMARY OF PATHOLOGICAL OBSERVATIONS

SITE 499

Three anomalous conditions were found in the skeletal materials from this site. One individual displays a pierced olecranon fossa; there is one instance of dehiscence of the tympanic plate; and one of the four crania has wormian bones along the lambdoid suture.

There is one possible small traumatic lesion on a parietal bone. There is some evidence of infection but the healing is complete.

Cradleboard deformation is noted on two skulls. One of the crania shows slight deformation, the other moderate.

Osteophytosis, a jagged excrescence of bone, occurs on two of the three vertebral columns which are complete enough for examination. An adult male shows slight lipping on the lateral portion of the body of the sacrum and posterior portions of the first and second lumbar. The other lesion is noted on the bodies of the last two thoracic vertebrae and the first two lumbar. There is no evidence of arthritis of any of the joints.

One of the most interesting pathological lesions in the sample is one which has been termed symmetrical osteoporosis, but which should more correctly be referred to as spongy hyperostosis (Jarcho *et al.*, 1965: 26-30). It usually involves the thin bones in the skull. The diploe of the bone is expanded and portions of the outer table are destroyed giving the bone a porous appearance. The usual areas of involvement are the parietals, occipital, and the superior border of the orbits. Two of the four subadults on which this observation was possible show manifestations of the lesion. One infant skull shows moderate involvement of the superior medial border of both orbits. A child of indeterminate age has moderate exostosis on the medial border of the orbit extending onto the frontal bone (Plate 20b); the parietals and occipital also are involved (Plate 20a). The exact cause of this lesion is not known, but hemolytic anemias such as Sick Cell Anemia (Zaino, 1964: 402-412) and nutritional deficiencies (Ackernecht, 1953: 124) have been suggested as the cause.

Osteoporotic pitting (also called symmetrical osteoporosis by some) is found on one of the adult skulls. The pitting extends over the frontal, parietals, and occipital bones above the nuchal and temporal lines. (Plate 20c)

SITE 866

Four anomalous conditions were noted in the skeletal material from this site. Two of the six crania have wormian bones along the lambdoid suture and one exhibits a dehiscence of the tympanic plate. One of the five pairs of femurs has a third trochanter. Pierced olecranon fossae are present on three of the six pairs of humeri found.

Cradleboard deformation is apparent on four of the six crania observed. Two of these have pronounced deformation while the other two are only slightly or moderately deformed.

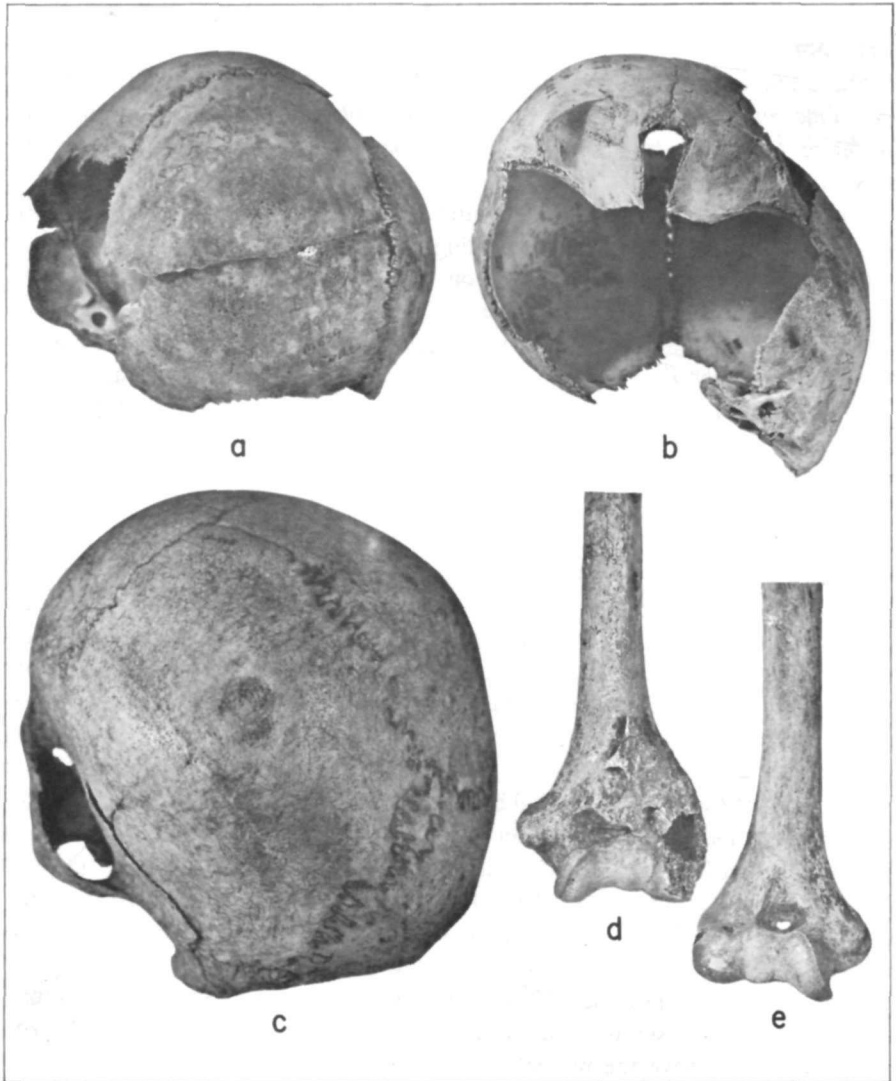


PLATE 20. Anomalies and pathologies. (a) Skull from incomplete burial, Site 499, IL6, refuse, showing spongy hyperostosis of the parietal bone. (b) View of same skull showing spongy hyperostosis of the superior medial border of the orbit. (c) Skull of Burial 5, Site 866, showing traumatic lesion on left parietal; also note the osteoporotic pitting (symmetrical osteoporosis). (d) Distal end of left humerus, Burial 11, Site 866, exhibiting exostosis above the lateral epicondyle. (e) Distal end of right humerus from same burial showing pierced olecranon fossa.

There are four examples of healed lesions. One of the skulls has two lesions, one above the right orbit and the other on a parietal. Another has an exostosis which could have resulted from a trauma (Plate 20c), and still another has a compressed fracture of one of the lower thoracic vertebrae.

An adult male shows evidence of arthritis of the right knee joint. The right femur has a small exostosis on the articular surface which caused a large eburnation on the posterior portion of the right lateral condyle of the tibia. The same individual shows lipping on the right superior facet of the third cervical vertebra. Lumbar three and four show arthritic exostosis on all the facets; the bodies show osteophytosis.

Osteophytosis is found on all of the lumbar vertebrae of one individual, another has two of its cervical vertebrae and three thoracic vertebrae fused, and a third individual has a fusion of two of its thoracic vertebrae.

Two skulls show osteoporotic pitting. The pitting is restricted to the frontals, parietals, and occipitals above the temporal and nuchal lines.

SITE 875

The only post-cranial skeleton from this ruin has slight squatting facets, teres processes, a distinct third trochanter on the left femur, and a pierced olecranon fossa of the left humerus.

One of the three crania has wormian bones; two exhibit cranial deformation.

The only instance of a traumatic lesion is found on the right portion of a frontal bone.

Osteoporotic pitting occurs on the frontal, parietals, and occipital bones above the temporal and nuchal lines of one cranium. The other two crania are not affected.

DISCUSSION

In a recent study Dr. James S. Miles, of the University of Colorado School of Medicine, completed an examination of 179 complete burials and 366 incomplete burials from the excavations on Wetherill Mesa in Mesa Verde National Park. In a preliminary report given at the Symposium on Human Paleopathology at the National Academy of Sciences, he discussed many of the pathologies found among the 40,000 bones which he examined. Although Miles' sample was extensive, he found only three examples of congenital fusion of vertebrae and two infants with "osteoporosis of the skull." The occurrence of higher frequencies of both of these pathologies in our small sample would seem to be significant. With regard to the frequency of the other lesions, the material from sites 499, 866, and 875 are not unusual.

Mortality data can be compared to Hooton's analysis of the remains from Pecos Pueblo (Hooton, 1930). In an analysis of over 1,800 skeletons, Hooton calculated that approximately 40 percent were under 20 years old at the time of death. The collection from the Mesa Verde sites excavated by the University

of Colorado contains only 30 individuals. There are six infants, 20 percent; three children aged two to six, 10 percent; and the remaining 21, 70 percent, are adults. In the material from Mesa Verde, 30 percent died before age 20 as compared to 40 percent at Pecos. Reed's series of skeletons from Site 34, a large Pueblo III ruin in Mesa Verde National Park (Reed, 1965: 31-45), contains about 30 percent children, as does our collection. He reports that probably none of the deceased individuals from Site 34 were over 55 at time of death. This also is true of the individuals from our three sites.

The estimated statures of seven individuals from the ruins we have excavated range from 5 ft. to 5 ft. 6 $\frac{3}{4}$ in. for males, and 4 ft. 11 $\frac{1}{4}$ in. to 5 ft. 3 in. for females. Males average 5 ft. 2 $\frac{3}{4}$ in.; females 5 ft. 1 $\frac{1}{4}$ in.

ANIMAL REMAINS

ELAINE ANDERSON

Sixteen species of animals have been identified from sites 499, 866, and 875. Of these, only the wapiti, *Cervus canadensis*, the pronghorn, *Antilocapra americana*, and the bison, *Bison bison*, are not native to the region today. At present the wapiti is found to the north in the San Juan Mountains, the pronghorn in the San Luis Valley to the east, and the bison only on scattered reserves. The distribution of these animals at the time the pueblos were inhabited probably was similar to what it is today; the nearest occurrence of the bison and pronghorn was the San Luis Valley, and the wapiti roamed the San Juans. Remains of these animals are not common at any of the three sites and, although occasional hunting parties brought these animals in, they probably did not constitute a major source of food.

Bones of wild turkey, *Meleagris gallopavo*, rabbits, *Sylvilagus* sp. cf *S. auduboni*, jackrabbits, *Lepus* sp. cf *L. californicus*, and mule deer, *Odocoileus*

TABLE 21. *Unmodified animal bones and minimum number of individuals represented.*

SPECIES	SITE 499		SITE 866		SITE 875	
	Individuals	Bones	Individuals	Bones	Individuals	Bones
Mule deer, <i>Odocoileus hemionus</i>	4	37	1	10	2	57
Wapiti, <i>Cervus canadensis</i>	1	2	—	—	1	4
Pronghorn, <i>Antilocapra americana</i>	1	2	—	—	—	—
Bison, <i>Bison bison</i>	—	—	1	3	1	1
Bighorn, <i>Ovis canadensis</i>	1	3	—	—	—	—
Coyote, <i>Canis latrans</i>	2	4	—	—	—	—
Dog, <i>Canis familiaris</i>	5	56	2	3	2	43
Beaver, <i>Castor canadensis</i>	—	—	—	—	1	1
Porcupine, <i>Erethizon dorsatum</i>	—	—	—	—	1	2
Ground squirrel, <i>Citellus variegatus</i>	3	16	—	—	—	—
<i>Citellus</i> sp.	—	—	1	2	1	1
Pocket gopher, <i>Thomomys</i> sp.	2	4	2	2	3	7
Wood rat, <i>Neotoma</i> sp.	1	1	—	—	1	1
Jackrabbit, <i>Lepus</i> sp. cf <i>L. californicus</i>	1	5	1	1	1	9
Cottontail rabbit, <i>Sylvilagus</i> sp. cf <i>S. auduboni</i>	3	31	1	6	5	31
Wild turkey, <i>Meleagris gallopavo</i>	6	80	3	39	12	71

hemionus, were the most numerous and indicate that these animals supplied a large quantity of food as well as bones for a variety of artifacts. Hides from the mammals and feathers from the turkeys undoubtedly were used for containers, clothing, and for other everyday purposes. The Indians hunted turkey locally and likely captured and kept them in pens in the villages. Complete turkey skeletons and turkey egg shells were found in the villages. Deer and rabbits probably were as abundant on the Mesa Verde then as they are today. Beaver and porcupine appear to have been hunted for food and other products, but the smaller rodents, whose bones occur frequently in the archaeological sites, probably burrowed into the sites after the occupation although some may have been eaten.

A minimum of nine dogs, *Canis familiaris*, have been identified although it is often difficult and sometimes impossible to distinguish between osteological material of dog, coyote, and wolf. Various keys have been worked out by several workers (Howard, 1949; Olsen, 1964; Young and Jackson, 1951) to separate the skulls of these animals, but none of the methods is entirely reliable. Little has been done with elements of the post-cranial skeleton. In general, dogs seem to show more malformations of the teeth than do wolves or coyotes, and dogs are closer to wolves in cusp characters and proportions of the teeth. Dogs generally show an elevated or rounded forehead, flatter auditory bullae and less developed sagittal crest than coyotes or wolves.

Of the nine remains of dogs recovered from the sites, three of these were burials and consisted of the skull and nearly complete skeleton. One of the dog burials had a pottery vessel buried with it. All of the dog material belonged to animals about the size of a small collie, and can probably be referred to the short-faced Indian dog. Dog remains are common from archaeological sites in the Southwest from Basket Maker times on, and even dog mummies have been found (Guernsey and Kidder, 1921).

Fifty-eight artifacts of identifiable bone were found. Deer and turkey bones were most commonly used. Deer ulnae, radii, tibiae, cannon bones, and antlers, and turkey ulnae, tibiae, and tarsus-metatarsi frequently were fashioned into awls and scrapers.

The osteological remains from these sites, although admittedly comprising a limited sample and neither necessarily reflecting the total range of animals utilized nor preference for particular species, help to show how the Anasazi used the faunal resources available to them for food and artifacts. The species represented in the collection compares favorably with those identified from other sites in the vicinity (Brand, 1937; Kluckhohn and Reiter, 1939; O'Bryan, 1950; Reed, 1958) and closely resemble the modern fauna of the region, except for a few of the larger mammals whose present distributions have been noted above.

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