

BALCONY HOUSE: A HISTORY OF A CLIFF DWELLING, MESA VERDE NATIONAL PARK, COLORADO

Clemson University



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by
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with
Report of the 1910 Excavation and Repair of Balcony House
by
Jesse L. Nusbaum

Mesa Verde Museum Association, Inc.
Mesa Verde National Park, Colorado
1998

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DEDICATION

To my mentors, the Mesa Verde stabilization crew:
Raymond Begay, Willie Begay, Kee Charley John, and Gene Trujillo



The Mesa Verde National Park Stabiization Crew, Left to Right: Gene Trujillo, Willie Begay, Kee Charley John, Kathleen Fiero, Raymond Begay

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I have always enjoyed library research but it is not my training. I made many mistakes while accumulating data: not always indicating clearly in my notes the specifics on a quote, not writing down all the reference data needed for each photo, etc. To rectify such problems, I went through some materials twice or even more times. Finally I gave up on how to make all the various parts come together. Patricia Flint-Lacey came to the rescue. She is responsible for really pulling this thing out of the file cabinet and making it work--the organization, appearance, professionalism. Patricia is not responsible for any shortcomings. Those are mine.

INTRODUCTION

Kathleen Fiero

Balcony House is one of five cliff dwellings open to the public in Mesa Verde National Park, Colorado (Figure 1.1). A visit to Balcony House is a unique experience. Even though the structure is relatively small; its dramatic setting, its defensive characteristics, and its challenging 30 ft wooden entrance ladder combine to make the site unforgettable. Balcony House was excavated and stabilized in 1910 by Jesse L. Nusbaum. Unfortunately no report was ever published on this work. This has made interpretation and stabilization of the site difficult, often a matter of conjecture. What was the function of a particular room? Was a certain mortar original or was it part of early stabilization work? It was clear that the history of Balcony House had to be investigated in the archives and not in the dirt.

In 1988, when this project began, Mesa Verde National Park files contained some information on the site resulting from the 1910 excavation. There were copies of three letters written by Nusbaum to his supervisor at the School of American Archaeology, Archaeological Institute of America, E. L. Hewett, also prints of 34 photographs which were taken by Nusbaum between 1907 and 1910. The other major source of information on the original condition of the site was in a report by Gustav Nordenskiöld who in 1893 described Balcony House in his publication on the cliff dwellings of Mesa Verde (Nordenskiöld 1893: 66-69).

Although Jesse L. Nusbaum was superintendent of Mesa Verde for 17 years between 1921 and 1946, records from this

period make only brief mention of his early work at Balcony House. He stated that he submitted a report to Hewett and that the artifacts were sent to Hewett in Santa Fe. But no report on Balcony House could be found with Hewett's papers at the School of American Research or the Museum of New Mexico. Had the report disappeared?

After Jesse Nusbaum died, his wife, Rosemary Nusbaum, stated in an article in the *Courier*, a Park Service magazine, that she was in possession of a copy of Jesse's report on Balcony House (Nusbaum 1981: 30). Was it possible the lost was found? She donated his papers to the Smithsonian Institution in 1987.

I discovered the above information on Balcony House while I was conducting research for a stabilization report. It became apparent that with a little more research I might track down Nusbaum's illusive Balcony House report and document the earliest stabilization work on this important cliff dwelling. A grant from the Horace Albright Employee Development Fund enabled me to spend a week at the Smithsonian Institution Anthropological Archives in Washington, D.C. in January 1989 where I examined the contents of the 13 boxes which contain the Jesse L. Nusbaum papers. Box number 11 of these was labeled "Balcony House." It contained two documents. One appears to be Nusbaum's report to Hewett on Balcony House identified by "First Draft of My Report on Balcony House" written on the folder. The "Balcony House" box also contained a handmade notebook with mainly

handwritten but some typed notes on work at the site. These are probably Nusbaum's original field notes.



Figure 1.1. Balcony House, Mesa Verde National Park, aerial view from Soda Canyon, 1985, visitor 30 ft entrance ladder entry at right. Photo by Don Fiero. Mesa Verde National Park .740-08, Neg. No. 18814D

The Albright Grant also enabled me to spend a week in Santa Fe in March 1990 to examine the Museum of New Mexico History Library's Hewett Papers and the Photo Archives of the Museum of New Mexico. Many of Nusbaum's original negatives for photographs of Balcony House and other Mesa Verde sites are in the

photo archives. The Hewett Papers also contain some valuable supporting documentation on the Balcony House project such as Hewett's expense account and the three original letters from Nusbaum to Hewett during the Balcony House repair and stabilization.

Finally, in 1993, Jesse Nusbaum's stepdaughter, Rosemary Talley, donated to Mesa Verde National Park several boxes of Nusbaum's private papers, following the death of her mother, Rosemary Nusbaum in 1991. Most of the papers and photographs in this collection concern Nusbaum's years as superintendent of Mesa Verde National Park. But this collection also contains the daily log of Edward Moore Nusbaum, Jesse's father, which was written while he was working on Balcony House for Jesse in 1910 (Appendix A). This was a very exciting discovery as such a document had never been mentioned by Nusbaum or his wife.

With the archival information from the Smithsonian Institution, the Museum of New Mexico, and Mesa Verde National Park, a report on Balcony House could finally be published. From frustratingly little information in the beginning to field notes, a written report, letters, and superb photographs; the history of the Balcony House cliff dwelling had been excavated in the archives and could be told (Figures 1.2, 1.3, 1.4, 1.5).

It is surprising that so little paper documentation was generated by what would now be considered a major project, the excavation and stabilization of Balcony House. Park Service reports only mention the work in passing. Nusbaum, as superintendent, and in his personal papers, said surprisingly little about the work. Even Hewett, who seems to have kept every scrap of paper that went across his desk, kept very little on Balcony House. The circumstances of the work probably had a lot to do with this. Hans M. Randolph, superintendent of Mesa Verde National Park in 1910, was the first superintendent of the Park and had his office in Mancos, Colorado. He was only superintendent for a few years and then in 1921 (when Nusbaum was

Superintendent) Park headquarters was moved from Mancos to Spruce Tree Camp within the Park. Just months after the Balcony House work, Nusbaum was off to Guatemala with a group from the School of American Archaeology. In 1910, Nusbaum's supervisor, Hewett, was at the height of his career with numerous archeological projects (in New Mexico, Colorado, and Central America), administrative responsibilities, and political obligations.

The main concern of the sponsors of the project was to stabilize the site so that it could be safely entered by the visiting public. The comments, letters, and reports from the Park to the Smithsonian; and from the Colorado Cliff Dwellings Association to the Archaeological Institute of America indicate that stabilization and visitation were most important. The goal was accomplished by the time Nusbaum and his crew left the site in November 1910.¹

It is interesting that Nusbaum, when he did mention the project, always referred to a two month to ten week stay at Balcony House. In fact he spent six weeks (44 days) excavating and stabilizing the site, October 7 to November 19, 1910. Several crew members left November 2 but at least one other person, Percy "Jack" Adams, stayed with Nusbaum to November 19. Later in life Nusbaum often mentioned waiting at the site for Hewett to arrive and give his approval and then waiting even longer for the packer to return with more

¹ Mancos Colo Nov 20 Dr Edgar L Hewett c/o School Am Archaeology Santa Fe NM Snowed out at Last nine hours coming snow knee deep north rim couldnt pack tools out Adams and I finished alone others quit when you left ruin in good shape north wall underpinned all ok arrive Santa Fe Wednesday major with me Adams to greely Jessie L Newsbaum." Western Union Night Letter, Hewett Papers Box 41 Museum of New Mexico, Santa Fe.

horses. The exact date of Hewett's second visit, at the end of the project, is not known. A *Mancos Times-Tribune* article² suggests it was Saturday, November 12. If this is the case, Nusbaum and Adams stayed seven more days waiting to be packed out. This means that most work at the site was completed from October 7 to November 11 or approximately 25 working days (Figure 1.6)

² "Dr. Edgar L Hewett came in last Friday from Santa Fe and, in company with Superintendent Randolph left at once for the Mesa Verde Park to inspect the work that is being done on the Balcony House. He made a hasty trip and left Sunday for his home in Washington, D.C. by way of Santa Fe..."(*Mancos Times-Tribune*, Friday, November 18, 1910)

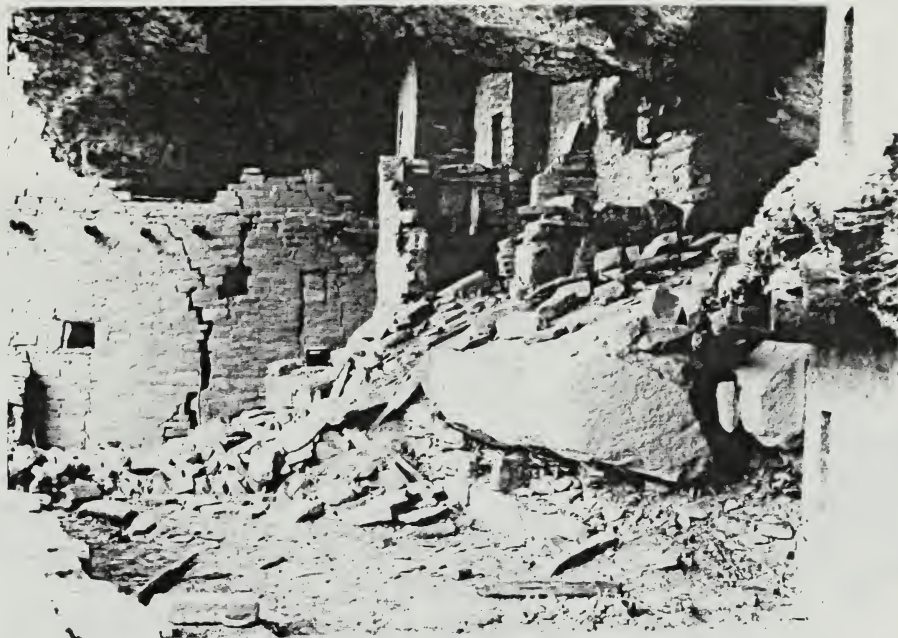


Figure 1.2. Balcony House, North Plaza, looking south: above in 1896 before stabilization . Photo by Thomas McKee, Neg. No. 32, Mesa Verde National Park, Neg. No. 15, Print 9084G; below in 1961. Photo by Ranger Waso, Mesa Verde National Park, Neg. No.6903.

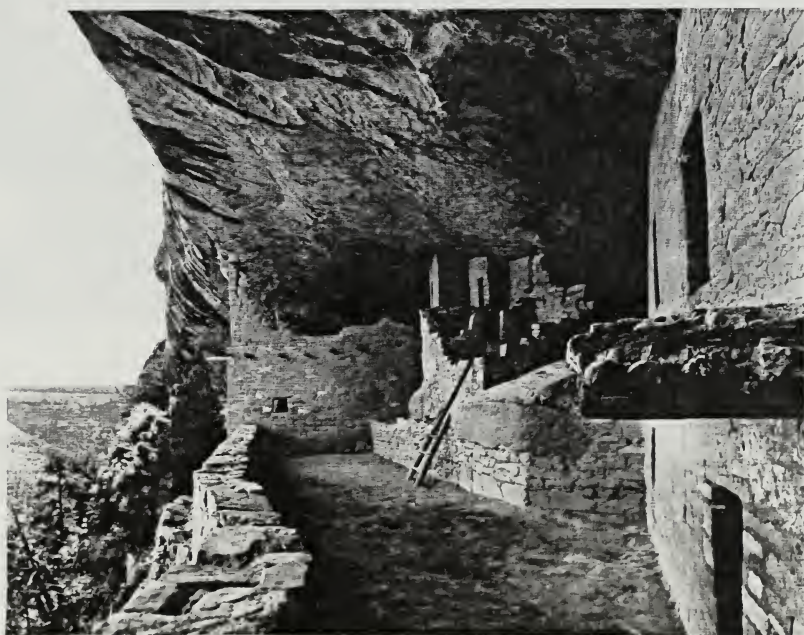




Figure 1.3. Balcony House, looking north 1896. Photo by Thomas McKee, Neg. No. 512, Mesa Verde National Park Neg. No. 18551, Print No. 9084J.



Figure 1.4 Balcony House looking north in 1910 after stabilization by Jesse Nusbaum Percy "Jack" Adams stands between the kivas in Kiva Plaza.. Photo by Jesse L. Nusbaum, Courtesy Museum of New Mexico, Neg. No. 2152.20, 60514.



Figure 1.5. Balcony House, looking north , North Plaza balconies across Rooms 8/9, 6/7, and at back Rooms 4/5: above in 1907, before repair, Dr. A.J. Fynn sitting in Room 9 (then Room 6, upper) doorway. Photo by Jesse L. Nusbaum, Courtesy Museum of New Mexico, Neg. No. 2151.3, 60505; below in 1910 after stabilization, E.M. Nusbaum stands between Rooms 8/9 to his right and Rooms 6/7 to his left. Photo by Jesse L. Nusbaum, Courtesy Museum of New Mexico, Neg. No. 60504



Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
October 2	3	4	5	6	7 Nusbaum and Adams at site	8 Hewett, Paton at Balcony House
9	10	11	12 Repair Work Starts	13 Jesse to Durango	14 Letter (in Durango) Showers	15 Rain
16 Rain	17 Jesse back to Mesa, Rain, snow	18 Some rain	19 Rain	20 Snow to noon	21 Letter, Freezing, partly cloudy	22 Clear
23 Jesse to Mancos Clear, warm	24 Clear, pleasant	25 Clear, pleasant	26 Jesse returned before lunch, Pleasant	27	28 Clear and pleasant	29 Clear and pleasant
30 Clear , hot	31 Letter, Iron Work, Clear, warm	November 1 Letter, Accident in Kiva, Clear, warm	2 E.M. and Tommy leave site Warm & Clear	3 Rain, Cloudy	4 Crew has left except for Adams and Nusbaum	5
6	7	8	9	10	11	12 Hewett and Randolph visit site?
13	14	15	16	17	18	19 Nusbaum and Adams Leave Site

Figure 1.6. Calendar of events and weather at Balcony House October-November 1910.

In the report that follows, there is first a general discussion of Balcony House history, architecture, archeology, and stabilization (Chapter 2). The next chapter (Chapter 3) is a brief biographical sketch of Jesse L. Nusbaum. The fourth chapter (Chapter 4) provides a more detailed discussion of the excavation and stabilization project undertaken at Balcony House in 1910. Chapter 5 is Jesse Nusbaum's site report on Balcony House. It is a brief report and rather disappointing. After writing in his three letters to Hewett about his problems with weather, health, money, collapsing walls, his passion is now gone and unfortunately so is much of the detail about the site. It is unknown when this report was written by Nusbaum. Hand written comments and crossed out words make it obvious that he edited the typed manuscript. It is possible that the document was the presentation which he gave at the General Meeting of the Archaeological Institute of America in 1910 (Nusbaum 1911: 75). Again the date for the editing is unknown. Next (Chapter 6) follows the transcription of the letters written by Jesse Nusbaum to his boss, Edgar Hewett, during the work at Balcony House. The letters provide a glimpse into the concerns, triumphs and logistical dilemmas of Nusbaum and his crew during that five-week period when Balcony House and its problems were their major concern. A summary and interpretive conclusions on Balcony House appear in Chapter 7.

Five appendices follow. Appendix A is the daily log of Jesse's father, E.M. Nusbaum. It gives some wonderful insights into camp life and a personal view of some of the crew members. His father was obviously very unhappy with the horrible weather and, being from the open vistas of the Colorado Plains near Greeley, not at all used to a dense pinyon-juniper forest in which he gets lost one

day. Appendix B is a report by Jeffrey S. Dean and James A. Parks on the results of a study of the prehistoric wood in Balcony House by the Laboratory of Tree-Ring Research, University of Arizona. Appendix C contains the recently completed Historic American Buildings Survey drawings of Balcony House. The wall profiles are from large format photographs which were then digitized. The plan view map is based on a remapping of the site by Kathleen Fiero and Dave Johnson in 1993. Appendix D is a transcription of Nusbaum's field notes with a room by room discussion of Balcony House. Appendix E describes the existing conditions of the rooms, kivas, doorways, and tunnels with architectural and stabilization data that has been collected recently.

Nusbaum is known to have used a 5-X-7 view camera equipped with regular, wide-angle, and telephoto lenses to take his photographs.³ He probably used commercial dry plates.⁴ Nusbaum photographed in Mesa Verde in 1907 and in 1910 and was a skilled photographer. His technical ability is shown in the overall sharpness and clarity throughout his photographic images (Goff 1998). He also made postcards of some of the photos to sell to help support the archeological and photographic work. Other photographers and dates of the photograph are specified when known.

³ The cost of such a camera with all the needed accessories in 1906 was over \$200.00 (Nusbaum 1904-1917: 2)

⁴ These were glass plates already coated with emulsion (Goff 1998)

Chapter 2

BALCONY HOUSE, SITE 5MV615

Kathleen Fiero

Balcony House, 5MV615, is one of the thirteenth century cliff dwellings open to visitors in Mesa Verde National Park, southwestern Colorado. Architecturally it is a relatively small site, with two kivas and 38 rooms; but its setting, defensive characteristics, and 9 meter (30 ft) entrance ladder combine to make the ranger-guided visit a memorable experience. Recent archival research has uncovered the field notes, letters, photographs, and a summary of the 1910 excavation and stabilization of Balcony House by Jesse L. Nusbaum. Ongoing interpretation and stabilization work by Mesa Verde National Park and Historic American Buildings Survey staff has provided further information for our understanding of this historic structure. This report is a summary of the history, architecture, archeology, and stabilization of Balcony House.

MESA VERDE NATIONAL PARK, THE ENVIRONMENTAL SETTING

Mesa Verde National Park is located in southwestern Colorado on the eastern edge of the Colorado Plateau (Figure 2.1). The Mesa Verde, a large cuesta, is the dominant geological feature of the Park. It rises about 600 m (2000 ft) above the floor of the Montezuma Valley, which lies to the north and west, and slopes gently to the south from an elevation of approximately 2600 m (8500 ft) at the north end to approximately 1800 m (6000 ft) at the Colorado-New Mexico state line. The sloping tableland of Mesa Verde is divided by numerous north-south trending drainages

which flow into the Mancos River. The Mancos River flows out of the La Plata Mountains and then cuts through the sedimentary rock of the mesa in a generally southwest direction, finally draining into the San Juan River. North of the Mancos River and within Mesa Verde National Park, the main fingers of the Mesa Verde are, from east to west: Moccasin Mesa, Park Mesa, Chapin Mesa, Long Mesa, Wetherill Mesa, and Wildhorse Mesa. East of Moccasin Mesa the fingers of the Mesa Verde turn into ridges and the canyons broaden out and dominate the terrain. Vegetation on the Mesa Verde is predominantly a pinyon-juniper community (*Pinus edulis* and *Juniperus osteosperma*) with broad canyons and open areas covered with sagebrush (*Artemisia tridentata*). At the very north end of the mesa the pinyon-juniper community gives way to a shrub dominated plant community of scrub oak (*Quercus gambelii*), serviceberry (*Amelanchier utahensis*), and fendler bush (*Fendlera rupicola*).

Balcony House is located in a natural alcove on the east side of Chapin Mesa overlooking one of the major drainages of the Mancos River, Soda Canyon (Figure 2.2, 2.3). The alcove was formed by geological processes within the Cliff House Sandstone Formation that dominates this portion of Chapin and surrounding mesas. Between approximately A.D. 1200 and 1300 people utilized these alcoves for building homes and communities now known as the Mesa Verde cliff dwellings. The Balcony House alcove is at an elevation of

approximately 2000 m (6700 ft). It is 80 m (250 ft) across the front, 10 m (35 ft) high, and 15 m (50 ft) deep.

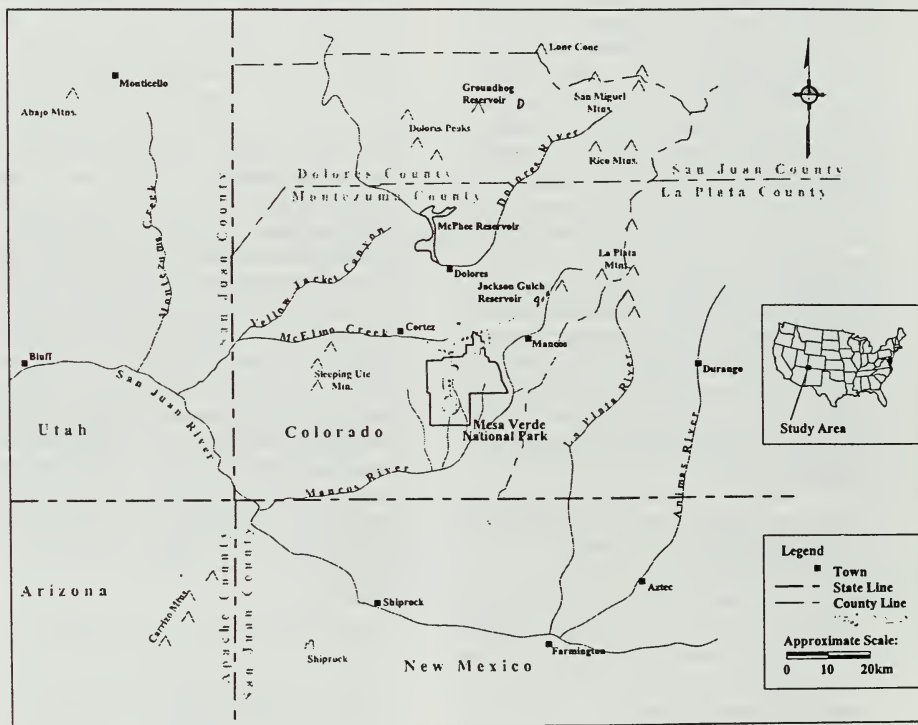


Figure 2.1. Location of Mesa Verde in the United States and Southwest Colorado. Map designed and drafted by Cynthia L. Williams.

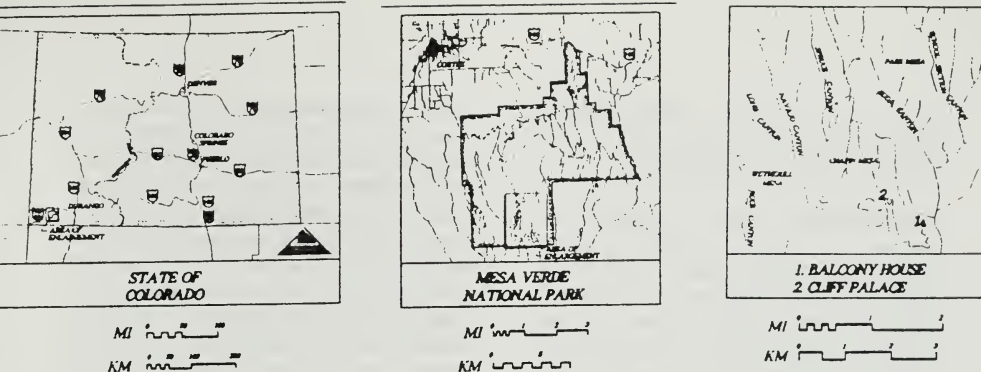


Figure 2.2. Location of Balcony House in Mesa Verde National Park. Historic American Buildings Survey drawing.



Figure 2.3. Balcony House is located in a natural alcove formed in the Cliff House Sandstone Formation in Soda Canyon, note the slope of the mesa to the south. 1961 photo by Ranger Waso, Mesa Verde National Park 740-08 Neg. No.6900C.

THE COMMUNITY OF THIRTEENTH CENTURY CLIFF DWELLERS, THE ARCHAEOLOGICAL CONTEXT

On Mesa Verde, the people of Balcony House inhabited only one site within a larger community of cliff dwellers. Mesa Verde National Park has been designated a World Cultural Heritage Site because of the spectacular appearance and outstanding condition of its almost 600 cliff dwellings. The great majority of these are on Chapin, Long, and Wetherill Mesas in the western portion of the Park. One third of the cliff dwellings have just one room, almost 90 percent (500 sites) contain 10 rooms or less. Balcony House with 40 rooms is considered a medium size cliff dwelling as there are only 10 sites with more rooms. In Mesa Verde National Park three cliff dwellings have over 100 rooms.

Tree-Ring Dating of Cliff Dwellings

From the analysis of tree-ring samples, it is known that Balcony House was occupied at the same time as similar Mesa Verde cliff dwellings, in the one hundred years between A.D. 1200-1300 (Tables 2.1, 2.2, 2.3, 2.4, 2.5, 2.6). Tree-ring samples were taken from roof fabric and loose beams in most of the larger cliff dwellings, by major research expeditions in 1923, 1932-33, 1941, 1960s, and 1990s.. Most of the datable samples are from trees cut during the thirteenth century.

Like many of the other cliff dwellings containing original wood, Balcony House had been sampled by the First Beam Expedition in 1923, by the Laboratory of Tree-Ring Research in 1932-33, by Deric O'Bryan of Gila Pueblo in 1941, and by the Park Service in 1948. Nine bark (outer ring) dates from established provenience varied from A.D. 1204 to 1278. Then in 1992 the National Park

Service contracted with the Laboratory of Tree-Ring research to complete a comprehensive study of the prehistoric wood in Balcony House. A total of 173 pieces of wood was sampled resulting in 130 cutting dates. There is a definite clustering of the cutting dates in the 1240s and the 1270s representing two major construction episodes. Earlier dates from 1190-1210 are probably from reused beams of an earlier construction from which no architecture remains. The latest date is 1280 from a loose log in Room 4. Balcony House was probably abandoned around A.D. 1300, the general date for the abandonment of Mesa Verde. (A report on this project by the Laboratory of Tree-Ring Research, University of Arizona, appears in Appendix B.)

Since 1992, the wood from several other sites in Mesa Verde National Park been studied: Spruce Tree House, Oak Tree House, Square Tower House, and Cliff Palace all located on Chapin Mesa; and Spring House and 20 ½ House on Long Mesa. The sites on Chapin Mesa were all excavated before the technique of tree-ring dating had been developed and have been extensively stabilized. The wood which was dated in the sites was structural, for the most part, but wall pegs, wood features and piles of wood also could be dated. The piles were from wood that was moved during excavation and repair work. Oak Tree House was probably built slightly earlier than the other cliff dwellings (A.D. 1180) and seems to have been abandoned earlier (A.D. 1209+v last cutting date). The latest date, A.D. 1288, from a cliff dwelling comes from a beam in Square Tower House, in a room built on a crack above the main site in the Crow's Nest section.

Wetherill Mesa sites were excavated after the tree-ring technique was developed so samples were taken from excavated as well as structural

contexts. These data suggest that most of the alcoves in Mesa Verde National Park were also used before the construction of the multi-storied cliff dwellings. Long House tree-ring dates from the pithouses cluster in the A.D. 600s while the rooms and kivas date from 1250s to 1270s, the latest date is A.D. 1280. Mug House dates are very different with a cluster in the A.D. 1000s indicating a late Pueblo II occupation of the alcove. The thirteenth century dates for Mug House are between A.D. 1200s and 1270s, the latest date is 1277v. Tree-ring dates from Step House are primarily from the A.D. 600s occupation of the site, with one date A.D. 1268 from the pueblo structure.

Juniper was the most commonly used wood in most of the cliff dwellings. Pinyon pine and Douglas fir (*Pseudotsuga menziesii*) are about equally represented and dominate at Long House and Mug House. Juniper is overwhelmingly the wood incorporated into Balcony House. It appears that in general, Douglas Fir was selected by the cliff dwellers early in the construction at a particular site but is less common later on.

Table 2.1. Dated tree-ring samples from Balcony House by species and date.

	Juniper # (%)	Pinyon # (%)	Douglas Fir # (%)	Other # (%)	Total
1239 and earlier	13 (76)	0 (0)	4 (23)	0 (0)	17
1240s	35 (95)	0 (0)	2 (5)	0 (0)	37
1250-1269	13 (76)	0 (0)	4 (24)	0 (0)	17
1270-1280s	49 (84)	3 (5)	6 (10)	0 (0)	58
1900s	1 (100)	0 (0)	0 (0)	0 (0)	1
Totals for Balcony House	111	3	16	0	130

Table 2.2. Dated tree-ring samples from Oak Tree House by species and date.

	Juniper # (%)	Pinyon # (%)	Douglas Fir # (%)	Other # (%)	Total
before 1190	6 (27)	2 (9)	14 (64)	0 (0)	22
1109s	17 (89)	1 (5)	1 (5)	0 (0)	19
1200s	13 (87)	1 (7)	1 (7)	0 (0)	15
Totals Oak Tree House	36 (64)	4 (7)	16 (29)	0 (0)	66

Table 2.3 Dated tree-ring samples from Spruce Tree House by species and date.

	Juniper # (%)	Pinyon # (%)	Douglas Fir # (%)	Other # (%)	Total
before 1230	16 (89)	1 (6)	1 (6)	0 (0)	18
1230-1259	66 (56)	13 (11)	37 (32)	1 (1)	117
1260 and after	6 (32)	6 (32)	7 (37)	0	19
Totals Spruce Tree House	88 (57)	20 (13)	45 (29)	1 (1)	154

Table 2.4. Dated tree-ring samples from Spring House by species and date.

	Juniper # (%)	Pinyon # (%)	Douglas Fir # (%)	Other # (%)	Total
before 1240	11 (29)	10 (26)	16 (42)	1 (3)	38
1240s	17 (71)	5 (21)	2 (8)	0 (0)	24
1250s	5 (62.5)	2 (25)	1 (12.5)	0 (0)	8
1260-1280s	51 (540)	38 (40)	5 (5)	0 (0)	94
Totals for Spring House	84 (51)	55 (34)	24 (15)	1 (1)	164

Table 2.5. Dated tree-ring samples from Mug House by species and date.

	Juniper # (%)	Pinyon # (%)	Douglas Fir # (%)	Other # (%)	Total
before 1200	5 (17)	1 (3)	24 (80)	0 (0)	30
1200-1277	3 (23)	4 (31)	6 (46)	0 (0)	13
Totals for Mug House	8 (19)	5 (12)	30 (70)	0 (0)	43

Table 2.6. Dated tree-ring samples from Long House by species and date.

	Juniper # (%)	Pinyon # (%)	Douglas Fir # (%)	Other # (%)	Total
before 1200	10 (19)	17 (33)	25 (48)	(0)	52
1200-1249	4 (19)	11 (52)	3 (14)	3 (14)	21
1250s	8 (44)	10 (56)	0 (0)	0 (0)	18
1260s	9 (35)	13 (50)	2 (8)	2 (8)	26
1270s-1280s	4 (19)	11 (52)	6 (29)	0 (0)	21
Totals for Long House	35 (25)	62 (45)	36 (26)	5 (4)	138

The Balcony House Community

In the immediate vicinity of Balcony House there are 11 sites with a total of 81 rooms and 6 kivas which together are identified as the Balcony House Community (Rohn 1971). The sites have not all been dated by tree-ring techniques but the artifacts and architecture suggest they were used during the late Pueblo III period and are contemporaneous with Balcony House. The sites in the Balcony House community include: 5MV515 with 11 rooms and 3 kivas just up canyon; 5MV617 with a retaining wall and one room at the south end of the same ledge on which Balcony House is built; 5MV516 with two living rooms; and six small sites which probably consist primarily of storage rooms (5MV613, 5MV614, 5MV616, 5MV618, 5MV622, 5MV1063).

There are actually many cliff dwellings within easy walking distance of Balcony House. Site 5MV515 is 75 m north of Balcony House at the head of a side drainage off Chapin Mesa. Site 5MV617 is down canyon about 200 m. Cliff Palace (5MV625) with 151 rooms, 22 kivas, and 75 open areas (courtyards, etc.) is only 2 km from Balcony House across the mesa. South of Cliff Palace and 1.4 km from

Balcony House is Sunset House (5MV626) with 29 rooms and 4 kivas. Swallow's Nest (5MV629) with 16 rooms and 2 kivas is only 1.25 km from Balcony House.

In contrast, the two closest special purpose sites require quite a hike. Travel to Sun Temple on the mesa top across from Cliff Palace and Fire Temple in Fewkes Canyon below Sun Temple either demands going around or crossing the fairly deep/steep Cliff Canyon.

HISTORIC ACCOUNTS OF BALCONY HOUSE

Historic written records of the Mesa Verde area begin in the mid nineteenth century. At that time members of the Weeminuche band of the Ute Tribe occupied the area and were probably hunting and collecting on the mesas and in the canyons of Mesa Verde. There is no archeological evidence yet to suggest that the Ute peoples entered the cliff dwellings. They obviously knew of them for they are the ones who informed the early Euro-American settlers of the Mancos Valley of the abandoned houses in the cliffs.

In March 1884, S. E. Osborn and W. H.

Hayes were in Soda Canyon and at least Hayes entered Balcony House and scratched his name on a sandstone rock in the site.¹ (Figure 2.4). Hayes' name is also carved into a stone lintel in Hemenway House across the canyon from Balcony House. Osborn's name is carved into a stone south of Balcony House on land that is now part of the Ute Tribal Park. Osborn's description of a ruin which he visited sounds more like Balcony House than any other site in Soda Canyon (Osborne 1886:2).²

Others recorded visits to Balcony House in the late 1800s. Virginia Donaghe McClurg, who was so instrumental in having Mesa Verde declared a Park and then in finding the funds to excavate and stabilize Balcony House, visited Mesa Verde and Balcony House in 1886 (McClurg 1925).³ Balcony House is probably the site referred to as Brownstone Front by Chapin in 1892. He had visited Mesa Verde in 1889 with the Wetherill brothers and their brother-in-law Charlie Mason. There is a very faint "Charles Mason 1887" inscription above Room 18 in Balcony House. Nordenskiöld entered the site in 1891 and is probably the one who named the site "Balcony

House." He assigned the number 10 to the site.⁴ Tho.(Thomas) McKee, a professional photographer was in the site in ca. 1896 and used Room 8 (the lower west room below the balcony) as his dark room and slept in the same room (McKee 1931). From then until 1910 the site was entered by numerous individuals both before and after the area was designated a National Park in 1906.

In 1910, Jesse L. Nusbaum conducted the only authorized scientific excavation and first major repair of Balcony House under the direction of Edgar L. Hewett and the School of American Archaeology, Archaeological Institute of America (later School of American Research). Nusbaum and his crew (including his father, E.M. Nusbaum) worked in October and November with the financial support of the Colorado Cliff Dwellings Association and the National Park Service. Most of this stabilization work is still in place. Percy "Jack" Adams mapped the site and Kenneth Chapman drafted this site map.

¹ In a close examination of one of Nusbaum's "after" photographs of Balcony House, it is possible to see "Hayes" scratched into the sandstone cliff face just south of "No. 10"--the Nordenskiöld number for Balcony House.

² An article dated Dec. 15, 1886 in the Denver Tribune-Republican Dec. 20, 1886: "...When I arrived I found a perpendicular cliff about forty feet high which I climbed, by the aid of a rope which I threw on to a small cedar, at the risk of breaking my neck, but I was well repaid for my trouble by finding a building at least 250 feet in length, six stories in height in the front and from four to six deep into the cliff..."

³ In a letter to Secretary of the Interior in 1925 she states that "our first exploring party discovered Balcony House October 5, 1886."

⁴ "No.10" is now carved on the cliff face above Room 22 in the Kiva Plaza. In a McKee (McKee 1931) photograph ca.1896, there is a carved "No.10" on the shaped boulder in North Plaza. This is no longer extant. Also in Ruin 16 on Wetherill Mesa the "No.16" has beside it a date of 1890--not in fact the date of Nordenskiöld's visit. So there is reason to ask who, in fact carved the Nordenskiöld numbers on the ruins he visited.



Figure 2.4. W.H. Hayes, the first recorded visitor to Balcony House carved his name into the sandstone cliff face in Balcony House, in middle of the rock face to the left of the two story structure, Room 21a and 21b. Subsequently Nordenskiöld inscribed the No. 10, his Balcony House site number, near the name. Photo taken in 1910 after stabilization of south "tower" (Room 21a and 21b) in Kiva Plaza. Photo by Jesse L. Nusbaum, Courtesy Museum of New Mexico, Neg. No. 2151.10, 60518.

ARCHITECTURAL DESCRIPTION AND SITE PLAN OF BALCONY HOUSE

The existing architectural condition and significant features of Balcony House can be most easily described by dividing the site into three areas: Lower Plaza, North Plaza, and Kiva Plaza (South Plaza) (Figure 2.5) (Figure 2.6). The Lower Plaza, the northernmost area, was not named by Nusbaum or on the original Adams and Chapman map but it must be traversed to get to Rooms 1 to 3. It is into this area that the 9 m (30 ft) Park Service ladder first brings visitors. The North Plaza, the central area (Rooms 4 to 14) was called North

Plaza or North Quarter by Nusbaum and North Plaza by Chapman. The Kiva Plaza, the southernmost area, and its complex of rooms (Rooms 15 to 29) and kivas (Kivas A and B) was called Kiva Plaza or Tower Quarter by Nusbaum in his field notes and Kiva Plaza on the Chapman site map (room descriptions appear in Appendix E). It has been called South Plaza on some Park Service maps. The three areas of Balcony House were built within the alcove, entered via a hand and toe hold trail, and protected by a retaining wall (balustrade).

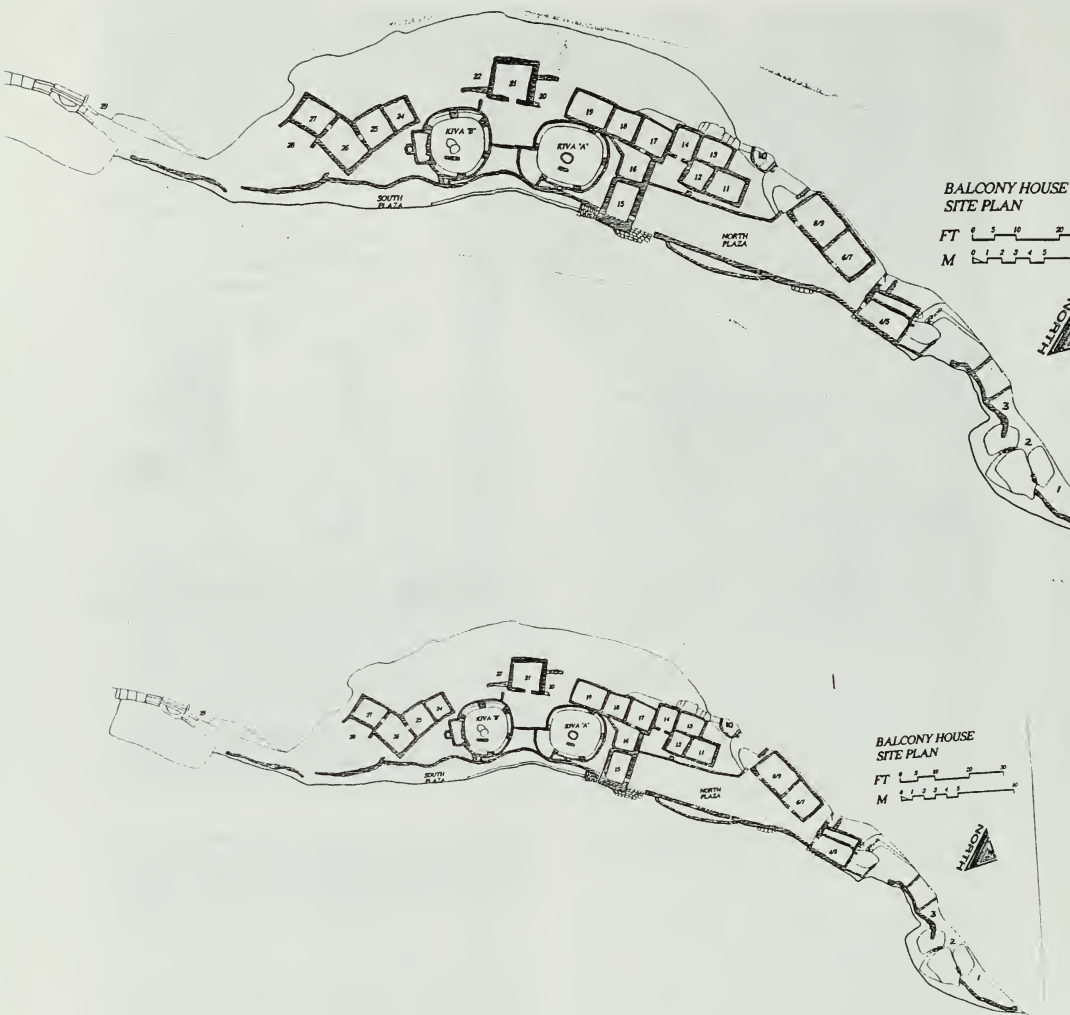


Figure 2.5. Map of Balcony House with current room numbers.

Exterior Features of Balcony House

The alcove in which Balcony House was built faces northeast so the reputed solar collecting qualities of some Mesa Verde alcoves were certainly not a factor in the selection of this site. In the winter the sun barely shines into the alcove. On a sunny day in summer it is hot in the alcove in the morning, with sunshine pouring in, and very pleasant in the afternoon with the structure completely in shade.⁹

Availability of water may have been a factor in site selection. The alcove now contains a spring and may have at one time contained two springs as two are drawn on the original site map. There is another spring at the base of the cliff just below the north end of the site.

At present the site is entered from the north up a long ladder installed as a site modification by the Park Service. There is no evidence that the north entry was ever used prehistorically and it was not used by Nusbaum nor the early visitors to the Park. In the historic photographs of the site dating to the 1920s or before, a series of ladders below the Kiva Plaza was used for entry (Figure 2.7). This was the means of entry used by Nordenskiöld in 1891¹⁰ and which Nusbaum mentions improving in 1910. To get to this area below Kiva Plaza, a series of steps north of Balcony House brought the

visitor from the mesa top to the top of the talus slope below the site. Nusbaum used both this means of entry into the site and also a rope/hand and toehold trail which extends from the mesa top to the level of the site just south of the tunnel (Room 29). He thought the hand and toehold trail was used by the original inhabitants of Balcony House and that they then entered the cliff dwelling through the tunnel at the south end of the alcove. By the 1930s a long ladder at the north end of the site (Lower Plaza) was in place.

⁹ Only a very small percentage of cliff dwellings are actually oriented to the south or southeast: Long House, Kodak House, Oak Tree House, Fire Temple and New Fire House are examples. Most sites are oriented to the west so only receive afternoon sun, Spruce Tree House, Cliff Palace, Mug House, Spring House, Hernesway House. Step House is oriented to the east (Basketmaker III features) and southeast (cliff dwelling).

¹⁰ "We then follow the cliff to a point below the ruin where it may be reached by a break-neck climb." (Nordenskiöld 1893: 66)

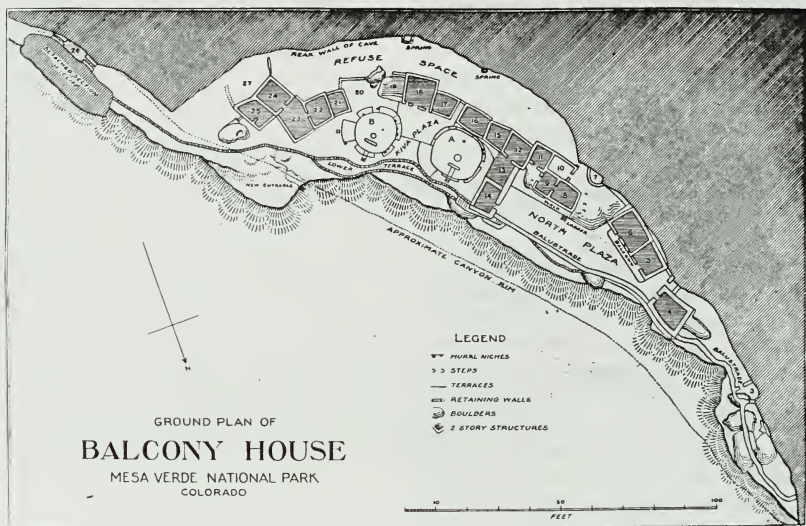
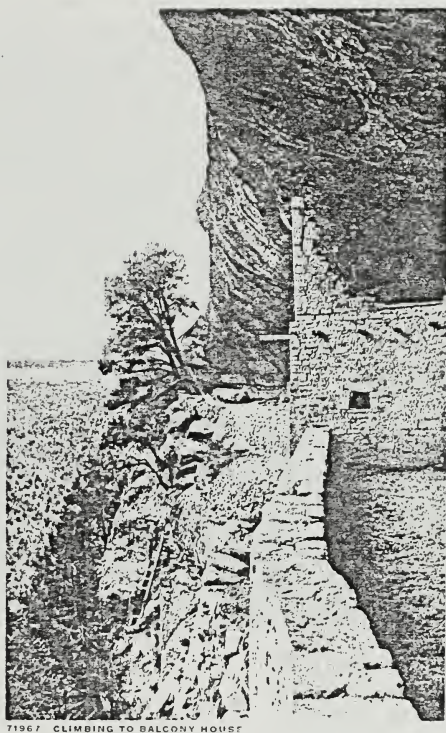


Figure 2.6. 1910 Ground Plan Map of Balcony House by Adams and Chapman. Please note that the current room numbering differs slightly. Photo by Jesse L. Nusbaum. Courtesy Museum of New Mexico, Neg. No. 2151.2, 60498.



71967 CLIMBING TO BALCONY HOUSE

Figure 2.7. A series of ladders below Kiva Plaza (one shown at lower left in photo with two visitors ascending) at the front provided entry into Balcony House until the 1920s, looking south; North Plaza in foreground. Photographer unknown, Courtesy Museum of New Mexico, Neg. No. 6285.

An outstanding feature of Balcony House is the retaining wall that extends the length of the site along the front of the alcove. This wall was undoubtedly necessary because of the irregular nature of the floor of the alcove. Room 4, which dates to A.D. 1271, is incorporated into this retaining wall. Fill behind the retaining wall was used to level surfaces for construction. In several places large detached boulders within the alcove were built upon and/or incorporated into walls and floors of rooms.

The retaining wall was in a very bad state of repair when Nusbaum started work and his first task was to basically rebuild this wall. It is hard to say exactly how much was rebuilt. The portion which outlines the kivas seems to have been completely rebuilt and much of what supports the balustrade in the North Plaza is Nusbaum's work. The very north end of the balustrade in the North Plaza is original. The retaining/supporting wall under Room 4 was repointed in the 1930s. The one 1910 tree-ring date from Balcony House is from a beam which supports a section of the retaining wall on the north end of Lower Plaza.

The Lower Plaza of Balcony House (Rooms 1,2,3)

The Lower Plaza of Balcony House is at the extreme northern end of the site (Figure 2.8). A photograph of the three rooms off this area was taken by Nusbaum after his excavation and stabilization. Wall construction is very crude with the long east wall containing unshaped, mostly dry-laid stones. This wall runs along the edge of the alcove over and under detached boulders. In the Nusbaum photograph the south wall of Room 3, the only constructed cross wall in this group of rooms, is mudded. The mud appears dark and is undoubtedly fresh and was placed in the joints

during stabilization in 1910 (Figure 2.9). On the Chapman map there is a continuous balustrade between the south wall of Room 3 and the north wall of Room 4. Nusbaum says in his notes that this wall is 4 ft (1.2 m) high. At present there is a gap in this wall constructed by the Park Service to make entry up a ladder into this area feasible. The long ladder fits into this gap. What remains of the balustrade in this plaza is 40 cm high near the ladder and 64 cm high near Room 3 (these are interior measurements, the exterior are 49 cm and 85 cm respectively). Nusbaum mentions a smoked boulder in this area. However, now there is only a little blackening on the underside of the boulder. There is a cross wall just north of the entrance ladder that is not on early site maps. Apparently this wall was built by the Park Service. The date of construction and reason for construction is not known. Consequently the area on the present site map which appears to be a room, next to Room 3, is not part of the original site construction.

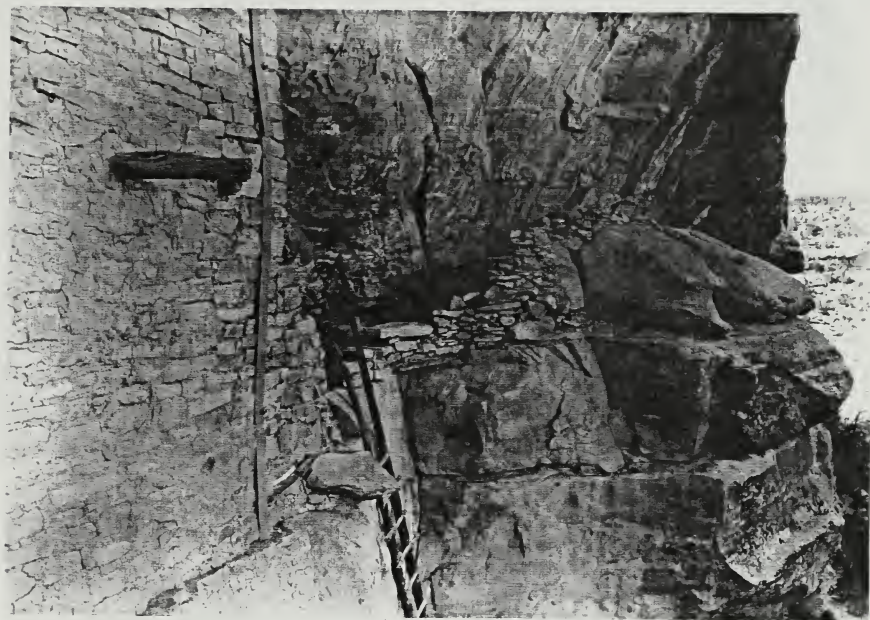


Figure 2.8. Ladder provided entry to Lower Plaza area of Balcony House in 1934. View is looking north to Rooms 1,2,3. Photographer unknown, Mesa Verde National Park 740-08, Neg. No. 0287.

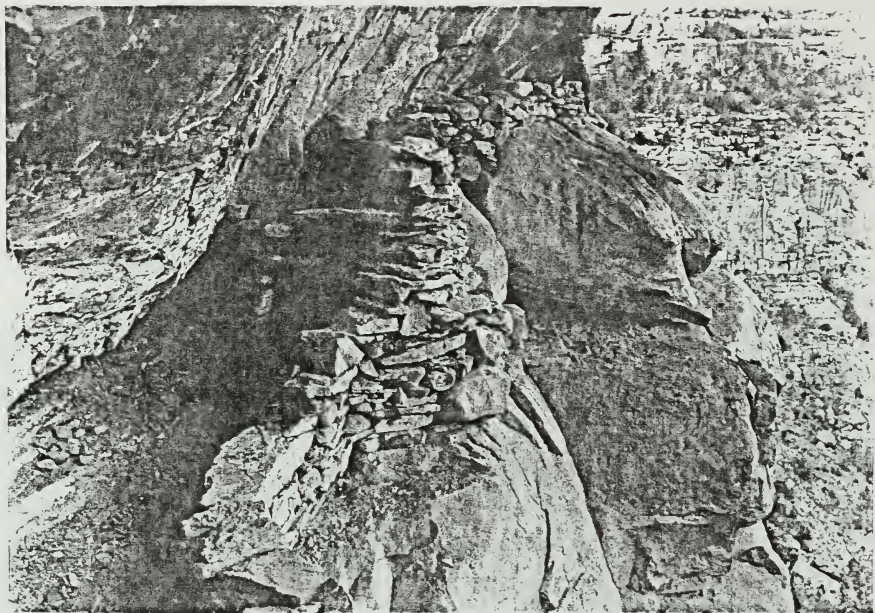


Figure 2.9. Three rooms extend north on narrow ledge in the Lower Plaza after 1910 stabilization. Note Percy “Jack” Adams at top of photo on north edge of Room 1. Photo by Jesse L. Nusbaum, Courtesy Museum of New Mexico, Neg. No. 2152.14, 60503.

North Plaza (Plaza Quarter) of Balcony House (Rooms 4-14)

In the North Plaza a balustrade (wall) 80 cm high is built on top of the retaining wall that extends across the front of the Balcony House alcove. This type of finished retaining wall is fairly unique. Several cliff dwellings in Mesa Verde contain walls that extend from the floor of the alcove to the top of the alcove creating hallways or room walls but few have walls outlining a plaza.

North Plaza is famous for its complex of balconies. The most intact balcony extends across the front of Rooms 6/7 and 8/9 (Figure 2.10). There are also balconies at roof level along the east and south walls of Room 5, and the beams that extend out from the south wall of this area may once have supported a balcony. The other two possible balconies are along the exterior east wall of Room 15a (looking straight down into Soda Canyon) and the east wall of Room 21a which is in Kiva Plaza. The support beams for these balconies extend out 39 to 60 cm from the supporting

walls. There are no obvious balcony types although the two extant balconies on Room 5 are a little different from those on Rooms 6/7 and 8/9. On Room 5 there are distinct secondary beams above the primaries with split juniper over the secondaries; then a layer of mud, then juniper bark, and finally another layer of mud. On Rooms 6/7 and 8/9 the split juniper rests right on the major support beams (the primaries) and then over this is mud, then bark, and finally more mud (Figure 2.11). The more fragmentary balconies contain only primaries.

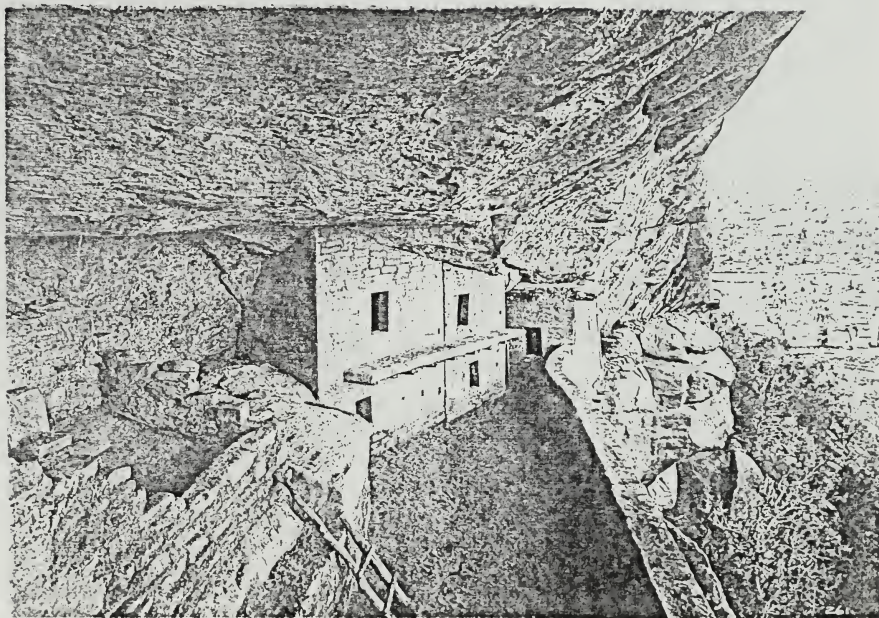


Figure 2.10. North Plaza with the best preserved balcony at Balcony House, left to right Rooms 8/9 and 6/7. Also note balcony on south and east wall of Room 5 at right. Steps carved into boulder are visible above and to the right of the small ladder, 1910. Photo by Jesse L. Nusbaum, Courtesy Museum of New Mexico, Neg. No. 60506



05172 Balcony House, Rooms 5+6, north view

5/76

Figure 2.11. Close up view of balcony construction across Rooms 6/7 and 8/9 looking south in 1976. The split juniper rests right on the major support beams (the primaries) and then over this is mud, then bark, and finally more mud Photo by Kathleen Fiero, Mesa Verde National Park, Neg. No. 05127.

North Plaza also contains some of the finest Classic Pueblo architecture in any cliff dwelling in Mesa Verde: plastered walls made up of rectangular stones with dimpled faces. The stones in the exterior walls of Rooms 6-9 are beautiful examples of this type of stone finishing technique. It is interesting that these walls were plastered so the faces of the stones would not have been visible. The same well-crafted walls contain four small, rectangular niches with small sticks and/or sockets for small sticks in the back of the niches. These are unique to Balcony House and may originally have held sticks that were sacred (prayer sticks). Nusbaum mentions finding carved sticks in the balustrade during its repair. Carved upright sticks are now visible through the crack at the point where the east wall of Room 6 butts to the east wall of Room 8.

The floors of the rooms in this area are at various levels since the cliff dwelling is built on detached boulders that rest on what must have been a very irregular alcove floor. Rooms 5 to 14 are entered directly from this Plaza. Room 4 is entered through a hatchway in Room 5. Of the doors off the plaza only two are T-shaped and one had originally been T-shaped but was modified prehistorically into the more common rectangular doorway. The two T-shaped doorways are at the north end of the plaza: the doorway into Room 5 and the doorway into the north passageway. Both of these doorways have wood lintels. The sill of the doorway into Room 5 is unusually high and makes entry into the room awkward.

Only one of the rooms off North Plaza, Room 12, has any evidence of fire, and the top and back of the alcove are also free of smoke blackening. This is in sharp contrast to the Kiva Plaza where there is extensive evidence of fire. The corner hatchway into Room 4 from Room 5 was sealed and covered with what

appears to have been a fire pit. A collar of mud coping outlines the feature. But there is no evidence a fire ever burned at this location. There is no discoloration of either the feature or the room walls that it was built against.

There are other interesting features in the rooms off the North Plaza. Rooms 5 and 7 contain wooden "racks" which extend across the short axis of the rooms. In Room 5 there are five poles across the room and in Room 7 there are three. There are actually six pole sockets in Room 5. In Room 9 a beam extends across the long axis of the room 1.55 m (5 ft) above the floor. Room 4, the room below Room 5, can only be entered by an opening in the floor of Room 5. It is smaller than Room 5 with the west wall of this room further east than in the room above. The interior walls of Room 4 have a rough finish and were built around detached boulders. This room was undoubtedly used for storage when in use. The room was sealed before the site was abandoned. Room 10, a small irregularly shaped room with crude masonry, may also have been used for storage. It is in this room that Nusbaum found numerous "prayer" sticks. The function of the other rooms, including the rooms with wooden "racks" and beams extending across them, is unknown. When Nusbaum excavated Balcony House there was a pole across the walkway between Rooms 5 and 6. Nusbaum notes that it was two inches thick and that everyone bumped their heads on it. At some point, during or after stabilization, the pole was cut off at the plane of the exterior south wall of Room 5 and removed from the exterior north wall of Room 6. Stabilization mortar now fills the socket in the wall of Room 6.

Kiva Plaza (South Plaza) (Kiva Quarter)
(Tower Quarter) of Balcony House (Rooms
15-29, Kivas A and B)

Kiva Plaza, the southern area, contains the only kivas and the majority of rooms in Balcony House (Figure 2.12). The north, west, and south sides of the area are lined with rooms which do not extend to the back of the alcove. The back of the alcove contains the spring and was used, according to Nusbaum, for the disposal of trash (Figure 2.13). Also in the back, the roof of the alcove is completely smoke blackened as are the back walls of the rooms indicating that fires at one time burned there. There is no direct access from the North Plaza into the Kiva Plaza. The wall which separates the two courtyards contains a "filled in" doorway which was blocked prehistorically. Once this was done the access between the courtyards was along the back of the alcove, behind Rooms 13, 14, 17-19.

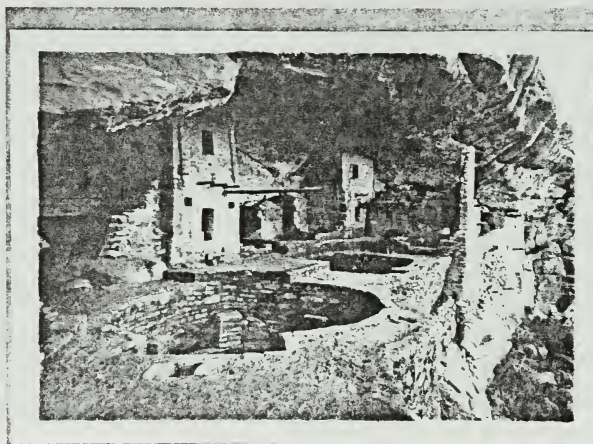


Figure 2.12. Kiva Plaza in 1910 after the repair looking north. Note the two kiva depressions at the front of the alcove and the two "tower"-like two-story rooms with vigas jutting out over the kiva. Also the dividing wall to the north and Percy "Jack" Adams between the kiva and dividing wall. Photo by Jesse L. Nusbaum, Courtesy Museum of New Mexico. Neg. No. 2151.36. 6319.

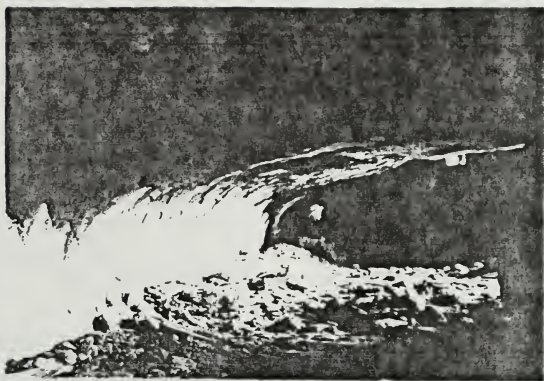


Figure 2.13. Back of alcove at Balcony House probably 1907 with Dr. A.J. Fynn sitting at back. Photo by Jesse L. Nusbaum, Courtesy Museum of New Mexico, Neg. No. 2152.27, 60512.

The Kiva Plaza is dominated by two large, deep kivas. One shows signs of having been modified prehistorically. The kivas and the retaining wall along the front of the site were in very bad shape before excavation and stabilization in 1910 (Figure 2.14). A section of the alcove roof had collapsed onto the kivas sometime after the abandonment of the site and before the site was first photographed in the late nineteenth century. In fact Nusbaum thought that there were two episodes of collapse represented in the debris that filled much of the east side of Kiva Plaza. The collapse of kivas and retaining wall in turn disturbed the loose fill on which the north, west, and south rooms of this courtyard had been built. This plus moisture from the spring is probably responsible for the loss of the front walls of Rooms 15, 18, 19, 20, 24, 25, and 26.

Three of the nine doorways in Kiva Plaza are T-shaped: two lower doorways and one upper. This upper doorway led Nusbaum to question whether Room 26 was two-story since he thought that interior doorways were never T-shaped. A large rectangular doorway, which was filled in prehistorically, had allowed movement from Kiva Plaza into North Plaza.

One of the glaring differences between Kiva Plaza and the North Plaza is the evidence of fire. There is plentiful evidence of fire in Kiva Plaza while there is almost no evidence of fire in the North Plaza. The back of the alcove in Kiva Plaza is blackened with smoke as are the back walls of Rooms 13, 14, 17-19, 21, and 24-27. Room 18 must have actually burned as the walls are oxidized to a red color and the remains of the vigas are charred on the exposed ends. Room 21a is heavily smoke blackened as is Room 19.



Figure 2.14. Balcony House before repair in 1910 view from south side, south of Kiva Plaza to the dividing wall, showing the extent of damage and destruction of the two kivas bordering the house wall and retaining front wall caused by massive rock fall from the alcove roof. Also note the curved stone kiva wall with niche in the foreground. E.M. Nusbaum is excavating at the dividing wall at right. Photo by Jesse L. Nusbaum, Courtesy Museum of New Mexico, Neg. No. 2151.35, 6320.

Most of the rooms in Kiva Plaza are regular in shape and large enough to have been habitation rooms. Room 24b is small and of irregular shape, but the design painted on the plaster of the walls suggests that this room was not used for storage. The design is a fairly common one in Mesa Verde cliff dwellings: a band along the lower wall with clusters of three triangles painted above the band. Room 25b has an unusual double opening in its south wall with no known function.

Nusbaum mentions uncovering a row of mealing bins along the west wall of Room 26. This is rather surprising as there is a doorway in the wall. As noted by Nusbaum, it is also surprising to have mealing bins right against the wall. The more typical arrangement is to have a space between wall and mealing bin, a space used by the person doing the grinding. There is presently no evidence of these bins and no known photograph of them. There is a post excavation photograph of this room by Nusbaum, and in it there are numerous metates and manos along the west wall. No other mealing bins were found in Balcony House. Room 26 is also the only room in Kiva Plaza with a definite fire pit. The fire pit is still extant but there is only minimal evidence a fire ever burned in the feature: a slight reddening of stones and fill.

CONTROLLING ACCESS WITH TUNNELS AND DOORWAYS IN BALCONY HOUSE

One of the interesting aspects of Balcony House is the controlled access from one portion of the site to another through tunnels and doorways (Tunnel and doorway descriptions appear in Appendix E). A tunnel (Room 29), the main entrance of the site and possibly the only aboriginal entrance, restricts access to the entire site (Figure 2.15). Once

through the tunnel it is possible to enter Kiva Plaza directly or walk behind the rooms of Kiva Plaza to North Plaza.

To get into North Plaza from Kiva Plaza it is necessary to be at the back of the alcove, to walk behind Rooms 17, 18, 19, 13 and 14, then walk on the upper surface of a boulder and descend the boulder on steps (the prehistoric steps have been enlarged for modern feet) into the main portion of the North Plaza. On the basis of very fragmentary evidence and Nusbaum's notes, when Nusbaum worked at the site there was an actual tunnel between the exterior west wall of Room 13 and the back of the alcove. Beams supported the floor of the tunnel. The walls of the tunnel were the back of the alcove and the west wall of Room 13. The only remaining indications of this tunnel are the beam sockets in the exterior west wall of Room 13 and the pattern of smoke blackening on the exterior wall of Room 13. Something prevented smoke from staining the north end of the exterior west wall of that room. This tunnel would have demanded crawling into the North Plaza from Kiva Plaza.

Access was further restricted from North Plaza into Lower Plaza. It was necessary in 1910 and aboriginally to pass through a large T-shaped door and then down through a hatchway and passageway into Lower Plaza. A lot of effort went into the construction of the Lower Plaza hatchway. Entry to the North Plaza from the Lower Plaza was through a passage behind (west) of Rooms 4/5 where there is a gap between the west wall of the rooms and the back of the alcove. The Lower Plaza is lower in elevation than the other two plazas. To assist in entering the North Plaza from the Lower Plaza, the inhabitants placed a stick in the wall. This wall extends from the southwest corner of Room 4 to the back of the alcove.

The stick functioned as a step. The inhabitants then passed through a hatchway and finally through a T-shaped doorway. The doorway is still extant but the hatchway that Nusbaum refers to has been modified to enlarge the opening. To build the hatchway the inhabitants extended seven wood beams from the exterior wall of Room 5 to the back of the alcove and then built a stone wall on these beams. This wall extends to the top of the alcove and defines the north wall of the space created for the hatchway. The south wall contains the T-shaped doorway, the west wall is the back of the alcove and the east wall is the exterior wall of Room 5. The "floor" of this space contained the hatchway which was outlined with small beams. All but one of these beams has been removed, probably by the Park Service, but the sockets for these beams remain. At present there is a short Park Service ladder taking the place of the prehistoric step which was below the hatchway and was used to step through the hatchway.

Obviously the intent of the above features was to restrict access first into the site and then from one portion of the site to the other. It is apparent from the tree-ring data that two of these access restrictions were constructed late in the occupation of the site, A.D. 1278-1279. There are no tree-ring dates from the middle passageway.

At some point in time a doorway (Room 16) was sealed in the wall that now separates the Kiva and North Plazas. Also the "window" in this wall (Room 15), may have been a larger opening that was reduced in size.



Figure 2.15. Tunnel entrance into Balcony House in 1961, north end looking south. Photographer unknown. Mesa Verde National Park, Neg. No 11114.

The question that of course begs to be answered is "why all this construction to restrict access?" The hatchway between North Plaza and Lower Plaza seems particularly strange. What is so important at the north end of the site that only a select few should be allowed there? Right now the rooms in that area are fragmentary but never seem to have been of particular importance. The walls are dry laid and are built under and on boulders. There are work areas (narrow and wide grooves) on those boulders. Also water flows down the face of the cliff at this end of the site. Vegetation now grows in this area because of the water. Below the site, at the top of the talus, is a dependable spring but there is no obvious access from this north end of the site down to the spring.

The tunnel (Room 29) at the south end of the site (and the south end of South Plaza) dates to the late construction period in Balcony House. The tunnel is built between the cliff face and a large detached fragment of the cliff face. The design of this access tunnel has led many to view Balcony House as a defensive site. One has to crawl through the tunnel on knees and in the floor of the "room" is a low shaped boulder which one must crawl over--further slowing progress. The roof over the tunnel gives access to fairly small openings in the wall built over the tunnel. These could have been used to view any visitors to the site. To get into Balcony House from the mesa top there were two routes which seem to have been used by the inhabitants. Both routes led to the tunnel entrance. Employing the first route to get to the southern access tunnel to Balcony House from the mesa top, the inhabitants descended just south of the tunnel, down a series of hand and toe holds undoubtedly with the aid of a rope since the cliff face is almost vertical in this area. The second route to Balcony House may have been down a series of hand and toe holds

located about 152 m (500 ft) south of Balcony House which extend down to the top of the talus slope-- 6 m (20 ft) or so below the ledge on which Balcony House is built. On the talus slope, the trail leads to the very south end of the ledge on which Balcony House is located. One must then ascend up a crack to the south end of the ledge. At the south end of this ledge there is a poorly preserved site (5MV617) with a partially intact retaining wall. North of this site, 91 m (300 ft), is the tunnel entrance to Balcony House.

To enter Balcony House, Nusbaum and his crew suspended a rope off the cliff just south of the tunnel, using one of the prehistoric access routes. He secured his rope by drilling a hole in the slickrock above the site and placing a pipe set in concrete into this hole. This pipe is still in place but no longer used. Nusbaum's father seems to have preferred the tourist trail and not the rope. This trail was to the north of the site down a series of steps, faults and ladders, then into the site up a series of ladders below Kiva Plaza. The general public now exits Balcony House through the tunnel and then up a series of ladders and steps carved into the cliff face by the Park Service just south of where Nusbaum suspended his ropes.

ARTIFACTS FROM BALCONY HOUSE

The artifacts from Balcony House reflect the daily activities of inhabitants of the Pueblo III time period, A.D. 1100-1300, Classic Pueblo, in the Mesa Verde region. Those of which we have record include: ceramic vessels for cooking and serving; stone and bone tools for cutting, scraping, and piercing; a stone pendant for ornamentation; basketry for storage and serving; and cordage for many domestic uses.

During the 1910 excavation and repair of

Balcony House, Nusbaum's crew found ceramics, bone, stone, and perishable material such as cordage and a basketry fragment. Three upright sticks, one carved and notched, were found within the balustrade in the North Plaza. They had no known function and Nusbaum considered them prayer sticks¹¹. Also a carved stone was noted in the balustrade. Other objects listed in Nusbaum's first letter to Hewett are a stone ax, tied knots, sherds, rubbing stones, and a kiva altar stone with a greenish cast. Only the altar stone would be unusual and since he does not describe the object, it is impossible to know its size and shape. It may be what is now called a tchamahia, a ceremonial hoe. In his second letter he mentions manos, ax heads and a wicker woven basket. In his third letter he lists two projectile points and sherds. He was obviously frustrated that they had found no whole ceramic vessels. They trenched the fill in the back of the alcove and in his report he mentions uncovering sherds, ax heads, manos and metates, gourd rind, and animal bones including turkey. Nusbaum's father, E.M. Nusbaum, mentions stone hammers, crockery, bone awls, and one stone knife.

Both Jesse Nusbaum (see last sentence of his report) and his father (October 24 comments) complain that the site had been completely looted before their excavation and repair. Considering the condition of the two kivas and the amount of fill and roof fall in them, it is amazing that even the fill in these structures had been gone through. John Wetherill does state to Nusbaum that what he found came from the kivas (October 14 letter). McClurg mentions a loom at the site in 1886, also

carved sticks, pottery, bone implements, feather cloth and rush matting (Mc Clurg and McClurg 1916).

There are several photographs of the artifacts from Nusbaum's excavation and repair of Balcony House. In the 1910 photograph of Room 26 there is a large collection of manos and metates. There are three photographs of artifacts at the Museum of New Mexico from the Balcony House excavation. One shows a sample of sherds most of which appear to be Mesa Verde Black-on-white (Figure 2.16). The second photo shows eight grooved axes (and/or mauls) and a possible tchamahia (hoe) (Figure 2.17). The third photo shows bone awls and scrapers, five carved and notched sticks, possibly a wood digging stick, two chipped stone knives (possibly the two projectile points referred to above), four polishing stones, a stone or jet pendant, a section of cordage, a fragment of a woven object (possibly a basket) plus two other objects of stone (beads?), one of wood (half of a wooden disk?) and one of bone (Figure 2.18)

Besides the photographs, the Laboratory of Anthropology, Museum of New Mexico collections contains only two artifacts from Balcony House: a bone scraper (Catalog No 27244/11), and a puncher (Catalog No. 28572/11).

The Colorado Historical Society has six objects in the Wilman Collection from Balcony House which they collected before Nusbaum's work in 1910 : one kiva jar, one mug, and 3 or 4 lids.

¹¹Mesa Verde National Park archaeologist, Larry Nordby, found similar objects associated with a precarious wall in Mummy House in Canyon de Chelly in a section of the site with Mesa Verde architectural attributes.



Figure 2.16. Ceramic artifacts from 1910 Balcony House excavation, Mesa Verde Black-on-white bowls, kiva jar rim, and jars. Rim sherd at lower right is approximately 5 cm (2 in) along the rim, Photo by Jesse L. Nusbaum, Courtesy Museum of New Mexico, Neg. No 60658.



Figure 2.17. Lithic (stone) artifacts from 1910 Balcony House excavation: eight grooved axes (and/or mauls) and tchamahia (hoe). Artifact at lower right approximately 12 cm long (4 3/4 in) Photo by Jesse L. Nusbaum, Courtesy Museum of New Mexico Neg. No 60669.



Figure 2.18. Artifacts from 1910 Balcony House excavation: bone awls and scrapers, five carved and notched sticks, possibly a wooden digging stick, two chipped stone knives, four polishing stones, a stone or jet pendant, a section of cordage, a fragment of a woven object (possibly a basket), two other objects of stone (beads?), an object of wood (half a wooden disk?), and another bone object. Artifact at lower left approximately 5 cm (2 in) long. Photo by Jesse L. Nusbaum, Courtesy Museum of New Mexico, Neg .No. 60659.

Stabilization and preservation work at Balcony House since 1910 resulted in a small collection of artifacts in the Mesa Verde National Park collections. In 1935 a corn cob on a stick was collected. In 1939, during stabilization activities, Lancaster collected an awl made from turkey bone (Figure 2.19). A small bowl with three interior parallel bands just below the rim and with the rim ticked, was found "under a rock below the exit trail" and was classified as a surface find of McElmo Black-on-white (Figure 2.20).

The most noteworthy discovery, was found during stabilization in the 1958. It was of a small Mesa Verde Corrugated vessel which contained dried roots, a skin pouch, a skein and other sections of cordage, cotton cloth, a ground stone object, 32 turquoise beads, 154 shell beads, and two abalone shell discs. These artifacts were found in the back of the alcove near the spring (Figure 2.21).

Lithic artifacts have also been collected from Balcony House. A hammerstone was collected from the surface in the site in 1961. Lancaster collected a full-groove, single bit axe in 1962 under a rock at floor level in the southwest corner of Room 22 (Figure 2.22).

In 1977 a variety of artifacts were found during a stabilization project in the back of the Kiva Plaza courtyard. A basalt hammerstone, bone (mule deer) flaker, and 35 sherds (4 bowl rim sherds, 5 bowl body sherds of Mesa Verde Black-on-white; 3 Plainware jar sherds; 22 Corrugated Jar sherds; 1 Mesa Verde Corrugated jar rim sherd), and two fragments of unworked bone (turkey and cottontail) (Figures 2.19, 2.22, 2.23, 2.24, 2.25).

In the 1978 stabilization work two manos and 15 sherds were found in the back of the site, 9 m (30 ft) north of the spring. The sherds were

3 bowl rim sherds and 3 bowl body sherds of McElmo/Mesa Verde Black-on-white; 1 bowl body sherd and 1 perforated ladle handle of Plainware; and 2 Mesa Verde Corrugated jar rim sherds and 5 Corrugated body sherds (Figures 2.22, 2.23, 2.24, 2.25). Also in the collection is a dendrochronological specimen with stone axe cut end, Gila Pueblo specimen #6638.1.

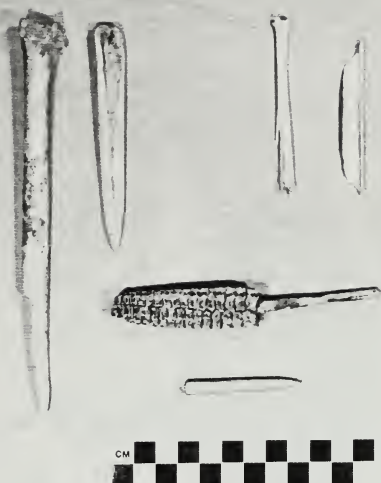


Figure 2.19. Corn cob on a stick (center), turkey bone awl, mammal bone scraper, rabbit tibia, mammal bone scraper (top row left to right), and bone awl below corn cob from Balcony House now at Mesa Verde National Park, Neg No. 15.



Figure 2.20. McElmo Black-on-white bowl from Balcony House now at Mesa Verde National Park, Negative 10.



Figure 2.22. Lithic artifacts from Balcony House, (center left to right) full-grooved single bit axe, two hammerstones. (outer edges) 2 two-hand manos, now at Mesa Verde National Park. Negative 18.



Figure 2.23. McElmo/Mesa Verde Black-on-white bowl sherds from Balcony House now at Mesa Verde National Park, Negative 6.

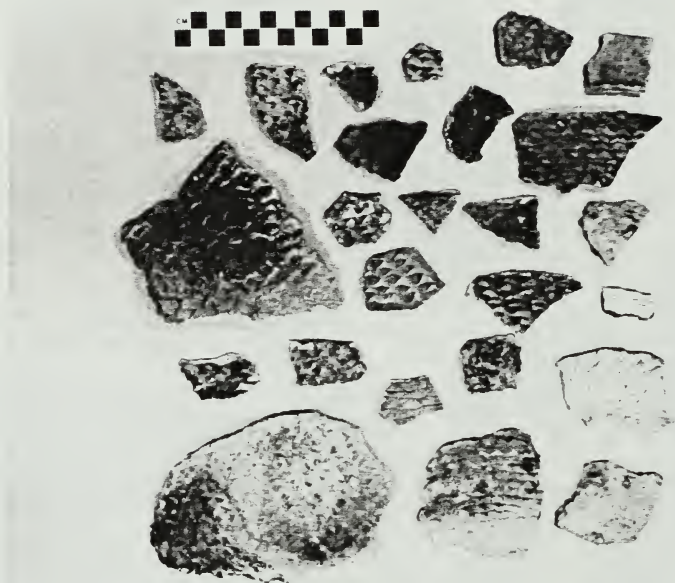


Figure 2.24. Corrugated jar sherds from Balcony House now at Mesa Verde National Park, Negative 10.



Figure 2.25. Ceramic artifacts: Mesa Verde Black-on-white bowl sherds, perforated ladle handle, corrugated jar sherds from Balcony House now at Mesa Verde National Park, Negative 2.

CONSTRUCTION HISTORY OF BALCONY HOUSE

How the Balcony House cliff dwelling was built and changed through time can be established on the basis of tree-ring dates, wall abutments, and the distribution of the various types of mortar used in the wall joints. There were at least three construction periods. The first construction was in the 1180s-1220s. The second construction was in the 1240s. And the third and last construction period was in the 1270s.

There are some limitations to the interpretation of Balcony House construction for two reasons. First, all of the rooms at Balcony House could not be assigned a date. And second, there are eight distinct areas with no common or abutting walls between areas, and of these areas, only five have yielded dated structural wood.

The Lower Plaza (Rooms 1,2,3) cannot be dated because of the lack of thirteenth century tree-ring samples and no common or abutting walls. The 1910 date on the wall support under Room 3 certainly dates from the Nusbaum stabilization and repair of Balcony House.

In Kiva Plaza the kivas are not dated and the cluster of rooms at the south end of the site, Rooms 24, 25, 26, and 27 are not dated.

That there was construction in the Balcony House alcove in the 1180s through the 1220s is evident from the reused beams which were dated in Room 4, 6, 8, and 9. Other early and reused beams were found in the South entry, the log pile behind Room 24 and 25, and the room in front of Room 21.

Balcony House Construction in the 1240-60s

Balcony House construction in the 1240s seems to cut across the North Plaza/Kiva Plaza boundaries. This area is the most complex in the site. Construction started in A.D. 1247 with Room 17a at the center back of the alcove. And although no tree-ring material was found in Rooms 11, 12, 13, or 14, the room abutment sequence indicates that Rooms 14a, 11a, and 12a were probably built soon after Room 17a. Room 14a abuts room 17a, and Rooms 11a and 12a abut Room 14a.

The second floor rooms have a different abutment pattern and the walls are not aligned with the first floor room walls. Room 14b abuts Room 17b but Room 14b and Room 13 were constructed at the same time (Room 13 and 14b area at the same level since Room 13 is built on a boulder). The middle passageway is an integral part of Room 13. Since this passageway may very well date to the same time period as the north and south passageways, these rooms probably date to A.D. 1278 or 1279.

In North Plaza, Rooms 8 and 9 were built in one construction episode around A.D. 1248. Room 10 did not contain any tree-ring material and is an isolated room at the back of the alcove, however, sticks, which may have been pahos, were found in this room in 1910.

In A.D. 1261 Room 18 was added to the south of Room 17. This was followed by construction of Room 19. At the second story level Room 18 has an extension to the west, to the back of the alcove, of primary and secondary wood supports. The area is small and extends back only 50 cm. This suggests that the roof of Room 18a was a work space, not an enclosed room. In contrast, Room 19 appears to have been two stories as indicated

by plaster and lines on the back of the alcove.

Balcony House Construction in the 1270s

In the North Plaza, Room 4 was built in A.D. 1271 followed by Room 5 in A.D. 1279 and the North Passage in A.D. 1279. The balustrade is tied to Room 5 indicating was built at the same time. Rooms 6 and 7 were built in A.D. 1275 and were abutted to Rooms 8 and 9.

The separation of Kiva Plaza may have taken place in A.D. 1279 with the construction of the dividing wall with Rooms 15 and 16. The big wall butts to Room 17. What remains of the upper wall is not aligned to the lower. Above Room 16 there is a mud line on the alcove roof outlining a rectangular space. There is smoke blackening on the inside of the area indicating a room. The north line is more or less in line with the north wall of Room 16. The south line is offset 30 cm from the south wall of Room 17. There is no evidence of former walls on the exterior east wall of Room 17b. This wall is critical and hard to interpret. There is one obvious filled-in doorway (north wall Room 16). In the north wall of Room 15 there are a few stones under the vent which are aligned but this is not a very obvious filled-in doorway.

In Kiva Plaza, in A.D. 1275, Room 21 was built. Rooms 21a and 21b were built as a unit. Then Room 20 was built to the north and Room 22 to the south. The back wall of the alcove behind these rooms is smoke blackened and the blackening follows the wall lines.

The southernmost roomblock in Kiva Plaza, Rooms 24 to 27 are not dated but a construction sequence can be proposed based on wall abutments. Room 27a was the first room built with Room 27 b sometime later.

Then Room 25a was built followed by Room 26, and sometime later Room 25b. Sometime between the construction of Room 27a and Room 26, Room 28 was built to the east. Room 24 a and b were the last to be built in this roomblock and were built at the same time..

The Room 26 b work area was probably never enclosed. A T-shaped doorway leads to this area from Room 25b and the southeast corner of Room 25b is not aligned with the corner of Room 26. There is an opening in this area to allow access to a storage area behind Rooms 25 and 26 at the second story level. Viga wall sockets and smoke blackening indicate the storage area existed.

The south entry tunnel (Room 29) was built in A.D. 1278.

Interpretation of Construction History

In Balcony House the 1270s additions drastically modified the courtyard layout. Room 21 was built between the two courtyards and Rooms 15 and 16 separate one of the room suites (Rooms 11, 12, 14) from its kiva.

The north end of the North Plaza with its beautifully preserved balconies does not quite fit the ideal of a typical thirteenth century room suite because the rooms do not appear to be associated with a kiva. Rooms 8 and 9 never fit into any suite with associated kiva. In the 1270s, Rooms 6 and 7 were abutted to 8 and 9. Room 4 was built early in this period (A.D. 1271) and eight years later Room 5 was built over this storage room. None of these rooms had easy access to a kiva. However, the balustrade, built at the same time as Room 5 and the north passageway, may indicate some attempt to integrate these rooms with a focus on the North Plaza..

Other features and rooms built in the 1270s obviously were added to increase the difficulty of moving from one section of the site to another. The tunnel restricted access into the site and the platform over the tunnel with its loophole allowed observation of all those entering the site. Room 21, with the additions of Rooms 20 and 22 and possibly at the same time Room 23, controlled access into the spring and refuse area. With the construction of the big cross wall restrictions increased but when the door in this wall was sealed, control into the north end of the site becomes very obvious. At that point to enter the north end of the site, it was necessary to go through the spring and refuse area to get to the tunnel of the middle passageway. The only other option was to go over the big wall at the second story level, Room 15. At the same time, construction of Room 5 and the north passageway restricted movement into the very north end of the site (Lower Plaza area). The latest date from Balcony House is A.D. 1279 so the site was probably abandoned sometime around A.D. 1300.

Through time the alcove was filled with more and more rooms but still much open space remained. What is obvious is that communication between different areas in the site was more restricted in the late 1270s. The features which have often been interpreted as defensive were built or modified at this last period of construction. These are the cross wall (A.D. 1279), the south tunnel (A.D. 1278), and north passageway (A.D. 1279).

INTERPRETATION OF ROOM FUNCTION AT BALCONY HOUSE

Determining the function of the various rooms and areas of the site is difficult because of the condition of the site when it was stabilized in 1910 and the extensive removal of artifacts

before scientific excavation. Some room conditions suggest domestic activities such as cooking and heating. Other rooms lack features and could conceivably have been used for storage or sleeping. Comparing the structural features of Balcony House with other sites provides one means of interpretation.

Characteristics of Cliff Dwelling Rooms

The larger Mesa Verde cliff dwellings contain living rooms and storage rooms with associated kivas and courtyards. Many cliff dwellings also contain towers and refuse areas within the alcove. The large sites were often constructed in a symmetrical fashion that suggests a dual division of the site (Rohn 1971). Living or habitation rooms are assumed to be for sleeping as well as daily activities so they are relatively large and contain a firepit or evidence of fire. Storage rooms are small, irregularly shaped rooms without a firepit. The distinction between living and storage rooms is not always clear and it is undoubtedly true that the function of these two types of rooms often changed during the time the room was used. Such attributes as plaster and its location, doorway size and shape, and sill height have been examined in an effort to distinguish living from storage rooms, but no consistent patterning is evident. Also some rooms of the size and shape of living and storage rooms contain special features such as several meal bins which distinguish them as special purpose rooms.

The typical kiva in the thirteenth century cliff dwellings of Mesa Verde, was keyhole-shaped with an encircling bench about a meter above floor level on which are located six pilasters (roof supports). The keyhole shape is created by a southern recess which, as its name implies, is oriented to the south. The raised

surface of the recess is usually at the same level as the bench. Floor features include a sipapu, firepit, deflector in line with the ventilator shaft which extends under the southern recess. An effort was made to make the kivas subterranean or to at least appear subterranean and their roofs were part of the courtyard. Some kivas are connected by a tunnel with a tower.

Towers are circular and have no standard floor or wall features. Often towers are associated with a kiva but not always.

These types and shapes of rooms were also present in the preceding Pueblo II period (A.D. 900-1100) and in some cases before. In open mesa areas, the roomblock consists of living and storage rooms with the living rooms at the front (south). Then in front of the roomblock (again to the south) is the kiva and in front of the kiva the trash area—all aligned north-south with the roomblock to the north and trash to the south. In early Pueblo III times, the kiva was often surrounded by a wall or courtyard with, in some cases, rooms on the west, north, and east sides of the courtyard.

In an alcove, space was limited and the courtyards and rooms had to conform at least in part to what was available. In some cases large detached boulders in alcoves were incorporated into roomblocks or served as a footing for room construction. In some cases these boulders were modified but often they were not. Often sloping alcove floors were leveled by constructing retaining walls and adding fill.

The Room Functions in Balcony House

In Balcony House boulders were incorporated into room blocks and were used as footing. Also, as is common in alcove sites, the

preferred lay-out of a site or room was modified to conform to the limitations imposed by the setting. In Balcony House the southern orientation of both kivas was partially modified—undoubtedly to improve ventilation. The southern recesses are still oriented to the south but the ventilation system and associated floor features are oriented to the east.

In almost all well preserved kivas, the walls and roof are smoke-blackened suggesting a great deal of use. Also such daily items of use as ceramic vessels, manos, and metates are found in kivas. This suggests that kivas were used for more than just special ceremonies. The kivas in Balcony House are not at all smoke-blackened. This is undoubtedly because the walls have been rebuilt, first by Nusbaum and then again sometime around 1940.

In Balcony House few rooms fit the strict definitions of room type as described above but in general the following functions can be assigned.

Living Rooms: Rooms 12, 17b, 18, 19, 21a, 21b, 25b, 28 are all large enough, and have a hearth (Room 28 when excavated) or smoke blackened walls.

Storage Rooms: small and irregular: Rooms 1, 2, 3, 4, 10, 11, 22a; no evidence fire: Rooms 25a, 26a.

Special Purpose Rooms: Room 5 ("rack" and firepit), Room 7 ("rack"), Room 24b (decorated walls), Room 26a (firepit and mealing bins), Room 24b, (decorated plaster, smoke blackening), Room 29, tunnel and access control).

Work Areas/Open Areas: Rooms 16, 26b

Kivas: Kiva A, Kiva B

Towers: none

Of Unknown Function (not enough left of room to determine function): Rooms 20a, 20b, 22b, 23

In Balcony House there are two refuse areas. In this regard it follows the typical cliff dwelling pattern. Some trash was thrown down the talus slope in front of the site and some was deposited in the back of the alcove. One very obvious feature of the refuse area is the intense smoke blackening on the alcove and room walls that define the area. What is really intriguing is that the blackening stops at walls (is not found between the tops of walls and the alcove ceiling) with the only exception Room 24b. This means that the fires that created this blackening burned after these walls were built. Even in the case of Room 24, the south and west walls (which border the refuse area) of this two-story roomblock are smoke blackened. This means that lots of fires burned in this area (understandable considering how cold Balcony House can be) very late in the occupation of the site.

The refuse area in back of the alcove also contained two "springs." In other words there were two areas where modification were made by the original inhabitants to collect water. Nusbaum locates one spring south of the middle of the refuse area and one north of the middle of this area.

Room suites are several rooms which are mutually accessible (common doorways) and typically contain living and storage rooms. Balcony House has four areas where rooms are interconnected. Rooms 25a, 26a, 27a are connected by doorways as are Rooms 11a, 12a; Rooms 8, 9 are connected by a hatchway as are Rooms 4 and 5. Only in the case of Rooms 8 and 9 were these rooms built in the

same construction episode.

Room suites were often combined into courtyard units which consisted of the rooms, and a kiva all organized around an open space or courtyard. At Balcony House the restrictive architectural modifications of the A.D. 1270s obscured these courtyard units. By ignoring the late additions (Rooms 21 to 23, and Rooms 15 and 16 with the big cross-wall), it can be seen that there are two courtyards in Balcony House, each with a kiva, cluster of rooms and source of water in the back of the alcove. Kiva A Courtyard consisted of Rooms 11-14, 17-19 and Kiva A and was constructed in the A.D. 1240s to 1260s. Kiva B Courtyard consisted of Rooms 24-28 and Kiva B (no construction dates). The wall Nusbaum uncovered between the kivas during excavation probably defined the boundary between the two courtyards.

Cliff dwellings are often divided in half with several courtyards and a tower at each end. There are only two courtyards at Balcony House so whether a division such as is found at Mug House, Spruce Tree House and Cliff Palace ever really functioned at Balcony House is unknown. There are no towers in Balcony House. Nusbaum used the term in referring to two-story roomblocks, not what would now be labeled a tower.

Special Features of Balcony House

Balcony House has interesting characteristics: lots of balconies, a low kiva to room ratio of 1:15 (1 kiva to 15 rooms) instead of the usual on Chapin Mesa of 1:10, wood racks in two rooms, few internal firepits, one room with 8 mealing bins, almost no evidence of fire in the north half of the site. But the characteristics are not of the large scale or nature of the special purpose sites on Mesa Verde. Very typical artifacts were found at Balcony House

apparently. Nusbaum mentions a ceremonial stone but what he was referring to is not known. Certainly the photographs that are available of the artifacts from the site are not at all unusual except for maybe the number of carved wood sticks. And even those have been found in other sites with Mesa Verde architectural characteristics in areas where engineering skills would benefit from spiritual intercession.

The most unique rooms in Balcony House were constructed in the 1270s: the two rooms with racks, the north passage, and the south entrance tunnel. Unfortunately, there is no date for the meal room and the room with the decorated walls, or the middle passageway.

Was some special purpose indicated by restricting access to the north end of the site? Constructing the north passageway with its hatchway seems an extreme measure when all that was north was a small open area and three crudely outlined rooms that were not roofed. The tunnel at the south end of the site was at least restricting access to the main site from a fairly long, if narrow, ledge. There is a retaining wall and maybe one room (a possible tower) at the very south end of the ledge. Three large deep viga sockets are pecked into the cliff face above the room and above this is a very large hand pecked into the cliff face. Even further south past the end of the ledge is a series of hand and toe holds extending down the cliff face from the top of the mesa to below the level of the Balcony House ledge.

Is it possible that some of the 1240s rooms were abandoned by the time of construction in the 1270s. This certainly is not so for Rooms 8 and 9. The balcony is continuous across rooms of the two construction periods. Room 4 was sealed off before or when Room 5 was built. It is strange that walls of several rooms

are missing: Rooms 20 and 27 are in well protected areas so weathering was not responsible for their destruction. Possibly rooms were abandoned and the stones were reused or the use changed and rooms were modified accordingly. In the North Plaza 1270s construction includes two rooms with racks (Rooms 5 and 7), and the north passageway with its elaborate hatchway. Maybe after the 1270s the main activities took place in Kiva Plaza with only special use activities in North and Lower Plazas.

Another interesting question, why are there impossibly high doorways--in Room 5, Room 17 and Room 21? It is incredibly awkward for a person of any height to enter and exit these rooms. The present floor levels are the result of stabilization and could have varied prehistorically but not enough to make access any easier. Possibly the inhabitants placed loose stones below the sills to act as steps. There is a mortared stone step in front of the doorway of Room 21. That does help access. The present step was installed by the Park Service but the Nusbaum photos suggest that the inhabitants also had a step there. High door sills are not unique to Balcony House. Doorways with such high sills are found in large sites such as Cliff Palace and also smaller sites of one to five rooms.

STABILIZATION TREATMENT AT BALCONY HOUSE

On the basis of Nusbaum's letters to Hewett and his field notes and report, also his father's daily log, the following conclusions can be drawn regarding the location and extent of repair to Balcony House in 1910. Work began in the North Plaza with repair to the retaining wall and balustrade. In the before excavation photographs the very north end of the retaining wall and balustrade seem stable and so when

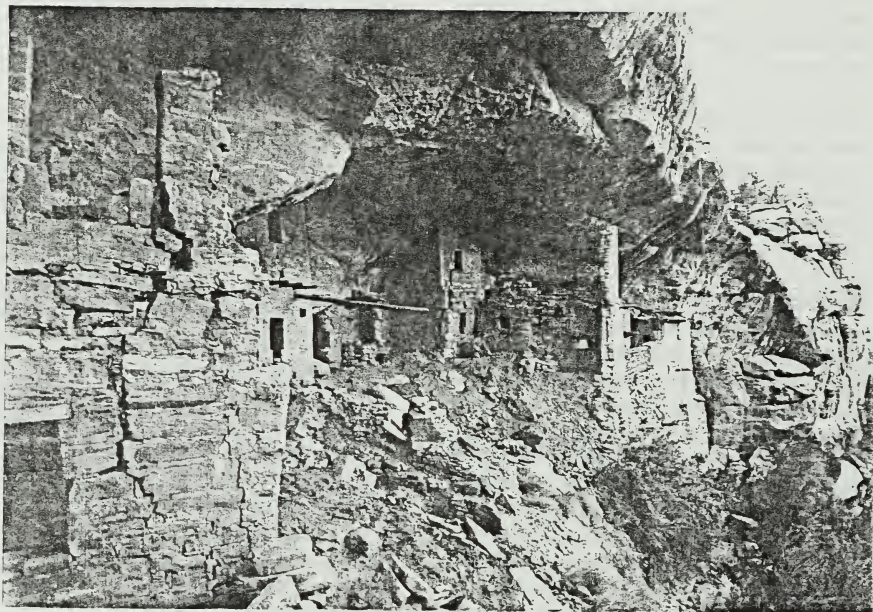


Figure 2.26. Balcony House before excavation in 1910. Notice the retaining wall at north end of dwelling, right of photo, the point where construction on the boulder had resulted in movement of the wall. Also notice the hose coming down from the mesa top in the north end of the site. Photo by Jesse L. Nusbaum, Courtesy Museum of New Mexico, Neg. No.2151.22, 60501.

Nusbaum says in his Oct 14 letter "beginning at north end where piece slipped off slanting boulder", it probably means that he did not start at the very north end of the plaza but at the point where the construction of the

retaining wall on the boulder had resulted in movement (Figure 2.26). Consequently the very north end of the retaining wall and the balustrade in the North Plaza may be original. Nusbaum's crew rebuilt the retaining wall with

dry laid stone and he says that this is as the inhabitants had built the wall. At the south end of the plaza this wall was 2.5 m (8 ft) high. On this wall they rebuilt the balustrade. E.M. Nusbaum's notes say that Tommy cut a square place on the sloping rock to start wall on (Oct 13). In tearing down the original balustrade they found a stone decorated with a carved geometrical design and three upright sticks in the wall. One of these was carved. Jesse Nusbaum did not think that the sticks were structural.

Nusbaum next discusses excavating the west wall of the North Plaza, the wall that extends from just south of Room 8 to the large wall at the south end of this plaza. This low wall that in part is under a shaped boulder had been laid up roughly and loosely. In the "after" stabilization photographs it is obvious that this wall was completely remortared and probably completely rebuilt (Figure 2.27). The mortar is dark since it had not completely dried when the photo was taken. In all of these repairs where mortar was needed, Nusbaum reused old mortar—breaking up the lumps of old mortar then soaking them in water. This gave them a fairly coarse tan mortar which is easy to identify due to their means of application, i.e. lots of trowel marks. In a diagram in the Oct 14 letter, Nusbaum states that the sticks for the south balcony of Room 5 were located so this feature could be repaired. But based on pre and post stabilization photos it is hard to see what modifications were made. Nusbaum says that the floor of the plaza was a red clay. This floor has been modified many times since 1910 since dust was and continues to be a major problem in cliff dwellings. Today the floor is packed soil. Nusbaum mentions Room 10 stating that it is small and the walls poorly laid up. He thinks it was a store room. Although not specifically mentioned by Nusbaum, the photographs make it clear that they rebuilt the

east wall as well as the northeast and southeast corners of Room 11. They also filled in cracks in the large south wall of the North Plaza. The balcony in front of Rooms 6 and 8 was resurfaced with probably more extensive repairs at each end. The serious problems with Rooms 4/5 were left until later—until the metal arrived from Durango.

In the Oct 21 letter Nusbaum says that work in the North Plaza was almost done, again except for Rooms 4/5. Work in the Kiva Plaza was more demanding than even that in the North. There was very little left of the front retaining wall as two episodes of roof fall had done a tremendous amount of damage (Figure 2.28). There had been more damage to the north kiva than the south. As Nusbaum states, there was still evidence of the second episode of roof collapse. The roof of the alcove was very "fresh looking" in one area. It was much harder to see evidence of the earlier and more damaging collapse. The scar had weathered over. Loose fill and roof fall had to be removed before repairs could begin. Large slabs of roof fall were broken up and then used in the rebuilding of the retaining wall. Rough dry laid stones were used at the lowest level or what Nusbaum calls the lowest terrace. Then on this a more regular, wet laid wall was built about 1 m (3 ft) high. The total wall height in front of the south kiva was given as 1.8 m (6 ft) by Nusbaum and 2.1-2.4 m (7 to 8 ft) for the north kiva. Apparently there was a prehistoric wall dividing the area between the north and south kivas. This was apparently 6 m (20 ft) thick and 3 m (10 ft) high. Only small pieces of this wall were found and there is no mention of whether it was rebuilt or what its function might have been. It is not apparent today.

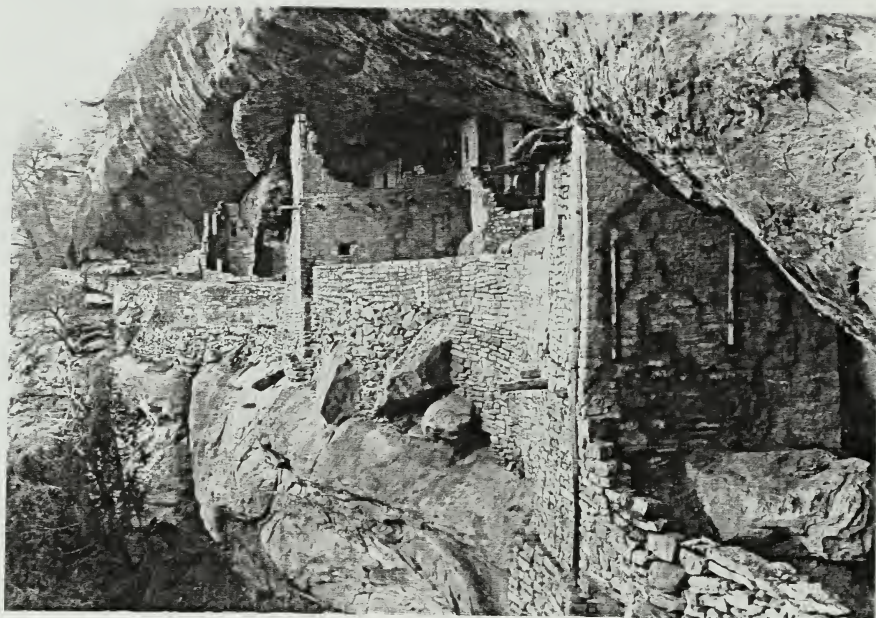


Figure 2.27. West wall of North Plaza, Balcony House 1910 after stabilization. Notice the dark mortar that has not yet dried and the balcony on Room 5 at upper right of photo, Photo by Jesse L. Nusbaum, Courtesy Museum of New Mexico, Neg. No. 2151.39, 60523.



Figure 2.28. "Massive rockfall from roof of Balcony House alcove in the South or Kiva Plaza, following abandonment. Largely destroyed the two deep, cribbed roof kivas, cracked, or felled bordering house walls including the high retaining wall fronting the Plaza, and catapulted over the vertical cliff wall to talus slope below, most of resultant debris. The man, my father, standing on the sandstone formation floor of the kiva has exposed front walls, including air draft entrance (ventilator shaft) that survived." Jesse Nusbaum caption, Photo by Jesse L. Nusbaum, Courtesy Museum of New Mexico, Neg. No. 2151.24, 60511.

Nusbaum's Dad says that work started on the north kiva Oct 18 with work starting on the south kiva Oct 20. Work seems to have continued on both of these kivas for many subsequent days. It is strange that there is no mention in E.M. Nusbaum's notes of the collapse of the north kiva wall Nov. 1. It was E.M.'s last day of work and maybe he went in early or was just not as dismayed by the setback as was his son, Jesse. The repairs to the south kiva were completed first. Also by the 21st they had underpinned the east end of the large cross wall (east wall of Room 15) but had yet to build the buttress. They could not work on Rooms 17 and 21 until the retaining wall was completed and the kivas were rebuilt so they could establish a good footing for these rooms (Figure 2.29). The towers, as they were designated by Nusbaum, were built on soft fill and water from the spring had eroded their foundations.

On October 31 Nusbaum, with his father's help and advice, began the experiment with using iron bracing to pull walls back into plumb. This was first used on Room 17 on the north wall with great success. They were able to move the wall 5-8 cm (2-3 in). The weight was so great that it bent the iron bracing. The south side of this tower had to wait for the completion of the rebuilding of the west side of the north kiva. Room 21 was already underpinned and was probably pulled up on November 1. By October 31 the south kiva had been shoveled out and the lower walls repaired. He was planning to have two men test the refuse in the back of the alcove on the following day.

The north wall of Rooms 4/5 was pulled into alignment with iron and turnbuckles November 1. They were unable to pull the cracks together so instead they decided to underpin the remaining north wall. Their first major

accident occurred on this day. They were just finishing work on the north kiva when it collapsed. Exactly how much of the kiva collapsed is not known. Although crew member Scharf was buried and had to be dug out, he was not seriously injured (Figure 2.30). Many of the walls of the rooms at the south end of the site were "nearly gone" and just enough was rebuilt to show where they had been.

Work around the south tunnel took place on Oct 22 and 24 by Adams and Jesse's Dad. Also Jesse's telegraph to Hewett Nov 20 suggests that the underpinning of the north wall of Room 4/5 occurred sometime between Hewett's visit (Nov 7?) and when Nusbaum and Adams left the site Nov 19.

The original 1910 stabilization work at Balcony House is still in place. Some further work was done on the retaining wall below the North Plaza in 1934, and a diversion system for the water from the spring at the back of the alcove was constructed in 1939. The walls of the kivas were repointed in 1940. Alterations associated with the visitor entrance to the cliff dwelling and minor repairs to the walls, balconies, plaza floors have been the only stabilization since 1940.



Figure 2.29. Method of establishing metal footing under "tower" (Room 18) behind division wall in Kiva Plaza, 1910. Photo by Jesse L. Nusbaum, Courtesy Museum of New Mexico, Neg. No. 2151.8, 60517.

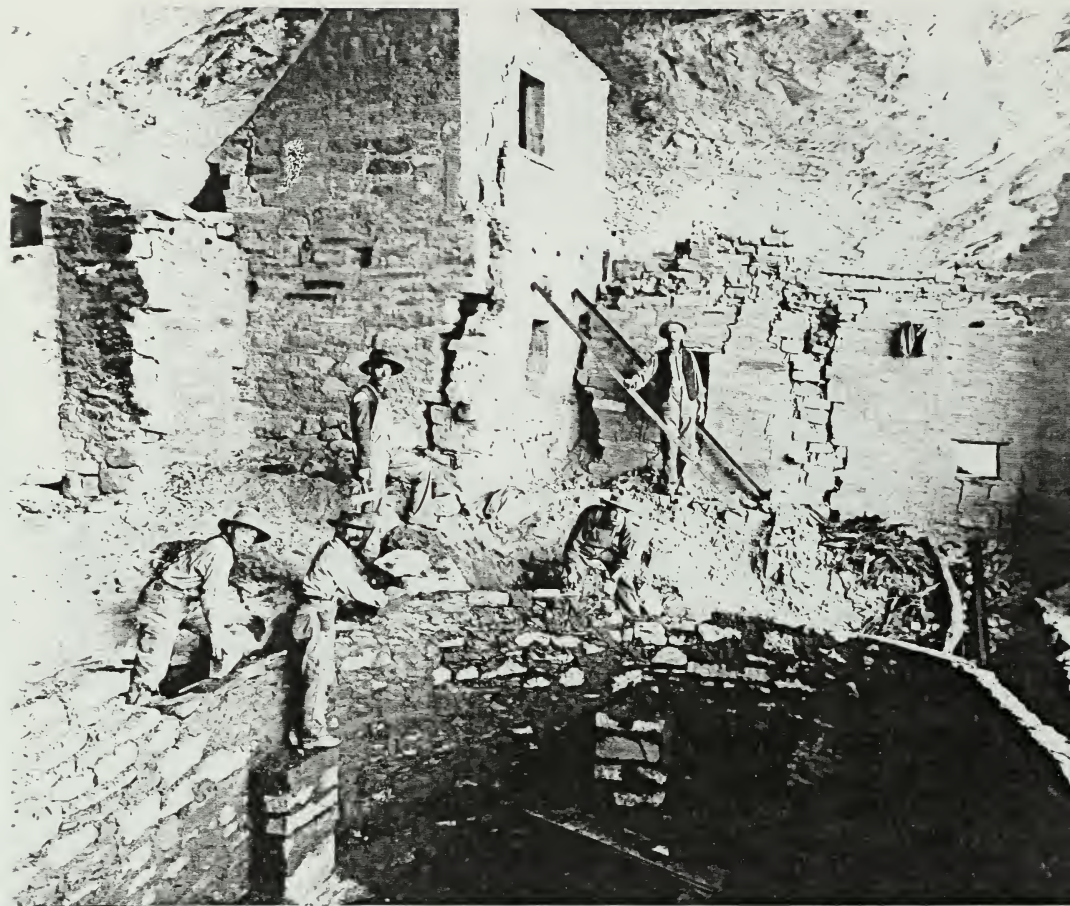


Figure 2.30. Repairing North Kiva, Kiva A, of Balcony House, Mesa Verde 1910. This is the wall that collapsed burying one of the workers. At far back E.M. Nusbaum with vest and hand on angle iron bracing wall of Room 18. Other workers are not identified but may be Scharf, Tommy, and Percy "Jack" Adams (at north edge of kiva). Photo by Jesse L. Nusbaum, Courtesy Museum of New Mexico, Neg. No. 2152.23, 60513. Mesa Verde National Park 740-08, Neg. No. 20354.

SITE SUMMARY OF BALCONY HOUSE, SITE 5MV615

Balcony House, 5MV615, is a thirteenth century cliff dwelling located in Mesa Verde National Park, Colorado. The structure was built into a natural alcove in the Cliff House Sandstone Formation and contains two kivas and 38 rooms. A retaining wall extends the full length of the site across the alcove. Access to and within the structure was restricted by means of tunnels and doorways. The major building construction of Balcony House took place in the A.D. 1240s and 1270s with final abandonment around A.D. 1300. Balcony House was originally excavated and stabilized in 1910 by Jesse L. Nusbaum. Park visitors now enter the dwelling for ranger guided tours by climbing a 9 m (30 ft) ladder up to the north portion of the site.

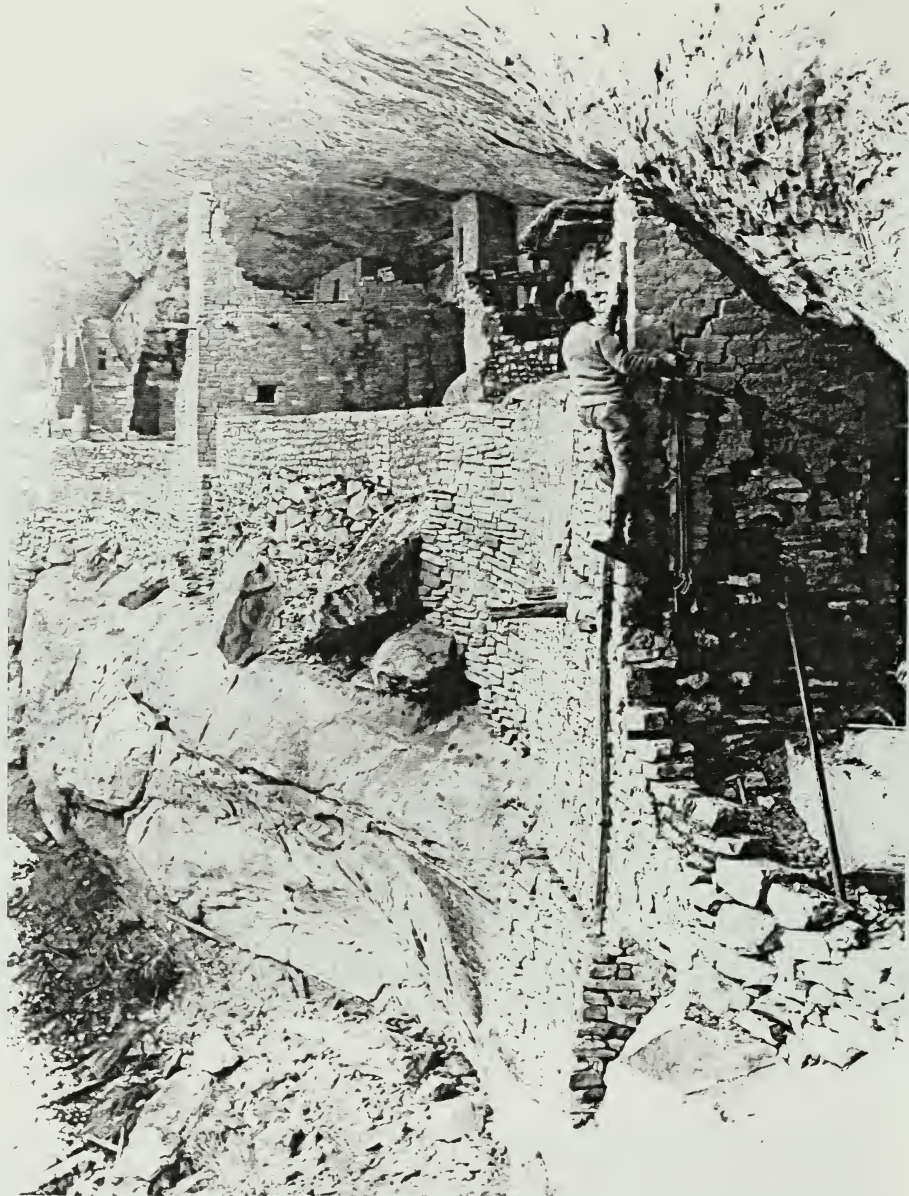


Figure 3.1. Jesse L. Nusbaum covering the metal angle iron bracing on Room 5 with adobe mud, North Plaza 1910. At the far left can be seen a water hose coming down from the top of the mesa and also a rope. Photo by Jesse L. Nusbaum, Courtesy Museum of New Mexico, Neg. No. 2151.13, 60531.

THE MAN BEHIND THE PROJECT: JESSE LOGAN NUSBAUM

Kathleen Fiero

Jesse L. Nusbaum excavated and stabilized Balcony House in 1910. He was 23 years old; Mesa Verde National Park was four years old (Figure 3.1). The National Park Service did not exist. Nusbaum was born in Greeley, Colorado, September 3, 1887. His parents, Edward and Agnes Nusbaum, were members of the original colony organized by Horace Greeley. Nusbaum was graduated from Colorado Teachers College in Greeley in 1907 with a degree in the manual arts and science. From 1907 to 1909 he was an instructor in manual arts and science at New Mexico Normal University in Las Vegas.

Nusbaum visited Mesa Verde for the first time in 1907. He was hired as a photographer by E. L. Hewett of the Archaeological Institute of America, School of American Archaeology, to locate, survey and photograph the notable cliff dwellings. A.V. Kidder also worked for Hewett in Mesa Verde that summer and a life-long friendship developed between Nusbaum and Kidder (Figure 3.2). Both Kidder and Nusbaum, among others, worked for Hewett for a second summer in the Four Corners region in 1908 photographing in McElmo Canyon and on the west side of Mesa Verde and on Wetherill Mesa. Nusbaum's next visit to Mesa Verde was in 1910 when he worked on Balcony House.

Nusbaum spent the next ten years as a member of numerous archeological projects, in Guatemala, Mexico, Zuni (Hawikuh), Utah (DuPont Cave) and Pecos (stabilizing the church); various construction projects (Palace of the Governors and Fine Arts Museum in

Santa Fe, Painted Desert Indian exhibit in San Diego); and on active duty with the Army Engineers in France.

Then in 1921 he was appointed superintendent of Mesa Verde National Park and held that position until 1931. He was again superintendent from 1936 to 1939 and was acting superintendent from 1942 to 1946. At other times in his long career in the Southwest, he was the first director of the Laboratory of Anthropology in Santa Fe and worked for the Department of the Interior and later the National Park Service as an archeologist in Santa Fe (Figure 3.3).

He retired in 1958 at the age of 72 and died in 1975. In the *Who's Who* listing for Nusbaum, it states that he was a Republican, Episcopalian, and Mason (32nd degree)(A.N. Marquis 1940, 1950). He was married to Mary Aileen Baehrens in 1920 and helped raise her son Deric who in his youth went by the name of Deric Nusbaum. Later in life Deric changed his name to Deric O'Bryan. The Nusbaums were divorced in 1939. Jesse was married again in 1947 to Rosemary Rife. Rosemary is the person who donated Jesse's papers to the Smithsonian Institution in 1987. She died in 1991.

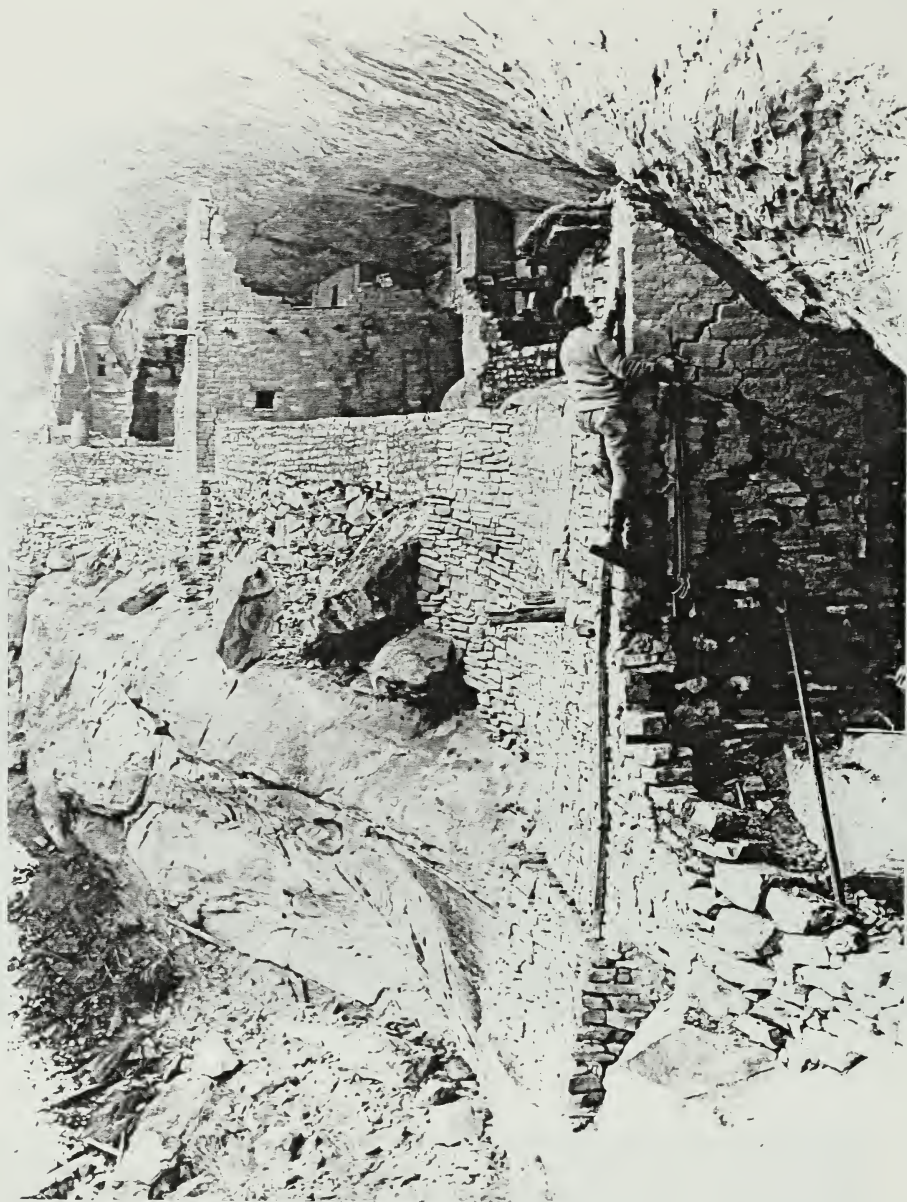


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Chapter 3

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Figure 3.2 . 1908 Archaeological reconnaissance crew at Spruce Tree Camp, Mesa Verde, Colorado. Left to right: Koots Frink (cattleman who had cattle on the west side of Wetherill Mesa), A.V. Kidder, Jesse Nusbaum Nusbaum appears to be holding a camera case or case for glass photographic plates and a tripod. Photographer unknown, Nusbaum (Talley) Papers, Mesa Verde National Park 1328 also Smithsonian Institution Box 13, Developed Film.



Figure 3.3. Jesse Nusbaum in 1965 inspecting the turnbuckle he installed in Room 26 at Balcony House in 1910. Photo by Elmer Weaver, Nusbaum (Talley) Papers Mesa Verde National Park # 1328.

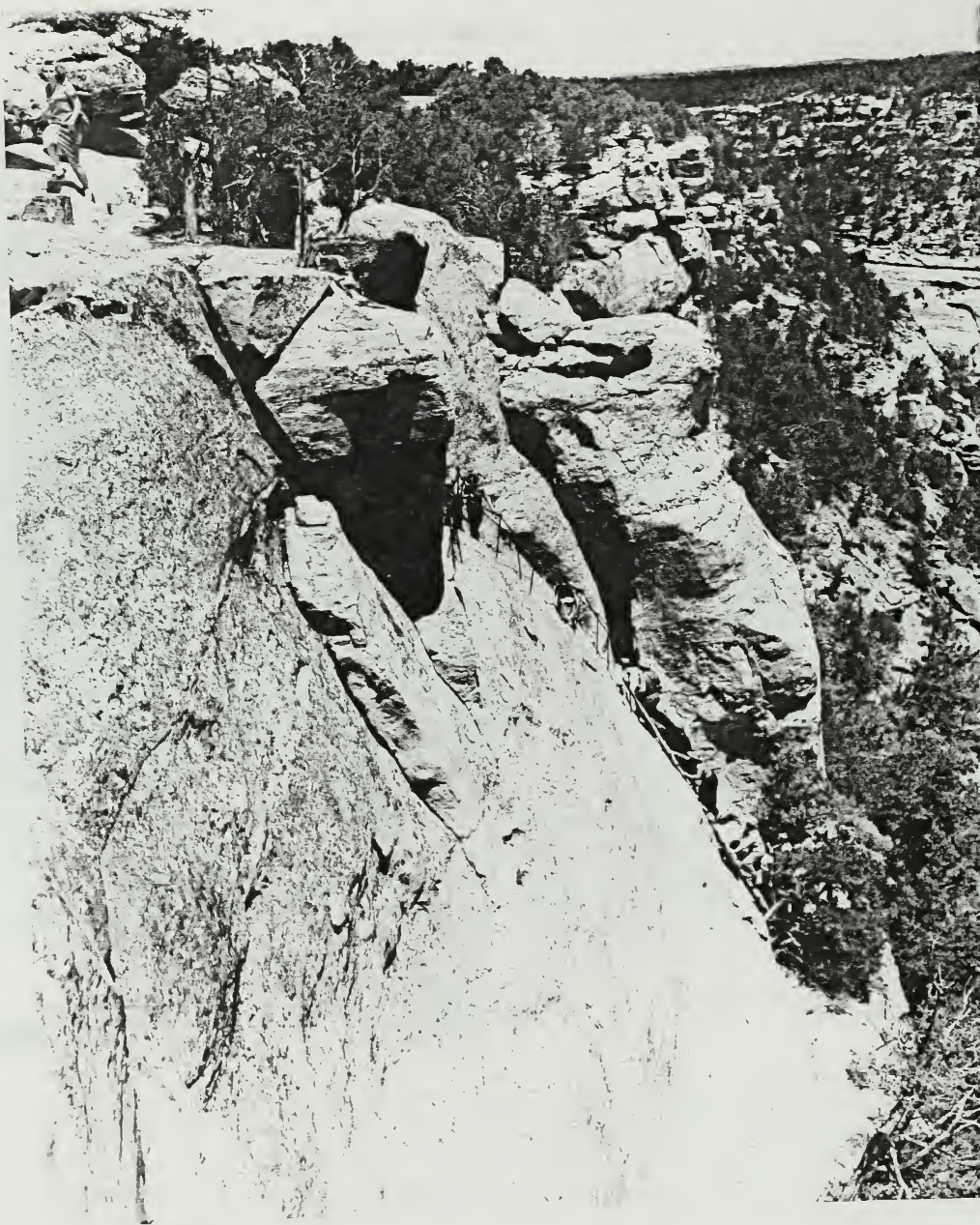


Figure 3.4. Visitors climbing out of Balcony House in 1950. This is the south end of the Balcony House Site. The Park trail follows, in part, the thirteenth century hand and toe holds. Photo by Don Watson. Mesa Verde National Park.

Chapter 4

BACKGROUND OF THE 1910 EXCAVATION AND STABILIZATION OF BALCONY HOUSE

Kathleen Fiero

The background information on the 1910 excavation and stabilization of Balcony House includes the financing and sponsorship of the project, the techniques used for stabilizing the cliff dwelling, the names and expertise of the people on the stabilization crew, and the correlation of the room number designations.

FINANCING AND SPONSORSHIP OF THE PROJECT

Technically speaking, Jesse Nusbaum was only the second person to engage in authorized scientific excavation and stabilization in Mesa Verde National Park. All prior authorized excavation in the Park had been conducted by Jesse Walter Fewkes of the Smithsonian Institution, Washington, D.C. Spruce Tree House and Cliff Palace had been excavated and stabilized by Fewkes between 1908 and the summer of 1910. Realizing that there was much remaining work to do and that his resources were limited in both time and money, Fewkes sought outside assistance. He encouraged the Colorado Cliff Dwellings Association, a private organization concerned with the preservation of the cliff dwellings, to contract with E.L. Hewett, Director of the School of American Archaeology, Archaeological Institute of America, to do the work at Balcony House.

It was not out of character for Hewett to hire the young Jesse Nusbaum for the work at Balcony House even though he had no previous experience supervising the excavation

or stabilization of a prehistoric site. Nusbaum had become rather a prodigy of Hewett. Nusbaum was an instructor at the New Mexico Normal School in Las Vegas from 1907 to 1909, where Hewett has been president (1898-1903). During the summers of 1907 and 1908, Nusbaum had worked for Hewett, in part, photographing cliff dwellings in Mesa Verde. Then in the summer of 1909 he worked for Hewett on restoration of the Palace of the Governors in Santa Fe. In the summer of 1910 he worked at Tyuonyi, in what is now Bandelier National Monument, where Hewett was excavating. No doubt Hewett noticed that Nusbaum had a zest for archaeology and was very familiar with his skills in photography. Those interests were meshed with his youthful experiences in Greeley, Colorado where he worked in his father's construction business and brick yard.

Following the encouragement of Fewkes, the Colorado Cliff Dwellings Association, working under the authority of the Secretaries of the Interior and of the Smithsonian Institution, contracted with the School of American Archaeology for the work at Balcony House. A memorandum of agreement (Colorado Cliff Dwellings Association 1909) was made between Mrs. Virginia McClurg, Regent General of the Colorado Cliff Dwellings Association, and Edgar L. Hewett, Director of the School of American Archaeology:

MEMORANDUM OF AGREEMENT
between

Mrs. Virginia McClurg, Regent General of the Colorado Cliff Dwellings and Edgar L. Hewett, Director of the School of American Archaeology.

It is hereby agreed between the undersigned, acting in behalf of their respective organizations, that in case of the retirement of the Smithsonian Institution from the existing arrangement with reference to the excavation and repair of Balcony House in Mesa Verde National Park, and in case the following arrangement is acceptable to the Department of the Interior, that the School of American Archaeology shall at once proceed to the excavation and repair of Balcony House, using therefor its force of experts in excavation, construction and scientific research, under the direction of Dr. Hewett. It will do the work of excavation and repair after the most approved scientific methods, prepare and publish a report of the same, and present to the Colorado Cliff Dwellings Association two hundred copies of the same, and will place upon Balcony House when the work is completed a brass tablet bearing the following inscription:

BALCONY HOUSE
Excavated and Repaired with funds furnished by the
COLORADO CLIFF DWELLINGS ASSOCIATION,
Under the direction of the
SCHOOL OF AMERICAN ARCHAEOLOGY.
1909

All specimens obtained in the course of said excavations shall be placed in the State Museum of Colorado in Denver, it being understood that should a local museum be established on the park in the future the specimens shall be removed thereto.

On the date when the Director announces his readiness to begin the work, the Treasurer of the Colorado Cliff Dwellings Association shall pay over to the Treasurer of the School of American Archaeology the sum of \$1000. to be used by the Director to pay the expense of doing the work above specified, and the Colorado Cliff Dwellings Association shall not be liable for any further sum expended in connection with said work.

Signed
Virginia McClurg,
Regent General
Colorado Cliff Dwellings Association

Edgar L. Hewett,
Director School of American Archaeology

As indicated in the agreement, the Colorado Cliff Dwellings Association budgeted \$1000 for the work at Balcony House. The accounts suggest that they actually spent \$1000.40. Work began at the site October 7 and ended November 19, 1910.

As work progressed through the unusually cold fall, Nusbaum realized that more money would be needed if he was to finish the project. The superintendent of the Park, Hans M. Randolph (called Major by Nusbaum), must have agreed, for he arranged for the Department of the

Interior (Bureau of American Ethnology) to spend \$500 on Balcony House, money that had been appropriated for Fewkes' work in the Park. On October 29, 1910 the Secretary of the Interior, Richard Ballinger, wired the Superintendent that he could proceed with the expenditure of \$500 for the completion of the excavation of Balcony House. December 21, 1910 the Secretary authorized, by letter to Superintendent Randolph, the additional expenditure of \$13.72, in excess of the \$500.00 allotted October 21. Ledger sheets show that this expenditure was made. So the final cost of the excavation and repair of Balcony House was \$1514.12. In an undated letter to Nusbaum from Virginia McClurg, Regent General of the Colorado Cliff Dwellings Association, there were some items which she felt might interest him (McClurg n.d.). One was a partially typed, partially handwritten itemized account of the cost of the excavation for the Colorado Cliff Dwellings Association. In the letter Mrs. McClurg states that her home in Colorado Springs burned. The paper on which the following account appears is burned on the edges.

Archaeological Institute of America
School of American Archaeology
Santa Fe, N.M.
January 24, 1911

Director's account, Excavation and Repair of
Balcony House, Mesa Verde National Park

Receipts

From Colorado Cliff Dwellings Association \$838.40
From Colorado Cliff Dwellings Association 112.00
From Colorado Cliff Dwellings Association 50.00

Disbursements

Equipment \$202.73
Labor 238.90
Subsistence 227.82

Traveling expenses 75.75

Other transportation

Hauling, packing, horse hire, etc. 252.80
Telegrams 2.40

(Signed) Edgar L. Hewett
Director

The Hewett papers in the Museum of New Mexico Archives in Santa Fe include Hewett's expense account for the Balcony House project. It lists his expenses for his visit to the site at the start of the project¹² and his return visit once the project was complete. On the cover of the notebook is the following: Account with the Colorado Cliff Dwellings Association, Smithsonian Institution, Archaeological Institute, Expedition for the Excavation and Repair of Balcony House, Mesa Verde National Park, Colorado.

Mesa Verde Acct.

Expenditures

Message (McClurg) \$1.
" Sloane¹³ .75
" Nusbaum, Wadleigh¹⁴ 1.10
Acct Book .75
Randolph, Randolph 1.06
Randolph, Paton¹⁵ .85
Ry fares (3) S.Fe-Antonita 18.90

¹² Dr. Paton and Dr. Edgar L. Hewett were here Oct. 7th to 9th to look over the work that has been done in Mesa Verde Park." *Mancos Times-Tribune* 21 October 1910

¹³ Treasurer for the Archaeological Institute of America.

¹⁴ Passenger Traffic Manager, Denver and Rio Grande Western Railroad Company (Nusbaum to Dolores Renze n.d.)

¹⁵ Lewis B. Paton of the Hartford Theological Seminary was a guest of Hewett's when he visited Mesa Verde at the commencement of work on Balcony House (Paton 1910).

Cab (3) & baggage 1.50
 Drafting material (Weltmers) .80
 Message Randolph .40
 Dinner (3) Embudo 1.60
 Hotel (3) Antonita 4.50
 Chair car Ant.-Dur. .75
 Dinner (6) Chama 4.50
 Plumb bob line .35
 Ticket, Adams (Ant-Dur) 8.55
 Hotel & meals (6) Durango 11.00
 Ry fare, Dur.-Man. (Adams) 2.40
 Typewriting reports 2.00
 Hotel, Durango 2.25
 Dinner, Chama .75
 Hotel, Antonita 1.50
 Ry fare, Ant-S.Fe 6.30
 Dinner, Embudo .50
 Cab. .25
 J.L. Nusbaum (Labor, Act) 100.
 Cash to Nusbaum for Disbursement
 750.
 \$923.71

Cash Book Act. 12,
 Cash to Nusbaum 50.
 Second trip to Mesa
 Sleeper, Alamosa 2.25
 Breakfast, Chair Car 1.50
 Dinner, Hotel Durango 3.00
 Dinner, Hotel Telluride 3.00
 Cab, Chair Car 1.75
 Dinner, Supper 1.50
 Sleeper, Meals (3) 4.50
 Cab and Baggage, Hotel Denver 3.25
 Meals (3) 2.10
 Sleeper, Alamosa 2.25
 Fare, Antonita S.Fe .50
 Meals (2) Cab. & Baggage 1.75
 Messages (J.L.N.3) 1.50
 " from J.L.N. (ford) .60
 " J.L.N (2) .55
 Meals (3) Cab. 1.55
 Total paid out 1011.06
 Recd cash from Sloane 1000.40
 Balance due me 10.66
 Cash 4.55
 6.11

OBLIGATIONS TO THE COLORADO CLIFF DWELLINGS ASSOCIATION

A few statements in the memorandum of agreement between the Colorado Cliff Dwellings Association and the School of American Archaeology beg for comment: the final report, the disposition of the artifacts, and the installation of the brass tablet. First of course is the obligation to publish a report. This was never done. Exactly who is to blame for this is unclear on the basis of the remaining records. Nusbaum wrote a brief report which was found with his papers. Whether he considered this a final report is not known. There was no copy of this report on file at the School of American Research, the Museum of New Mexico, or with the Hewett papers so it is not known if Nusbaum submitted the report to Hewett. Nusbaum never acknowledged that he had a copy of the report.¹⁶ Rosemary Nusbaum came across the report at some point after his death and refers to it in a letter to the then Superintendent of Mesa Verde National Park, Ronald Switzer, dated December 23, 1978.¹⁷

The problem of the disposition of the artifacts

¹⁶ "...and that also stands for the earlier brief report which I prepared soon after 1910 or a half century ago on the reexcavation, repair and stabilization of Balcony House. Fred Hodge, then Head of the Bureau of American Ethnology, reviewed it and wanted to include it under the Bureaus 'Antiquities of Mesa Verde Series,' but Dr. Hewett, Director of the School of American Research and The Museum of New Mexico was utterly opposed- refused to approve its publication- stating that he alone was qualified to write the report--I had no qualifying experience..." excerpt from letter from Nusbaum to Chester Thomas, Superintendent, Mesa Verde National Park Feb 8, 1960.

¹⁷ "...I hold a copy of Jesse's drawn maps, notes, and his excellent report as he wrote it of Balcony House..."(Nusbaum, R 1978)

recovered by Nusbaum in the course of the excavation and repair of Balcony House remains. Two artifacts from Balcony House are in the collections of the Laboratory of Anthropology, Museum of New Mexico: a bone scraper and a puncher. The source of accession of the bone scraper is listed as "Jesse Nusbaum clean-up work at Balcony House." The puncher has the source of accession listed as "Hewett Balcony House Exca." What happened to all other artifacts is unknown. None are at the State Museum of Colorado in Denver¹⁸ and none are in the collections in the Park. The brass tablet has an interesting history. At some point between 1910 and 1921 a white marble plaque was made by the Colorado Cliff Dwellings Association and was to be set in Balcony House. Nusbaum, the new superintendent of Mesa Verde National Park in 1921, National Park Service Director Mather, and others decided that it was not really appropriate to place tablets or plaques in prehistoric sites and doing so would set a bad precedent. The plaque was sent back to Colorado Springs and somehow wound up in the Platte River where it was discovered in 1960. It now is part of the collections of Mesa Verde National Park and is curated in the Research Center.¹⁹

CONTROVERSIAL STABILIZATION METHODS: ANGLE IRON, TIE RODS, AND TURNBUCKLES

The most controversial aspect of the repair of Balcony House is the use of metal: the angle iron, tie rods and turnbuckles used to stabilize certain walls (Figure 4.1.). Fewkes had not found it necessary to use such materials in Spruce Tree House and Cliff Palace, but there is no record that he ever disagreed with its use. The decision to use these materials seems to have been made after a visit to the site by Hewett and Nusbaum in 1910.

During the fall of 1910, Prof. Edgar L. Hewett, Director of the School of American Archaeology, Archeological Institute of America, in conjunction with Mr. Nusbaum, constructor of the institute, made a preliminary study of the conditions of the Balcony House, which showed that the work of excavating would be comparatively small, but that the work necessary to preserve the remaining walls from further deterioration

¹⁸ Colorado Historical Society has six objects from Balcony House in the Wilmar Collection (which is pre Nusbaum): 3 or 4 lids, 1 kiva jar, 1 mug. Information from phone call to Bill Lazenby Jan 11, 1993.

¹⁹ Accession MEVE-584. In the accession folder for the plaque is a letter from the individual who found the plaque dated Dec 24, 1960. There is also a letter from the park to that individual dated Dec. 28, 1960. A third piece of information is a copy of a letter Superintendent Nusbaum wrote to the NPS Regional Director in 1946 discussing the plaque and how it was sent to Mancos but returned to Colorado Springs when Director of the Park Service Mather and others decided against its installation. The marble plaque has carved into its face:

BALCONY HOUSE
DISCOVERED OCTOBER 4 1886
BY
GILBERT McCLURG VIRGINIA McCLURG
CASSIUS VIETS WILDA VIETS
REPAIRED BY THE COLORADO
CLIFF DWELLINGS ASSOCIATION 1911
UNDER THE DIRECTION OF THE
ARCHAEOLOGICAL INSTITUTE
OF AMERICA

Since the date of repair is wrong, the plaque was undoubtedly carved many years after the event it commemorates. Also in 1886 Virginia McClurg was Virginia Donaghe. She had not yet married Gilbert McClurg.

would be very difficult. It was found that the principal remaining walls of Balcony House had been badly shattered and weakened by shocks occasioned by stone falling from the roof of the cavern, as well as by the operation of vandals in years past. These gentlemen, after fully considering the condition of these walls, deemed it best to secure the services of a consulting constructor and an expert stone mason before proceeding with the work. It was not their purpose to do more in the way of restoration than was absolutely necessary to prevent further deterioration. For the preservation of walls that were found to be in a dangerous condition, the constructors agreed upon a system of support by means of angle irons, which, while probably slightly out of place in connection with ruins of this character, would make the walls as secure as anything else. (Acting Superintendent's Report for the Fiscal Year 1911 (July 1, 1910-June 30, 1911)).

There is no further mention of a "consulting" constructor. Nusbaum is called the constructor and his father, Edward M. Nusbaum, who worked on this project, was a general contractor. Possibly it was Nusbaum who made the final decision to use metal on the

ruin.²⁰ Hewett certainly knew of the decision by October 14 when Nusbaum wrote to him of some of his problems and mentions waiting for the iron to arrive before tackling these problems. In a later letter to Hewett, it is clear that while it was difficult to get the angle iron to Balcony House from Durango because of deep snow, Nusbaum felt that it was the best way to pull walls into plumb.

²⁰ Excerpt from a newspaper article (n.d.) titled "Father and Son of Greeley to Aid in Restoration of Ancient Ruins," found in E.M. Nusbaum's daily log: "E.M. Nusbaum of this city, father of Jesse, has been asked, as a practical builder, to be present at the time the work is going on to lend advice as to the bracing of the walls." Nusbaum (Talley) Papers, Mesa Verde National Park, 1328.

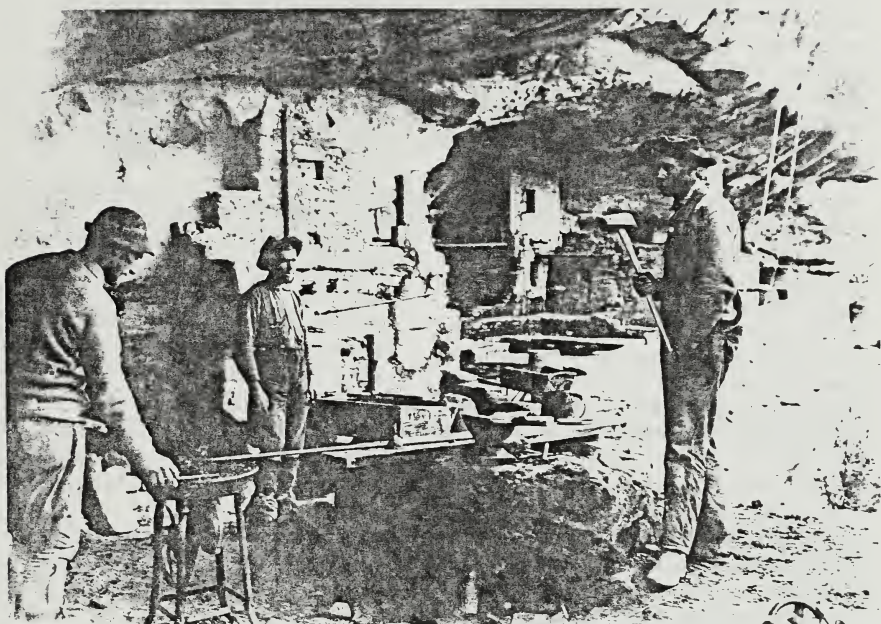


Figure 4.1. Use of metal in Balcony House repair in 1910. Jesse Nusbaum is at left. Tommy Gibbon may be on right with metal maul axe looking north across Kiva Plaza. Note the rope and hose at right coming down from the mesa top, the water barrel in the Kiva Plaza area and the metal turnbuckle sticking out of Room 26. Photo by Jesse L. Nusbaum. Courtesy Colorado Historical Society, Post Card at Smithsonian Institution

THE PEOPLE INVOLVED IN THE PROJECT

In Nusbaum's letters to Hewett during the excavation, it is obvious that he used Park Superintendent Randolph as an intermediary between himself and Hewett. Randolph was instrumental in securing the funds needed to complete the excavation and stabilization project and probably just as importantly was someone Nusbaum could turn to for advice. In 1910 there was no National Park Service. This organization was created in 1916. Randolph was a Colorado man and his position as superintendent was a political appointment. He established the Park headquarters in Mancos. In 1910 there were no permanent structures within the Park. There was a two-room log structure and an area for camping above Spruce Tree Ruin, called Spruce Tree Camp. Materials came into the Park by horse and wagon on a trail from Mancos. The railroad was in Durango.

From Nusbaum's letters and photographs and E.M.Nusbaum's daily log, it is possible to get an idea of the size and composition of the crew of people who worked at Balcony House. The October 10 letter mentions Paul Schmahl, the cook who later gets sick and leaves; and Chas Ashbaugh, packer. Tommy is Tommy Gibbon a stone mason from Greeley. Dad is Nusbaum's father, Edward M. Nusbaum²¹, a 59 year old contractor and brick yard owner from Greeley (Figure 4.2). Adams is Percy

(also called Jack) Adams, an engineer from Greeley, who worked for the School of American Archaeology on other projects and is responsible for the original site map of Balcony House. For laborers he had a Swede, two men from Cortez, and was expecting three more men from the Government well. Possibly these were men excavating a well in the Park.²² On October 21 he refers to Tommy, Dad, Swede, and Adams. He also mentions Scharf (Clint Scharf)²³ who hadn't been mentioned earlier, Percy (Adams), a water packer and packer who may be the same person, a sick cook who left and a replacement cook, and a sick worker. In the October 31-November 1 letter he refers to Tommy, Dad, Scarf (also Scharf—probably the same person) and Adams, and two men excavating refuse and two pulling up rock. Nusbaum and his father can be identified in several photographs. Up to five men, one being Nusbaum's father, appear in photographs.

²¹ In a phone call 10 January 1994 to the Centennial Park Branch of the Weld Library District, a search was made for vital statistics on Edward Moore Nusbaum. The librarian said they had no luck with Edward but there was an Ezra Moore Nusbaum who was born in 1851 and died in 1927. He had a son Jesse who was listed as being 22 in 1910. So this must be the man always listed as Edward in published material on Jesse.

²² There are photographs, made into postcards, taken by Nusbaum in 1910 of a well being excavated in the Park. Nusbaum Papers Box 11, Anthropological Archives, Smithsonian Institution, Washington D.C.

²³ Letter from Nusbaum to Fewkes, February 27, 1927, p. 4 mentions that Clint Scharf worked for him at Balcony House for a while.

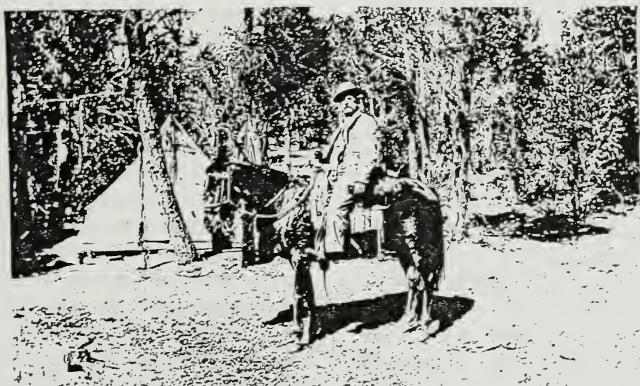


Figure 4.2. Edward M. Nusbaum (father of Jesse) 59 year old contractor and brick yard owner from Greeley, Colorado on his horse near Balcony House camp, above Cliff Palace, 1910. Photo by Jesse L Nusbaum, Courtesy Museum of New Mexico, Neg. No.139446. Also Post Card at Smithsonian Institution Box 13.

E.M. Nusbaum is much clearer about personnel. He mentions that eight people were suffering camp life and then on various days mentions the following people: Adams, Tommy, Scharf (who had worked for Fewkes), Stewart, Schmahl the cook was replaced by Anthony, and Ashbough who packed water for the work. This, if one adds Jess and E.M., makes eight. None of these names seem particularly Swedish so I'm not sure who Nusbaum's Swede is. So the total number of crew at any one time numbered 8 to 10²⁴. Charles B. Kelly of Mancos did the

packing to and from the Park. This is not mentioned in any letters or logs dated 1910 but Nusbaum mentions this many times in later years in reminiscing about the last walk out of the site November 19 (Nusbaum, R. 1980: 71-72). Jesse's father mentions that they were packed out by Fred on November 2. There is no other mention of Fred. A few photographs contain Nusbaum. The photographer in these instances is unknown. Otherwise the photographer is undoubtedly Nusbaum. He had a lot of experience as a photographer and what data are available list Nusbaum as photographer. Dr. Fewkes' wood shack above Cliff Palace was used as the camp, with water packed from Spruce Tree spring and from pot holes on the mesa top (Nusbaum 1946).

²⁴ Although an Oct. 21, 1910 article in the *Mancos Times-Tribune* states that "A force of 12 men began the work last week of excavating and repairing Balcony House..."

CORRELATION OF NAMES, TERMS, AND ROOM NUMBERS USED BY NUSBAUM

There are several terms used by Nusbaum in the following letters, reports, and fieldnotes that need to be explained. Ruin Canyon is now called Soda Canyon and it is this canyon which one overlooks from Balcony House. Nusbaum uses the term "tower" to refer to any more-or-less free standing multi-storied roomblock. North tower is the term he often uses in referring to Rooms 4 and 5, middle tower to Rooms 17a and 17b and south tower to Rooms 21a and 21b. The term "tower" as currently used in Mesa Verde refers to circular structures with few floor features so, using current terminology, Balcony House has no towers. Nusbaum uses the term "*tau*" in referring to what are now called T-shaped doorways. *Tau* is the Greek letter for "t".

The Balcony House alcove is oriented east northeast but for ease in recording, site north has been established as up-canyon. In both this report and in Nusbaum's fieldnotes, letters and report, the north wall is the wall that in general is on the up-canyon side of a room with the east wall facing out or across the canyon, and the south wall facing down-canyon. The west wall is the wall generally oriented toward the back of the alcove.

Several room numbering systems have been used at Balcony House and three and maybe four of the systems date back to the 1910 work (Table 4.1).

1) The original drafted site map uses a numbering system in which only the ground floor rooms are given numbers. Although the site was surveyed by Adams, the final drafted version of the map was probably the work of Kenneth Chapman. In a letter to Hewett

(n.d.), Nusbaum is discussing Balcony House and says that "I have a photo copy of the map Chap made me." During this period Kenneth Chapman was in charge of map making and drafting for the School of American Archaeology in Santa Fe (Archaeological Institute of America 1917: 93) The plazas are labelled North and Kiva Plazas.

2) In Balcony House itself, all lower story rooms and three upper story rooms have room numbers painted on one wall of the room. In two rooms the original number has been obliterated and the kivas have no designation. In the Nusbaum photographs of 1910, there is no evidence of numbers on the "before" photographs and only some of the "after" photographs of Room 16 (the views where numbers would be expected) have the number. So apparently Nusbaum placed the numbers on the room walls sometime after repair work was completed and while Adams was mapping the site as the numbers correspond to the Adams system. It is not known when the numbers in two of the rooms were obliterated.

3) The above, second room numbering system is the one used by J. P. Adams in 1910 on his penciled drawing of the site except that Rooms 6-9 are not numbered on this drawing and the rooms with obliterated numbers are given numbers by Adams. Room 15 is between Rooms 16 and 18 with Room 19 next to Room 18 and Room 17 next to Room 16. There are no plaza designations. The kivas are not labelled.

4) Nusbaum basically uses the Adams system in his fieldnotes with second story rooms in the kiva plaza given the same number as the lower story with the term "upper" added. The open area associated with Rooms 4 to 14 is called North Plaza and the open area containing the kivas is called Kiva Plaza.

5) The fifth system is the one currently being used for work in Balcony House and is the one followed in this report. In the room numbering system currently in use, the numbers painted on the walls are followed and the unnumbered rooms have been given the unused numbers, 15 and 17. This differs from the Adams system since Room 17 in this system is between Rooms 16 and 18, and Room 15 is east of Room 16. The lower story of two story rooms in the Kiva Plaza are designated "a" and the upper "b" such as Room 17a and Room 17b and the kivas are given the same letter designation as those on the Chapman map.

There is not complete agreement in the various systems on whether or not some rooms were originally two stories. With three exceptions, the current system agrees with Nusbaum. The exceptions are Rooms 19, 20, and 28 where there is presently no definite evidence of a second story. Also none of the above systems labelled the open area between Rooms 3 and Rooms 4/5. This area is now called Lower Plaza while North Plaza and Kiva Plaza retain their original names. The term courtyard is now more commonly used by archeologists in the Southwest than plaza to designate open areas between rooms. These terms, plaza and courtyard, are used interchangeably in this report.

Table 4.1 Room Numbering Systems for Balcony House

Current System	Nusbaum Fieldnotes	Adams Map	Number on Room Wall	Drafted Map (Chapman)
1	1	1	1	1
2	2	2		2
3	3	3	3	3
4	4 north tower		4	4
5	5 north tower	5	5	
6	6		6	5
7	7		7	
8	8		8	6
9	9		9	
10	10	10	10	7
11a	11	11	11	8
11b?	11 upper			
12	12	12	12	9
	12 upper			
13	13	13	13	10
14a	14	14	14	11
14b	14 upper			
15a	17	17		12
15b	17 upper			
16	16	16	16	13
17a	15 middle tower		15	14
17b	15 upper			
18	18	18	18	15
19	19	19	19	16
	19A			
20	20	20	20	17
	20A			
21a	21 south tower	21	21	18

21b	21 upper			
22a	22	22	22	19
22b	22 upper			
23	23	23	23	20
24a	24	24	24	21
24b	24 upper			
25a	25	25	25	22
25b	25A			
26a	26	26	26	23
26b	26 upper?			
27a	27	27	27	24
27b	27 upper			
28	28	28	28	25
	28 upper			
29	entrance	29		26
Kiva A (north)	Kiva A			Kiva A
Kiva B (south)	Kiva B			Kiva B
Lower Plaza				
North Plaza	North Plaza			North Plaza
Kiva Plaza	Kiva Plaza			Kiva Plaza

STABILIZATION WORK AFTER NUSBAUM

Most of the original 1910 stabilization work on Balcony House is still in place including the metal rods, turnbuckles, and angle iron. Nusbaum solved many of the stabilization problems at Balcony House. The metal bracing holding the three "towers" (Rooms 4/5, 17a/b, 21a/b) in place has resulted in completely stable walls for the past eighty years. The metal holding the west wall of Room 19 has for some reason been removed. The date of this removal is unknown. There is

also post Nusbaum stabilization mortar in the top courses of this wall. There is no record of why this removal and repair was made. Metal still stabilizes the wall between Rooms 25 and 26.

The many repairs made by Nusbaum to the site's front retaining wall have been so successful that no movement has been noted in the upper walls resting on this foundation. In 1934 some work was done on the footing of this wall under and north of the boulder that this wall is built around. From Nusbaum's description of his stabilization--redoing the wall

on the boulder, it is probably correct to state that the 1934 work was done on a section of the wall not modified by Nusbaum. Eroded mortar and stones were replaced in 1934--no major structural modifications were needed (Figure 4.3).

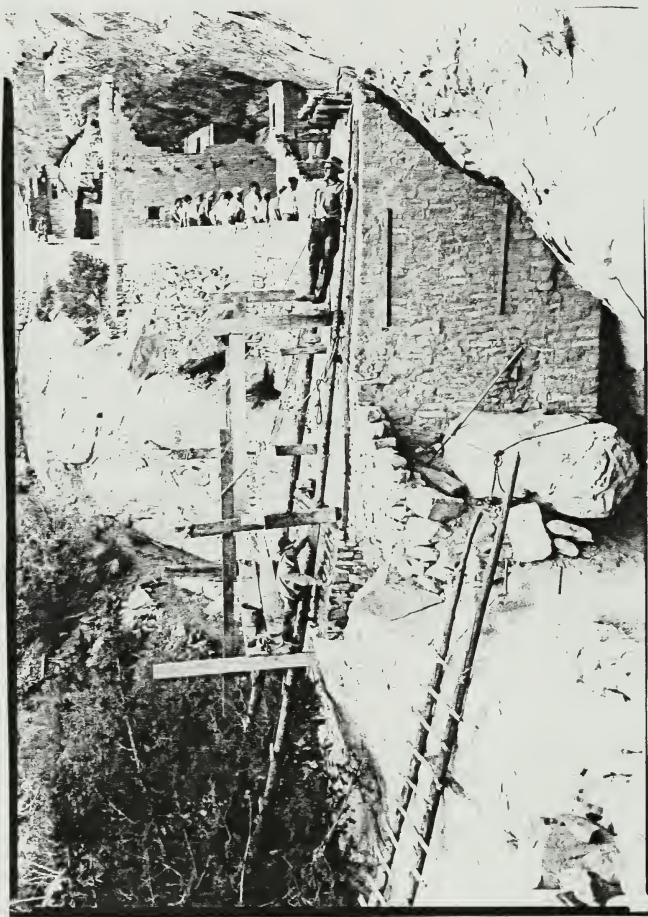


Figure 4.3. Al Lancaster stands at top of scaffolding looking east over Soda Canyon during 1934 stabilization. Visitors are in the North Plaza with a Park ranger. Photo by C. Markley, Mesa Verde National Park, Neg. No. 0284.

Water Seepage from the Balcony House Spring

The one area not addressed by Nusbaum and that has lead to on-going maintenance problems is the spring in back of Kiva Plaza. Nusbaum in his first letter to Hewett Oct 14 mentions "making a good spring out of a seep in back--all walled up--about 2' x 3' opening." This they used for drinking water. Possibly because of their need for water and frustration with the fact that the spring in the back of the alcove did not have adequate flow to supply the water needed for mortar, no mention was made of what might happen when the spring was not regularly drained. Visitors to the site were allowed to use the water for drinking for years but with the site closed every winter, water almost immediately started causing problems to the kivas. Water flowed along the bedrock and the lower walls of the kivas absorbed the water through capillary action. Undoubtedly the fill around the kivas and the retaining wall were also wet but it was the kiva walls where the problem was noticeable. The problem was noted in 1913 in a report of the Superintendent and then was mentioned again and again. In 1932 Paul Frank, Park naturalist, recommends that the "spring at Balcony House should be looked after. I believe it is desirable that the cistern be drained for the winter, for sanitary reasons, and as it is full freezing may cause a break in the concrete. The pipe connecting spring to cistern should be closed off to prevent overflow to the masonry." Exactly when the cistern and pipe were installed is unknown but these modifications seem to have been made to supply a clean source of water to visitors to the site.

Finally in 1939 the water seepage problem eroding the walls of the kivas was addressed. Park Naturalist's monthly report for April 1939 dated May 6, 1939.

"A rather extensive piece of work has been done in Balcony House to get rid of the heavy seepage that has been damaging the walls of the kivas. This seepage comes from a shale layer that outcrops in the rear of the cave throughout its entire length. At certain times of the year this seepage is so strong that it follows the cave floor to the front and stands in small pools in the two kivas. This constant moisture has a bad effect on the kiva walls and the stones and mud are slowly disintegrating.

In order to relieve the situation (a drain) has been installed by the ruins repair crew. A trench was dug down to the solid cave floor just below the line of seepage. A cement bed was then placed on the floor under the seepage in such a manner that all of the water could gather in a channel and drain to the lowest part of the cave. This channel was covered with an inverted half-tile and covered with layers of coarse and fine gravel. The water now has a free flow to the low point and from there a two inch pipe carries it completely out of the cave."

All of this work was done in areas where there are no walls--the back of the alcove and a trench for the pipe between Kiva B and the south roomblock.

The lower kiva walls were undoubtedly repaired/remortared once the water was controlled since the mortar today is in good condition but there is no record of when this was done.

The spring caused problems again in 1958. The problem was blamed on above average precipitation. The spring overflowed and "soaked the back of the cave and bases of house walls, and the heavy concentration of moisture threatened disintegration of the kiva walls" (Park Archeologist monthly report for May 1958, dated June 5). The stabilization crew retrenched the back of the alcove and installed additional and heavier drains. It was during this trenching that the small vessel full of artifacts, mentioned in the section on objects from Balcony House, was uncovered and reburied by the Navajo workman.

Visitors are, of course, no longer permitted to drink the water from the spring. The spring continues to flow and the water drains to the front of the alcove through the pipe laid in 1939. Since the modification to the drainage system in 1958, there have been no problems with excess water in the site.

Entrance Ladder to Balcony House

The entrance into Balcony House for visitors in 1910 was up a series of ladders below Kiva Plaza. In photographs from the Fred C. Jeep²⁵ collection (photo 20327), probably taken in the early 1920s, of the north end of Balcony House, there is no entrance ladder into Lower Plaza and the top of a ladder can be seen just

east of Room 26. By 1934 there was a long ladder taking people from the talus below the site into Lower Plaza. Then in the late 1940s, after much discussion about replacing the ladder with a metal flight of steps, a compromise was arrived at—a double ladder was installed. The problem was congestion and slow entry by large tours into the site. A secondary concern was the risk of heart attack and general fright by the public when faced with the ladder. A sturdy double ladder was considered a temporary solution by the Park superintendent who was in favor of the steps, and an acceptable solution by the Park archeologist and regional and departmental archeologists who did not want such an intrusion as metal steps so close to the site. The concrete landing with railing below the site was also built at this time. Its function was to allow tour groups to congregate safely. The double entrance ladder generates much comment from the public but no pressure for change. It is now accepted as part of the Balcony House experience. In fact Balcony House tours are now limited in size so the huge groups which went through the site in earlier times are a thing of the past.

Kiva Plaza Access

At some point between 1964 and 1975 the low, north wall of Room 20 was removed to widen the access into Kiva Plaza. So far no reports, photographs or notes have been found that discuss this modification. The wall is extant in a photograph in the Park collection dated 1964 and in a photograph dated 1975 the wall is gone. The 1964 stabilization report on Balcony House shows a "before" photograph with the walls in place. This suggests that the wall was removed in 1964 even though there is no "after" photograph in the report.

²⁵Oddie Jeep was the daughter of Mesa Verde's third Superintendent, Thomas Rickner, 1913-21, and ran the Park concessions. Her husband, Fred C. Jeep, was a Park Ranger. They were associated with the Park from 1913 to 1929 (D. Smith 1988:93).

Chapter 5

REPORT ON THE REPAIR AND EXCAVATION OF BALCONY HOUSE

Jesse L. Nusbaum

n.d. Report on the Excavation and Repair of Balcony House. Ms. on file, Jesse L. Nusbaum Papers, Box 11, Anthropological Archives, National Museum of Natural History, Smithsonian Institution, Washington, D.C.

transcribed and annotated by Kathleen Fiero

The excavation and repair of Balcony House was undertaken by the School of American Research (then School of American Archeology²⁶) in collaboration with the Colorado Cliff Dwellings Association, which had raised the sum of one thousand dollars for this worthy project. Work was started on the seventh of October and was closed down toward the last of November by the heavy and deep snows which prevented the packing in of supplies. During this time, notwithstanding the numerous difficulties to be overcome, the ruin was excavated, repaired and braced against further demolition by the elements.

Balcony House is situated on the west side of Ruin Canyon²⁷ about four hundred yards from the spur formed by the confluence of Cliff and Ruin canyons and about two-thirds of a mile, ten degrees north of west, of Cliff Palace (Figure 5.1). Although no accurate measurements have ever been made of the depth of Ruin Canyon at this point, it is estimated to be eight hundred to a thousand feet. The view from the ruin is as fine as from

any on the Mesa Verde. The north rim with its high promontories eight to twelve miles away, and the main crest of the snow-covered La Plata fifty to sixty miles to the east, are plainly visible. Across the canyon many smaller ruins are seen, and from the south end of the narrow ledge a fine view of the towers and associated structures of Hemenway House can be had. Far away to the southeast, the dark gorge of the Mancos River is discernible, and beyond, the black mesas of New Mexico.

²⁶ Since the name was changed in 1917, it must be 1917 or later when this report was written.

²⁷ Soda Canyon

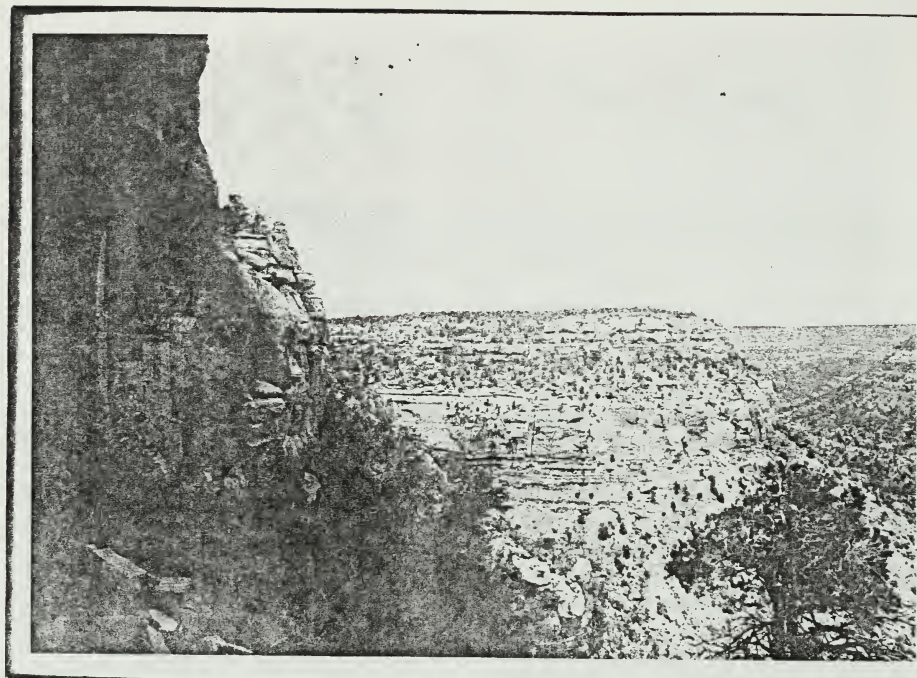


Figure 5.1. Looking northeast down Soda Canyon, 1907, a portion of the north end of Balcony House is visible at left before any repairs or stabilization. Photo by Jesse L. Nusbaum. Courtesy Museum of New Mexico, Neg. No. 2150.1, 60500.

Luckily, Balcony House was not discovered until after²⁸ Spruce Tree and Cliff Palace, and hence escaped the notoriety that these ruins shared, and was consequently little known. It was late in the winter of 1886 or in the early

spring of 1887 that two cowmen²⁹ discovered this important ruin, on the west side of Ruin Canyon.

²⁸ Handwritten by Nusbaum on side of page: "Correct Balcony discovered prior." Obviously Nusbaum wanted to make a correction here because "luckily," "prior," and "until after" were crossed out and "prior to" is written above "until after."

²⁹ This is an original footnote in the manuscript: "William Hayes of Mancos, Colorado, and George Jones of Pendleton, New Mexico. To Gustav Nordenskiöld, F. H. Chapin, Dr. Bidsall and others belongs the credit for making known to the scientific world through the press the wonderful ruins of the Mesa Verde." Handwritten in the margin near this footnote: "also S. E. Osborne coal prospector in 1883."

The main tourist trail that leads to the ruin from Spruce Tree House takes one past Cliff Palace and in a nearly easterly direction to the rim of Ruin Canyon, about a quarter of a mile north of Balcony House. Here, by way of a steep and rocky trail, one descends to the first talus slope and continues along the cliff side to a point below the ruin whence it may be reached by a break-neck climb.

Ladders and newly made footholes now take the place of the rope, used up to this time (Figure 5.2) From the lack of ancient hand and foot holds or holes, we surmise that this is not the trail of the ancients although they probably passed back and forth under the ledge on which the ruin is built.

The ancient trails, as far as discovered, are two in number. One is from below, coming from the lower levels of the canyon by means of footholes over a very steep ledge of rock, to the narrow ledge, the south end of which is protected at this point by a series of rooms, now in ruins. One must pass through this series of rooms and five hundred feet northward to gain the main fortified entrance. Just south of this entrance, many worn footholes at the base, more at the top and smoothed places between, indicate the course of the other trail; and although very steep, this one which leads to the mesa top was undoubtedly the principal thoroughfare of the Balcony House people. By making a short cut through the pinons and cedars to the top of this trail, and descending with the aid of a seventy-five foot knotted rope, a savings of over five minutes between camp and the ruin was effected.

The caves in which Spruce Tree House, Cliff

Palace, Peabody House³⁰ and nearly all of the Fewkes Canyon group are situated are altogether different in character from the Balcony House cave.

Each of these is situated at the top of a talus slope under the projecting rim rock, whereas the Balcony House, Inaccessible, Spring House, Swallow's Nest, Casa Colorada and others, the cave is usually about halfway up the vertical cliff. Throughout the Mesa Verde, a horizontal seam is noticed in the vertical cliffs between the top and the first talus slope, sometimes forming narrow ledges and sometimes small caves. Many ruins are found on these ledges and in the caves, which because of their more or less inaccessible positions and small size are commonly known as storerooms. A better name would be "ledge houses." Balcony House is primarily a ledge house of large size, in fact the largest yet discovered (Figure 5.3) Spruce Tree House and Cliff Palace are larger and grander ruins, but Balcony House is more spectacular and was much more difficult to construct than those buildings which are situated on top of the talus slope. The main part of the ruin lies wholly under cover of the cliff, and only for a short distance at the southern extreme are the walls exposed. Five hundred feet to the south of the same ledge that widens out to receive Balcony House at the north end, is another small ruin, not yet excavated, which was probably used for guarding the trail that ascends at this point. The general orientation of the building which is somewhat crescent shaped, is from northwest to southeast.

Balcony House has some structures in which the masonry will compare favorably with the best work of the Cliff Palace masons. Baron

³⁰ Square Tower House.

Gustav Nordenskiöld says, after visiting all the main ruins on both the east and west sides of the mesa, "This cliff dwelling is the best preserved of all the ruins on the Mesa Verde. It also seems as if the architecture of the people had here reached its culminating point. Still more care was exercised on the erection of walls in general. The stones were hewn and fitted together with the utmost care, the surface of the wall is perfectly smooth and the corners are turned at perfect right angles." He no doubt refers only to the structures in the north plaza and the towers in the Kiva Plaza as the masonry of the other structures is mediocre.

The south half of the two-story house in the north plaza with balcony attached to the front wall, besides being the best preserved ruin on the mesa, will certainly rival all other buildings in the excellence of its masonry. In the best construction in Balcony House, regular squared rock, laid with comparatively thin joints and few spalls, was afterwards rubbed smooth by the use of water and sandstone slabs. The door jambs are remarkably smooth and square, and the corners true and plumb.

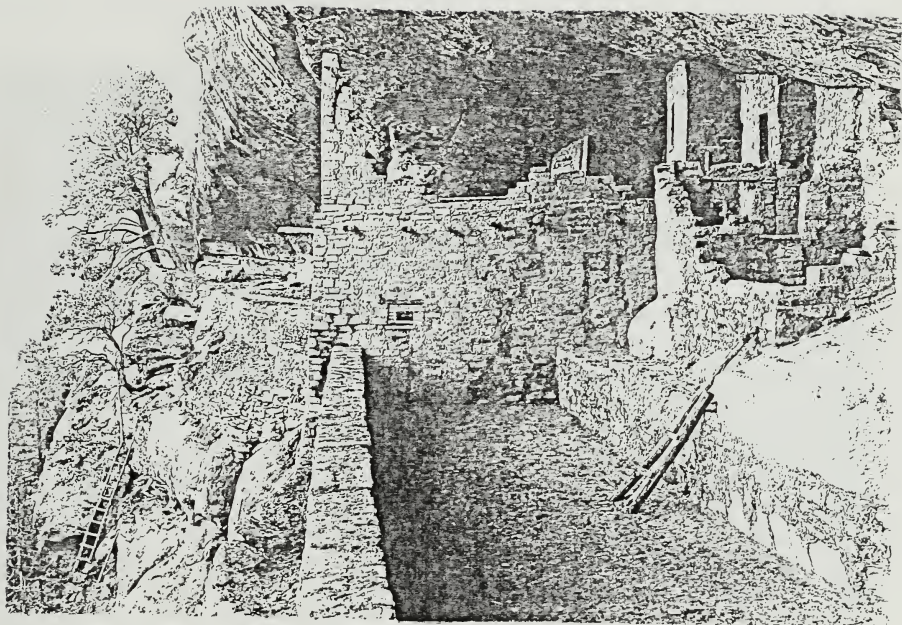


Figure 5.2 Balcony House looking south, note the ladder at south end below the structure and trees by which visitors entered the site in 1910 after stabilization. Photo by Jesse L. Nusbaum, Courtesy Museum of New Mexico, Neg. No. 2151.38, 60525.

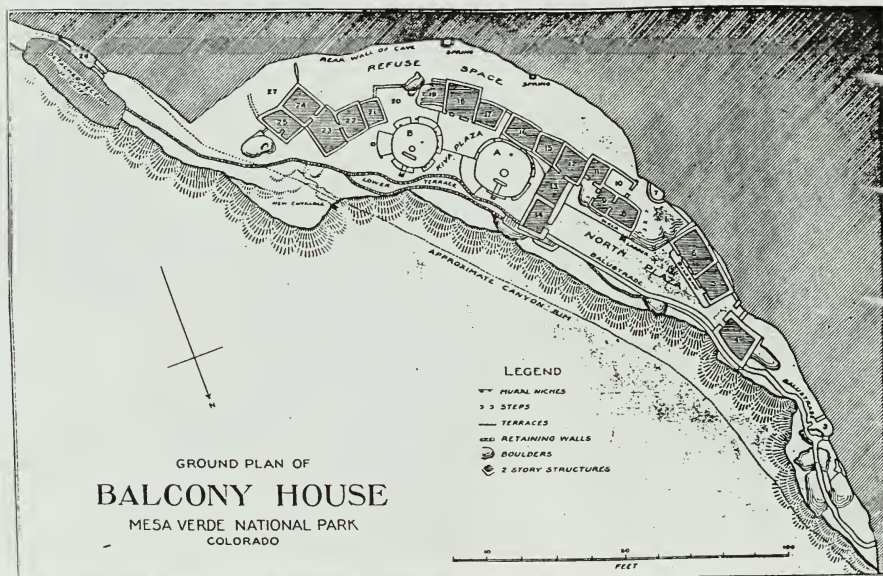


Figure 5.3. Ground Plan of Balcony House, Percy "Jack" Adams map, 1910. Note two springs and large boulder indicated in south end east of Room 25. Photo by Jesse L. Nusbaum, Courtesy Museum of New Mexico, Neg. No. 2151.1, 60498.

Balcony House seems to have been very appropriately named, since in no other ruin in the Mesa Verde is the balcony a primary architectural feature. In this ruin, balconies were constructed and remain in good³¹ repair on nearly all of the standing two-story structures (Figure 5.4). They were used as a means of passage from one second-story room to another. A single ladder to a balcony along a facade of adjoining rooms would serve all equally well and simplify communication between any two.

The construction in general is as follows: Floor beams, in pairs if small and singly if of sufficient size, were allowed to protrude through the outside wall for a distance of twenty to twenty-five inches. These were covered at right angles by overlapping split cedar slabs, a thin layer of mud on top serving as a means of holding these in place for the closely laid rolls of cedar bast which crossed the cedar slabs. These bundles of bark, the width of the balcony, average about two inches in diameter and were tightly tied at the ends with yucca fiber. On top of this foundation, mud and clay were carefully plastered in thin layers at a time to prevent cracking, and strengthened by flat slabs of sandstone where necessary. This clay top was added to from time to time in the repair until the balcony finally attained a thickness of six to eight inches.

The construction of the eaves was but slightly different. Smaller supports extended through the walls and two long, slender poles rested on these, supporting the small whole or halved cedar poles at right angles to them. On these closely laid poles, mud interlaid with cedar bast

was placed to a depth of two inches.

The large retaining walls of Balcony House, laid of irregular shaped rock, have stood very well in most cases. The tendency to draw them back more rapidly by tilting the front of the stone upward caused them to buckle and go out in some parts.

A two-course wall³² from fourteen to twenty-two inches in width was carried up as if it were two separate walls, no ties being used to hold the two together. Naturally, the action of frost and water would wedge apart such walls and destroy them. In Balcony House, many walls were built on the smooth surfaces of boulders with an incline of twenty to fifty degrees, and so slipped from their insecure footings when the mud was dampened by water or an undue stress was received.

Toward the rear of the cave, the dirt fill was necessarily not so deep and the walls have remained nearly as they were built, whereas toward the front where the fill in some cases was many feet, the walls have settled, generally causing the building to lean forward. This, together with the poor bonding, was the cause of the many large cracks that appear in the walls (Figure 5.5) (Figure 5.6) (Figure 5.7).

³¹ The word "good" is crossed out and written above is "fair."

³² A wall which in cross section is two stones wide.



Figure 5.4. Balcony House, North Plaza, before stabilization 1907, looking south. The balcony construction with overlapping split cedar (juniper) slabs, bundles of bark, mud, clay, and flat slabs of sandstone is visible across Rooms 5 and 6. Unidentified man stands in front of the balcony in the North Plaza. Dr. A.J. Fynn (identified by Jack Smith) stands in background in Room 12. Photo by Jesse L. Nusbaum, Courtesy Museum of New Mexico, Neg. No. 2151.6, 6318.

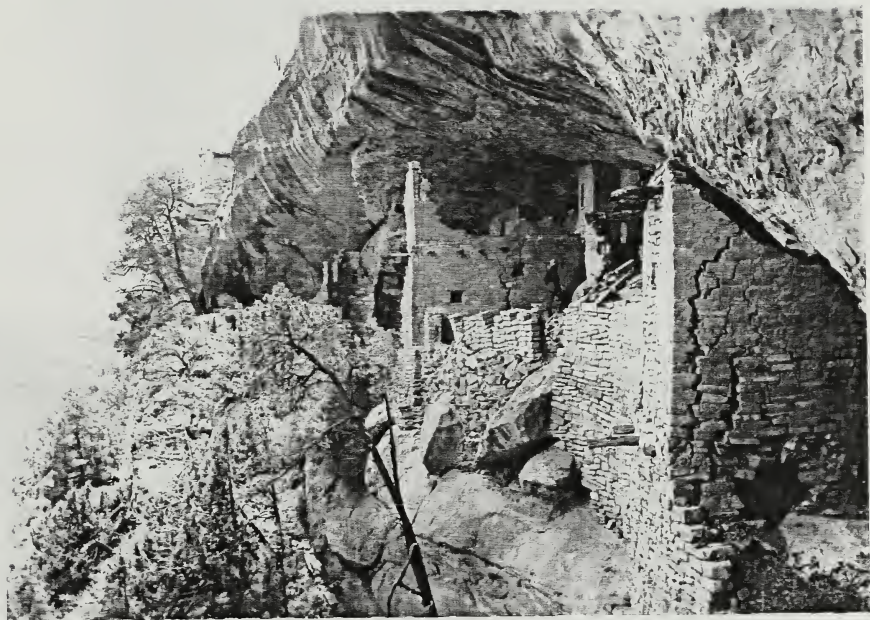


Figure 5.5. Balcony House, looking south into alcove, before restoration in 1907. Notice large cracks in walls of Rooms 4/5, at right of photo, where walls settled and had poor bonding. A.J. Fynn, a visitor, stands in the North Plaza near deteriorated retaining wall. Photo by Jesse L. Nusbaum, Courtesy Museum of New Mexico, Neg. No. 2151.15, 6314

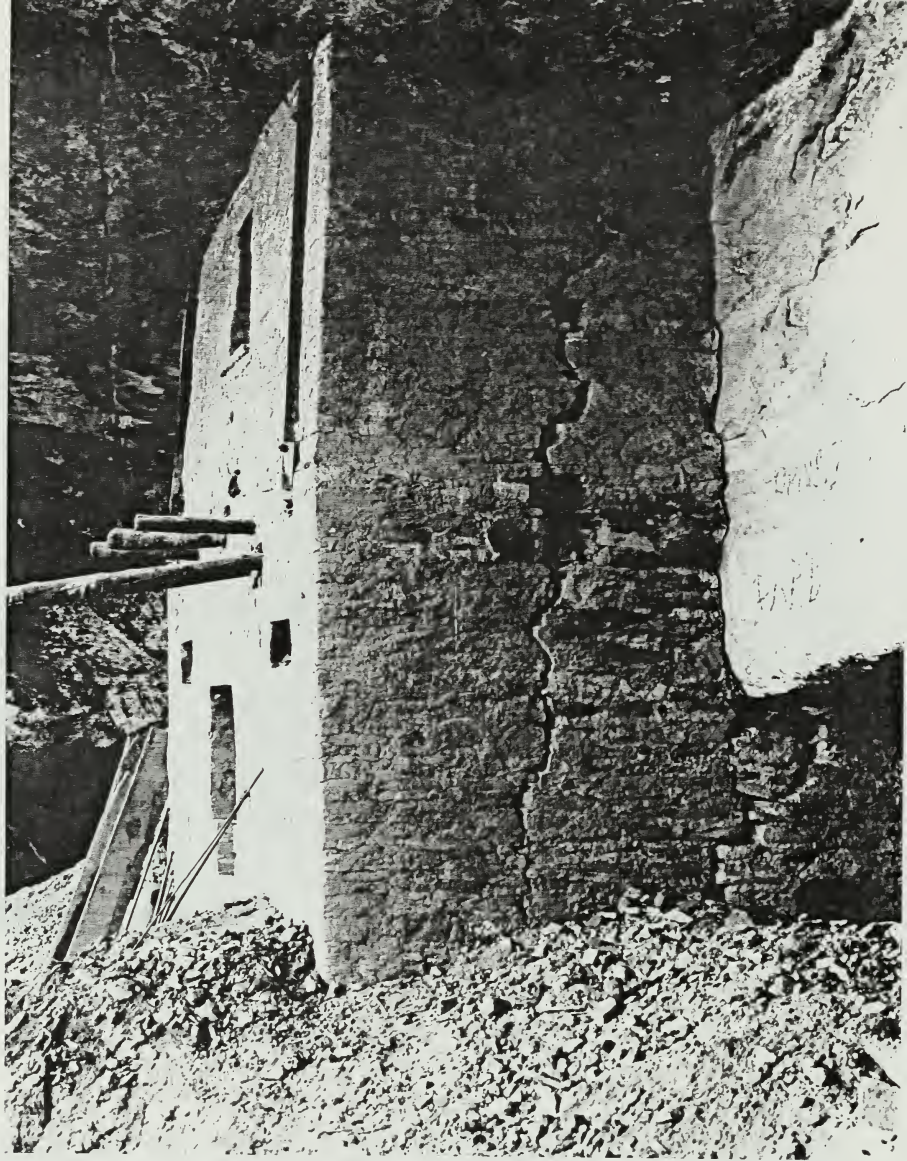


Figure 5.6. Cracks in wall of main "tower" South Plaza during stabilization 1910. Note graffiti on plastered wall at right. Metal braces have been installed on Room 21b. Milled boards and metal rods are waiting for use at the base of the "tower." Photo by Jesse L. Nusbaum, Courtesy Museum of New Mexico, Neg. No. 2151.12, 60526.

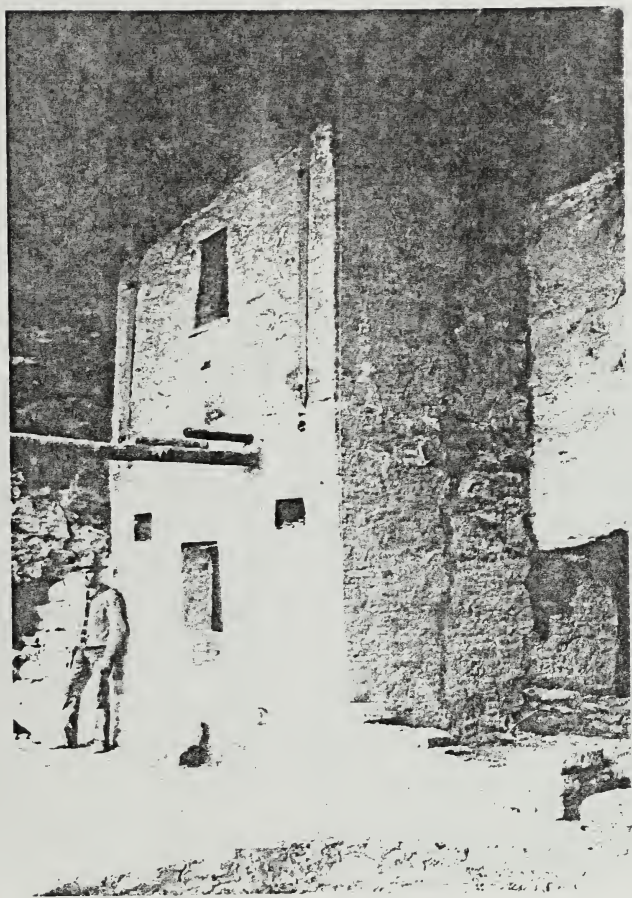


Figure 5.7. Main "tower" South Plaza after stabilization in 1910. Note cracks filled in and graffiti gone. Ranger is not identified. Photo by Jesse L. Nusbaum. Courtesy Museum of New Mexico. Neg. No. 2151.43, 60527.

Wherever water action has played a part in the demolition of the buildings, it will usually be found that the mud of the joints was washed out first, taking the loose spalls with it, causing the whole wall to settle and finally fall because of the unevenness of the rock used in the construction. The present condition of the ruin can be attributed to the following defects in construction:

1. Lack of proper footings for foundations
2. Lack of ties of some kind in or between walls
3. Poor bonding
4. Great pressure of large fills of dirt and spalls
5. Thin, rough walls more or less out of perpendicular
6. Very heavy roof and floor construction
7. Use of mud to correct defects

That Balcony House needed attention to save it from early destruction was obvious. The ruin was a discouraging sight, and much labor was necessary to put it in repair. In the south or Kiva Plaza, which consists of two large kivas surrounded by rooms on all but the front side and separated from the North Plaza by a heavy wall without a door opening, the demolition was almost complete. (Figure 5.8) The outside retaining wall, from two to eleven feet high originally, was forced over the cliff, probably as the result of the jar received when the immense slabs of rock from the cave arch high above fell, demolishing and carrying with them the walls of the rooms underneath and the kiva walls below, the combined force of which was sufficient to loosen the massive retaining wall from its inclined footing on the lower rim. In order to remove the large slabs,

they were drilled and split to sizes³³ that could be used in the outside retaining wall. The largest of these was estimated to weigh about seven tons, and many smaller ones taken from the debris weighed in the neighborhood of five hundred to fifteen hundred pounds.

In the south kiva, the demolition was not so pronounced, and the slabs excavated in the kiva, though large enough to do great damage, had luckily fallen near the front so that the rear of the kiva below the base of the pilasters was not disturbed. No doubt these longer and less massive slabs crushed the walls of the rooms adjacent on the south and carried the south part of the retaining wall over the cliff. The demolition of the south kiva is of comparatively recent date, as the fresh fracture on the arch of the cave indicates, whereas the fracture above the north kiva is nearly obliterated. This falling and caving away gradually undermined the dirt fill on which some of the buildings were placed, and in turn either caused large cracks to appear in the more substantial buildings or precipitated the whole building into the kiva depressions below (Figure 5.9, 5.10).

The highest wall in the ruin, separating the two plazas, required a ten-foot retaining wall to come level with the floors, and the main wall continues a little over twenty feet above (Figure 5.11) The north portion of the foundation is on the solid rim and the south half on a loose boulder resting on an incline of about thirty degrees. When the avalanche of rock and debris from above forced out the front kiva walls and the retaining wall, this boulder, located in the path of the avalanche,

³³ Inserted in handwriting "by plug and feathers" and in the margin of the report "pulled first, then used plug and feathered."

was moved at one end only, the other acting as a pivot or center. This sheared off half of the outside wall and left the remainder in a tottering condition which has gradually become worse. A mason secured by ropes replaced the buttress and retaining wall and built it up so as to underpin the shaky second story that a slight pressure of the hand could easily sway.



Figure 5.8. E.M. Nusbaum in the South Plaza at the start of the repair, 1910. Looking south at the demolition of the kiva area. Photo by Jesse L. Nusbaum, Courtesy Museum of New Mexico Neg. No.2151.42, 6316.

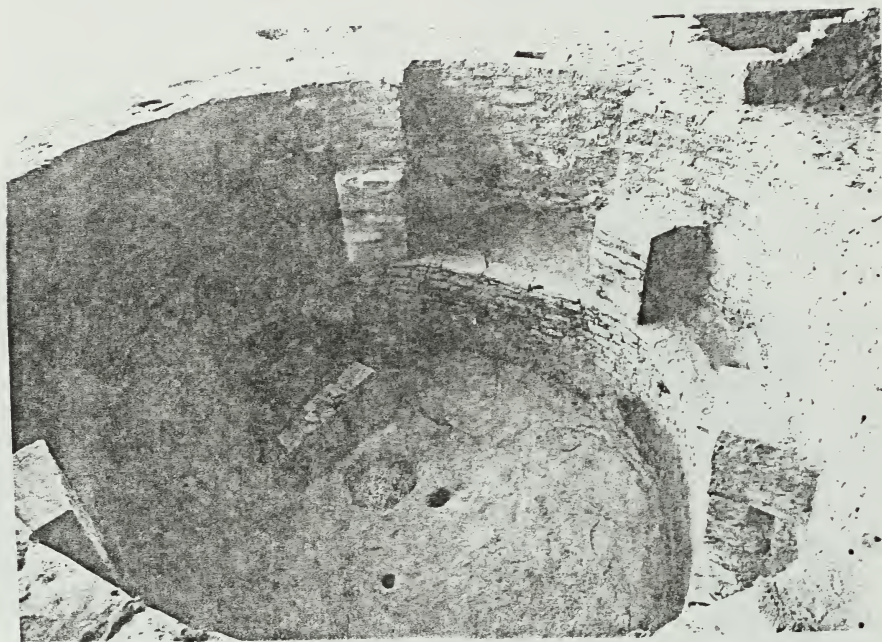


Figure 5.9. South Kiva, Kiva B, in South Plaza 1910 after stabilization. Note niche in pilaster at right, fire pit, deflector, and sipapu on floor at center. Photo by Jesse L. Nusbaum, Courtesy Museum of New Mexico, Neg. No. 2151 26, 60521

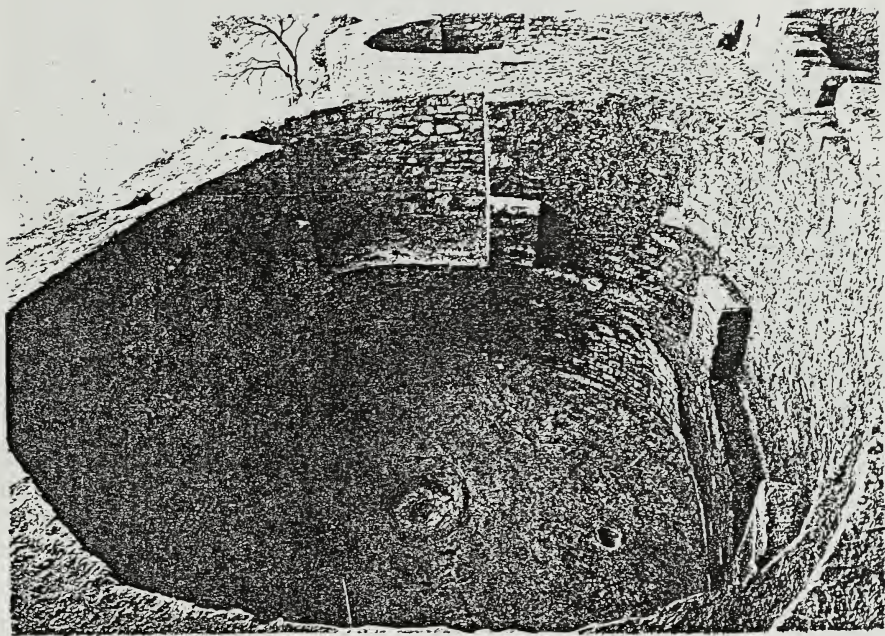


Figure 5.10. North Kiva, Kiva A, in South Plaza 1910 after stabilization. Note fire pit in center of floor and pit in floor at right of photo. Photo by J  se L. Nusbaum, Courtesy Museum of New Mexico, Neg. No 60520.



Figure 5.12. Mural decoration in Room 24b, just south of the south kiva in 1896. Note the eleven-inch band of brick-red plaster extending over the base of three walls, surmounted at intervals by a series of three closely connected lancet forms tapering to a point six inches above the border. Photo by Thomas McKee Neg. No. 34, Mesa Verde Research Center, Neg. No. 8A, Print 9084 II.

The secular rooms of Balcony House have the two common types of openings, the rectangular and the T-shaped which is larger at the top than at the base. The kivas have only one, the rectangular.³⁷ The T-shaped doors always open on a court or to the outside, never

serving as a means of passage from one room to another. The rectangular openings, although serving as a means of passage from one room to another, nevertheless face in many instances on the courts and are the only openings used in second-story rooms or above a balcony. Footholes of various forms are found below several of the openings--sometimes simply a curved depression in the mud joint between courses of stone, and again a nicely pecked out

³⁷ Here he must be referring to the ventilator shaft openings at floor level in both kivas.

opening in the rock large enough to receive the toes and the ball of the foot. Some smaller and nearly square openings, too small for the passage of human beings, must be classed as window openings. The still smaller ones, just large enough to admit the hand, could be nothing more than vents for air, or for ceremonial purposes. Lower rooms are connected with upper story rooms by square openings or hatchways in the corners of the rooms.

The front room facing on the south side of the South Plaza is here designated as the milling room of the pueblo.³⁸ Lined up against the west wall, nearly destroyed by careless excavation, was found the remains of eight mills or metate bins in a row. Contrary to the usual custom, the bins are placed tight against the west wall, leaving no room for the women to kneel, as is customary, between the bins and the wall. No metates were found in place, but the large number excavated nearby seems to indicate the existence of such a room. No other bins were found (Figure 5.14).

The grain and stores of the people were probably placed in the small, unsmoked rooms designated on the plan as storerooms. A singular room of this character is the lower room³⁹ of the north building in the North Plaza, built below the level of the plaza and without openings of any kind save a twenty by twenty-two-inch hatchway which was closed and concealed by a mud floor on which was constructed a fireplace.

Two well defined springs or seeps were found

in the rear of the cave, one very small one boxed with four slabs on edge and another having small rocks on the lower side backed up with a thick layer of clay to prevent seepage. The larger spring was walled and furnished sufficient water for drinking purposes only. The water is very cold, somewhat alkaline, and has a strong iron taste.

³⁸ Room 26.

³⁹ Written in the margin "exposed by blast of dynamite." This is Room 4.

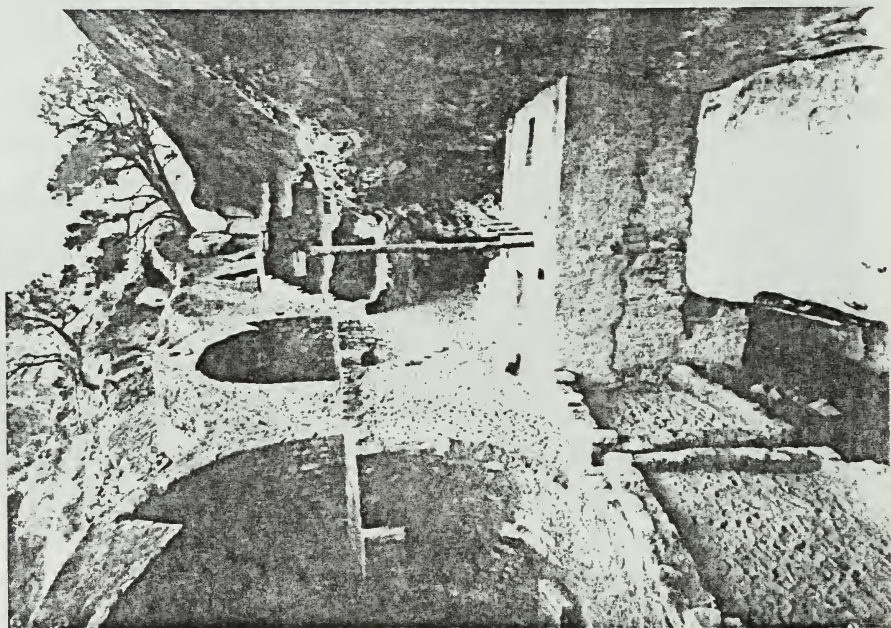


Figure 5.13. Kiva Plaza 1910 after stabilization view is south from the dividing wall. The second story of the room just south of the south kiva (Room 24b) has a mural decoration. Also note the two kivas, the filled in crack in the "south" tower (Room 21a and 21b) and T-shaped doorway in the first story room (71a) of the south "tower." Photo by Jesse I. Nusbaum, Courtesy Museum of New Mexico, Neg. No. 2151.44, 6315.



Figure 5.14. Room 26 after stabilization 1910 with manos and metates found in excavation placed where Nusbaum found 8 mealing bins. Photo by Jesse L. Nusbaum, Courtesy Museum of New Mexico, Neg. No. 2151.33, 60522.

The large recess at the rear of the cave behind the walls of the buildings is referred to as a refuse space. Although it contains the springs and served as a passage between the two plazas, it was primarily a sort of dumping ground, as the excavations show. From the smoke on the wall, one would surmise that fires were burning here continually. Trenches from a few inches to three feet deep were excavated throughout the recess. No specimens of value were found, but potsherds, flawed axe heads, broken manos and metates and other discarded material were unearthed. Several pieces of gourd rind, many unidentified animal bones, notably the skulls of small rodents, and turkey and other bird bones were found, together with an abundance of animal droppings and bat guano.

It seems that Balcony House was thoroughly excavated long before our work began (Figure 5.15, 5.16). A very small amount of material was found by us, and no trace can be gained of the collections that have been reported as excavated at Balcony House in former years.



Figure 5.15. Balcony House looking from the south in 1907 before stabilization “That Balcony House needed attention to save it from early destruction was obvious,” wrote Jesse Nusbaum. Photo by Jesse L. Nusbaum, Courtesy Museum of New Mexico, Neg. No. 2151.22, 60502.

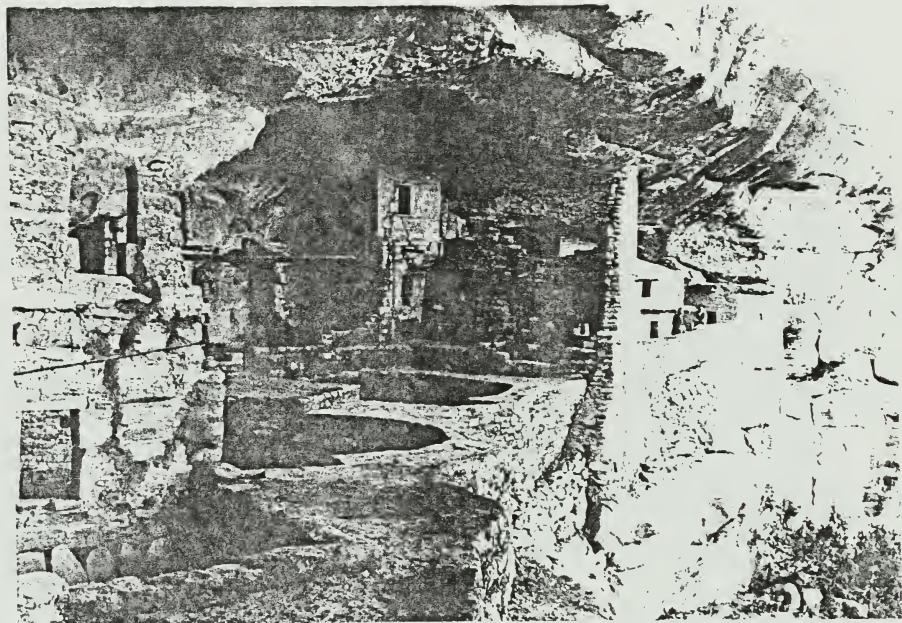


Figure 5.16. Balcony House looking from the south in 1916 after stabilization. Two unidentified people are standing in the North Plaza at the balustrade wall. Photo by Jesse L. Nusbaum, Courtesy Museum of New Mexico, Neg. No. 2151.19, 60515.

Chapter 6

LETTERS WRITTEN BY JESSE NUSBAUM TO EDGAR L. HEWETT DURING BALCONY HOUSE PROJECT

1910 Original unpublished letters, 16 pages, from Jesse Nusbaum to Edgar Hewett written during excavation and repair of Balcony House . Ms. on file, Hewett Papers, History Library, Museum of New Mexico, Santa Fe, New Mexico

transcribed and annotated by Kathleen Fiero
(some annotations appear in parentheses)

Jesse Nusbaum wrote three letters to Edgar L. Hewett during the 1910 Balcony House project October 14, October 21, and October 31/November 1. The first letter was handwritten, the second and third were mostly typewritten with some handwritten notes. These letters describe the difficulties of field

work and the sense of responsibility which the young man, Jesse Nusbaum, felt for his project. The original letters are part of the Hewett Collection in the History Library, Museum of New Mexico, Santa Fe.

LETTER 1

DEPARTMENT OF THE INTERIOR, MESA VERDE NATIONAL PARK, OFFICE OF SUPERINTENDENT

Mancos, Colo., Oct. 14, 1910⁴⁰

Dear Mr. Hewett:

I have the honor to report--I believe this is the customary way of starting your report--that work has started all OK and that we can now go on without further delay. We have Paul Schmahl for cook and Chas Ashbaugh--a dandy packer for water--I supervised and helped remove the balustrade wall,⁴¹ got camp organized, etc. and stayed until Tommy and Dad had built about ten feet of the wall, beginning from the north end where the piece slipped off the slanting boulder. We also put in the retaining wall--about 8 ft. high at the south end--laid it up dry as they⁴² had and made ready

⁴⁰ This letter is handwritten and the words and spelling are in a few areas difficult to determine.

⁴¹ wall in North Plaza

⁴² Inhabitants

for the balustrade walls. Made all notes on wall and measurements⁴³ before removing—in removing found one nicely carved stone about 16 in. long and 2 ½ thick—incised design of geometrical design—have copy of that and also in 3 separate places, a stick erect in center of wall—2 being plain roots or limbs as this (Figure 6.1)

and one a notched and carved one ½ in. in dia(meter)—12 in. long (Figure 6.1)

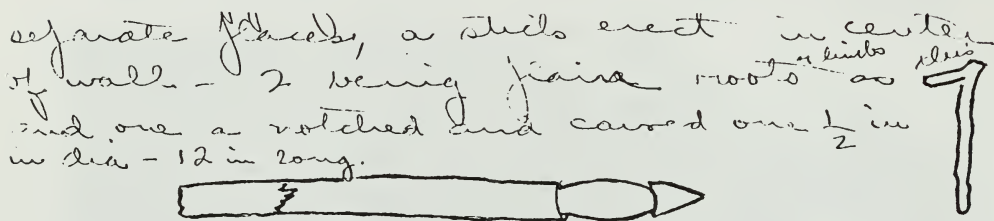


Figure 6.1. Sticks found in center of balustrade wall construction one from a root or limb, another notched and carved stick, 1 ½ " diameter and 12 in long.

What their purpose was I do not understand or know but from position—I would say they have no function whatever—simply laid in as we do at times. They were upright so could not have been "tie or bond" sticks as we use—in holding a two course wall together instead of a header. A stone ax—not very good—found near south end of balcony—also several specimens of tied knots etc.—some coiled and indented sherds and small rubbing stones. A great ceremonial kiva altar stone of greenish cast—highly polished by hand usage—flatter than one Kidder found but nearly same shape—probably granite in formation, was found in the talus below where we pulled up dressed rock. The west wall of the north quarter or as I call it the "Plaza quarter"⁴⁴ to keep it separate from the south quarter which I call the "Kiva quarter" or "Tower quarter" on acct. of the two towers, is very interesting. This we excavated and found was a wall running from south end "Balcony House Proper"⁴⁵ to central division wall⁴⁶. It is laid up very roughly and loosely and nearly parallels the outside wall. This formed an open court for games and dances—and the balcony, outside wall, and high rocks to the rear formed an excellent place for those not taking part, to look on from (Figure 6.2).

⁴³ These notes were not part of his field notes and have not been found.

⁴⁴ He also called it "North Plaza".

⁴⁵ Room 8.

⁴⁶ Exterior north wall of Room 16. Nusbaum is describing the wall that extends along the west side of North Plaza from Room 8 to Room 16.

DEPARTMENT OF THE INTERIOR,

MESA VERDE NATIONAL PARK,

OFFICE OF SUPERINTENDENT

Found sill for here
in rubbish heap.

Mancos, Colo., _____, 19____

near formed an excellent place for those
not taking part, to look on from
Room--store room I guess--very small & poorly
laid up.

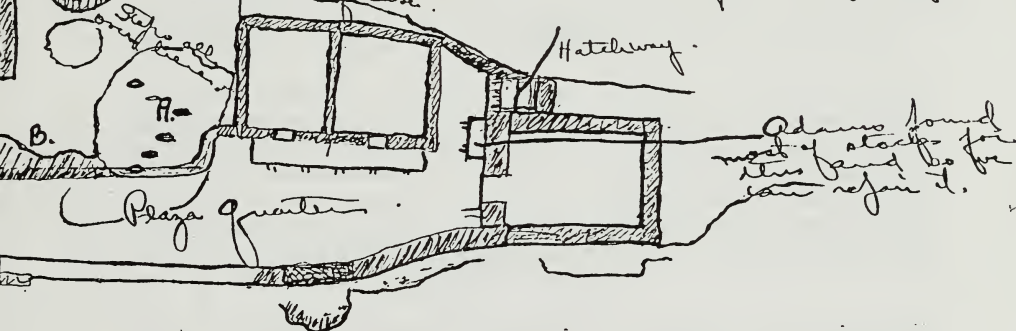


Figure 6.2. First courtyard of Balcony House (now known as North Plaza).

(Notations on the sketch map:

Found sill for here in rubbish heap.

Entrance.

Room--store room I guess--very small and poorly laid up.

Rear of cave.

Hatchway.

Steps all over here.

Adams found most of sticks for this and so we can repair it.)

A--Represents the large boulder--marks ____ are the foot tracks and steps in same. Front face all pecked off to make conform with outer wall. B--is a fill up against the boulders and is retained by outside wall. Boulder A--wall underneath comes flush with face of rock, making straight wall no evidence of anything but plain level floor--composed of red clay. We have dandy adobe mortar for this part--haven't thrown a shovel full of dirt over so far and don't think we'll have too on whole ruin. Break clay lumps up with heavy log tamp and let soak.⁴⁷ Adams, Tommy, Dad and I have made a

⁴⁷ He was reusing the original mortar.

good spring out of a seep in back—all walled up—about 2' x 3' opening—enough for drinking water only.

Came off mesa after dark last night—came to Durango this A.M. Back tomorrow with all necessary irons and tools and stay there then till I finish. We will use a hose to get water from cliff above (Figure 6.3)

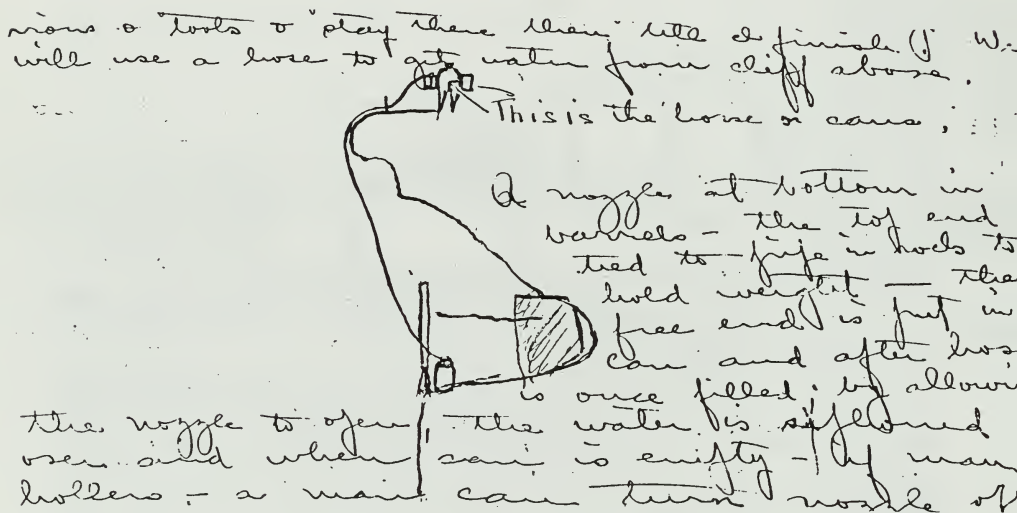


Figure 6.3. Sketch of water delivery system for stabilization.

(Notations on the sketch:

This is the horse or cans.

A nozzle at bottom in barrels—the top end tied to pipe in rock to hold weight—then free end is put in can and after hose is once filled, by allowing the nozzle to open, the water is siphoned over and when can is empty—if man hollers—a man can turn nozzle off below and hold enough water in column to siphon out all the time. As it is, it takes about $\frac{1}{2}$ hour to let down 4 cans and rehoist and 3 men—2 to let down and one to pull in and empty. Then packer has cans to tie on etc. wasting much time. I think above method will save all this.)

So far for laborers, I have a Swede who hardly speaks English but works well and 2 men from Cortez. Randolph⁴⁸ says he can't get men but with 3 from Govt well who will come up Sunday, we will have enough. I will get back tomorrow night about ten if I have to walk or Sunday noon so will only be away about 2 days all told.

We have a trail down just few feet south of narrow entrance⁴⁹—iron pipe set in rock and knotted rope—can come up or down in about 1 minute—other way 12 minutes is average to head of short cut trail. We have left all ticklish work go so far but will begin at north end as soon as iron arrives. I have decided after careful study to remove cracked portion of north building⁵⁰ as wall is bulged so far—we anchor it first—then carefully remove cracked portion—lay up again in first class fashion imitating old work. Dad and Tommy think the same so I guess it is best. The same is true also of the tower with bulging front in first story.⁵¹ Shore up the upper and remove lower—laying up flush and tight.

John Wetherill on the mesa—met him at foot of trail—had a couple of rich Calif. people on the string—could find out nothing much about ruin from him. He says all he found was in kivas but said neither was roofed altho half of a roof remains of one altho it is broken down. The best chance to restore and do it right that we will ever have I believe is to restore north kiva as largest part of old timbers are there now. It has an outside vent or opening and its plan is very evident altho we have not touched a shovel to it yet. What do you say—we might make a half restoration say, build up all the piers and the recesses or "banquettes" a la Dr. Fewkes—and put on half the roof showing construction and all—just as you say.⁵² Can tell you more on further excavation.

About the principal point of interest that interests us both—that of ducats. I have a few remarks to make. The amount we have will not pay me (sic) salary and complete the work I am sure and told the Major⁵³ so and he said he could have told us all the time that we couldn't do it on that amount. He immediately wrote the Secy. of the Interior to the effect that our funds, because of the 3 1/2 mile haul of water and long pack—and necessary bracing would not allow us to complete the ruin in the way we planned—asking that he be wired if \$500.00 or as much as necessary of the \$2000.00 set aside for repair which is to be used before June 30th 1911, could be used as heretofore for repairs, since it was economy and a big saving for us to finish at this time. He has not been notified yet by department of our work there and so sends letter to tell them of our arrival, inspection and commencement of operations.

⁴⁸ Superintendent of Mesa Verde National Park

⁴⁹ Entrance tunnel, labeled on maps Room 29

⁵⁰ Rooms 4/5.

⁵¹ Possibly referring to Room 17.

⁵² This was not done.

⁵³ Superintendent Randolph

He sends it all as tho we had nothing to do with it at all [Just as tho we hadn't enough and couldn't finish it all and he had concluded that maybe some more money might be needed—just a fund to draw from in case of necessity.⁵⁴—so I guess it is all O.K. That leaves \$1500 for Peabody⁵⁵ and he wants us to do it at once. I guess we will have to wait till spring tho on this work even tho we are lucky enough to get it. I hope we do—it is a worse job than balcony⁵⁶ because of shaky walls but will make a dandy when finished.⁵⁷ You deposited \$750.00 to my credit. When can I look for the remainder? I guess I will have to stop this long history—I am not used to writing and my hand is so cramped I can hardly write. Am tired also so will hike to bed. Have all my orders in here and am finished up ready to leave again in the A.M. Write me at your earliest opportunity. Meanwhile I will forge ahead to extent of funds. They will provide for 3 weeks work with laborers—6 and other half required and horse hire I guess. Maybe we can finish all in that time. I will try. Major and Mrs. send their best. You are all in all to Major and he boosts you all the time—Mrs. Randolph ditto. Says he don't know how he could get out a report without you. Well, Mr. Hewett, adios. As ever I beg to remain Yours very cordially, Jess

P.S. Please excuse this as a letter this time. I will do better next. Wish I had you where I could talk to you—Jess

(addition on top front page of letter: With tools I have had to get we are fixed to repair anything in ruin line anywhere with very few additions.)

⁵⁴ This was added in the margin of the letter.

⁵⁵ Square Tower House

⁵⁶ Balcony House

⁵⁷ This site, Square Tower House, was excavated and stabilized by Fewkes in 1919.

DEPARTMENT OF THE INTERIOR,
MESA VERDE NATIONAL PARK,
OFFICE OF SUPERINTENDENT

Mancos, Colo., Oct. 21, 1910

Dear Mr. Hewett:-

I will write you a few lines this evening just to let you know how things are coming along. The outlook is not as nice as I would like it to be but it cant be helped as weather and sickness and the vast amount of work to be accomplished have all tended to hold us back. The first cook that we had, had eye trouble and altho he worked for six days, still he had just got the run of the work when his trouble started. He went stone blind and had to keep in the dark all the time. Whenever he got in the light, he would yell out in pain and finally he got so bad that he could not bring the lunch to us at noon. Then at about three one afternoon I sent the water packer in to Mancos with him, to hurry up Kelley with our iron work and also to bring out a couple of new men. Next, Dad had a sick headache and was out of business for a day, then the new cook that we got was laid out for two days and is now just hobbling about once more. Then as we started to work this morning, one of the men said he was feeling pretty punk and so went home at ten and tonight is laid out in his tent with a badly swollen throat and also quite a fever. We have done what little we could for him and have seemed to help him a little. I do hope the sickness for the camp is over as it makes it hard all the way around. We had seven days of snow and rain straight and of all the uncomfortable camps that you ever saw, this was the worst (Figure 6.4)

The house⁵⁸ will not keep out the cold or the snow and the tents were so cold that you had to go to bed or freeze to death at night. Several nights we sat about the camp fire with slickers on trying to keep from getting too cold. Now it is clear and the mud is drying up slowly. Three and a half feet of snow in the La Platas so they say. All have bad colds and coughs due no doubt to the bad weather. It freezes hard each morning and we always have ice to break thru when we get up, some even in the Balcony cave.

⁵⁸ Fewkes camp above Cliff Palace.



Figure 6.4. "We had seven days of rain and snow straight..."The trail up Mesa Verde in winter of 1910, Percy "Jack" Adams is holding horse at bottom left. Photo by Jesse L. Nusbaum, Courtesy Museum of New Mexico, Neg. No. 60638.

I went to Durango and had all my iron ordered and all the tools last Saturday and was back Monday—snowed hard so I didn't come on out Sunday afternoon. As yet not a horse has been able to make the hill with a load and so we are away back with the iron work. With the part north of the main division wall, we are nearly done with the exception of the farthest north wall⁵⁹ that we are waiting on for iron. South of the main wall,⁶⁰ to use a bad expression—it is h'll for sure. I never got in quite so bad in all my life before. We started to clean away and found nothing of the kivas outside of a little of the wall that showed (Figure 6.5).



Figure 6.5. Hauling supplies for Balcony House, 1910 wooden water barrel on horse at right, iron and other building equipment on horse to left. E.M. Nusbaum with moustache and hat standing at center. Smithsonian Institution Box 13, Post Card 139441.

⁵⁹ North wall of Rooms 4/5.

⁶⁰ Kiva Plaza

We started in and very carefully excavated and cleaned the lowest ledge. Then we started in on an immense retaining wall that was absolutely necessary on account of the immense fill behind. This we made from the large amount of slabs and boulders that have fallen from the ceiling above, cracking them out with sledges and drills. This furnished enough to bring up a terrace level to the base of their first wall, laid up in mud. These we very carefully excavated about and found enough of them [walls in mud⁶¹] in three parts to see where to run our outside wall. This wall on investigation was found to run clear from the slab thru which you enter at the south, to many feet beyond the last room to the north. This made a front wall all the way from the south end to where the ledge on which the dwelling is made juts into the main cliff. We have all the lowest terrace done in the rough dry work and about three feet of the faced straight mudded wall. This will have to be six feet high for the south kiva and seven to eight for the north kiva. A division wall—twenty inches thick and probably ten feet high divided the space between the two kivas. A small piece of this was found but not enough to say as to its former size.

Fully twenty tons of slab ceiling rock was taken from the roof of the kiva where it had broken in the north kiva and we will expect [nearly as⁶²] much from the south. Enough of the kiva is left tho to tell of its former construction and we will build accordingly. Tommy is a dandy and Dad has been working like a Turk. We have a Swede for mud mixer that is a dandy and our packer is all O.K. The cook is poor but cant do better (Figure 6.6). We have underpinned the large tottering center wall at the shaky front east end⁶³ and Monday we will put in a new buttress at the south side. We removed the shaky part that was tearing the main wall to pieces, the low chunk of rough wall at the bottom. Now unless a slab falls from above and jars badly, we are safe with the rest I am sure. Nothing can be done with the towers in the south portion till we get in all the outside wall and get a good footing to work on. As it is, those towers are standing on a slanting--50 degree slope in one case of soft dirt fill and the water from the back of the cave has so softened the sandstone foundations that it will have to (be) underpinned at many places. This we can not do till we get the kiva wall in so we can get a footing or satisfactory base.

⁶¹ Added in the margin.

⁶² Handwritten addition.

⁶³ Room 15.



Figure 6.6. Men digging a well in Mesa Verde National Park may have helped in the stabilization. Smithsonian Institution Box 13, Post Card 139448.

LETTER 2, Page 3

The other evening Tommy and I went down after work and he took a rule and measured up the amount of new work in Cliff Palace and he said when completed, we would have more stone work than in all the Cliff Palace repair work. That will give you an idea of what we have to do. You can tell better when you get here.

Now the sad part. Our money will only last us for another week and then we will be up against it. Dr. Fewkes figured, so Scharf told me, that one month was ample time for complete repair and excavation of the whole house and that the water for all the masonry could be obtained from the small cement reservoir that he made above the house that goes by your name below the Palace. This water supply was so small that we used nearly all of it in two days work so you can see how long it would have lasted him. And that was with experienced help that knew how to use it. Percy and I have been mucking all the time and part of the time, I have been laying stone. We are doing most of the work ourselves so that our money will go the farthest. So far, our labor bill at the ruins is very small but the haulage to here and the iron bill \$179.00 have put kinks in our anatomy.

I wrote you that the Major had taken up the matter of a probable money stringency with the Secy. of Interior and I have telegram that says that we are to have five hundred if we care for it. I will leave for the Majors tomorrow and will wire you then. This letter will explain about my coming in Sunday when you get it. The ruin when completed will make the most spectacular one on the whole mesa and I do hope that we can do it now before we have to give it up for the season. The first big snow is over and I do not look for more for some time so guess we are comparatively safe for ten to fifteen days yet.

The Major is out of town at present--seems that Cline and his bunch who are all the time fighting him went out to do him dirt so the Mrs. says and so the Major got wind of it and rode to Durango to go out on same train with them. His crowd went with him so I guess they are not as slick as they thought they were. He has surely treated me fine and white and I appreciate what he has done for me very much. He will be back in a day or two I guess.

I am using my new typewriter, the little folding affair that I was telling you of, for the first time and the compact keyboard bothers me considerably but it is sure a dandy. Just what you need for your work and only weighs

LETTER 2, Page 4

five and three quarters pounds and goes in your suitcase. Know that you will have one when you see mine. Two color ribbon also. What do you think of that. Hadn't turned it far enough over so it wrote in two colors.

Had a letter from Morley⁶⁴ and he said that he forwarded my letter so it would get you in St. Louis. I have instructed the men what to do in my absence and have left Adams and Dad in charge and will be back Monday noon so I will only miss a half days work.

So far, all we seem to get is manos and badly battered ax heads. These are quite plentiful and come mostly from the north kiva. This afternoon while cleaning out a small room toward the south end, I found a nice rim of a wicker woven basket that is in very poor condition. This I will photograph⁶⁵ as it will stand very little moving about. Adams has been a good fellow all the time, taking sick cooks place etc., besides helping all the time at the ruins. He is sure a fine fellow on a trip like this.

You will please answer this right away so I can have an answer from you before we will have to quit on account of lack of Cliff Dweller funds. If we can take the other money, then I will be here till you get here. In that case, if Dad stays, it will be necessary to have his pass⁶⁶ extended so you will please write Wadleigh accordingly if that comes to pass. I am writing this by the measly light of a single candle so you will have to excuse the many mistakes. I leave early tomorrow so I can catch you by wire at St. Louis [or Des Moines⁶⁷].

Hope that we can finish by the time said and without extra money but am afraid that that is out of the question so will either have to use other money or stop work for the season. Shall I leave

⁶⁴ Sylvanus Morley was also an employee of the Archaeological Institute of America in 1910.

⁶⁵ I have not found this photograph. ed.

⁶⁶ Apparently Nusbaum is referring to a railroad pass.

⁶⁷ Handwritten addition.

tools that are purchased by Colorado money here or take them to Santa Fe with me? Awaiting your reply, I beg to remain Most cordilly (sic) yours,
Jess

(handwritten notes in the margins of the letter:

Page 1 I will go home for few days when I leave here. What are my instructions?

I wrote Hodge thanking him for his reports and said that we had the best set of Cliff Palace views before excavation that anybody could get and suggested that he use ours instead of Fullers as his are very poor. We have used many of them so it wont hurt any of our publications and we get credit.

Page 2 Tommy lays as much stone in an hour as Scharf does in three or four and better and Fewkes told Scharf that he was doing ten times as much as any man he had—he was promised masons pay this year but I told him if he would do the work Tommy is, I would gladly give it to him but he said he couldn't so \$2.00 is all he gets.

The Indians may be a little mean to handle at times but in managing, they are not a tenth the trouble of the "Mancos Bums"—me for Indians if we do more work here.⁶⁸

Page 3 Fewkes in final monograph cites Hopi as only people Cliff Palace clans would belong too. Every page contains many foot notes all referring to same. Why could they not be to our Tewa pueblos, others same. Where do you think there (sic) offspring are now—their living descendants are now. Undoubtedly to southward but where. Everything is Moki or Hopi with him.

Page 4 I have Dr. Fewkes complete Cliff Palace proof from Hodge and he mentions time and again that he desires very strongly to open up the ruin on rim across canyon from Cliff Palace⁶⁹ to make a type ruin of it. This seems to be his whole and only desire on mesa. Randolph says he is scared to tackle the Peabody⁷⁰ or Balcony Houses as he hiked out when Mrs. McClurg started down here with money for him to do work with. Kelley says she wired and he did not answer till Fewkes left Mancos—this was Fewkes instructions. Jess

Hemmingway house⁷¹ is a dandy but needs bracing up or repair—a trail to Inaccessible⁷² and a repair

⁶⁸ Who is Nusbaum referring to? Tommy, Adams and his Dad are from Greeley so that leaves Scharf, Stewart, Ashbaugh and the cook.

⁶⁹ Sun Temple which was excavated by Fewkes in 1915.

⁷⁰ Square Tower House.

⁷¹ Probably Nusbaum is referring to Hemenway House in the Ute Tribal Park. This site is south of the House of Many Windows on the east side of Chapin Mesa.

⁷² A ruin south of Square Tower House in the Ute Mountain Tribal Park.

of it and Red⁷³—trail to Fewkes Canyon ruins and repair of Arch house⁷⁴ as I call it—largest in F.⁷⁵ Canyon—but badly knocked down—all more necessary than excavation of mesa dwelling as it can fall down.)

LETTER 3

ARCHAEOLOGICAL INSTITUTE OF AMERICA
SCHOOL OF AMERICAN ARCHAEOLOGY
SANTA FE, NEW MEXICO

Balcony House
Oct 31 1910

Dear Mr. Hewett:-

I am going to start writing you tonight and will finish tomorrow night so that it will go in with Dad and Tommy who leave at that time. I tried to get you by wire at Des Moines according to your calendar and failed to get an answer altho I did get a return from the agent there that the message had been delivered to you. At least that is what he wired back to me at Mancos. I waited thru a snow storm and finally after a thirty six hour wait, beat it back to camp, the Major saying that he would send a man at his expense to bring me any news.

The wire was in answer or I wanted an answer from you to a telegram that came from Ballinger to the Major in answer to his saying that he thot (sic) that our money was insufficient for the amount of work that we had to do. He wired that five hundred of appropriation was immediately available for our use providing we found it necessary to be expended as heretofore. I wired you message verbatim and asked for immediate answer.

Last night Taylor Norton, Major's man came in with letter from Major and also telegram from Ballinger as follows:- Randolph Supt. Mancos, Colo.
You can proceed with expenditure five hundred dollars for completion repairs Balcony House. Report thereafter as instructed how expended. Balance of two thousand reserved for repairs ruins will be expended under supervision Dr. Fewkes spring 1911."

Major writes as follows My dear Jess:-

Go to it and spend \$500 and I will be up in a day or two as soon as I can get my matters straightened up

⁷³ He is possibly referring to Casa Colorado which is in the Ute Mountain Tribal Park just south of Mesa Verde National Park.

⁷⁴ Oak Tree House.

⁷⁵ Fewkes Canyon.

You wrote not to go ahead with the money till it was definitely assured and so I weighed matters over very carefully and finally decided, Dad thot (sic) the same, that it was all O.K. and so have started in on their money. Ours is out and I did so at once to save expense of trip to town and the expense of bringing out a new gang of laborers. I hope my action in this matter meets with your approval as I was shaky about going ahead and would not had not your letter arrived at same time. I read yours first and then the telegram and Majors and decided to use some of their money anyway altho we will not need nearly all. The other fifty is not in yet so I have checked fifty on my personal account.

Dad and I worked today on bracing with irons and so far have had splendid luck. The large crack in the middle tower⁷⁶ which is back of the main center wall form⁷⁷ two to three inches on the north side, we succeeded in reducing till it was tight against the other wall and makes nearly a tight joint. We could have made a perfectly tight joint except for the fact that the front part has settled a little and the two pieces would not exactly fit. Tomorrow we will take care of the north building⁷⁸ that is so badly gone in the north side and expect to be able to pull all cracks out entirely altho settling in some parts will probably keep us from doing it. We will not remove the cracked portion unless it is absolutely necessary and I think that it will be as the wall has a twelve in bulge. Dad thinks that maybe he can force the bulge out as we pull it up so the truth of the matter will come out tomorrow when the trial comes off. The south tower⁷⁹ we have already underpinned and it will pull up easily I am sure and south side of the middle tower will unless there is more settling than we think. It took a pull on the iron rods that caused the heavy angle irons, one quarter inch thick and two and a half wide on a side, to bend as tho they were flat strips before the north wall, center tower⁸⁰ could be pulled together. The south side of this tower we will wait on till the west side of north kiva is fully repaired. This is necessary as the kiva is over ten feet deep here and no wall remains on the tower side. Tomorrow by noon will complete that side tho and we can finish the iron bracing in short order.

The south Kiva is shoveled out now and is one of the finest on the whole mesa. The lower wall was repaired and now looks all O.K. It has a large recess and a flue or draft opening and entrance⁸¹ on canyon side and a nice flue that so far seems to have no part whatever to do with the kiva to the south side. It is directly behind or to the south of the big recess and has no opening as far as we can see to the interior of the kiva. It was partly filled with dirt and we left it so thinking that we

⁷⁶ Probably referring to Rooms 17a/b.

⁷⁷ Nusbaum probably meant to type "from".

⁷⁸ Rooms 4/5.

⁷⁹ Rooms 21a/b.

⁸⁰ Rooms 17a/b.

⁸¹ Nusbaum uses term entrance when referring to ventilator shaft openings within kivas.

could punck⁸² it down when we opened up the entrance below but no entrance or even sign of one was found below. The best part of all is the fact that the floor is one solid slab of sandstone as level as any floor and in it the sipapu and the fireplace were chiseled out. The fireplace is about twenty inches in diameter and round, the bottom dished and twelve inches deep. The sipapu is about two and a half inches in diameter and so far has not been opened. A draft for the fireplace is another peculiar thing. Directly back of the fireplace about ten inches is a small hole about four inches in diameter and this is some six inches deep. This leads by a channel to the bottom of the fireplace. It is completely filled with ashes and charcoal. The north kiva is in worse repair but is beginning to look all O.K. now. It has a stone floor where we have reached it. We bring water over the cliff with a hose and into barrels in kiva. The dirt of the kiva is screened in the kiva bottom and mortar made there. The rocks are used and the spalls thrown out. We use a three quarter inch mesh screen and have found everything in kiva dirt down to arrow points two in number so I guess our excavation has been thoro enough. Not a whole bowl so far but some excellent designs on sherds.

I will not leave the mesa till you arrive and as you are to be in Denver the seventh and Pueblo the ninth, you will get here the eleventh I guess and we will be all done by then ready for your inspection. Your bed is here so you are fixed and Adams and I will be here even tho we finish with the men before that time. I have much to write on notes and last photos to take and Adams has his survey to make. We will expect you in by the eleventh and be disappointed if you do not make it by the twelfth so beat it here soon. Come by all means as you must see it and correct mistakes before Fewkes gets here again. We have a few things here that I can not explain and you can help me out on. New material to the Mesa Verde I guess as Fewkes found nothing of the kind so Scarf tells me.

We will have two men on the refuse heaps in back tomorrow⁸³ and two more pulling up rock from the canyon below. We have quarried much off the ledges about⁸⁴ but still have to have more and are now pulling from the rim of the second ledge at base of the first talus one hundred feet from cliff ruin is on. Some of the rock went clear into bottom of canyon I guess as we are finding many way below. Tommy and Scarf will finish last kiva tomorrow and then the putting in of floors and pointing up and dinky work will commence. You will have to excuse the running together of some words as the fellows have been playing with this machine and they have got several letters out of alignment and also the spacing device in some way. I guess that I have it fixed tho now as the "P" is back into correct space or nearly so.

To be continued tomorrow night.

Nov. 1. 1910. (new page, same letterhead as above)

⁸² Probably meant to write "punch."

⁸³ In the back of the alcove west of Kiva Plaza.

⁸⁴ above

Again I am at it but this will be a short spasm this time so the agony is somewhat less. We got the meanest angles on the north building and pulled it up all O.K. but as I had predicted and Dad thought different, we could not pull the cracks together as we did in the middle tower and so we will simply underpin the remaining north wall and finish off as before stated.

We finished the north kiva this afternoon and were clearing the floor when we had our first accident. We tore down a large portion of the unsafe part of the Kiva wall and were rather up in the air as to what to do and finally decided that we had better leave the old wall in place as it was laid up so nicely and seemed to be all O.K. Proceed we did and as we were throwing the last two feet of screening from the Kiva, in came the wall catching Mr. Scharf under it and Adams by one foot. Mr. Scarf was dug out and had just one bad bruise and Adams never got a scratch. Scarf never stopped chewing tobacco when he was under and the instant he got out, he asked for another chew so I guess he is all O.K. This tends to show as we have shown in out (our)⁸⁵ Old Palace⁸⁶ restoration that a shaky piece of wall is best removed and this we will do hereafter. Tomorrow we will relay the wall beginning from the kiva floor and this is bed hard pan rock as in the south kiva. The kivas are exceptional in this respect and are the only ones on the Mesa so far that have complete stone floor. The minor arrangement has not been uncovered so I have nothing to say as to it. Otherwise the kiva is a dandy. The kiva portion is beginning to look all O.K. now and more like the city that it should. So far we have a complete series of rooms surrounding the rear of the cave in front of the debris heap and to the south end, two deep. The walls are nearly gone but we will rebuild just enough to show where they were leaving the standing portions in the wall as found. These we will keep very low as we know nothing of the arrangement above.⁸⁷

This will go out with Dad and should be at Hotel Savoy the fifth in plenty of time for your arrival. Dad received a second pass to Mancos from Judge Garrigues who asked him to call on his daughter at Telluride and as his pass read by Durango, the Judge got him another. He will go home and vote, then return to Telluride and on to Mancos if the weather is good to go home with me. He will probably see you in Denver or call you up at Hotel.

Regarding settling with Tommy, he says that he came knowing we were in bad shape for money and realized that there was little in it. He won't set a price so I have allowed him two dollars a day for his actual working time. He says what I give him is satisfactory and as his actual wages are about five to six, guess we are getting off easily.

Well, must close as I nailed my hand with the heavy blacksmith hammer when cutting off angle iron and skinned a few knuckles learning to hit a drill on the head so my hands are in bad shape. Awaiting your reply in person, I beg to remain, doing my best, Yours most sincerely,

Jess

⁸⁵ Nusbaum's letter has "out"

⁸⁶ Palace of the Governors in Santa Fe, New Mexico.

⁸⁷ Rooms 24 to 26.

SUMMARY AND CONCLUSIONS

Kathleen Fiero

Balcony House, with its well-preserved rooms, kivas, and plazas, stands as a tribute to those who built and occupied the site in the thirteenth century, the ancestors of the Pueblo Indians of Arizona and New Mexico. Balcony House is also a tribute to the men who excavated and stabilized the site in the early part of the twentieth century. During the course of the project reported here, the challenge has been to understand the motivations and actions of both of these groups by a close examination of the sequence of building construction, features, artifacts, and documents left behind. The stunning architecture, beautiful setting, and breathtaking vista are the same today as when this study began ten years ago. But "digging" in archives has yielded a different and enhanced understanding of Balcony House.

THIRTEENTH CENTURY BALCONY HOUSE

What is most intriguing about Balcony House is how the room and passageway construction in the alcove evolved through time and what this may tell us about the social organization of these people. The tree-ring dates indicate first, a two-family dwelling with two kivas from A.D. 1240s-1260s, and finally in the A.D. 1270s the construction of more rooms and balconies as well as tunnels, doorways, and walls which served to control and monitor access to portions of the site (Figure 7.1).

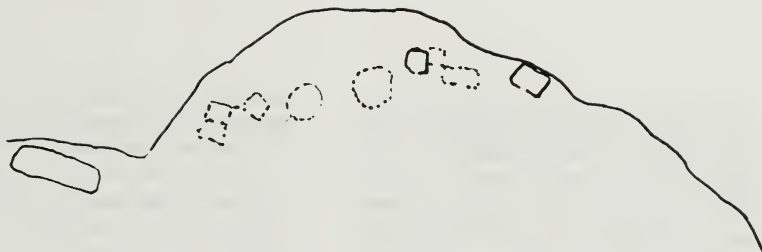
At present there is no evidence to indicate that the alcove was used before the thirteenth century. The mud lines, the location of smoke-

blackened surfaces, and the lack of blackening on the alcove roof under thirteenth century walls all indicate only thirteenth century occupation. Tree-ring dates indicate some activities in the alcove in the early thirteenth century but the major construction which remains for us to see began in the A.D. 1240s.

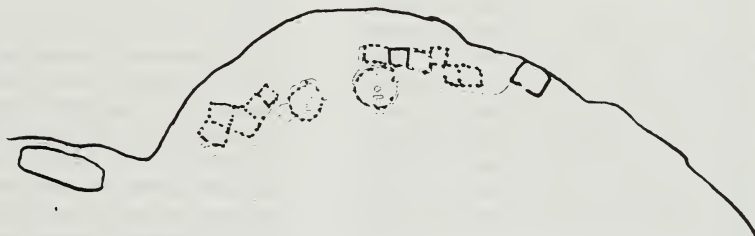
In the A.D. 1240s through the 1260s, rooms clustered around the two kivas, Rooms 24-28 around Kiva B, and Rooms 14, 17-19 around Kiva A. This is a typical configuration in Mesa Verde cliff dwellings, living and storage rooms associated with a courtyard and a kiva, and suggests that two families lived in Balcony House. The wall remnant Nusbaum uncovered between the two kivas lends support to this hypothesis. Rooms 4, 8/9 were outside either cluster. Room 4 was possibly already abandoned and Rooms 8 and 9 were used for special purposes. The placement of vents for solar alignments in Room 8 and the pole across Room 9 are the features which may indicate a special purpose, in contrast to habitation or storage, for these rooms.

Then in the A.D. 1270s more rooms were built along with features for controlling access into the site and between areas within the site. In A.D. 1273, Room 21 was built between the two room clusters. This construction with Rooms 20, 22, and 23 blocked off the refuse area, except for a small passageway. Smoke-blackening stops at walls in the refuse area meaning that fires in this area were made after the rooms outlining the area were built. Then Rooms 6/7 were constructed in A.D. 1275

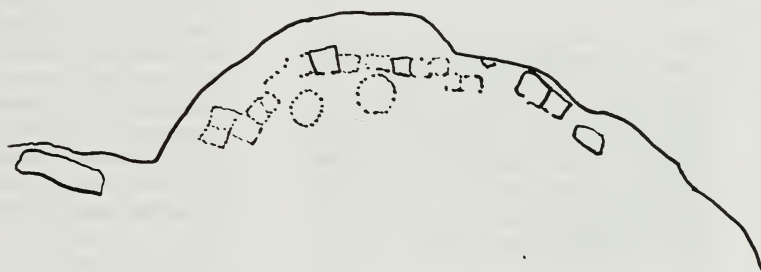
A.D. 1250



A.D. 1270



A.D. 1275



A.D. 1280

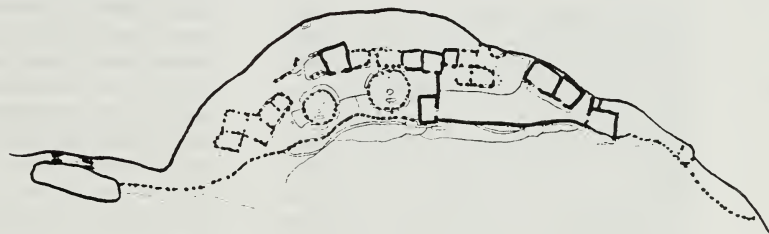


Figure 7.1. Construction History of Balcony House A.D. 1250-1280. Plan View, Room and Kiva Construction through time in the alcove. Solid lines outline rooms dated by tree-ring samples. Dotted lines outline rooms with the construction period based on wall abutments and other interpretations.

with the specialized upper room (with a wooden rack) and the exterior wall niches with possibly prayer sticks. The south tunnel was built in A.D. 1278, further controlling access to Balcony House. Finally, in A.D. 1279, Room 5, the north passageway, and the big cross wall were built. There are features of Balcony House that are unique and all date to this late period, A.D. 1275-79, including: the small exterior wall niches with stick impressions/fragments, room "racks", as well as the tunnel/passageway/hatchway features. Changes in social organization in the nine years after A.D. 1270 are certainly indicated by the sudden overriding concern for controlling access to areas within as well as into the cliff dwelling.

Construction techniques at Balcony House are typical of cliff dwellings and the structures built are also at least superficially what is to be expected in a thirteenth century cliff dwelling: kivas, room clusters, courtyards. Balustrade, balconies, room "racks" add a certain uniqueness, and the tunnel and location of the site have convinced many, including Nusbaum, of the defensive nature of the site.

Balcony House's placement in the general history of the Pueblo peoples remains as it was before this archival excavation. The site was built and occupied in the late Pueblo III period (late Classic Pueblo), A.D. 1200-1300. The artifacts, although our knowledge is sadly based on a collection impoverished by pot hunting and vandalism before scientific excavation, are typical for this time period and suggest an economy based on horticulture of corn, beans, and squash. The objects of daily use such as pottery and ground stone, corn cobs and yucca twine are typical of the tools used on the Colorado Plateau to make a living in the thirteenth century. Special objects that may be of a ceremonial or sacred nature were

also found. During excavation in 1910, Nusbaum found carved wood and during more recent repairs, the corrugated jar containing cotton yarn, decorated discs, and leather pouch was found. Nusbaum also mentions an altar stone but there is no photograph or description of this stone. No burials were found during excavation.

Balcony House was of course part of a greater whole. The thirteenth century Balcony House community was composed of one other fairly large site just up-canyon, the small site on the same ledge, and several small storage structures. There are also numerous sites within easy walking distance on Chapin Mesa, such as Cliff Palace, Sunset House, Swallow's Nest. The cliff dwellings which, like Balcony House, are fairly well dated, including Spruce Tree House on Chapin Mesa and Spring House on Long Mesa, show the same pattern of adding restrictions within the site in the latter half of the thirteenth century. In these sites the restrictions often cut off access to the back of the alcove as well as between room blocks, and often divide the site in half suggesting a moiety layout. It wasn't too long after these architectural modifications that Balcony House, Spruce Tree House, Spring House, the whole Mesa Verde and the entire Colorado Plateau north of the San Juan River were abandoned by the Pueblo people. The latest tree-ring date from Mesa Verde is A.D. 1288 from a high, difficult to access, portion of Square Tower House.

TWENTIETH CENTURY BALCONY HOUSE

The motivations behind the late architectural modifications to Balcony House and its final abandonment were many and complicated and can only now be suggested: resource depletion, socio-cultural change, and religious necessity.

It is much easier to understand the motivations and activities of Nusbaum and his crew in 1910. They left a trail of documents, if frustratingly brief, to help us reconstruct their activities and rediscover "their" Balcony House.

In basically four weeks Nusbaum and his crew rebuilt the two *kirvas*, much of the retaining wall in front of the site, and with the aid of angle-iron and turn-buckles, preserved walls while rebuilding the foundation of those same walls. The objective was to stabilize the site with excavation being a means to that end. They reconstituted the original mortar for the repairs. Beams were in some cases removed during repairs and then returned to their original positions. Graffiti that would now be considered a valuable record of the late nineteenth century history of the site, was removed. The site was mapped and room numbers were placed on the walls of rooms. Possibly the remains of the middle passageway "tunnel" were removed. The seepspring at the back of the alcove was left and would subsequently saturate the lower walls of the *kiva*.

After Nusbaum's work, stabilization treatment continued. The water from the spring was controlled with concrete and pipe. Also the retaining wall in the Room 4/5 area was repointed. Other post-Nusbaum changes, however were made to accommodate the needs of large groups of visitors including: the entrance into the site being moved from the *Kiva Plaza* to Lower Plaza, the north passageway being modified (by Nusbaum or later), portions of walls of Room 20 being removed. These modifications were made without an understanding of the thirteenth century plan to restrict movement and control access into and within the site. Modifications should not be made until a site is thoroughly

documented and studied. The lack of understanding of the importance of movement and its control led to the removal of many of the very unique features. It has made interpretation of the site more difficult with less evidence to support valid conclusions.

It is interesting that the Balcony House of the thirteenth century was designed to control human movement while the Balcony House of the twentieth century was modified to remove much of this control system. The use of the site has changed dramatically over seven centuries—from a dwelling-ceremonial site inhabited for many years by a few families to a World Heritage Site visited by thousands of people from all over the world for a few minutes.

BALCONY HOUSE TODAY

At present Balcony House is a stable, dry site and is open for ranger guided tours from May into October. What remains for the site preservation treatment is a constant monitoring of the site to insure that impacts from visitation, weather, and vandalism are minimized and any minor instabilities are noted and repaired before major damage occurs. At present, mortar used in the walls does not come from the site but from soils in the area and is mixed to match as closely as possible the original mortar. The floors of the North and *Kiva* Plazas require constant care due to the wear and tear of thousands of feet. The floors are packed earth and repair involves breaking up the soil, adding water and repacking. Several walls have fairly minor vertical cracks. These cracks are monitored yearly since any wall movement would first be detected there. There are two trees growing at the base of the front retaining wall. They are scheduled to be cut to reduce the threat from wild fires and to eliminate the possibility of wall movement

from root disturbance.

RECOMMENDATIONS FOR FURTHER STUDY

There are six recommendations for further studies in Balcony House which would increase our knowledge and understanding and help to preserve this historic structure. Plaster preservation, more tree-ring dates, artifact recovery, identifying soils and mortar types, and historic signature studies are important.

1. The plaster in Balcony House needs to be documented, its condition assessed and if needed, treatment proposed and then implemented. The decorated panel in Room 24b is easily seen and appreciated by the site's many visitors and so is significant. The design is used in other Chapin Mesa cliff dwellings and may indicate social and ceremonial connections between the inhabitants.

2. There is some wood in the site, such as in the wood pile behind Room 24, which remains to be cored for potentially datable tree-ring specimens. I suspect that some of this wood came from Kiva A. It is the roof of this kiva that Nusbaum wanted to rebuild.

3. Many museums have artifact collections that have never been cataloged or have been inaccurately provenienced. Some lucky day artifacts from Balcony House may be rediscovered in the basement of some museum. All the museums that might be expected to have Balcony House objects were contacted during this project but only a few responded. Only two museums, the Colorado Historical Society and the Museum of New Mexico, had objects from the site.

4. The composition and origin of the soils making up the original mortar needs to be

studied. In sites where this has been done, such as Spruce Tree House and Oak Tree House, it was clear that the materials were selected for their particle size distribution (a high percentage of sand and a low but necessary percentage of clay) and closeness to the site. This needs to be confirmed for Balcony House.

5. Balcony House is in one of the major drainages of the Mancos River. Nusbaum removed most graffiti but the site needs to be examined by a specialist in this field to determine if anything of interest for nineteenth century site history and park history remains.

6. During any necessary subsurface disturbance in the site, it is imperative that the deposits be excavated carefully as there is the potential of working in areas untouched by Nusbaum or coming upon subsurface remains not documented by Nusbaum. The area between the kivas is particularly important and also disturbance between room blocks and the back of the alcove.

My conclusion after ten years of thinking about, examining, and admiring Balcony House is that the more one knows about this site, the more intriguing it becomes. This of course is true of all complex sites and is what makes the study of human behavior so interesting.

GLOSSARY

bench--a shelf between the lower and upper wall lining of kivas, the pilasters are built on the bench

bonded--walls/corners tied together in the process of construction

butted, abutted, wall abutment--corners/walls that are not bonded, one wall built against another, this important in interpreting construction sequence

closure material--over tertiaries, often juniper bark and mortar

courtyard or plaza--these terms used interchangeably, today courtyard more commonly used. Nusbaum used term plaza and this has been continued in this report

doorway--opening in wall big enough and placed in such a way as to allow ingress and egress from a room, contain such elements as sill, lintel and jambs; below lintel at Mesa Verde typical to have a small stick parallel with lintel which functioned to support the sandstone slab door which was set just slightly off vertical

dry-laid--no mortar used when setting stones

feature--used to refer to something in an archeological site as large as a plaza or courtyard to something as small as a sipapu or wall peg

fire pit--prepared area for the placement of a fire

jamb--the side elements of an opening--doorway, vent, niche, etc.

lintel--the top element of an opening--doorway, vent, niche, etc.

loop hole--opening through a wall where there is strong evidence to suggest it was used to give a view of a specific area

masonry--at Balcony House this is always local sandstone with various amounts of shaping

mortar--in prehistoric sites local soils mixed with water used as mortar, soil selected for color and texture, at Balcony House original mortars a light tan and since a limited amount of cracking the clay content of the soil selected around 10%, a soil with a high clay content would produce too many contraction cracks

niche--opening in wall that does not extend through the wall, in most cliff dwelling the majority of niches are built into interior walls, Balcony House has an unusual number of exterior wall niches

pilaster--masonry columns that support wood roofs in kivas, in Mesa Verde kivas typically six pilasters

plaza or courtyard--these terms used interchangeably, today courtyard more commonly used. Nusbaum used term plaza and this has been continued in this report

primaries--main roof supports, wood beams at Balcony House, often just one or two, also called vigas in the Southwest

repoint--refill the joints between stones with mortar

secondaries--set on and perpendicular to primaries, smaller than primaries and more of them, wood poles or split juniper usually at Balcony House, also called latillas in the Southwest

shaping techniques for construction stone

pecked--

chipped--

ground--

unshaped--not modified

sill--the bottom element of an opening, doorway, vent, niche, etc.

sipapu--small, circular depression in floor found in kiva floors and typically aligned with the fire pit, deflector and vent shaft; interpreted as being the symbolic place of emergence for the present occupants of the earth

socket--for wall pegs, primaries and secondaries

southern recess--widened section of the bench, usually oriented to the south or southeast

tertiaries--over the secondaries, set close together

tree-ring, outer ring--the ring that was growing when the tree was cut down or died

vent--opening through a wall, vary in size and placement and possibly also function

wall peg--small sticks placed in upper walls

wet-laid--stones set into a layer of mortar

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APPENDIX A

DAILY LOG OF EDWARD MOORE NUSBAUM WHILE AT BALCONY HOUSE, 1910

1910 Unpublished handwritten notebook from Balcony House Project. Ms. on file Nusbaum (Talley) papers, Accession 1328, Mesa Verde National Park, Colorado.

Transcribed and annotated by Kathleen Fiero
(annotations appear within parentheses)

Thursday Oct 13.

Commenced work on Balcony House at noon Oct. 12. I dug out stone and leveled off trail coming in to Balcony house. Tired? well yes. Tommy commenced laying up old terrace wall or rather cutting a square place on a sloping rock to start wall on. This place was 6 ft long and sloped nearly 45 °. How the cliff men made the wall stick to the slope is a mystery to me. Tommy worked on terrace wall on north end. I made hand screen and repaired mortar box, and then cut steps down the trail coming down from Balcony house. Almost perpendicular some 30 ft. Our trail goes back along side of B. house about 40 ft. below terrace wall--straight down. The cap rock projects out over the house and we get water from the top--(about 50 ft above) by a rope in tin water cans. When down to our level it is 10 ft out from us and is pulled over by a rope. Just enough water in back of house to keep 6 or 8 men in drinking water. The water for mortar is packed in square cans of 12 to 16 gals. each, two on a horse. —went to Mancos after dinner —miles on horse.

Friday, Oct. 14.

Small shower at 8 A.M. I did not go over to Balcony until after 11 A.M. Carried dinner over to men, five of them. I am feeling mucky and too damn tired. I can scarcely walk. At eleven A.M. I carried dinner over to Balcony

and looked around until 3 P.M. when I came back to camp. Small shower this eve and a plenty of thunder and lightning.

Sat. Oct 15.

Commenced raining and drizzling about 7 A.M.. The men went over to Balcony at 7:15 A.M. and at 9 A.M. I started over with our dinners in a pail. Commenced raining again to 10 A.M. and at 11 A.M. I started back to camp as there was nothing to do. I left the trail at edge of rim rock to mark a shorter trail and lost myself completely and wandered around until nearly 1 o'clock and then came out on the rim rock directly above Balcony house. I then took the trail to camp without any attempt to locate a new one. Raining all this time and my clothes wet and mud to my knews (knees), and so tired and walking fast. Not a sign of a sun anywhere, and I had left my compass in tent. Nothing to be seen in any direction but cedars and pinyons and rocks and — and able to see in any direction only 200 to 400 ft. I felt like one lost in hell. The ground rough and rocky and raining and about 50 °. I can walk to camp from Balcony in 10 to 15 minutes and the trail could be made shorter by 100 ft. I try to make no more new trails. Rained all eve. and all night.

Sunday, Oct. 16.

Around camp all day. Tommy and I walked

down and over Cliff Palace for an hour after dinner. Not a warm day. We make a camp fire outside the cabin every eve, and sit around it on benches and tell stories. Raining in eve.

Monday Oct 17.

Commenced raining at 7 A.M. and then turned to snow and snowed until noon. Ground white. Our board cabin is cold and stove so poor we cannot keep it warm. One such cracks all around the two sides and the same cracks in floor, feet wet and cold all the time and 8 of us all in same fix. Some of them keep the camp fire going and keep warmer out there than in house. Our big tent turns water but is too cold to stay in. Mud everywhere, but dries up in an hour if sun shines. I am thoroughly disgusted but must stay and help Jess out. This is hell for a certainty. No one to talk sense to. No more of this for me.

Notes--Sunday. Our water packer is a 6-2(?) and very original. This morning our cook was making a large batch of bread. Kneeding (kneading) and pounding it for 15 minutes when our packer--Chas Ashmore--says, "How much longer are you going to wallow that." He is saying original things all the time. This afternoon he rode over to Spruce Tree house and after returning reported that he had found an old maid over there from Delaware on a sight seeing tip. She was along with a guide from Mancos. I asked him if she was not running some risk. His reply was "Hell no! She was so homely that her face would be a sure protection for her a--."

Monday Oct 17 continued.

Cleared up by 1:30 P.M. and I am writing this sitting in a chair out in the sun. No one went over to Balcony today. Looking for Jess back from Durango this eve. No mail since leaving home and no chance to send any out. Jess

came in this eve. Letter from Agnes¹. David L Pai-- and Judge Garriques.

Tuesday Oct 18.

Worked all day on Balcony House. A little rain. Wrote letter home in eve. Finished balcony wall and commenced on north kiva. Chilly and damp and every thing wet and muddy. We are all disgusted with weather.

Wednesday Oct 19.

Raining nearly all night. Rain makes a tin roof noise on our tent. Tom and I both awakened at 2 A.M. by rain and both swore of course. The ground inside the tent is slowly wetting in from tent sides. About 18" advance so far but we still have dry ground for our beds. After dinner our packer had to take our cook into Mancos on account of sickness. Rain and misty all day. Percy and I put in the day on north kiva. Tom worked on repairs on some walls back of terrace. All hands got supper with Jess as head cook.

Thursday Oct. 20.

Worked on two kivas all day. Froze in morning. Snow squalls until after dinner. Cleared up then and fine evening. Repaired ceremonial entrance to south kiva. The kivas are badly wrecked, the north one almost demolished by a building falling in on it and then a several ton rock falling from the roof and crushing the timbers and walls in. We have built a rough retaining wall along the edge of rock, just outside of the kivas. The work is dusty, and we are climbing up or down all the time over the loose sandy dirt and rock. My legs are becoming used to the strain and I do not mind it. Jess is every where and working all the time. We find a few stone hammers and pices (pieces) of crockery and other tools

¹ E.M. Nusbaum's wife and Jesse's mother.

belonging to the Cliff Dwellers. Jess saves all finds. This evening we stretched ropes around our camp fire and hung up our bedding to dry. I washed my feet in campfire light—and am feeling fine. My belly hurt me yesterday for the first, but is O.K. today. No troubles to speak of, only the want of news of the world. Not a thing to read since 5th of Oct. Jess says a bundle of papers were in Mancos but he left them for the packer to bring, and he has not yet arrived. The trail at head of mesa was so muddy he could not come when Jess did. He has 4 horses loaded for camp.

Friday Oct. 21.

I went over to Balcony but after working 30 minutes I had to quit on account of headache and being dizzy and came home to camp and lay around rest of day. The rest of gang came home at 2:30 having run out of water as our packer did not get back. He came in this evening. Nalda's letter came in by him. I still have headache. Freezing this eve. partly cloudy.

Saturday Oct. 22.

All went over to Balcony but Percy and I. We staid (stayed) to clean up as our cook—Oscar Anthony since Small left us—was sick with headache and laid out about 10 A.M. Will Stewart came in sick with a headache. Percy and I put up our dinners and took it over to Balcony and we ate there. We staid and worked rest of day. I laid up wall—a terrace wall along edge of passageway that leads into Balcony House. Clear, still and a very pleasant day and I am feeling fine. 3 packs came in this eve with stuff for camp. If the weather remains fine we can make good progress now, as we have two more men who came in last eve. Jess had a number of letters and one telegram, and wrote a number of letters on his new typewriter—a small portable one which came in this eve.

Sunday, Oct 23.

Jess went to Mancos this morn. clear and warm. At 11 o'clock Percy, Tom, Clint Scarf, Oscar Anthony, Will Steward and myself started up trail to Spruce Tree House turning off west 1/4 mile south of Spruce Tree and heading for Swallow Nest² on Navahoe Canyon. We walked down the rim rock of east side of canyon and saw Swallow Nest Houses, Peabody House³, Unaccessable House and Casa Colorado⁴ besides many good looking houses across the canyon. We did not go down to any of the houses. We passed many ruins on top of mesa and found plenty of broken crockery. We arrived in camp about 4 P.M. and I am certain I was tired. Jess made a plan of our trip and we followed his plan and found it perfect, and he made it in about 1 minute. We partly passed through what is called the burned glad (glade) where the best of trail packers and guides are lost quite often. It is cover with cedar and pinon with limbs to ground and bushes like currant bushes and one must travel in all direction to get through, and at times it seems we made circles around about every third tree. It is the most blind traveling I ever experienced. We killed two tarantulas almost as large as a silver dollar. I am ready to get out of country and not see it again for several years. The most out of the world place I have ever seen. Mended my shoe soles by wire in eve. I burned the sole on right foot.

Monday Oct. 24.

Percy and I worked on splitting stone, clearing out the entrance to Balcony which is in a crack

² maybe Little Long House

³ Square Tower House

⁴ Inaccessable House and Casa Colorado are just south of the south park boundary in the Ute Tribal Park.

2'-6" wide at bottom of entrance and nothing at the top, some 40 ft or more. I also completed the wall on side of approach. Clear, still and pleasant. Mended my shoe again in eve. I am collecting a few curiosities each day, but the building has been gutted by the Wetherill boys years ago and they left almost nothing.

Tuesday Oct 25.

Jess not back at 10 P.M. We worked on kivas, and I dug up stone and split some. Percy and I went up on top at 3 P.M. and tried to get stone. We got 10 or 12 and then gave it up. Too much work to quarry and carry down to rim rock and then lower down 50 ft by rope. The rim extends out over the building about 10 ft and after being lowered must be pulled up this 10 ft. Clear and pleasant. The winds never blow up on mesa, at least the old time packers say so. I am worried over the non return of Jess, as he went to Mancos to wire Dr. Hewett about continuing the work for two or three weeks with the extra \$500 which Sec'y of Interior wired Maj. Randolph. I have a bad blind boil on back of my neck which pains more than a little.

Wednesday Oct 26.

Jess came back before dinner. We worked on kivas, and I helped shovel in kiva, and went below and helped dig out rock which had fallen down from above. Percy and I finished up the entrance to Balcony. Pleasant. Very tired in eve. A party came to Balcony House about 4 p. sightseeing. A Mr. Belrose of Denver was one. Dr. Belrose of Eaton is his brother. Jess showed them around and then walked over with them to Cliff Canon and treated them fine.

Thursday Oct 27.

We worked on kivas all day. I put in my time below digging out stone which had fallen out when the walls fell. I came to camp at 3 P.M.

so tired I had to rest twice on my way in. After supper I felt O.K. Tommy worked hard. He can lay three times as much wall as the other man. Jess does a little of everything. My boil on back of neck seems to be coming to a head and pains all the time.

Friday Oct 28.

Worked on kivas all day. The south one almost done. Jess and I split several big rocks just outside of entrance and Will Stewart and Clint carried them and pushed and pulled them through the two doorways. These two doors are 16" by 2' high. Clear and pleasant. My boil has been very painful, and this eve Jess and Percy broke it open and it passed some matter. Our packer--Chas O. Ashbough, who at first was so very funny and would say so many quaint things has at last dried up and has nothing to say. He seems to be mad at someone and perhaps at all of us. I think he simply pumped himself dry and is through.

Saturday Oct 29.

Worked on north kiva all day. Tommy Gibbons was cross and surly all day. He is the most disagreeable man I have ever been traveling with. Jess is kind to him and wants the work done so I do nothing to anger him. We found several alls (awls) of bone and one stone knife, and several fine pieces of very pretty pottery. Clear and pleasant.

Sunday Oct 30.

This has been a strenuous day, about 8:30 A.M. Jesse, Stewart, Clint and myself went down to Cliff Palace. Mr. Scharf went along and explained things as he had helped repair it. All but Mr. Scharf went across Cliff Canyon and around on a bench into Fewke's Canyon and into Fewkes house⁵. It is almost destroyed

⁵ Probably Oak Tree House.

by time. Then we went on up past two more houses, one of them having one very large kiva and pictures on the walls of the west house⁶. Strange pictures. We crossed at upper end of canyon and back on opposite site of canyon and climbed two leaning poles up to rim rock, and walked out to top of mesa and around to point above Fewkes house where an immense house stood, although now in ruins⁷. It must have been 75' wide by 200' wide and perhaps 10' or 15' high. Two kivas inside. We then came back through or across Cliff Canyon. I then took a walk up on mesa above house to hunt pottery. Shaved. Clear and hot. So tired in the legs I have a sort of nervous headache. I am also very tired of camp life. Tom is so cranky and cross.

Monday Oct 31.

Worked on North Kiva all day. I got out stone in morning, a while on ledge outside of entrance. After dinner I pointed up south end wall of terrace on the north side only. Then Jess, Will Stewart and I drilled holes through walls and put in two rods in north side of room just north of North Kiva⁸. We drew wall up nearly 3" and did a fine job. It was badly cracked and would have fallen down soon. It is two stories high and extends up to rim rock. Tom is worse than ever and every body hates him. Clear and warm.

Tuesday November 1.

Finished second kiva. Jess and I with help of Percy and Stewart put iron stays around the

north room⁹ on north side. A dangerous and hard job but we did it. Tom and I leave tomorrow but Jess has everything going fine and can complete the house in a few days more. Recd. two bundles of home papers this eve. Our packer who came in to take us to Mancos brought them. I read them by camp fire. Clear and warm.

Wednesday Nov. 2.

Left camp at 9:15 on horseback with only a halter to guide him. Tom and myself and Fred our packer. We went up mesa and down the steep trail into Montezuma Valley. At foot of trail we took wagon and rode to Mancos. Will Stewart and Clint Scharf walked to foot of trail and rode rest of way in our spring wagon. Warm and clear. Got our clothes at Major Randolphs and went over to Mancos Hotel. Major went to Durango with "Special" carrying nominees of Rep. Party—including Garriques, and Mrs. Randolph had company and could not entertain us. In eve. Tom and I walked around town some and went to Basket ball game in eve. Myrtle Camp?? played in game and played good. We retired at 10 P.M.

Thursday Nov 3.

Left Mancos at 1:30 P.M. Arrived in Durango about 4:30 stopped at Strater Hotel. Saw Harry Van Antwerp the little Greeley barber, and his wife. They are making over \$100 clear per week practicing. Saw Joe Clark. Cloudy and rainy in morning. Cloudy all day. Cool. 3 engines in front and one pusher to bring 11 box cars up Cumbres. 10,015 ft. high. Mountains white with snow on north side.

⁶ Fire Temple.

⁷ Sun Temple.

⁸ Room 17a,b.

⁹ Rooms 4/5.

APPENDIX B

TREE-RING DATING of BALCONY HOUSE: A CHRONOLOGICAL, ARCHITECTURAL, and SOCIAL INTERPRETATION

by

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annotations by Kathleen Fiero

SITE DESCRIPTION

Located in southwestern Colorado, Mesa Verde National Park is one of the best known and frequently visited national parks in the United States. Its well preserved and maintained cliff dwellings enchant both tourist and archeologist, while the story of the sudden and complete abandonment of these dwellings captivates the imagination. Less well known is that the Mesa Verde cliff dwellers represented only a part of the large society that inhabited the northern drainages of the San Juan River, where many surface pueblos dwarf the largest cliff dwelling in Mesa Verde. It was this society that abandoned the entire region around A.D. 1300 for a variety of environmental and social reasons (Ahlstrom et al. 1995; Lipe 1995).

Balcony House, one of the cliff pueblos of Mesa Verde, is located on the eastern flank of Chapin Mesa, one of the major drainages cutting into the high slope of Mesa Verde. Though one of the smallest of the cliff dwellings open to visitors, Balcony House is nonetheless impressive. Named for the balcony-like platforms along the outside faces

of several second-story rooms, Balcony House comprises 27 ground floor rooms—some of which have or had second stories—and two kivas, round semisubterranean rooms perhaps used residentially as well as ceremonially. A massive wall bisects the site into two plaza-room units connected only by a narrow passageway near the back of the shelter. The Kiva Plaza, south of the big wall, is typical of Mesa Verde cliff dwellings: a plaza/courtyard with one or two kivas fronting a block of rooms. The North Plaza, bordered by a parapet wall, is unusual in its lack of a kiva or kivas. Other notable features are the restrictive entryways at either end of the site. The south entry is a constricted crawlway in a crack between the cliff face and a detached part of the cliff, that leads to a hand-and-toe-hold trail to the mesa top. The north entry¹ is a narrow walkway between the cliff wall and the northernmost block of rooms.

Rohn (1977:285) calculates that no more than 60 to 100 people lived in Balcony House and

¹ What Parks and Dean call an entry at the north end of the site was a passageway between North Plaza and Lower Plaza, and not an entry into the site.

the few small sites nearby that make up what he calls the Balcony House Settlement. They probably farmed the mesa tops a mile to the north and found adequate water in the two springs in the Balcony House cliff shelter and in an apparent catchment basin at the head of the tributary canyon just to the north.

RESEARCH REVIEW

Though known to the Wetherill family--ranchers from the nearby Mancos Valley--and the wealthy adventurers they guided through the ruins of Mesa Verde in the late 1800s, Balcony House was first systematically described by Gustav Nordenskiöld (1893), a Swedish nobleman fascinated by the antiquities of the American Southwest. The photographs taken by Nordenskiöld of Balcony House and the other major ruins contrast dramatically with the stabilized and reconstructed condition of many of these sites today. Balcony House was stabilized in 1910, four years after Mesa Verde became a national park. The work was undertaken by Jesse L. Nusbaum (this vol.), who later became Superintendent of the Park. It was a formidable task that Nusbaum accomplished with the help of a few laborers, taking only six weeks during an unusually cold and snowy autumn.

Tree-ring samples were first taken from Balcony House in 1923 for the First Beam Expedition, dendrochronologist A. E. Douglas' first large-scale attempt at calendrically dating the ancient ruins of the American Southwest, a feat he would accomplish during the Third Beam Expedition in 1929. As with the other major ruins of the Southwest, only a few samples were taken from Balcony House during the First Beam Expedition. In 1932-33, Harry T. Getty collected a few tree-ring samples from Balcony House for the Tree-

Ring Laboratory, and Deric O'Bryan in 1941 collected material for Gila Pueblo. The last samples taken before our 1992 collection trip were those of Don Watson for the National Park Service in 1948, after which tree-ring collecting on Chapin Mesa came nearly to a standstill. Wetherill Mesa, west of Chapin Mesa, was the site of a major archeological project in the 1960s, including thorough tree-ring analysis (Nichols and Harlan 1967). Cliff dwellings in Johnson Canyon, on the Ute Reservation south of the Park, were thoroughly sampled in the 1970s (Harrill and Breternitz 1976).

Before 1992, the Tree-Ring Laboratory could report only 14 tree-ring dates from Balcony House (Robinson and Harrill 1974), leaving more than a hundred beams unsampled. This situation was remedied by Mesa Verde Archeologist Kathleen Fiero, who became curious about the dates of the unsampled beams in Balcony House while researching the history of stabilization of the site. Fiero invited us to sample the rest of the beams in Balcony House as part of a project that would later include collection at other undersampled cliff dwellings in Mesa Verde.

METHODS OF SAMPLE COLLECTION AND ANALYSIS

We sampled with electric drills and Henson archeological tree-ring sampling tools every *in situ* beam in Balcony House that showed potential for crossdating, taking ½-inch diameter cores and plugging the borer holes with corks labeled with each sample's field ID. Beams that had been previously sampled were resampled to ascertain their identification and provenience and to get better specimens. A total of 173 beams was sampled. We took notes on the position and the physical and

architectural attributes of each beam and on the attributes of each room, kiva, wall, or other architectural unit. Such copious note taking consumed much of the collection time, but the information proved vital to interpreting the tree-ring dates. Care was taken to disturb the site as little as possible, and for this reason a few beams remained unsampled. Members of the Park's stabilization crew assisted in sampling beams that otherwise would have been inaccessible.

We analyzed the tree-ring samples using standard dendrochronological methods (Stokes and Smiley 1968). Species identification was carried out: 136 samples were *Juniperus* spp., 24 were Douglas-fir (*Pseudotsuga menziesii*), seven were pinyon (*Pinus edulis*), five were cottonwood (*Populus fremontii*), and two were either spruce (*Picea* spp.) or fir (*Abies* spp.). We compared the samples with each other to identify replicates where two or more beams came from the same tree, and we compared previously collected samples with the new samples to confirm the identification and provenience of the former. Much site stabilization at Mesa Verde occurred before the advent of dendrochronology, and beams were sometimes moved from room to room, and even from site to site, for stabilization purposes², without regard for their usefulness or the importance of their original contexts. Thus, we checked old field notes against ours for inconsistencies in sample provenience.

RESULTS OF ANALYSIS

Crossdating

Out of 173 newly sampled and resampled beams we crossdated 125, or 72 percent. Partially responsible for such a high rate of crossdating is that 66 of the dated beams come from only two rooms, Rooms 6 and 8. Each of these rooms was built in one construction episode, respectively, using beams cut mainly in the same year or close to it. The large number of beams in these rooms and their homogeneous construction contexts enhanced the dating potential of these samples.

Of 136 juniper samples, 79 percent were crossdated; 58 percent of the 24 Douglas-fir were crossdated; four of the seven pinyons were crossdated; none of the four *Populus* spp. or two *Picea-Abies* spp. produced dates. The undated junipers tend to have overly sensitive and tight ring series and/or ring series that are too short for confident crossdating. The undated Douglas-firs and pinyons tend to be complacent and/or too short. *Populus* spp. are very rarely datable from archeological contexts, and the *Picea-Abies* spp. were complacent.

Adding the 125 tree-ring dates to the dates of five previously dated beams that were not resampled, we now have 130 dates—101 of them cutting dates—from Balcony House, where before we had only 14. Where before the best construction scenario we could infer from the tree-ring dates was that Balcony House was built and occupied sometime during the 1200s, we now can produce a construction scenario of much finer detail both spatially and temporally.

Species Use

Juniper makes up 79 percent of the beams and

²In the 1930s three loose beams were taken from Balcony House and placed in Cliff Palace to help stabilize that site.

is by far the species in greatest use architecturally at Balcony House. This makes sense because juniper dominates the landscape immediately surrounding the site, and it is doubtful that this plant community has changed much since the 1200s. Juniper is used in all architectural contexts, including primary beams, secondaries, door lintels, wall supports, and tertiary filler material for roofs. Junipers, though sometimes irregularly shaped, make strong, rot-resistant beams.

Fourteen percent of the beams are Douglas-fir, which appears to have been prized by the Balcony House dwellers, who had to go at least a mile away to more mesic habitats—such as the heads of major canyons or the seep-fed bases of steep cliffs—to find this species. Douglas-fir was most commonly used for primary of secondary beams, or in cases where long orthomorphic beams were desirable. Douglas-fir beams appear to be reused more often than beams of other species, further evidence of the species desirability. Douglas-firs grow faster than junipers as well, producing primary-sized beams in as little as 20 years, and secondary-sized beams in somewhat less time. There is evidence that Mesa Verdeans harvested Douglas-fir, utilizing a form of coppicing in which a source tree is tied over on its side, and in later years the branches growing straight upward are harvested for beams (Nichols and Smith 1965).

Pinyon is little used architecturally, though the species is abundant on the mesa tops directly above the Balcony House cliff shelter. Pinyon is probably strong enough to be used structurally but is a pitchy wood likely to drip resin, an undesirable quality for either living or storage spaces. The major use of pinyon in Balcony House seems to be in contexts where the above conditions do not exist: wall supports, a door lintel, and a beam in the South

Entry. Another reason pinyon was little used architecturally may be that pinyons large enough for architectural use were left uncut for their seed crops. Pinyon also was used for firewood, but smaller trees and dead wood may have sufficed for this purpose.

Populus spp. grows sparsely on Mesa Verde, though it may have been present in greater quantity in the past. *Picea-Abies* spp. may have grown somewhere on Mesa Verde in the past, but this species is not reported in the botanical checklists of the Park. Since there are so few beams of these species, typical architectural use cannot be deduced.

Season of Wood Procurement

The distribution of terminal rings in samples that can be assigned to a single tree felling episode provide data on the season in which wood procurement took place. Samples dated to the same year with nothing but incomplete terminal rings indicate tree felling during the involved species' growing season: spring (March-May) for Douglas-fir (Fritts et al. 1965) and summer (June-September) for the other commonly dated species (pine, pinyon, juniper). A mixture of complete and incomplete terminal rings dated to the same year indicates tree felling at the end of the species' growing seasons when some trees (those with complete terminal rings) had ceased to grow and others (those with incomplete terminal rings) had not. Nothing but complete terminal rings dated to the same year assigns tree cutting to the period between the end of the growing season indicated by the date and the beginning of the following growing season. A mix of complete terminal rings dated to one year and incomplete rings dated to the next year places wood procurement at the beginning of the species' growing seasons in the spring (Douglas-fir) or

early summer (other species) of the second year when some trees had begun to grow (incomplete rings) and others (complete rings) had not. As indicated in the individual room discussions below, terminal ring distributions identify a summer wood procurement episode in 1273 (Room 21) and late summer/early fall procurement events in 1247 (Room 17), 1248 (Room 8), and 1275 (Room 6). No winter or spring/early summer tree felling episodes are indicated by the terminal ring distributions.

Stockpiling

The occurrence of ranges of cutting dates from structures that appear to have been built as units and not subsequently modified identifies the stockpiling of timbers, either for general purposes or specific projects. Two cases of short-term stockpiling, involving seven and three years, respectively, are indicated by multiyear distributions of cutting dates in Rooms 6 and 8.

Room and Space Function

Rooms and spaces in Balcony House may be classified into four functional types, each based on architectural and other visible evidence. Living rooms are usually identified by the presence of firepits and/or the concomitant smoke blackening of the walls and ceilings, and of relatively large doorways designed for ease of passage (by cliff dweller standards). Storage rooms, conversely, are identified by the lack of hearths and smoke blackening, and the presence of small doorways. Milling rooms or spaces are identified by the presence of metate bins, metates, or manos. Ceremonial rooms are, of course, kivas, which probably also served some secular functions. The North Plaza was also possibly a ceremonial space. Since we are not aware of the entire extent of activities among cliff dwellers, we cannot be

certain that this classification encompasses the full range of functional variability; many rooms and spaces were probably multifunctional. But for the sake of a broad conceptual framework, we adhere to a traditional classification.

Of those rooms and spaces in Balcony House that retain evidence of function, only a few appear to have been used as living rooms. Rooms 12 and 21 show some smoke blackening. Rooms 5, 26, and 28 have firepits. These five rooms are therefore classed as living rooms, though Room 5 also has storage features. Nusbaum found in Room 26 eight metates in a row, identifying it as a grinding room, as well. According to extant features, all the other rooms in Balcony House are either storage rooms, or ceremonial rooms and spaces. Balcony House, therefore, is not typical of Mesa Verde cliff dwellings, most of which have a more even distribution of living rooms, storage rooms, and ceremonial rooms and spaces.

INTERPRETATION OF THE TREE-RING DATES IN THEIR ARCHITECTURAL CONTEXTS

Method

Our method for interpreting the tree-ring dates of Balcony House is essentially that of Dean (1969), which derives its framework from Bannister (1962). Our general assumptions are these:

1. In the vast majority of cases, the death of a tree was caused by human activity, namely the cutting of the tree.
2. Beams found in the site were cut for use as structural material.
3. Dates from structural wood apply to the structure in which they are found, unless there is visual evidence to the contrary, e.g., the characteristic appearance of reuse or repair

timbers.

4. In the absence of evidence to the contrary, the latest date from a roof should indicate the construction date of that roof.

Our wall-abutment analysis, a major part of the contextual interpretation of the tree-ring dates, is similar to that of Dean (Dean 1969) but has since been succinctly axiomized by Wilcox (1975). These axioms are: "1) continuously bonded walls may have been constructed during a single building episode; 2) only fully enclosed spaces were being built" (Wilcox 1975:134). One subaxiom that may be deduced is that if one wall abuts another wall, the former predates the latter.

The identification of site-wide construction components is also useful in the contextual interpretation of the tree-ring dates. construction components are clusters of tree-ring dates that indicate major wood procurement events, and therefore, extensive construction activity in the site. Site-wide construction components are useful in analyzing rooms or other structures that have few tree-ring dates with no clustering, situations in which precise construction dates cannot be deduced. Yet, when the date distributions from these rooms are projected onto the framework of site-wide construction components, construction dates to within a least a decade can often be estimated.

Looking at the Balcony House cutting dates from a site-wide perspective (Figure B.1), two major construction components are apparent, one in the 1240s and one in the 1270s. The 1190-1210 dates come from beams reused from an earlier construction component, the structures of which were either demolished or remodeled during the 1240s and 1270s components.

Rooms 1, 2, and 3

Only one of the Room 3 wall-support beams was tree-ring dated. This beam, cut in 1910, was presumably part of Nusbaum's stabilization in that year. The other beams, though undated, appear to be as recent as the 1910 beam. No other tree-ring material was found in these rooms, and, since they adjoin no others, it is impossible to determine their construction dates.

Room 4

The front wall of Room 4 is bonded to the massive retaining wall that supports the Kiva and North Plazas; thus, using Wilcox's axioms, Room 4 was probably built at the same time as the retaining wall. Knowing the construction date of the retaining wall would be helpful in understanding a major component in the construction of Balcony House. This wall gives Balcony House a flat expanse for large-scale construction that the sloping floor of the cliff shelter does not provide.

None of the 15 beams in Room 4 appear to be cut to fit the room; the three primary beams extend beyond the east wall, visible in front of the site. Six of the 15 beams are smoke blackened, while the interior walls of the room are not. Three beams are weathered. Nine beams are broken on one end. All these attributes are evidence that these beams were taken from vacated structures in Balcony House (or possibly from another site) and reused in Room 4. The tree-ring dated beams in the room were cut from 1197 to 1215, with one cut in 1271. The wall support beams under the northeast and southeast corners of the room were cut in the 1270s. The beam and wall attributes, along with the tree-ring dates, place the probable construction of Room 4 in the 1270s construction component.

Access to Room 4 is obtained through a hatch in the floor of Room 5. This hatch had originally been sealed and plastered over, with a hearth built on top. Apparently, in the final years of Balcony House, Room 4 was entirely sealed off.

Room 5 and the North Passage

Room 5 is the second story of Room 4, though it is at the first story level of the North Plaza. The two late cutting dates place the construction of Room 5 in 1279. The beams cut earlier than 1279 were probably stockpiled rather than reused, given the comparatively short range of cutting dates (1270-1279). The three undated beams that are smoke blackened (in a room that is not smoke blackened) can be assumed to be reused. Some of the beams in Room 5 are weathered, but the room appears to be exposed to water seepage during rainfall. Room 5 also has five timbers socketed east and west, about equidistant from one another and about one foot above the floor. We did not sample these beams because we were concerned about disturbing nearby seismic sensing devices. Since these beams—perhaps part of a drying rack—are not structural, they would not date the construction of the room.

The North Passage, which adjoins Room 5, has two cutting dates at 1279, probably dating its construction to that year. This date associates it with Room 5 and the site-wide construction component of the 1270s.

Rooms 6/7

These rooms form a two-story unit with Room 7 above Room 6. Twenty-one cutting dates at 1275 present a compelling case for dating Room 6 to that year, obviously placing it in the 1270s site-wide construction component. The

mix of incomplete and complete terminal rings indicates that the 1275 logs were procured toward the end of the juniper growing season in the late summer or early fall of that year. Thus, Room 6 probably was built in the fall or winter of 1275-1276. The range of cutting dates indicates that Room 6 was roofed with timbers stockpiled over a period of seven years (1269-1275), either specifically for this room or for general construction purposes.

Inside Room 7, three horizontal poles socketed to the front wall on one end and to a three-foot high masonry wall on the other form a rack of unknown use. Two of the poles have cutting dates of 1262, but since the poles are nonstructural, they do not date the construction of the room.

Rooms 8/9

These two rooms form a two-story unit with Room 9 above Room 8. A sizable cluster of 21 cutting and noncutting dates at 1246-1248 present a good case for dating the construction of Room 8 to 1248, obviously placing it in the 1240s construction component. Once again, a mix of incomplete and complete terminal rings and the range of cutting dates (1246-1248) indicate, respectively, late summer-early fall wood procurement (fall-winter construction) and short-term (three years) stockpiling of beams.

A horizontal pole socketed in opposite walls of Room 9 has a cutting date of 1248. Since the pole is nonstructural, however, it cannot be used to determine the construction date of the room.

Roomblock 6/7, 8/9

The two units comprising Rooms 6/7 and Rooms 8/9 make up a major roomblock behind

the North Plaza. Since Rooms 6/7 abut Rooms 8/9, we can infer that Rooms 6/7 postdate Rooms 8/9. The tree-ring dates confirm that Rooms 6/7 (1275) indeed postdate 8/9 (1248), which verifies the wall-abutment analysis. The balcony that runs along these rooms is actually made from two merged balconies plastered over to make one platform. The balcony of Rooms 8/9 was constructed with paired balcony beams, while that of Rooms 6/7 was built with individual balcony beams.

The roofs of both Room 6 and Room 8 are constructed in a manner unusual in Mesa Verde cliff dwellings, though the roofs of Rooms 15 and 16 may have been built the same way. Room 6 has two paired primary beams—running North to South—in the middle of the roof supporting two rows of secondary beams with one end socketed in a masonry wall and the other resting on the primaries. The numerous secondaries fill up the entire expanse of the roof, eliminating the need for tertiary roofing elements. Typical Mesa Verde roofs have two separated primaries supporting several widely spaced secondaries. The wide gaps between the secondaries are spanned by tertiary elements. The roof in Room 8 is similar to that in Room 6, except that only one central primary beam supports the two rows of secondaries.

Rooms 11-14, 17 and, 10

No tree-ring material was found in Rooms 11-14, and thus, no absolute construction dates can be determined. However, using Wilcox's first axiom, we can deduce that Rooms 11-14 were built at the same time because their walls are bonded to each other.

One part of Room 17 abuts the Room 11-14 complex, but another part is bonded to the

complex. Using Wilcox's second axiom—that only enclosed spaces were being built—we surmise that Room 17 is contemporaneous with the Room 11-14 complex. Tree-ring dates place Room 17's probable construction in 1247; and place the Room 11-14 complex in the 1240s site-wide construction component. The occurrence of both incomplete and complete terminal rings places construction in the fall or winter of 1247.

Room 10 has no tree-ring material, but since it stands between the Room 11-14 complex and Rooms 8/9—both members of the 1240s construction component—it may belong to the same component.

Rooms 15, 16, and the Big Wall (Main Dividing Wall)

The Big Wall (Main Dividing Wall) is a single architectural unit to which Rooms 15 and 16 appear to either bond or abut. Rooms 15 and 16 may or may not have had second stories. The uncertainty of the construction sequence here is due to the stabilization and reconstruction of this area by Nusbaum in 1910. Kivas A and B and the Kiva Plaza are almost entirely reconstructed, and some of the wall foundations of Rooms 15 and 16 were probably put in place by Nusbaum. The tree-ring dates from Room 15 and 16—which share the Big Wall—range from 1269 through 1279, placing the whole complex in the 1270s construction component. The large beam protruding from Room 17 is actually the primary of Room 16, and the roofs of Room 15 and Room 16 may have been constructed like the roofs of Room 6 and Room 8.

Rooms 18 and 19

Room 18 has three dated secondary beams. Two have early dates, but the beams'

weathered condition indicated reuse. The late noncutting date puts Room 18 in the 1270s construction component, and, because Room 18 abuts Room 17, we must assume that the former postdates the latter. The reddened interior masonry and charred ends of the beams indicate that the contents of this room were burned sometime after its construction, though the upper story of Room 18 shows no sign of heat.

Room 19 has no tree-ring material, but based on wall abutments, it postdates Room 18 and is probably part of the 1270s construction. There is evidence that Room 19 had a second story.

Rooms 20, 21, and 22

Room 21 has a sizable cluster of cutting dates in 1273, probably dating the room to that year. Incomplete terminal rings indicate wood procurement during the juniper growing season (summer) and place construction in or after the autumn of 1273. A large beam extends from the front of Room 21 at about roof level; this beam is probably the primary element of a room that was destroyed in the rock fall that demolished most of the Kiva Plaza. The beam has a probable cutting date of 1190, indicating reuse from the 1180s-1220s component. Rooms 20 and 22 abut Room 21; therefore they are part of the 1270s construction component. The second story of Room 21 is extant, while there is evidence that Rooms 20 and 22 had second stories.

Kivas A and B

Kivas A and B were almost entirely reconstructed by Nusbaum in 1910, and lintels from the vent tunnels are the only associated tree-ring material. Though undated, these lintels have metal-ax cut ends and thus are

probably Nusbaum's handiwork.

Rooms 24-28

Rooms 24-28 have no tree-ring material and abut no dated rooms; thus, we can determine no construction date for this complex. Rooms 24, 25, 27 and 28 have evidence of second stories. Room 26 probably was a one-story unit, judging by the T-shaped doorway of the second story of Room 25. T-shaped doorways often open onto plazas or open rooftops in Mesa Verde and other Anasazi sites.

The South Entry

The South Entry's three cutting dates place it in the 1270s component. The late date of 1278 is probably very close to the South Entry's date of construction.

SITE-WIDE CONSTRUCTION SCENARIOS

1180s-1220s Construction

The Balcony House rock shelter probably has been occupied or used in some fashion since people first lived on Mesa Verde. Basketmaker III sites (ca. 500-700 A.D.) have been uncovered in other Mesa Verde rock shelters, and the smoke blackening in the rear of many cliff dwellings predates the earliest extant construction. In Balcony House, the earliest construction for which we have architectural evidence dates from the 1180s-1220s. Beams dating from this period were reused in Room 4, Room 8, Room 18, and the room in front of Room 21, all of which were built in the 1240s or 1270s.

On the rockshelter ceiling--above but offset from Rooms 16 and 17--are traces of mortar

and smoke blackening that indicate the former presence of a now absent four-room, two-story tower³. Sometime after this tower was torn down, Room 17 was built, which indicates that the tower predates the 1240s and probably belongs to the 1180s-1220s construction component. Building the early tower necessitated the erection of a retaining wall in front of the site, which would have held dirt fill on which the tower was constructed. This retaining wall was probably smaller and farther back in the rock shelter than the extant retaining wall.

The "shadow" tower and the inferred retaining wall are indicators of extensive construction in Balcony House from the 1180s-1220s. During this time Balcony House probably had at least one kiva associated with the "shadow" tower. More likely, given the expanse of construction space provided by the retaining wall, the site had two or three kiva-roomblock units. Because of the smaller usable space available in the cliff shelter, the kivas of this period had to have been built farther back into the cliff shelter. The 1180s-1220s construction in Balcony House coincided with construction taking place in other Chapin Mesa cliff dwellings.

1240s Construction

Located in the middle of the site, the 1240s construction component consists of the Room 17 and Room 11-14 roomblock and Rooms 8/9. The relationship between the demolition of the "shadow" tower and the construction of the Room 17 roomblock is uncertain. The "shadow" tower may have become unstable and was replaced by the Room 17 roomblock,

indicating continuing use of this section of the site; an abandoned "shadow" tower may have remained unused and in disrepair for many years before it was torn down and replaced by the Room 17 roomblock, indicating a gap in the use of this section; or the "shadow" tower may not have met the social needs of the group occupying this section of Balcony House and was replaced by the Room 17 roomblock. This group could have been new arrivals at the cliff dwelling, or they could have been original inhabitants.

After the 1240s construction, Balcony House was probably at least as extensive as it was in the 1180s-1200s. The site may have had two or three kiva-roomblock units. Like Room 17, most of the 1240s construction probably replaced 1180s-1220s construction.

The 1270s Construction

The 1270s construction component ushered in dramatic changes in the architecture of Balcony House. The main feature of the 1270s construction was the larger retaining wall, which permitted the Balcony House builders to extend construction in the cliff shelter both forward and laterally. On the construction of Rooms 4 and 5, and the new retaining wall, Nusbaum comments:

The difficulty of constructing a two-story house on a series of irregular boulders and a nearly perpendicular cliff site was successfully overcome in the north building. A large buttress, having for a footing a narrow ledge four to seven inches wide, was constructed, and on this, by bridging over a vertical cleft at each extremity with cedar poles, it was

³ Parks and Dean seem to be using the term "tower" in the same way Nusbaum used the term, free-standing two-story roomblock.

possible to construct the main outside wall to a height of nearly twenty-two feet. This construction was the most difficult and daring of any on the Mesa Verde so far (Nusbaum n.d.a: 9-10).

Kivas A and B were built at this time, utilizing the space created by the larger retaining wall. The floors of Kivas A and B were formed from the natural bedrock of the cliff shelter. Since the kivas were built farther out in the cliff shelter, there was now space to add Rooms 18-22 south of Room 17. Rooms 24-28 may also have been built at this time, completing two kiva-roomblock units.

A short time later, a room was built in front of Room 21, and the Big Wall and Rooms 15 and 16 were constructed. Doorways through the Big Wall in Rooms 15 and 16 connected the North and Kiva Plazas. The Big Wall may have wrapped around the Kiva Plaza. The Lower Terrace could have supported the buttressing for a wall of this size. Connecting to this wall and the room in front of Room 21 was a wall about ten feet high that separated Kivas A and B. Nusbaum found a part of the foundation of this wall when he excavated the area (Nusbaum 1910d: 35).

In the North Plaza, the Rooms 6/7 unit was abutted to Rooms 8-9, forming a major storage roomblock. The North Plaza was now a separate sector of Balcony House, functioning, perhaps, as a public ceremonial-storage sector. A short time later, access to the North Plaza for the Kiva Plaza was restricted further. The doorway from Room 16 was sealed, and the doorway from Room 15 was partially sealed, leaving a window or ventilator too small for human passage. In order to reach the North Plaza from the Kiva Plaza, one now had to

pass through a gap between Rooms 19 and 20 into the Refuse Space, and utilize the narrow passage between Rooms 13 and 10. During the 1270s, the passage between Rooms 13 and 10 was converted to a small crawlway, restricting movement even more. At the same time, entry from outside Balcony House was restricted by the construction of the crawlway in the South Entry, and a narrow passageway between North and Lower Plazas.

Though passage from the Kiva Plaza to the North Plaza was restricted at the first-story level, access may have been obtained via the first-story rooftops of Rooms 15 and 16. In this area, the Big Wall may have formed a palisade between the Kiva Plaza and the North Plaza. On the north side of the Big Wall are the beams of a former balcony. Kiva Plaza dwellers may have come over the palisade wall and observed the ceremonies of the North Plaza from this balcony. North Plaza ceremonies also could have been observed from the partially sealed doorway of Room 15.

DISCUSSION

Social Implications of the 1270s Construction

Architectural changes in the 1270s provide clues for social changes in the final years of Balcony House. Pertinent architectural changes are: compartmentalization of kiva-roomblock units; restrictions of access within the site; restriction of access to the site from the outside; partitioning of the site into two sectors. Compartmentalizing the kiva-roomblock units probably reflects the erection of structural barriers between social groups who previously had been more open to daily contact and interaction. Current researchers (Lipe 1995) speculate that the large thirteenth century sites in the Northern San Juan were

aggregations of formerly scattered smaller sites. During such aggregation, there might have been a political transition between small-site family organization and large-site suprafamilial integration. The erection of physical barriers may have mitigated disputes between residential units still accustomed to autonomy. Restricted access within the site may also be due to different social groups living side by side. First-story entry from one group's space to another's was apparently a territorial breach, whereas one could move about more freely at the second-story level.

Restricted access from outside Balcony House has been seen by some as a defensive measure. It is doubtful that there was full-scale warfare in the Northern San Juan during the 1200s, but a major social change like aggregation is bound to carry with it social friction. Competition for dwindling resources such as food and water may have increased the exclusivity of social units ranging from families to villages to larger communities. As some researchers have suggested (Bradley 1993; Lekson and Cameron 1995), the aggregation may have been held together by new ceremonial relationships. Balcony House dwellers may have felt it important to control access to these new ceremonies.

The building of the Big Wall partitioned Balcony House into two sectors, a phenomenon observed in other Mesa Verde cliff dwellings (Fewkes 1909; Rohn 1965, 1971). In these sites, each sector contains several kiva-roomblock units. In Balcony House, however, one sector contains kiva-roomblock units, but the other, the North Plaza, was probably used primarily for storage and ceremony. Activities associated with the North Plaza may have unified the Balcony House settlement ceremonially, and the Plaza may have served as a storage-redistribution

center for food and water.

The emphasis of an entire sector of a cliff dwelling on ceremonialism indicates the increasing importance of religion in the 1270s. Enhanced ceremonialism may have been a response to troubled times (Lipe 1995), with religious leaders acting also as political leaders.

Occupation and Abandonment

Balcony House appears to have been occupied to one degree or other from the 1190s through the 1270s. Figure B.1 shows a break in tree-cutting activity between 1224 and 1239, an indication that construction in Balcony House came to a standstill during this period. A nearly uninterrupted gap indicates a major slowdown in construction activity between 1249 and 1268. These gaps in tree-cutting activity are probably not long enough to indicate that Balcony House was abandoned at any time from the 1190s to the 1270s. However, the gaps may indicate population fluctuations. Construction activity might coincide with the influx of social groups into Balcony House, and gaps might coincide with population stability or decline.

The abandonment date of Balcony House can be estimated from its latest tree-ring date, 1280. Adding 15 years—the maximum time Balcony House dwellers are likely to have occupied the site without new beam procurement for repair or new construction—gives an abandonment date of 1295. The abandonment date for the entire northern San Juan region has been estimated at around 1300. We will never know exactly what caused this great abandonment; however, our inferences about Balcony House suggest that aggregation and enhanced political-religious integration failed to offset the economic stress of the late thirteenth century (Ahlstrom et al.

1995) and the inherent fissive tendencies of Anasazi social organization.

Table B.1 Balcony House Tree-ring Dates reported 3 March 1993, Date List redone 6 November 1995 - Accession A 1049.

Provenience	Trial Number	Species	Inner	Sym	Outer	Sym	Comment
Room 4	MVP-136	JUN	1059		1197	+v	inc.
Room 4	MVP-138	JUN	1015	+/-	1198	+v	inc.
Room 4	MVP-140	JUN	1131	+/-p	1203	rL	inc.
Room 4	MVP-142	JUN	1178	+/-p	1213	rL	inc.
Room 4	MVP-143	JUN	1154	+/-p	1215	+rLB	inc.
Room 4	MVP-144	JUN	1211	+/-p	1271	rLB	inc.
Room 5	MVP-129	DF	1246	p	1270	+L	inc.
Room 5	MVP-122	JUN	1121	+/-	1274	+rL	inc.
Room 5	MVP-131	JUN	1220	+/-	1274	+rL	inc.
Room 5	MVP-132	JUN	1191	+/-	1276	v	inc.
Room 5	MVP-128	DF	1236		1276	rL	inc.
Room 5	MVP-124	JUN	1225		1276	rL	inc.
Room 5	MVP-127	JUN	1241		1278	+rL	inc.
Room 5	MVP-123	JUN	1247	+/-p	1279	rL	inc.
Room 5	MVP-130	JUN	1218		1279	+rLB	inc.
Room 6	MVP-88, MV-193	JUN	1192	+/-	1256	rL	comp.
Room 6	MVP-82	JUN	1185		1267	++vv	
Room 6	MVP-118	JUN	1173		1268	++rLB	inc.
Room 6	MVP-114	JUN	1219	p	1269	rLB	comp.
Room 6	MVP-120	JUN	1204		1269	++rLB	comp.
Room 6	MVP-103, MV 191	DF	1250	p	1269	r	inc.
Room 6	MVP-84, MV190	DF	1250	p	1269	r	inc.

Room 6	MVP-109	JUN	1190	+/-	1271	rL	inc.
Room 6	MVP-117	DF	1244		1272	rLB	comp.
Room 6	MVP-97, MV192	DF	1220	p	1272	r	inc.
Room 6	MVP-81	JUN	1219		1273	vv	
Room 6	MVP-92	JUN	1241	+/-	1274	rLB	inc.
Room 6	MVP-112	JUN	1226	+/-p	1274	+rLB	inc.
Room 6	MVP-119	JUN	1180		1275	rLB	comp.
Room 6	MVP-116	DF	1249		1275	rLB	comp.
Room 6	MVP-95	JUN	1178	+/-p	1275	rLB	comp.
Room 6	MVP-111	JUN	1185		1275	rLB	inc.
Room 6	MVP-90	JUN	1208		1275	rLB	comp.
Room 6	MVP-106	JUN	1207		1275	rLB	inc.
Room 6	MVP-115	JUN	1196	+/-	1275	rLB	inc.
Room 6	MVP-99	JUN	1191	+/-	1275	rLB	inc.
Room 6	MVP-100	JUN	1231		1275	rLB	inc.
Room 6	MVP-101	JUN	1138	+/-p	1275	rB	comp.
Room 6	MVP-93	JUN	1203	+/-p	1275	rLB	inc.
Room 6	MVP-105	JUN	1176	+/-	1275	rLB	inc.
Room 6	MVP-104	JUN	1163	+/-	1275	rL	inc.
Room 6	MVP-96	JUN	1157	+/-p	1275	rB	inc.
Room 6	MVP-110	JUN	1229		1275	rLB	inc.
Room 6	MVP-86	JUN	1148	+/-p	1275	rL	inc.
Room 6	MVP-87	JUN	1227	+/-	1275	rL	inc.
Room 6	MVP-113	JUN	1184	+/-p	1275	rLB	inc.
Room 6	MVP-89	JUN	1208		1275	rLB	inc.
Room 6	MVP-80	JUN	1212	+/-	1275	v	inc.
Room 6	MVP-102	JUN	1154	+/-p	1275	rB	inc.
Room 8	MVP-71, MV-196	DF	1175	p	1204	v	inc.
Room 8	MVP-76, MV195	JUN	1107	+/-p	1204	r	inc.

Room 8	MVP-72	JUN	1114	+/-	1215	+vv	
Room 8	MVP-40	JUN	1107	+/-	1235	++rL	inc.
Room 8	MVP-43	JUN	1122	+/-	1235	+vv	
Room 8	MVP-51	JUN	1125	+/-	1239	+LB	inc.
Room 8	MVP-49, MV 194	JUN	1099		1242	v	inc.
Room 8	MVP-61	JUN	1163		1242	++rL	inc.
Room 8	MVP-73	JUN	1145	+/-	1242	++rL	comp.
Room 8	MVP-78	JUN	1170	+/-	1242	B	inc.
Room 8	MVP-55	JUN	1126	+/-	1244	++v	inc.
Room 8	MVP-41	JUN	1157	+/-	1244	vv	
Room 8	MVP-42, MV-280	JUN	1150	+/-p	1246	vv	
Room 8	MVP-57	JUN	1193	+/-	1246	+rL	inc.
Room 8	MVP-62	JUN	1154	+/-	1246	rL	comp.
Room 8	MVP-77	JUN	1161	+/-	1246	rLB	inc.
Room 8	MVP-75	JUN	1162	+/-p	1247	rLB	inc.
Room 8	MVP-70	JUN	1182	+/-	1247	L	inc.
Room 8	MVP-64	JUN	1178	+/-	1247	v	inc.
Room 8	MVP-52	JUN	1169	+/-	1247	+rL	comp.
Room 8	MVP-63	JUN	1176	+/-p	1247	rL	comp.
Room 8	MVP-46	JUN	1106		1247	vv	
Room 8	MVP-66	JUN	1173	+/-p	1247	rL	inc.
Room 8	MVP-65	JUN	1169	+/-	1247	v	inc.
Room 8	MVP-74	JUN	1181	+/-	1248	rL	inc.
Room 8	MVP-48	JUN	1161	+/-	1248	vv	
Room 8	MVP-58	JUN	1156	+/-	1248	rL	inc.
Room 8	MVP-50	JUN	1158	+/-	1248	rL	inc.
Room 8	MVP-54	JUN	1158	+/-	1248	rL	inc.
Room 8	MVP-59	JUN	1180	+/-	1248	rL	inc.
Room 8	MVP-47, MV-279	DF	1212	p	1248	rL	comp.
Room 8	MVP-56	JUN	1177	+/-	1248	++rL	inc.

Room 8	MVP-67	JUN	1172	+/-p	1248	rL	comp.
Room 8	MVP-45	JUN	1123	+/-p	1248	rL	inc.
Room 9	MVP-79	JUN	1136	+/-	1243	v	comp.
Room 15	MVP-33	JUN	1156	+/-p	1264	+vv	
Room 15	MVP-34	JUN	1210	+/-	1269	+vv	
Room 15	MVP-37	JUN	1209	+/-	1273	vv	
Room 15	MVP-38	JUN	1209	+/-p	1275	vv	
Room 15	MVP-32	JUN	1228	+/-	1276	rL	inc.
Room 15	MVP-39	JUN	1228	+/-p	1279	rLB	inc.
Room 15	MVP-36	JUN	1226	+/-p	1279	vv	
Room 16	MVP-30	JUN	1147	+/-	1269	++rLB	inc.
Room 17	MVP-26	JUN	1129	+/-p	1242	rL	inc.
Room 17	MVP-22	JUN	1142	+/-	1243	+v	inc.
Room 17	MVP-25	DF	1223	p	1247	rL	comp.
Room 17	MVP-23	JUN	1176	+/-	1247	+v	inc.
Room 17	MVP-24	JUN	1170	+/-	1247	+v	inc.
Room 18	MVP-18	JUN	1162		1208	vv	inc.
Room 18	MVP-17	JUN	1157		1224	+rL	inc.
Room 18	MVP-16	JUN	1155	+/-	1261	++vv	inc.
Room 21	MVP-9	JUN	1204	+/-p	1266	vv	inc.
Room 21	MVP-12	JUN	1196	+/-p	1268	rL	inc.
Room 21	MVP-7	JUN	1234	+/-p	1273	rL	inc.
Room 21	MVP-3	JUN	1206	+/-	1273	rL	inc.
Room 21	MVP-4	JUN	1223	+/-	1273	rL	inc.

Room 21	MVP-8	JUN	1226	+/-	1273	rL	inc.
Room 21	MVP-10	JUN	1247	p	1273	rL	inc.
North (East) Passage	MVP-134	JUN	1253		1279	v	inc.
North (East) Passage	MVP-135	DF	1246		1279	+rL	comp.
Loose Logs in Room 4	MVP-151	JUN	1164		1242	+v	inc.
Loose Logs in Room 4	MVP-152	JUN	1194	+/-p	1269	+rLB	inc.
Loose Logs in Room 4	MVP-153	JUN	1238	p	1280	rL	inc.
Wall support under Room 4	MVP-158	JUN	1116	+/-	1253	+vv	
Wall support under Room 4	MVP-160	JUN	1206	+/-p	1271	vv	
Wall support under Room 4	MVP-160	JUN	1143	+/-	1271	vv	
Wall support under Room 4	MVP-159	PNN	1222		1274	vv	
Wall support under Room 3	MVP-163	JUN	1827		1910	v	inc.
Room 29 (South Entry)	MVP-166	JUN	1193	+/-p	1273	v	inc.
Room 29 (South Entry)	MVP-167	JUN	1203	+/-p	1273	v	inc.
Room 29 (South Entry)	MVP-168. GP-6995	PNN	1216	p	1278	v	inc.
Room 7, rack	MVP-171	DF	1242	p	1262	rL	comp.
Room 7, rack	MVP-172	DF	1241	p	1262	rL	inc.

Room in front of Room 21	MVP-15, MV-1	DF	1159	p	1190	v	inc.
Log pile behind Rooms 24 and 25	MV-2, GP-3791, GP-6587	DF	1149	p	1206	v	inc.
Timber in Museum	MV-504	JUN	0866	p	1125	vv	
No Provenience	GP-3793	DF	0875	p	1096	vv	
No Provenience	MV-511A	JUN	1162	p	1242	rL	inc.
No Provenience	MV-511B, MV-1364	JUN	1149	p	1248	cB	comp.

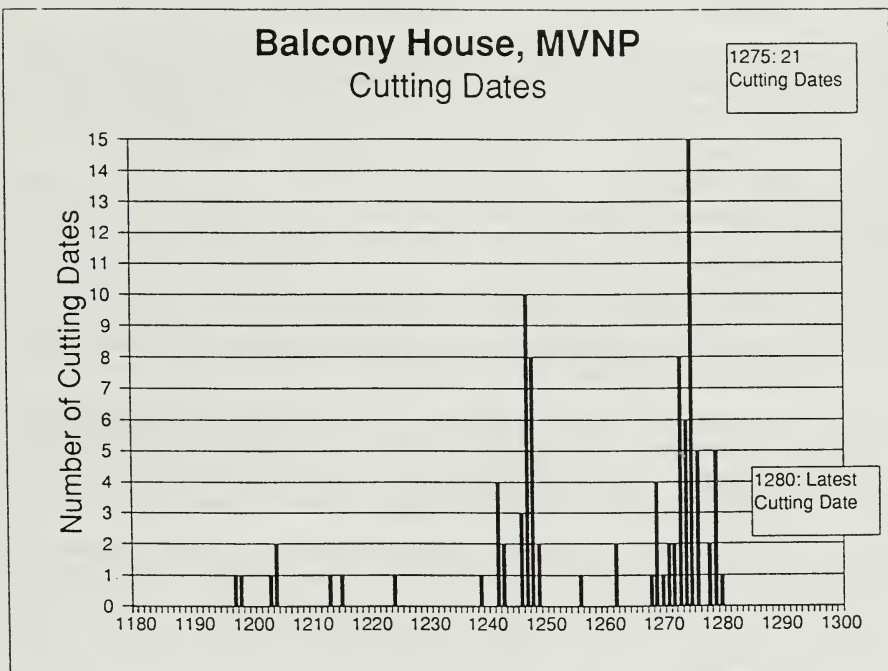


Figure B.1. Histogram of Balcony House Cutting Dates.

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EXPLANATION OF SYMBOLS

The symbols used with the inside date are:

- year - no pith ring present
- p - pith ring present
- fp - the curvature of the inside ring indicates that it is far from the pith
- ±p - pith ring present, but due to the difficult nature of the ring series near the center of the specimen, an exact date cannot be assigned to it. The date is obtained by counting back from the earliest dated ring.
- ± - the innermost ring is not the pith ring and an absolute date cannot be assigned to it. A ring count is involved.

The symbols used with the outside date are:

- B - bark present
- G - beetle galleries are present on the surface of the specimen
- L - a characteristic surface patination and smoothness, which develops on beams stripped of bark, is present
- c - the outermost ring is continuous around the full circumference of the specimen. This symbol is used only if a full section is present
- r - less than a full section is present, but the outermost ring is continuous around available circumference
- v - a subjective judgment that, although there is no direct evidence of the true outside on the specimen, the date is within a very few years of being a cutting date
- vv - there is no way of estimating how far the last ring is from the true outside
- +
- ++ - one or more rings may be missing near the end of the ring series whose presence or absence cannot be determined because the specimen does not extend far enough to provide an adequate check
- ++ - a ring count is necessary due to the fact that beyond a certain point the specimen could not be dated

The symbols, B, G, L, c and r indicate cutting dates in order of decreasing confidence, unless a + or ++ is also present.

The symbols L, G, and B may be used in any combination with each other or with the other symbols except v and vv. The r and c symbols are mutually exclusive, but may be used with L, G, B, + and ++. The v and vv are also mutually exclusive and may be used with the + and ++. The + and ++ are mutually exclusive but may be used in combination with all the other symbols.

APPENDIX C

HISTORIC AMERICAN BUILDINGS SURVEY REPORT

BALCONY HOUSE

Balcony House is one of numerous cliff dwellings built by the Anasazi on the Mesa Verde in southwestern Colorado. It is located in an alcove high above Soda Canyon in the middle of a band of Cliff House Sandstone. Entry for the original inhabitants was from above by means of a rope and hand-and-toe-hold trails pecked into the cliff face. Visitors today enter Balcony House from below via a 30' ladder.

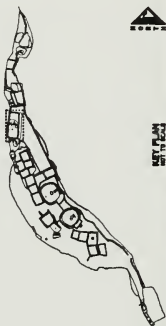
Balcony House contains 38 rooms for storage and habitation and two kivas or ceremonial rooms. These rooms are grouped around two main plazas. Room 4 may have been built as early as ca. A.D. 1200. This was followed by two main periods of construction. The central core of the cliff dwelling was built in the 1240s. In the 1270s, the number of rooms was doubled and the features which restrict access from one area of the site to the other were built: the tunnel at the entrance to the cliff dwelling and the sealing of the doorways in the cross wall between the plazas. The name for the site derives from one very well preserved balcony across the front of Rooms 6/7 and 8/9. There area also remnants of balconies on Room 5 and across the north side of the cross wall between the North and Kiva Plazas.

Mesa Verde became a National Park in 1906. Shortly thereafter, in 1910, the Colorado Cliff Dwellings Association funded the excavation and stabilization of Balcony House. This work was completed in six weeks under the direction of Jesse Nusbaum, then 23 years old, who was working for Edgar Hewett of the Archaeological Association of America. Nusbaum later became superintendent of Mesa Verde National Park.

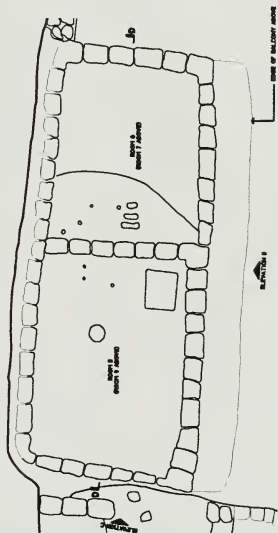
Documentation of Balcony House was undertaken in 1993-94 by the Historic American Buildings Survey/Historic American Engineering Record (HABS/HAER) of the National Park Service. The project was sponsored by the Rocky Mountain Regional Office (RMRO). The principals involved were Robert Baker, RMRO; Lawrence Wiese, Superintendent MEVE; Linda A. Towle, Chief of Research and Resource Management MEVE; Kathleen Fiero, Archeologists MEVE; and Robert J. Kapsch, Chief HABS/HAER. Field notes and photogrammetric images were produced in the field by Joseph D. Balachowski, Supervisory Architect HABS; Carolyn Kiernat, Architect Phoenix, Arizona; Renata Stachanczyk, Architect Icomos, Warsaw, Poland; and Margaret M. Balachowski Volunteer. The final drawings were produced in the HABS Washington, D.C. office using computer-aided drafting and computer-rectified photogrammetry by HABS architects Stacie Broadwater, Leslie Schwab, and J. Raul Vazquez; and by Jonathan Hodge, Architectural Intern, Catholic University of America.



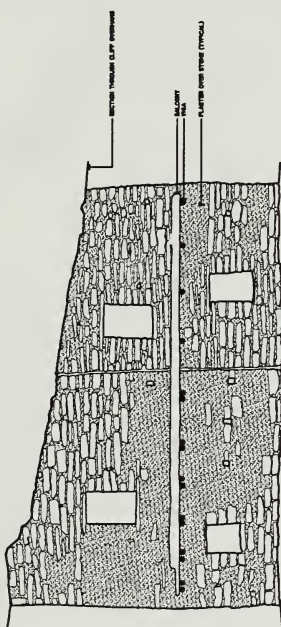
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PLAN



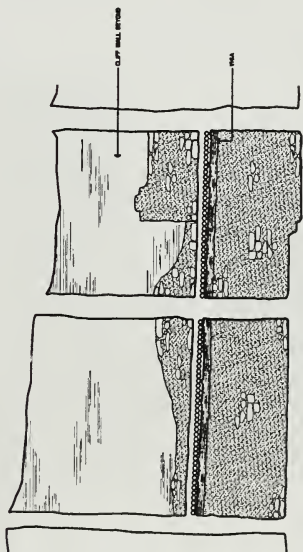
ELEVATION B

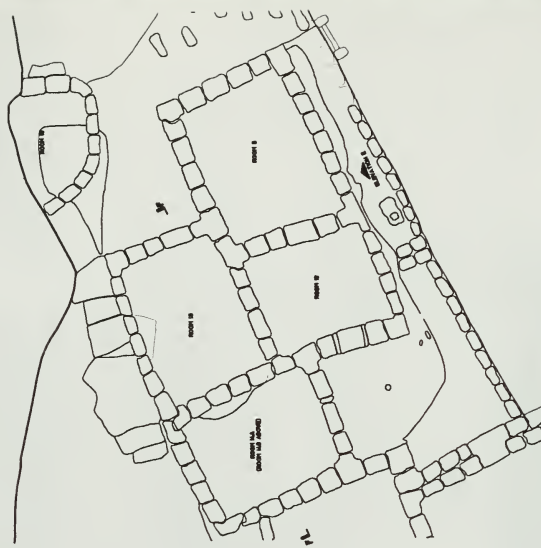


ELEVATION C

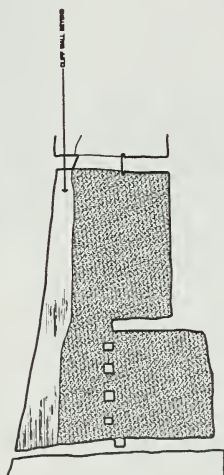


SECTION D-D





PLAN



SECTION F-F



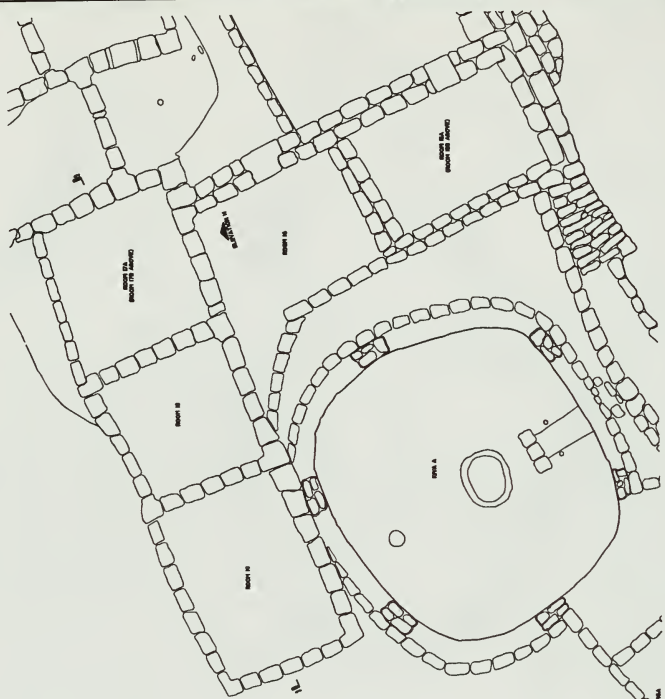
ELEVATION E



TOP 1.15M



N



BALCONY HOUSE

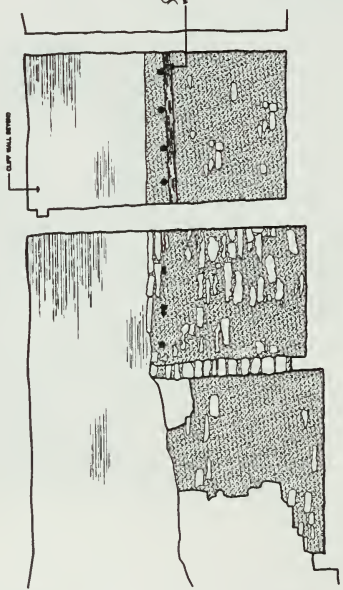
INTERIOR COURTYARD

COURTYARD

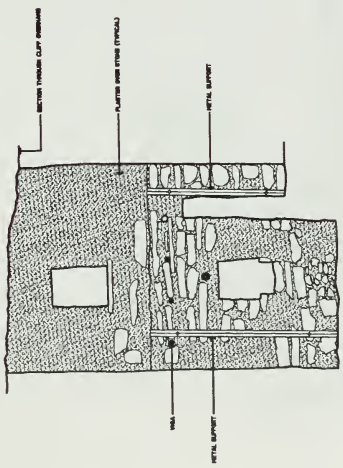
WALL 1

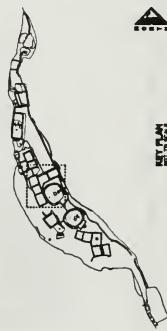
WALL 2

SECTION I-I

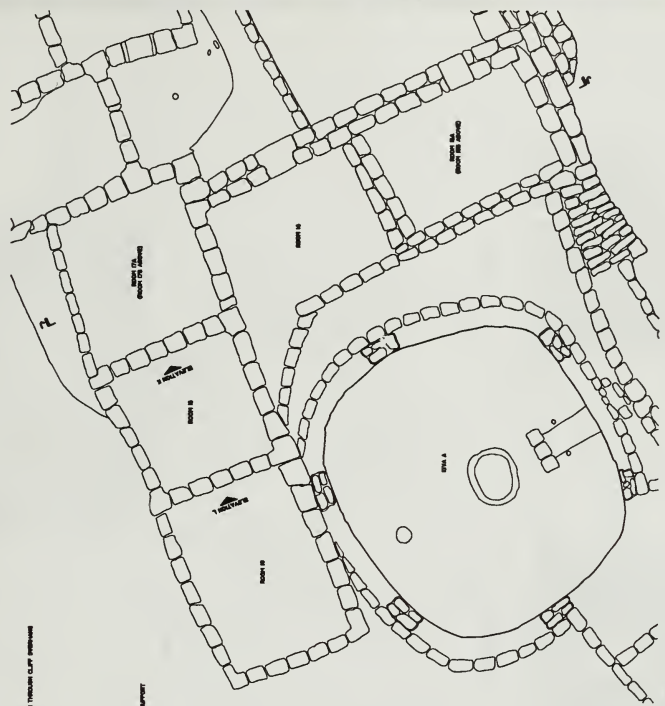
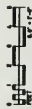


ELEVATION H

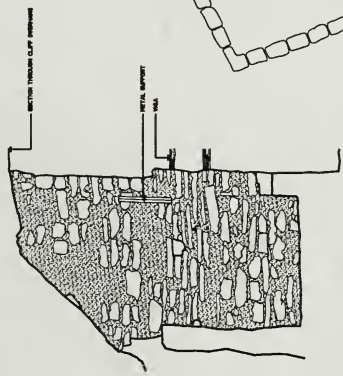




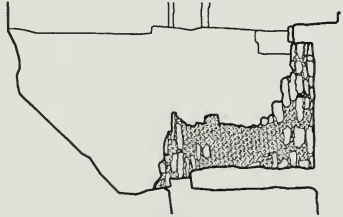
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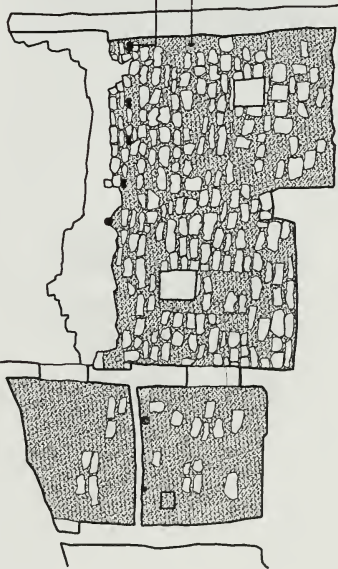
ELEVATION K

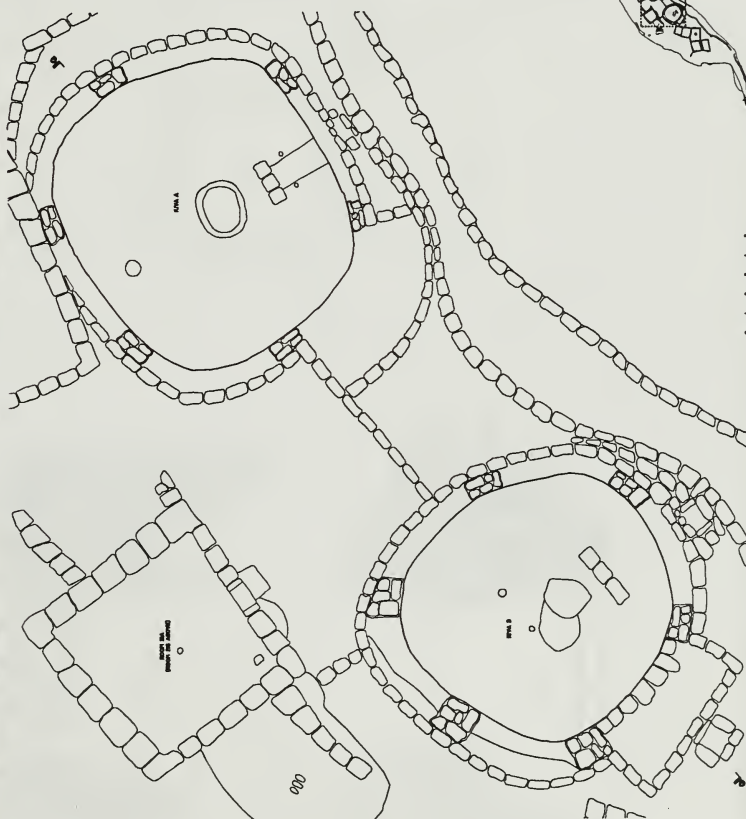


ELEVATION L

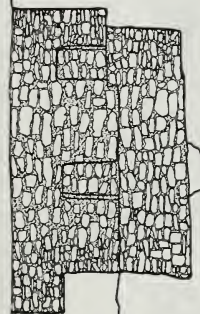
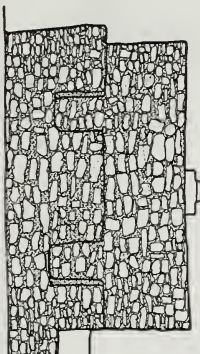


SECTION 1-1





SECTION 0-0



(Handwritten notes on the sketch of Kiva A map as follows:

Kiva A (North)

sipapu direct line back

dia on floor long way 16 ft. $\frac{1}{2}$ in.

dia on floor short way 14 ft.

lowest height 9'4", greatest- rear 11'6"

flue size at top 16" x 6"

between 3 x 4 is a rock boulder

faced between pilaster # 3 x #4 for 10"

niche x.-4 x 4 $\frac{1}{2}$ x 7

y-10 x 8 $\frac{1}{2}$ x 8

z-8 $\frac{1}{2}$ x 9 $\frac{1}{2}$ x 10

PAGE 2

Depth entrance - 37 inches

2.K-
This plan of find
seemed to be a draft
but later secured to be
very 20 ft. from in draft.
1/3 of barrel of the hole was
cut out

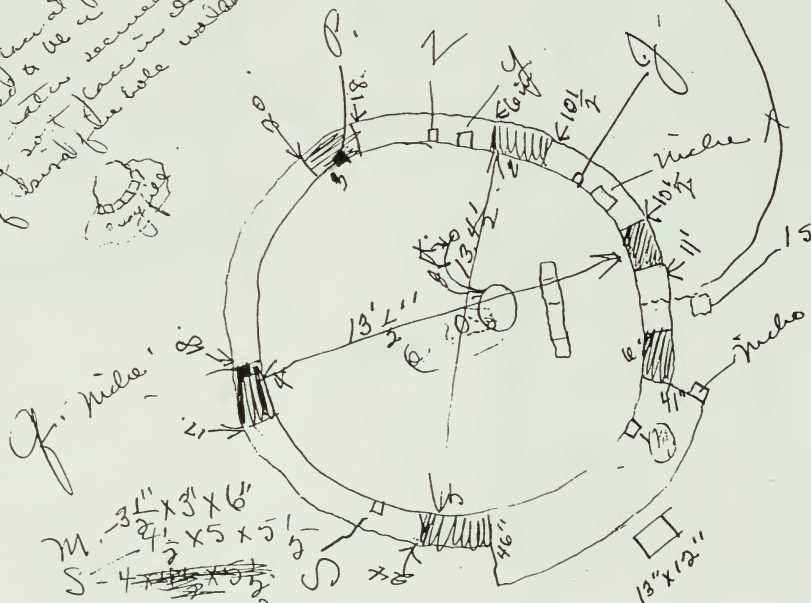


Figure D.2 Sketch map of Kiva B, South Kiva, 1910

(handwritten notes on sketch map of Kiva B as follows:

Kiva (South)

depth entrance 37 inches

This place at first seemed to be a draft but later seemed to be only soft place in clay. 1/3 of kiva fire hole walled.

Part of fireplace walled up.

m--3 1/2" x 3" x 6"

s--4 1/2 x 5 x 5 1/2

q--6 -- 7 1/2 x 8

p--5 1/2 x 5 1/2 x 6

o--6 1/2 x 7 1/2 x 11

x--9 1/2 x 7 1/2 x 10

j--5 x 5 x 6 rounding top

y--11 x 10 x 11

z--5 x 5 x 6 1/2

sipapu--2 ft toward pier 3 east side

4 ft from north end altar

Had crossed sticks in flue as

PAGE 3

Kiva A.

Kiva was completely excavated and put in first class repair by the first of Novem. The main peculiarity of the kiva is an auxiliary for the fireplace, a solid rock floor and a blind flue or draft. The pilasters number six of an average width of twenty two inches. A cubby hole appears in the north side of the one opposite the altar or deflector.

	Kiva A (north)	Kiva B (south)
Number Pilasters	6	6
Size of Pilasters	7-12" deep 20"-22" width	10 to 23 depth 21 to 24 width
Height pilasters	30"	30-31"
Floor to top of Pilasters	6'7"	6'7"
Floor to top of kiva	9.4	9.4
Size altar	44' x 9 wide	40' x 9 x 19" high
Distance from wall	32"	32"
Size fire hole--		
Diameter	24 1/2	22 1/2
Depth	11 1/2	10"
Size sipapu--		
Depth	12	6"
Diameter	6 1/2	4"
Distance fireplace from altar	16 1/2"	12"

Size flue	16" x 12" Base	15" x 15"
Size entrance	18" x 32	13 x 27 ½
Height floor to surface Banquette	3'10-4" ¹	3'8"-4 ft
Number mural niches	3	
Diameter of kiva--		
Width large banquette	over (?)	over (?)
Width altar banquette ²	8"	12 ½'
Diameter kiva north and s.		
of long? way	17' 7"	
Diameter of kiva east and west	15' 6"	

Notes

Kiva A—a cut in solid rock 15 in wide and 4 in deep runs to altar from 5 in inside of flush line of kiva.
A 4 in cut in solid rock at pier one left of altar.

PAGE 4

PLAZA QUARTER.

Balustrade or Parapet wall.

The balustrade or parapet which is the outside boundary of the plaza quarter was in very poor condition when our work started. A large part at the south end of the retaining wall slipped from the slanting stone foundation, precipitating the whole in the debris thirty feet below. This also carried a large part of the fill behind with it leaving a very insecure foundation for the large main center division wall. This part eight or nine feet in height was laid up dry, of rough or irregular blocks of stone that were not suitable for the finish wall, tapering in a little at the top. This rises to a level with the inside plaza floor, flush or a foot or two (two) in according to position and on it the main balustrade wall rests.

The main balustrade wall averaging thirteen inches to seventeen³ in thickness and from 34"-35"⁴ to thirty nine in height is of squared picked faced rock averaging three to three and a half inches in thickness to nine or twelve in length.

The wall is composed of two (two) separate courses. These courses are tied occasionally (sic) more by accident than intent it seems, no stones being found in the repair (sic) work that were flush on both sides except where the cap rock on top, usually of thin slabs, covered both, making a nice even finish. The bonding up and down was much better altho it seems in vital parts where one would naturally expect the very best kind of bonding, rock was laid directly above rock the joints forming a nearly perpendicular line and at these places,

¹ Undoubtedly means 4' instead of 4".

² Southern recess.

³ Sixteen crossed out and seventeen written in above sixteen.

⁴ Twenty eight crossed out and 34"-35" written in above twenty.

naturally expect the very best kind of bonding, rock was laid directly above rock the joints forming a nearly perpendicular line and at these places, the wall that had insecure foundation slid away. One of these at the south end allowed a piece of wall thirteen feet six inches to slide or slip out and another, 16 feet from the north wall allowed a piece of balustrade 5' 9" to drop out.

Smaller cracks $\frac{1}{2}$ to 1 in appear at 1' 8", 4' and 8' respectively from north end of balustrade caused by a leaning inward of the wall and this in turn by undermining of foundation of dirt by water insecure foundations.

PAGE 5

#1 (Room 1)—Formed by retaining wall coming in contact with rear cave wall where bench merges into the main cliff. Evidently had been a small store room. Southern limit determined by series of large boulders. During heavy rainfalls, much water comes over outside cliff wall following contour of cliff so that it falls into room. South wall determined by the several large boulders that lie on main ledge at this point.

#2 (Room 2)--This room rests on the several large boulders but had been so disturbed by pottery hunters that only parts of walls remained and no floor was found. As to its former exact location and position, nothing can be said. The debris from #3 was thrown into it by vandals.

PAGE 6

#3 (Room 3)

Door 22" x 16", rough, crude masonry. A small room much same shape as quarter segment of circular plane, south side laid wall--north, formed by boulder end and slightly worked-- Part under boulder laid up wall and place between cliff and boulder same.--Rear side, cliff, and outside--main retaining or parapet wall. Sill in opening wider than wall by 2 $\frac{1}{2}$ in. Prayer meal niche⁵ 4 x 4 x 5 approx deep in north wall under boulder end. Walls in poor and unsteady condition.

Distance between #3 and north wall of #4 + # 5,⁶ has undoubtedly contained several rooms but no trace could be found altho much in way of corn husks, small red rock ceremonial stone, woven cords and knots of yucca were found. Boulder in south end has been badly smoked. Ruin caused by slipping off of parapet wall.

A small narrow entrance terminating in a hatch way with convenient stick placed for stepping up on⁷--connects this to the main north plaza. This entrance is formed by back sides of # 4 X 5 and main wall. The height of parapet wall across from #4 + 5 to # 3 was about 4 feet above mean floor level.

⁵ This niche is no longer extant.

⁶ Lower Plaza.

⁷ This stick is no longer extant. A Park Service ladder is now used for stepping up into the North Plaza.

4 (Room 4)

The rear wall of # 4 X # 5 was in very bad repair, probably as bad as any on the ruin. A large hole had either been punched or blasted out near the top of lower # 4 and had caused building to crack and settle in alarming fashion. The main portion leaning to north about 6 to 10 in out of line. An iron brace with three turn buckles solved the difficulty and pulled it back and tight to cliff. Two more in north wall pulled the sag nearly out and then new masonry was put in and cracks filled making a good solid wall once more (Figure D.3).

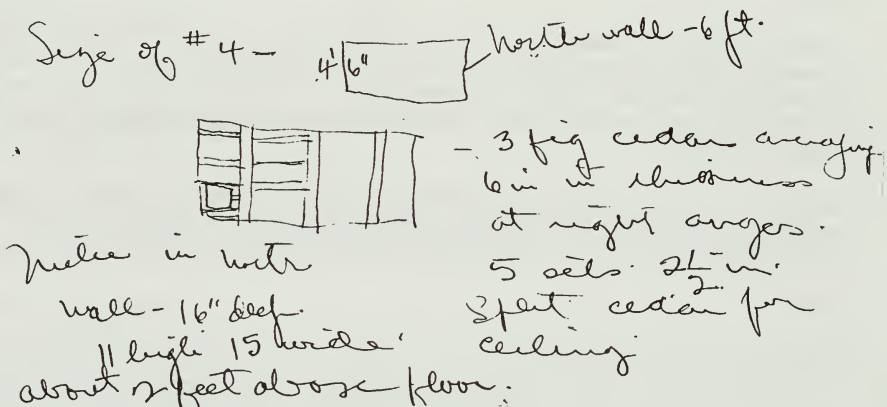


Figure D.3. Room 4 Plan View.

(Handwritten notations on sketch as follows:

- Size of # 4 4'6" north wall 6'
- 3 big cedars averaging 6" in thickness at right angles
- 5 sets 2 1/2" split cedar for ceiling
- niche in north wall 16" deep, 11 high, 15 wide, about 2 feet above floor)

Main hatch⁸ Tau door opening 21 1/2 upper x 40 upper, Lower 12 high and 16 wide
Hatchway 30" N and S, 35 E and W, rear side cliff

Door opens 6 in above floor level, N. wall of hatch built on wood lintels - 2 inches - base level with bottom of tau opening

⁸ In this section Nusbaum is discussing the opening west of Room 5. From this opening one enters the north passageway which takes one to the north end of the site (Rooms 1 to 3).

#5 (Room 5)

Small⁹ bench 1 ft wide and 30" high joins north building to main balcony.¹⁰ One foot to E of top of *Tau* door, beam 2 in thick extends to main balcony. Bumps everyone's(?) head.¹¹

Hatch in # 4 to #5--20" x 22"

Ceiling of # 5 or floor of # 4 slightly over 10 in thick. Roof construction same as # 6 + 8, cedar beams. Story about seven feet high.

6 small beams from 1 in to 2 ½ in butt(?) run E + W across this room averaging center to center 14 in--distance from floor--3 feet.

Ceiling formed over half by cliff. Roof construction as shown (Figure D.4).

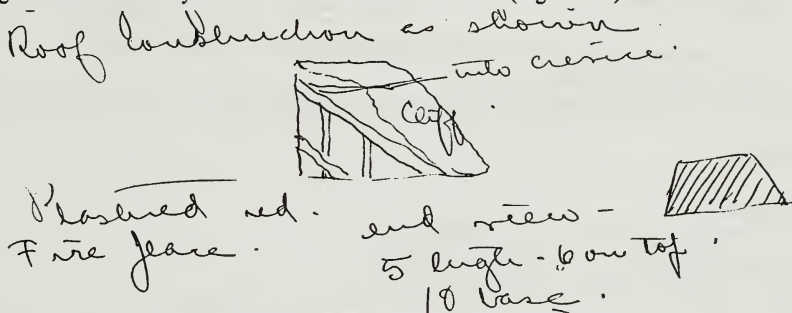


Figure D.4. Roof construction in Room 5 and end view of roof construction

(Notations on sketch: into crevice, cliff, Plastered red, fire place, end view 5 high, 6 on top, 10 base)

Covered hatch, no signs fire.

Close port or window about 11 x 13 inches, mudded up. Thickness wall 17 in. Size door to south 32 x 20. Width balcony, or eaves, 2 feet, on south side + 20 in east.

#6 (Room 6)

Width balcony 23 ½ average. Average thickness 5"-6"-7" in various parts. Length 19'9".

⁹ Nusbaum is discussing the small wall that extends from the hatchway of the north passageway to the north wall of Room 6.

¹⁰ Rooms 6/7.

¹¹ This beam has been cut off at wall plane undoubtedly by the Park Service so people would not bump their head.

Window 18" x 26". Balcony for # 6 more recent. Average thickness beams 3 ½ ". Single instead of double. Beams for balcony run in part way and tie to floor beams.

Port hole 31" from floor, 3 ½ square, 4' deep, from north end 17 ½". Remains of 5 small rounded sticks broken off—imbedded in rear.

PAGE 10

7 (Room 7)

Window 30" x 20"

Port hole 3 ½ x 3 ½ x 6 in deep. 1 prayer stick end in rear of hole protruding... 8 ½ in from north wall, 14 in above balcony

2 ½ square 4 deep-

#7 has been plastered red and then superficial plaster of white very pure.

No signs fire in any of these four rooms.

7 + 6 each have signs of red and white plaster on outside but this does not cover large portion.

PAGE 11

8 (Room 8)

Window in # 8-- 17" x 21 ½ , bottom 18 in

Port holes 28" from floor, 3 x 5 high, depth 11"--

Rear-- 3" square sets below main level (Figure A.5)

6 in from north wall

*Rear! - 3" square sets below main level.
6 in from north wall.*

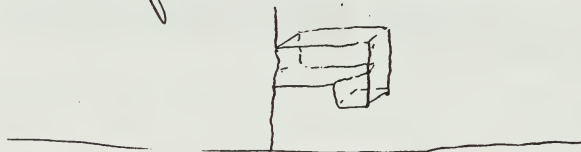


Figure D.5. Square niche with right angle bend in Room 8, exterior east wall

29 in from floor, 30" from north end another 3" x 5" going clear thru wall, smoothly plastered. No remains sticks.

Another 2" x 3" clear thru, 33" above floor. 4 ½ ft from north wall.

Average thickness of beams in pairs 6 to 7 in making single ones 3 to 3 ½

(Rooms) 8 + 9 best rooms in ruin having finely pecked surfaces and rubbed door jambs and sills.

PAGE 12

#9 (Room 9)

Window 20" x 33"

Port hole 2 1/2" x 4 1/4" high, depth-8 1/2" in
outside wall 8 in above Balcony 6 in from north end wall.

Loops have been placed 1 ft to 15" each side of door mid way up-4 in wide as (Figure D.6)

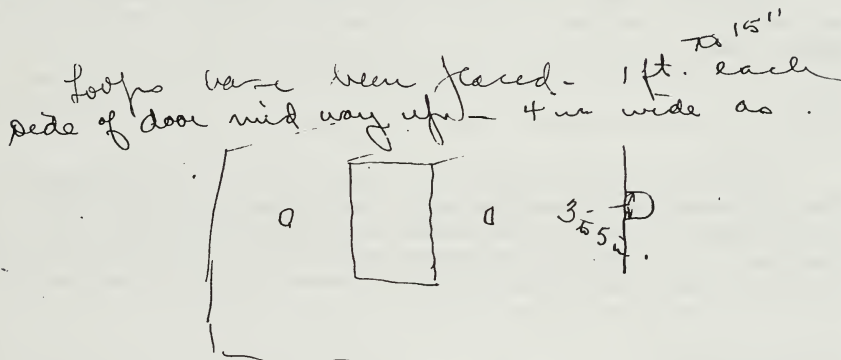


Figure D.6. Doorway and loops in Room 9

(Notations on sketch: 3 to 5 in)

Hatch way - from 8 to 9 in N.E. corner-22 x 19 1/2 in. Sides made of slabs of rock.

Floor made of small beams 2 to 3 laid close at Rt L (right angle) to center beam N + S - 6 to 7 in in dia. (diameter). Cedar bark + mud floor. Averages 7 in in thickness. Good condition.

Small pecked hole in floor 9 x 2 1/4 deep, nicely rounded N and W of center of room.

Beams for Balcony run just past center beam--rest on same.

PAGE 13

#10 (Room 10)

Small semicircular store room on top of boulder 3 feet from entrance to north plaza. Back and north sides are formed by cave wall. Masonry very crude. No attempt at rock cutting at all.

Debris furnished guano, corn husks, grass and cedar bast. Also small sticks of various lengths.

PAGE 14

#11 (Room 11a)

Large rectangular room built on slanting face of boulder. Door to south 18 x 25 inches rectangular. Masonry of very large rocks, well spalled and not lined. Floor of slanting boulder--dirt filled half way across to make more level.

#11 upper (Room 11b)

This building had upper story as evidenced by floor level on back wall. Main joists rested on division wall of 11 + 12 and north #11. Nothing can be said as to openings or structure as only one small part remains.

PAGE 15

#12 (Room 12a)

Nearly square room same masonry as # 11. Opening to north to # 11 and one to south 19' x 25 --to large boulder porch in front. Good foot hole in rock 11" below sill of window. Reg. Rect. window. Plastered red - no signs of smoke on walls. Height of story 62". A 10' high + 11 1/4 ' wide walled opening in S. E. corner near ceiling. Small cubby hole 6 x 5 x 7 30" up in same corner. Signs of fire in S.E. corner - smoke escaping from big vent. Plastered over afterwards and vent closed. Rock shows heat action in said corner.

#12 upper (Room 12b)

has had upper story--no evidence of openings tho

PAGE 16

#13 (Room 13)

Seven stone steps lead from the runway of plaza to the platform to north of #13. Opening to north 19 x 27 inches. Side stick still mudded in. Ceiling roof of cave. An opening about 33 x 21 original, now fallen, leads from the platform in front of #13 to rear of cave. A floor--on nearly same level as platform originally ran from the opening south about 8 feet. 4 joist holes and portion of floor being evidence. This made a passage way about 18 in to 24 wide + 8 feet wide¹²--just large enough for one person to pass thru at a time. Probably enter by a ladder + small opening at South end.

PAGE 17

#14 (Room 14a)

Square room Lower walls unplastered. Niche 7 in wide--6 deep + 6 high in south wall- -20 in from rear wall + 7 in below old ceiling beams.

Second niche 4 x 5 x 6 deep, 9 in north from top of door. Door 17 1/2 " x 25 1/2 " Walls about

¹² Probably means high.

9 to 10 in thick. Very rough stone well laid + spalled. Some joints 4 in mud + spalls. Height of story 5 ½ feet.

Second story (Room 14b)

Well plastered in red plaster. Opening 17 x 28 near north wall. Ceiling forms the roof. Story about 5 ½ in front. Opening faces east. North wall badly fallen half way down.

PAGE 18

#15 (Room 17a)

Center tower. In worst repair of any on ruin. *Tau* door 21 x 23 high upper and 17 x 14 high lower with place for foot 9 inches below present walled sill. A stone was placed in lowest part of *Tau* to raise level.

A niche 10" x 8" x 7 deep in north wall near N.W. corner. Not plastered. Rough. No smoke.¹³

15 upper (Room 17b)

Door 19 x 29 ½", 8 in thick wall. Niche in N. end front wall 12 x 9 x 6, niche in rear wall center 15 x 8 x 10, niche in south high 4 ½ x 4 x 7. Plastered pinkish color. Few smoke signs.

PAGE 19

16 (Room 16a)

This was at one time the lower floor for immense tower of heavy walls, the smoked square on ceiling and mud still attached still shows. A beam, still in place, carried the cross timber for floor. One small opening--walled on north side till it left a niche--15 high, 17 ½ wide and nearly a foot deep. 3 ½ feet above the floor. This niche in turn was made by walling up a large doorway approximately 3 ½ x 2 ft wide -- Floor level 2 ft above plaza level. Afterwards used as open porch.

#16-A (Room 16b)

Had two stories.

PAGE 20

#17 (Room 15a)

Rectangular room with massive walls--well laid of cut stone. Floor higher than south plaza by 6 inches and about 1' 6" above north plaza. Opening to north 13" high x 16 ½, 29" above floor. Thickness of north wall 19 ½ inches. Balcony on north face and probably eaves as in Room 5 on north + south + east faces as one beam still protrudes.

¹³ "Few smoke signs" crossed out and then "no smoke."

#17 upper (Room 15b)

Has been 2 stories high.

Upper wall about 1 ft thick.

PAGE 21

#18 (Room 18)

Room next to middle tower. North wall was south side of tower¹⁴ 15 (Room 17) and rear and spur south side was all that remained.

Was of rough masonry. At some time when building was still standing, the material in lower room was burned, the walls + plaster showing strong signs of much heat. The beams in rear wall still remain burned off close to wall.

Above--no sign of heat is shown. As no mention is made by any person of this wall or room standing, we must draw the conclusion that it was burned in pre-historic times. No floor features are shown. Floor still in place in N.W. corner.

PAGE 22

#19 (Room 19a)

Large rectangular building. The rear wall and stub of north wall - one story high and S.W. corner - 2 courses high all that remained. Floor level show by clay remaining on top of boulder. Back wall very insecure so was braced to main cliff by iron.

#19A (Room 19b)

Second story lacking but mud on ceiling denotes position.

A pathway the length of rooms and 22 in wide connects front plaza with the rear portion.

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#20 (Room 20a)

Smaller room - practically demolished with exception of small spur of wall - parallel to front of tower¹⁵ #21 and small very rough wall at rear. This terminated in a corner 22 inches from S.W. corner of # 19 leaving passage way to main plaza section from rear. More recent than tower¹⁶ #21 or #15 - # 18 + # 19 + # 20 simply joined two towers. Rear walls came up under vertical ledge so that upper rear wall was vertical ledge itself.

¹⁴ Room 15 in Nusbaum's room numbering system.

¹⁵ Room 21.

¹⁶ Room 21 or Room 15 (Room 17).

#20A (Room 20b)

Second story lacking but mud on ceiling denotes same.

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#21 (Room 21)

This is one of the best preserved towers in ruin. The lower floor only appears in parts - enough tho to show its original construction. Walls badly smoked but fire place position not determinable. Opening in front toward east. Large *tau* door - walls average 12" (Figure D.7).

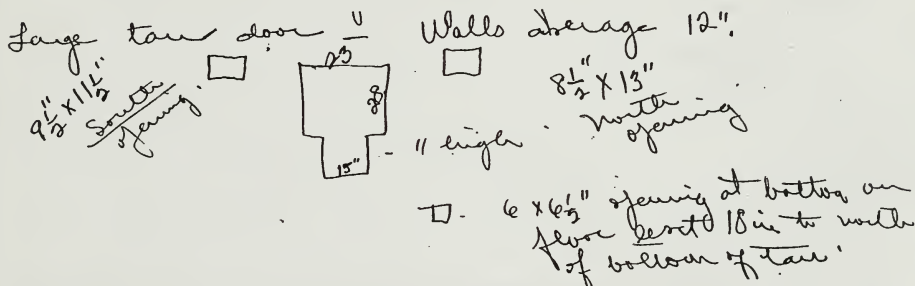


Figure D.7. Large *tau* door opening in Room 21.

(Notations on sketch:

south opening $9\frac{1}{2} \times 11\frac{1}{2}$ north opening $8\frac{1}{2} \times 13$

door $23 \times 28 + 11$ high $\times 15$ wide at bottom tau

$6 \times 6\frac{1}{2}$ opening at bottom on floor level 18 in to north of bottom of *tau*

Niches $12 \times 8\frac{1}{2} \times 3$ —north wall near front

" $-11 \times 4 \times 3$ —south wall near front)

4 stakes extend from wall—2 south and 2 north. 5 to 7 in long at height of about 6 feet. One boulder in south end worked off to make level floor in room. One vent 6×7 in S.E. corner - to floor above. Ceiling 2 heavy beams crossed smaller ones and split cedar - some 9 to 7 in wide. Balcony in front - 5 beams break on center pole and tied to rear ones. A raised portion 9 to 10 in high in front of this tower to bring to level.

PAGE 25

21 upper (Room 21b)

14 in below window, a foot hole $3\frac{1}{2}$ deep and $5\frac{1}{2}$ wide.

Cubby hole $15 \times 8 \times 8\frac{1}{2}$ north wall.

Cubby hole $15 \times 9 \times 8$ north wall, sill 2 in wide above and below.

Cubby hole south $15 \times 8\frac{1}{2} \times 6\frac{1}{2}$, sills 1 in wide.

Center fireplace 3 ft East wall, 2'9" south, 2 ft long and approx. 17 wide, 2 inches deep. Door 17 wide by 30 high. Sill above door extends several inches inside.

#22 (Room 22a)

Room abutting on tower¹⁷. Has been two stories high. Rear wall disintegrated and crumbled. Front 1 story high. Built on boulder. Rear on ground. Slipping of large boulder from place has caused south wall to be indeterminable. Unplastered. No other features.

#22 upper (Room 22b)

had one for sure

PAGE 26

#23 (Room 23)

Hoodoo room.

Rear wall found in crumbling position. It cause shown in runoff causing(?) removed front wall. Other walls--South of #22 and north of 24.

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24 (Room 24a)

Small room 1 niche lower opened on plaza side and all other walls are intact. One niche lower. Niche 8 ½ x 7 x 6 in N.W. wall.

24 upper (Room 24b)

One niche.

Design in brick red on dirty white as follows: (Figure D.8)

¹⁷ Room 21.

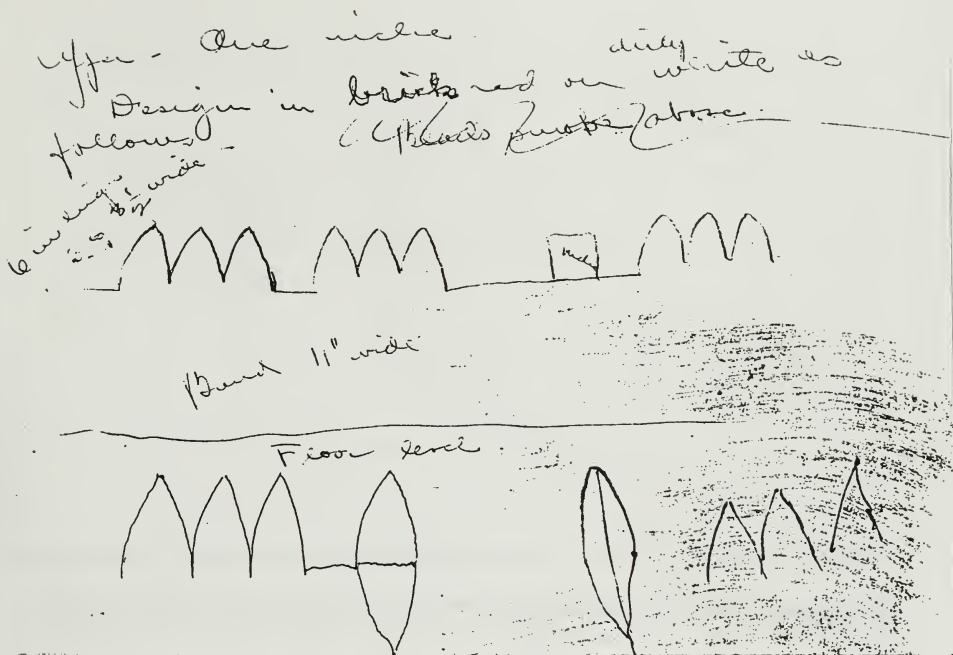


Figure D.8. Plaster design in brick red on dirty white in Room 24b.

(Notations on sketch: 16 in high and 3 1/2 wide. band 11" wide, floor level)

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25 (Room 25a)

Unplastered - had opening into #26 lower (Room 26a)

25A (Room 25b)

Upper--main tau 20-27 high upper - 15 x 12 wide lower
 Cubby hole opening to south side (Figure D.9)

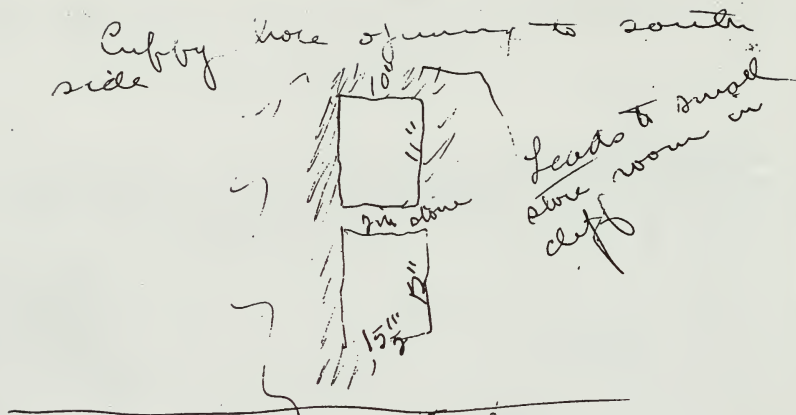


Figure D.9. Cubby hole opening to south side in Room 25b

(Notations on Sketch: 10 x 11", 2" stone between 12 x 15.5" Leads to small store room in cliff)

Opening 9 x 12 toward #26. Cubby hole 11 x 7 ½ x 7 ½ to rt of main C. (cubby) hole.

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26 (Room 26a)

Large rectangular building with opening into #25 lower 17 ½ x 29 ½ ". Rect. in # 27 30" x 17 ½ ". Walls ten to 11" thick. Fireplace dimensions 22 x 16 x 6 in deep (Figure D.10) .

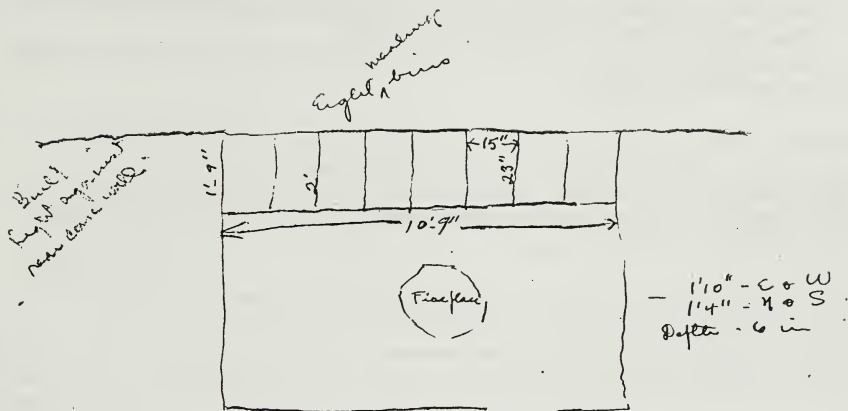


Figure D.10. Room 26a fireplace and mealing bins.

(Notations on sketch: Built right against rear cave wall. (Eight mealing bins: 10'9" full length, bins are respectively 1'9" long, 2" long, 23" long, 15" wide. Fireplace 1'10" E & W, 1'4" N & S and depth 6")

#26 upper (Room 26b)

May have had upper ("and probably did" is crossed out) but two things are against this. A tau door is usually an outside opening and the small port about 11 x 15 opening outside leads one to believe that the roof of #26 served as open porch above as plaster and floor vigas are still shown on outside walls. Also the wall above of # 26 rear overhangs # 26 lower in several places seeming to show that # 25 upper was a later addition and a straight wall was laid over a more or less warped one.

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27 (Room 27a)

Small room with solid unworked rock floor. Walls of very large stone laid with much mud and well spalled. The lower courses have so disintegrated by action of water till they crumbled to sand when touched. The worst of these were replaced so the small remaining bit of wall would last.

27 is the older room of the three, # 26 - 25 & 25 upper. As the other walls were simply built up against it, no bond at all showing. Only opening shows—opens to front to rear of # 26. Lower story unplastered.

27 (Room 27b)

had upper story evidence of which still remains. The upper story backed up to the vertical ledge in main cliff and the plaster still shows, a reddish drab.

Two small eroded holes in rock approx. 16 x 20 in wide and several inches deep were walled up to form cubby holes or shelves.

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#28 (Room 28)

Irregular room - very poor walls with jutting in stone which probably served as a (Figure D.11)



Remains of in place - reddened wall
in corner X. Stones show heat signs.

Figure D.11. Room 28, plan view, showing remains of fireplace and reddened wall at X.

Remains of fire place - reddened wall in corner X. Stones show heat signs.

28 (Room 28) Had upper story.

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Main Fortressed Entrance

North end—thickness of wall at base 4' 1 1/2 IN, size opening 27 1/2 x 17".

South end 4' 5" wide. Size opening 3' x 15 in bottom 12 1/2 top. Top covered with beams - 2 to 4 or 5" thick laid close. Floor about 7 ft above. No entrance from lower to upper inside. 6 ft above top of door—a 8 in high, 6 in wide port opens downward so that it is impossible to gain entrance

without being seen from above. Distance between rock and ruin about 2 ft 3 in south side tapering in at top. About 7 to 8 feet above second floor another 6" wide by 10" high gives cliff views (?).

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The upper wall south portion.

This wall was laid up with rough regular rocks in adobe mortar made from screening the dirt of the kivas. Most of the rock was hauled up from below by use of rope and pulleys, an endless task. All the main wall and also the main wall of kivas and buildings adjacent were carried over the cliff when destruction came and in the debris, the stone were found buried under tons of dirt and broken kiva beams. These had to be picked and shoveled out and dragged up the cliff, most of them requiring a pull of seventy five feet.

This wall follows a rather curved course determined by the kiva construction and the position of three small portions of the old wall uncovered in the course of excavation of the lowest levels. This comes to a level with the floors and to correspond to the level of the other balustrade wall, should come up a two foot higher at least. This would cause it to be level and with the exception of the tower in the center of building, continuous and in same level on same line at north wall which is my opinion of what it should be.

This wall altogether is some three hundred feet long, continuing from the very entrance at the south to the middle central tower, then from the north side of this to the two story north building with eaves and from this north building north side about five feet high to ten pig rock then to where the cave ends and the first rear of the cave approaches the front and once more forms a perpendicular cliff.

Altogether this whole wall was a means of proper protection for the occupants inside besides making it a protection against children falling out etc. It is without doubt, the best place of defense on the mesa, at no place can a rock or arrow from above get one who is within the retaining wall and from below, the distance is either too great or the overhang of the cliff would absolutely prevent anything of the kind.

The entrance was originally from the south side and not as the tourists are now brought in thru the two narrowing openings in cleft of rock.

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Relating to Sticks found in walls.

In two places in the main balustrade wall and in one place near the top of the main division wall set in the mud between the two courses of rock of which the wall is made, were found very unique sticks, probably evil spirit or prayer sticks.

These are long pointed sticks, pointed blunt-as an arrow head and tapered a little at the other end, cut square off but round. At a point about one and a half inches from the pointed end, a groove about an eighth to a sixteenth of an inch deep and one inch long is cut. In one case the stick had reddish bark and this was cut off and peeled but not notched in as deeply.

In the two from the balustrade wall the bark had been removed. With the one from the division wall, two small sticks about six and seven inches (sic) long were found tapering from the center to the ends, measuring in the center (no number) inches and at the end (no number) inches in

diameter. These are nicely worked down and perfectly smooth. These were bound to the main stick by small strands of yucca and loosely.

In several of the rooms and in cleaning about fallen rooms and walls, many pieces of the same kind of work were found, room to the south of second story of main Balcony House¹⁸ being very well worth attention. All over the floor in the sides of the room were found small holes and in some of these, small stick like the small one attached to the main prayer stick were found, also a few broken end of the pointed sticks. One piece of clay was taken from the floor and this contained many of the small sticks altho these may have been placed there by tourists as many have been in this room.

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South Retaining wall for kivas.

It was found in the very beginning on this portion of the ruin that it was necessary to completely wall in this portion in order to bring the floor up to the evident kiva tops. This was started by carefully clearing away all the shrubbery and brush at the base, then the dirt was shoveled back and into the kivas and the floor behind and all was made ready for the retaining wall.

In several places, enough of the old wall was found to show where the new one was to be placed. These portions were mostly dry laid wall and of very rough and poor construction and this method was used in the main base wall. Enough rock was found for this in the kivas. Immense boulders and slabs that had slipped from upper levels or slabbed off from the roof were broken with plugs and feather after being drilled and as these had to be taken from the ruins, this was deemed the best purpose that they could be put to as their cleavage planes were not such that they could be quarried into good building stone of size. For the foundation which was on a ledge about ten feet on an average below the main completed top wall, secure foundation was either found or made. Was (As) much of this is on quite a slope, the ledge was either punched off flat or the first course was laid up and spalled in mud. Each rock was made to bed down tightly on others below without mud, each setting back a little from those below and tipping down a little at the inside end to give wall proper balance. The rear portion was filled in with spalls and loose dirt enough to bed up and fill interstices. This was carried up for several feet and on the fill so made the main wall was started.

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Methods of entering.

The methods of entering this ruin are two in number for the primitive and one easy for the tourist and the other rather difficult but which was used by the workmen and myself all the time.

Their method was two fold,

First from the lower level of the canyon by way of the old trail that runs to the base of the cliff on which Balcony is situated, at a point about six hundred down canyon from the main ruin. This consists of a few worn out and eroded foot holes in the cliff and some ledges which they used. These entered to the south of the small ruin at the south end and so was well protected. This ruin is unexplored and unexcavated. After passing thru the rooms of this house, one could travel

¹⁸ Room 10.

along the ledge and go thru the main entrance which is a walled crevasse (e) in a ledge.

The other was at a point just south of the wall crevasse and goes nearly perpendicularly up the cliff to the upper mesa tops. Some of these steps are still plainly visible but muchly eroded.

The trail above mentioned is the one used by the workmen and myself and not being as agile as then cliff dwellers and not having the foot holes deeply cut as they must have, we found it impossible to come over the cliff at this point altho it meant a saving of ten minutes between camp and work. So a hole was drilled at the top in the rim rock, a piece of gas pipe inserted and the hole plugged. Then a seventy five foot knotted rope was tied to this and by hanging out nearly perpendicular to the cliff which has a seventy five degree pitch, a person could walk up the side as fast as they could pull their weight up with arms.

The trail used by the tourists starts in about three hundred and fifty yards up canyon from the ruin and gradually works down on upper bench of upper ledge to a point half way to ruin where one descends to talus by way of trough in rock and ladder. Then continues along at top of this talus to under the ruin to the south end where a rope to a tree and foot holes, modern and ledges give him a foot hole to come up to where ruin is, then over the retaining wall and in. This trail I am confident is modern and never used by them. It provided an easy but beautiful trip for the tourist giving an inspiring view of the ruin from below as last spur is passed.

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BALCONIES.

Balcony House seems to have been very appropriately named since here as in no other place to my knowledge on the Mesa Verde, all the main structures have had or have at present either well preserved balconies or remains of them.

Each of the towers has its balcony, the main center division wall has one along its north side and extends along its front face probably extending in time of occupation, all the rest of the way about, the main house¹⁹ in the north or plaza quarter has a very finely preserved one along its front elevation and the building to the north of this,²⁰ one on both its eastern and southern elevations. This Balcony acted more as an eaves than as a passage to get to second story rooms. Their construction where well preserved showed that the construction was as follows. The floor beams in pairs as a rule if small and if large singly, were allowed to extend thru the wall for a distance of (no number) feet (no number) inches. These were in turn covered with small split cedar limbs at right angles to the beams. These split cedar limbs were covered with a small thin layer of adobe to hold in place, and form bedding for the cedar bast. Parallel to the beams and at right angles to the split cedar limbs, cedar bast tied in bunches (round) about one and a half in diameter was laid close and on this, a fine grade of adobe mud, with small thin slabs of sandstone placed near the edges where the strain was greatest and at various weak part all thru.

The adobe must have been added as a wash or very thinly and sparingly, otherwise large cracks would have appeared and from the construction it would seem to indicate that the Balcony was

¹⁹ Rooms 6/7 and 8/9,

²⁰ Room 5.

constantly repaired.

The two story balcony house at the north²¹ whose balcony seems to have had a single use as we use an eaves on our houses, to carry water beyond the wall of the house has a different construction. It is lighter and smaller. The main beams are the same and on these, long round poles of two to two and a half inches in diameter were placed, one tight to the wall and the other at the end of the beams. On these

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small short halved and whole cedar limbs were placed close, then the coating of adobe and cedar bast, not tied in bunches but laid in all directions and loosely, this covered with a layer about two inches thick of adobe mud. This mud is for the most part pure clay, properly mixed with a small quantity of sand.

The tower in the south portion²² has a balcony as well as the one back of the center wall, ²³both on the front or face side. These extended across the front only. They were on a level with the second floor and were probably used as passage ways.

The center wall which at one time formed the north side of a tier of rooms²⁴ to the south side has a second story balcony on north and canyon face which no doubt extended on around. Above this, a few beams and holes lead me to think that an eaves or roof Balcony was constructed which extended around as this building did not breach the ceiling except in rear portion.

²¹ Room 5.

²² Room 21.

²³ Room 17.

²⁴ Rooms 15 and 16

APPENDIX E

DESCRIPTION OF BALCONY HOUSE ARCHITECTURAL FEATURES:

LOWER PLAZA (Rooms 1,2,3; North Passageway); **NORTH PLAZA** (Rooms 4-14, Middle Passageway); **KIVA PLAZA (SOUTH PLAZA)** (Rooms 15-29, Kivas A and B, Refuse Area); **SOUTH PASSAGEWAY** (Rooms 29a, 29b); **BELOW SITE ON TOP OF TALUS**; Table E.1. Doorway Features in Balcony House

Kathleen Fiero

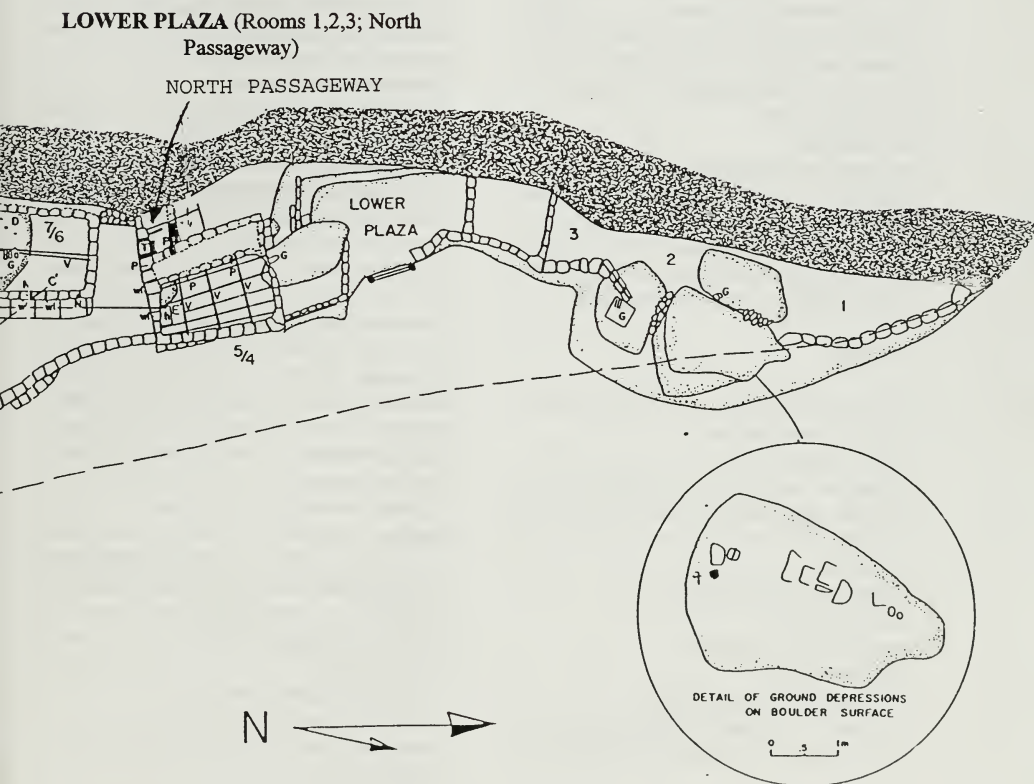


Figure E.1. Lower Plaza of Balcony House Plan View.

MAP SCALE: 0 2 4m

LOWER PLAZA

Size--8.45 m N-S by 1.85 m E-W

Floor--modified bedrock

Features--boulder at south end of plaza has one axe grinding area, tip of boulder pecked flat and this extends under wall; floor leveled by pecking in some areas; step at north end of plaza, two steps at south end with lowest area in center of plaza

Remarks--smoke blackening and reddening on back of alcove approximately 1 m north of south end of plaza, also under side of boulder at south end of plaza is smoke-blackened

Construction Date--parapet wall support, one date of A.D. 1910

Use--work area

Nusbaum comments--feels that there were once rooms in this area; he mentions finding "small red rock ceremonial stone" here

Fiero comments --Nusbaum doesn't mention adding a support in this area but he obviously did since there is a 1910 tree-ring date

ROOM 1

Size--5.04 m N-S by 2.32 m E-W, triangular; 1.46 m to top of alcove

Floor--unmodified bedrock with some fill

Walls--east wall the only constructed wall, stones dry-laid; boulder on alcove ledge forms the south "wall", west wall the back of alcove; no plaster.

Ceiling--unmodified alcove roof

Features--none

Remarks--no evidence fire

Use--unknown

Construction date--unknown

Nusbaum comments--small store room, during rainstorm water falls into this room

ROOM 2

Size--5.40 m N-S by 1.27 m E-W, irregular; 1.96 m to top of alcove

Floor--boulder functions as floor, surface irregular

Walls--east wall the only constructed wall, dry-laid stones on and around naturally occurring boulders; no plaster.

Ceiling--unmodified alcove roof

Features--eleven narrow grooves (awl) and one well-defined axe grinding grooves, some pecked areas creating what may be steps on top of boulder

Remarks--no evidence fire

Construction date--unknown

Use--work area

Nusbaum comments--room disturbed by pottery hunters so only parts of walls remained and no floor found

ROOM 3

Size--1.96 m N-S by 2.05 m E-W, irregular; 2.24 m to top of alcove

Floor--dirt fill

Walls--north wall not a real wall, boulders form wall; south and east walls constructed, stones wet-laid, east wall butts up to south wall; no plaster.

Ceiling--unmodified alcove roof

Features--doorway in south wall, rectangular, 40 cm across by 55.5 cm high, sill 1 cm above present fill level on interior, stone lintel

Remarks--no evidence fire.

Construction date--unknown

Use--unknown

Nusbaum comments--door rough, crude masonry, niche in north wall

Fiero comments--the niche in north wall no longer exists

NORTH PASSAGEWAY

Size—3.25 m N-S by 0.55 m E-W, rectangular;

Floor--several steps up to south wall of passageway, floor presently stones and mortar

Walls--no north wall, big doorway in south wall and just north of doorway a hatchway, no plaster

Ceiling--unmodified roof of alcove, hatchway between north portion of passage and south end

Features--T-shaped doorway in south wall, 1.34 m high by 53 cm across at top of T, floor to sill on interior 1.44 m, on exterior 20 cm, at present a Park Service ladder is used to ascend/descent the 1.44 m, Nusbaum mentions a stick in the south wall used by the original occupants, wood lintel; hatchway just north of the doorway, between the doorway and a wall built on fairly small poles at the level of the doorway sill and hatchway, the hatchway opening was lined with wood much of which has been removed by the National Park Service, only the wall sockets remaining

Remarks--no evidence of fire

Construction date--A.D. 1279, two dates one of which is cutting date, this is also the construction date for Room 5 which forms the east wall of the passageway, south wall and suspended wall butt to the exterior west wall of Room 5

Use--access between North Plaza area and Lower Plaza area

Nusbaum comments--are under his discussion for Room 4 and Room 5

Fiero comments--floor probably Park Service construction

**NORTH PLAZA (Rooms 4-14, Middle
Passageway)**

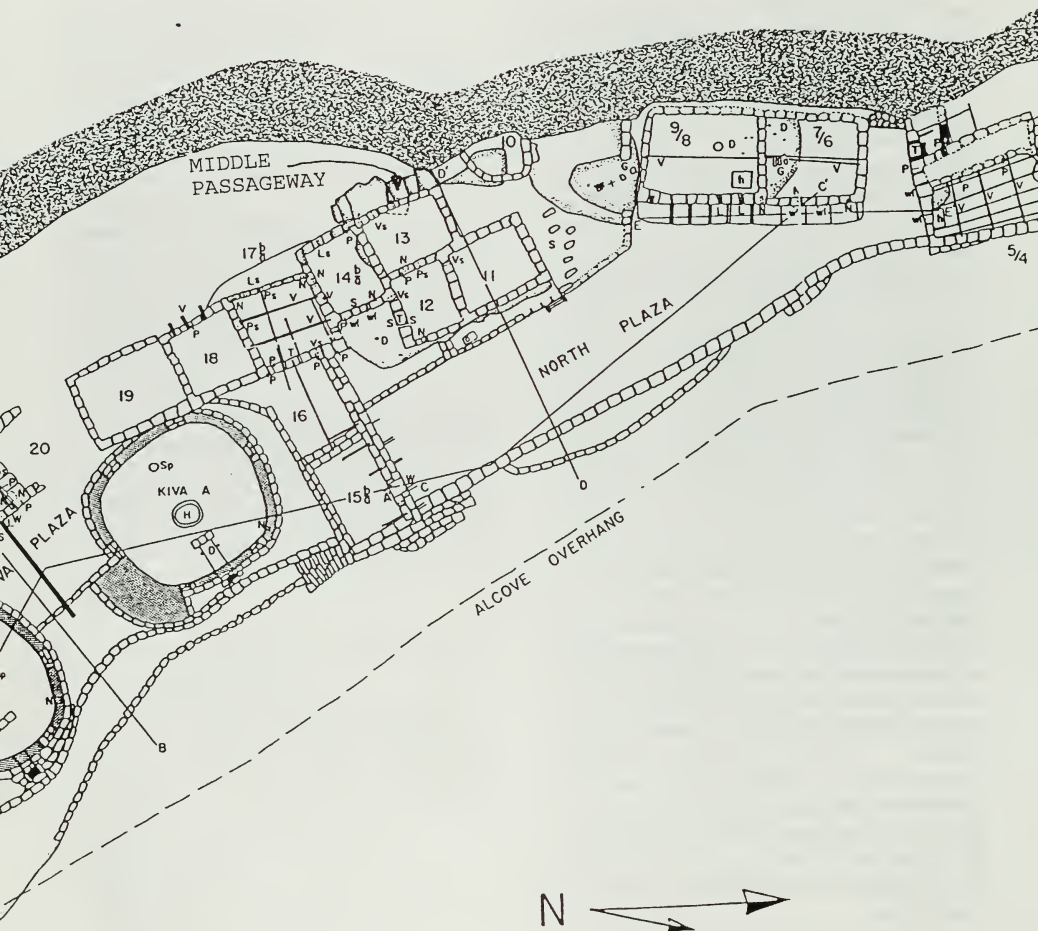


Figure E.2. North Plaza of Balcony House Plan View.

NORTH PLAZA

Size—17.45 m N-S by 3.25 m E-W near center of area

Floor—National Park Service packed dirt

Walls—balustrade along east wall 90-104 cm high, ledge and wall under boulder form west wall, at very north end extension off main plaza to west formed by exterior walls of Room 5 and Rooms 6/7

Ceiling—unmodified alcove

Features—north end of plaza dominated by rooms built at current floor level, at south end of plaza rooms defining the west wall are built up on boulders a meter or so above the plaza floor level, south wall of area a double wall with small opening and filled-in doorway; at north end extension to west to get to North Passageway, along west wall of this extension a bench 75 cm high and 110 cm long; pecked toehold trail in surface of boulder along west side of plaza, these pecked depressions enlarged by Park Service

Remarks—no evidence of fire in this plaza

Construction date—wall defining south end of plaza and south walls of Room 5 and North Passageway late, A.D. 1279, balustrade bonded to Room 5, butted to Room 15

Use—activity area

ROOM 4

Size—3.35 m N-S by 1.86 m E-W, rectangular; 2.07 m from fill to secondary roof beams

Floor—packed earth, several cm of fill now cover floor

Walls—corners bonded, this room under Room 5; the west wall of this room not aligned with west wall of Room 5 and the east wall is not as wide as the east wall of Room 5; from the exterior there is no observable break in the walls of Rooms 4 and 5; walls built around large boulders; no plaster.

Ceiling—three primaries, 12 secondaries, split juniper tertiaries, then mud

Features—hatchway in roof 57 cm by 35 cm, two niches, one wall peg

Remarks—no evidence fire; prior to 1910 the north wall of this room had been broken through to allow entry into the room.

Construction date—two non-cutting dates for primary roof beams, A.D. 1197 and 1198; bark dates for secondaries vary from A.D. 1203, 1213, 1215 to 1271. The A.D. 1271 date is from a short secondary that doesn't extend the length of the room. The dates suggest reuse of beams with the original construction date A.D. 1271 or possibly later. The latest bark date from the room is A.D. 1271. Several small beams bridge a gap in the very irregular ledge of the cliff right under Room 4. The east wall of Room 4 rests on a retaining wall that is built on these beams. The non-cutting dates from these four beams vary from A.D. 1254 to 1274 with the only cutting date of A.D. 1274.

Use—abandoned, prior to being sealed storage area.

Nusbaum comments—hatchway was sealed

ROOM 5

Size—3.08 m N-S by 2.17 m E-W, rectangular; 2.65 m high

Floor—roof of Room 4, packed earth

Walls—built on top of Room 4, west wall approximately 50 cm west of the west wall of Room 4, and east wall of Room 5 wider than east wall of Room 4, exterior north and east walls of Rooms 4 and 5 are aligned, and the west and south walls of Room 4 not visible; corners bonded; pink plaster

Ceiling—one-third constructed, two-thirds unmodified alcove roof; two primaries, secondaries, tertiaries, dirt.

Features—hatchway leading into Room 4 in

southeast corner, hatchway sealed prior to Nusbaum's work, hearth built over hatchway by original occupants and seal they created broken by Nusbaum; no evidence fire ever burned in hearth; large rectangular doorway in south wall 51 cm across by 84 cm high, sill 95 cm above floor, split wood lintel; five poles (one broken) plus a socket (both in east and west walls) extend across the room E-W and are socketed into the west and east walls, approximately 90 cm above floor level, they are level and are located across the northern two-thirds of room; filled in niche in east wall; on exterior at roof level a balcony along south wall and east wall; beam extended from this room to Room 6 across passageway approximately 1.5 m above floor.

Remarks--no evidence fire although this one of the few rooms with a hearth

Construction date--one roof primary and seven secondaries dated, the primary dated to A.D. 1274, and the secondaries from A.D. 1270 to 1279 so an A.D. 1279 date for this room seems reasonable.

Use--unknown

Nusbaum comments--6 poles extend across room, calls the south and east exterior room extensions balconies or eaves; refers to pole across walkway between Rooms 5 and 6 and comments "bumps everyones head;" mentions closed port or window in east wall east wall

Fiero comments--today five poles and one set of sockets for "rack"

ROOM 6

Size--2.66 m N-S by 2.18 m E-W, rectangular; 1.44 m high

Floor--bedrock

Walls--south wall shared with Room 8, east and west walls butt up against south wall; northwest and northeast corners bonded, walls line up with those of room above, Room 7; red plaster over a white plaster on interior, three

layers of plaster--pink, white, then pink on exterior east wall, north wall pink plaster.

Ceiling--two wood primaries and secondaries, mud applied over secondaries

Features--in floor ax grinding grooves, 6 small pecked depressions, pecked circle extends under south wall in bedrock; doorway in east wall, rectangular 45.5 cm across by 66.5 cm high, sill 50 cm above floor, stone lintel; one wall peg socket, one niche on interior; balcony runs across front of room at roof level; exterior wall: one niche east wall with four small sockets in back, beam from north wall of this room to south wall Room 5, approximately 1.5 m above floor level; at exterior wall joint with Room 8 can see within the wall a bundle of carved vertical sticks

Remarks--no evidence fire

Construction date--34 tree-ring dates from the roof of this room, room built in A.D. 1275.

Use--dwelling room

Nusbaum comments--balcony for Room 6 more recent (than for Room 8)

ROOM 7

Size--2.66 m N-S by 2.30 m E-W, rectangular; 1.37 m high

Floor--roof of Room 6, wood primaries and secondaries overlain with bark and then earth

Walls--built over Room 6 and at the same time, north corners bonded, south ends of walls butt to north wall of Room 9, red plaster over a white plaster; exterior walls east wall pink plaster over layer of white and below this another layer of pink, north wall pink plaster.

Ceiling--unmodified alcove roof

Features--rectangular doorway in east wall 51 cm across by 78 cm high, stone lintel, sill 41 cm above floor on interior, door opens onto balcony which runs along front of room; a low (71 cm high) north-south wall is located just east of the west wall with three poles imbedded

in its upper surface, these poles extend across room E-W, poles about 40 cm above floor and 60 cm apart; exterior east wall three small niches with twigs or sockets for twigs in the back of the niche, wall peg socket, door loops
Remarks--no evidence fire

Construction date--two non-cutting dates from the "rack" in the room, A.D. 1273, but room could not have been built before Room 6 and construction date of Room 6 is A.D. 1275.

Use--unknown

Nusbaum comments--port hole with one prayer stick end in rear of hole

ROOM 8

Size--3.13 m N-S by 2.33 m E-W, rectangular; 1.38 m high

Floor--even, bedrock except in one corner where packed dirt

Walls--north wall shared with Room 6; room built at the same time as Room 9, the upper room; built before Rooms 6 and 7; monochrome pink plaster all interior walls, pink plaster exterior east wall; exterior wall stones shaped by pecking.

Ceiling--one primary beam, whole series of secondaries, bark, dirt

Features--rectangular doorway in east wall 50.5 cm (originally 71.5 cm) high by 48 cm across, sill raised prehistorically from 39 cm to 61 cm above floor by adding two large stones, stone lintel; hatchway in ceiling between this room and Room 9; two vent openings in east wall niche in exterior east wall that angles down at the back; balcony across front of room at level of ceiling; in floor pecked circular depression (25 cm across) near center of room

Remarks--no evidence fire.

Construction date--A.D. 1248

Use--dwelling

Nusbaum comments--draws a sketch of the vent that changes angle within wall

ROOM 9

Size--3.12 m N-S by 2.27 m E-W, rectangular; 1.84 m high

Floor--roof of lower room, packed earth, hatchway in northeast corner.

Walls--north wall shared with Room 7, room built at the same time as Room 8, the lower room, built before Rooms 6 and 7; monochrome pink over tan plaster all walls, dark pink plaster under light pink plaster exterior east wall; exterior wall stones shaped by pecking.

Ceiling--unmodified alcove roof

Features--rectangular doorway in east wall 80 cm high by 50 cm across, opens out onto balcony, stone lintel; pole extends across room N-S near center of room, 1.55 m above floor; balcony across front of room at floor level; two niches and one wall peg and one peg socket in interior east wall; ledge in interior west wall; exterior east wall three wall peg sockets, one small rectangular niche with no associated sockets or twigs

Remarks--no evidence fire

Construction date--numerous cutting dates, A.D. 1248

Use--dwelling

Nusbaum comments--small pecked hole in floor

Fiero comments--in both Rooms 7 and 9 there is a wall peg sized socket above the doorway in exterior wall

ROOM 10

Size--1.40 m N-S by 1.20 m E-W, triangular; no evidence walls ever extended to roof of alcove, maximum height present constructed walls 50 cm.

Floor--uneven bedrock and loose fill
Walls--not in contact with any other constructed walls, north and west walls unmodified back of alcove, the one constructed wall curves, stone minimally shaped by chipping, wall plane irregular
Ceiling--no evidence, probably never roofed
Features--none

Remarks--no evidence fire

Construction date--unknown

Use--storage

Nusbaum comments--debris in room guano, corn husks, grass, cedar bast, small sticks.

ROOM 11a

Size--2.43 m N-S by 1.81 m E-W, rectangular; 1.30 m high from base of primary socket of very irregular boulder surface

Floor--bedrock and fill, steep slope

Walls--only fragmentary, no plaster on interior walls, fragmentary evidence on exterior

Ceiling--absent (wood and dirt)

Features--doorway in south wall (into Room 12) 45 cm across by 64 cm high (lintel missing, original height unknown), sill to floor 81 cm on interior; one possible wall peg socket

Remarks--no evidence fire

Construction date--unknown

Use--storage suggested by uneven floor

Nusbaum comments--room built on slanting boulder

ROOM 11b

Size--approximately same as Room 11a

Floor--ceiling of Room 11a

Walls--no way to tell if this area an enclosed room or just a work area on roof of lower room

Ceiling--no evidence, if this area was enclosed the roof would have been the roof of the alcove, at present no mud lines to positively

indicate that walls did extend to top of alcove

Features--no evidence

Remarks--only very fragmentary evidence of "room" above Room 11a

Construction date--unknown

Use--unknown

Nusbaum comments--second floor as evidenced by floor level on back wall

ROOM 12

Size--1.49 m N-S by 1.94 m E-W, rectangular; 1.60 m high

Floor--mortar floor over bedrock in some areas and over fill in other areas

Walls--abutments here critical to determine construction sequence yet hard to understand, west wall butts to north and south, east wall bonded to north and south, south wall butts up to east wall Room 14, bonded northeast corner a problem but it does seem as if this room built after Room 11; the doorway between these rooms closed from the Room 11 side; pink plaster over smoke blackened walls on interior, on exterior south and east walls tan plaster over a pink plaster.

Ceiling--probably typical wood and mud, only remaining evidence one viga socket in north and south walls

Features--two doorways, one in north wall, one in south wall; north wall doorway rectangular 46 cm across, 63 cm high (lintel missing so this minimum measurement), sill 72 cm above floor; south wall doorway, original doorway T-shaped, modified to basic rectangular shape, 71 cm high and 50 cm across, lower portion of original doorway filled in with one large stone, at present sill 58 cm above floor, depression/toehold in wall below door on interior and exterior, stone lintel, closure from outside; wall niche, possible wall vent, one wall peg, one wall peg socket.

Remarks--smoke blackening on every wall

below a coat of plaster

Construction date--unknown

Use--dwelling

Nusbaum comments--has had upper story, no evidence of openings, vent closed and plastered over

ROOM 13

Size--2.28 m N-S by 1.61 m E-W, rectangular; 1.92 m high

Floor--bedrock, bedrock uneven but not excessively so

Walls--north wall butts to east, west wall butts up to south, east wall is more complex with the lower wall butting up to south wall but the upper wall is tied to the south wall; pink plaster; two holes extend through wall just above floor level, these are sockets for beams that held up floor of passageway west of Room 13.

Ceiling--unmodified alcove roof

Features--rectangular doorway in north wall 49 cm across by 68 cm high, sill 67 cm above floor, stone lintel, closure from outside;

Remarks--no evidence fire

Construction date--unknown, built after Rooms 11 and 14

Use--dwelling

Nusbaum comments--seven stone steps lead from plaza to platform north of Room 13

Fiero comments--these steps have been enlarged and are now used by visitors to the site

ROOM 14a

Size--1.66 m N-S by 2.09 m E-W, rectangular; 1.70 m high

Floor--north half unmodified bedrock, south half fill; originally probably packed earth

Walls--east wall butts to south, west wall and section of south wall butts to north wall of

Room 17, no wall plaster on interior, exterior wall pink plaster with white over pink around doorway

Ceiling--only evidence beam sockets and mud lines, wood primaries and secondaries then dirt; double beam for N-S primary, four E-W secondaries

Features--rectangular doorway in east wall 44 cm across by 67 cm high, sill 81 cm above floor level, opened from outside, stone lintel; 2 wall niches, 3 wall peg sockets;

Remarks--no evidence fire

Construction date--unknown, on basis wall abutments built after Room 17

Use--dwelling

ROOM 14b

Size--1.67 m N-S by 2.01 m E-W, rectangular; height varies from 1.56 m to 56 cm.

Floor--roof of Room 14a, wood primaries, secondaries covered with dirt, at present only sockets and mud lines present

Walls--north wall open between Rooms 13 and 14b, south wall shared with Room 17 except very west end, the very west end of this wall probably butted to Room 17b wall; pink plaster on all interior walls

Ceiling--unmodified alcove roof

Features--rectangular doorway in east wall 43 cm across by 72 cm high, 15 cm from sill to floor on interior, stone lintel, closed from outside; one wall niche, one wall peg socket, one wall peg; exterior east wall three wall pegs, door loop

Remarks--no evidence fire

Construction date--unknown, Room 17 before Room 14, since abutments change between floors Rooms 13 and 14b must have been built at same time

Use--dwelling

MIDDLE PASSAGEWAY

Size--3.48 m N-S (area with no smoke-blackening) by 60 cm E-W, rectangular; 1.2 m from top of floor socket to alcove roof

Floor--beams, only evidence sockets in east wall

Walls-- west wall back of alcove, east wall exterior west wall of Room 13

Ceiling--unmodified alcove

Features--3 extant beam sockets just above level of floor of Room 13 but no discernable sockets across from these in back of alcove

Remarks--would never have known why the holes exist in the west wall of Room 13 without Nusbaum's observations, also explains why no smoke-blackening in this section of back wall of rooms

Construction date--unfortunately unknown

Use--passage from back of alcove into North Plaza

Nusbaum comments--under Room 13 indicates that there were 4 joists and a portion of the floor evident, felt from south would enter passageway by ladder and small opening at south end

Fiero comments--only 3 sockets in exterior west wall of Room 13 now present and no remaining wood; there are now several steps carved in bedrock that take one from Kiva to North Plaza in this area

**KIVA PLAZA (SOUTH PLAZA) (Rooms
15-29, Kivas A and B, Refuse Area)**

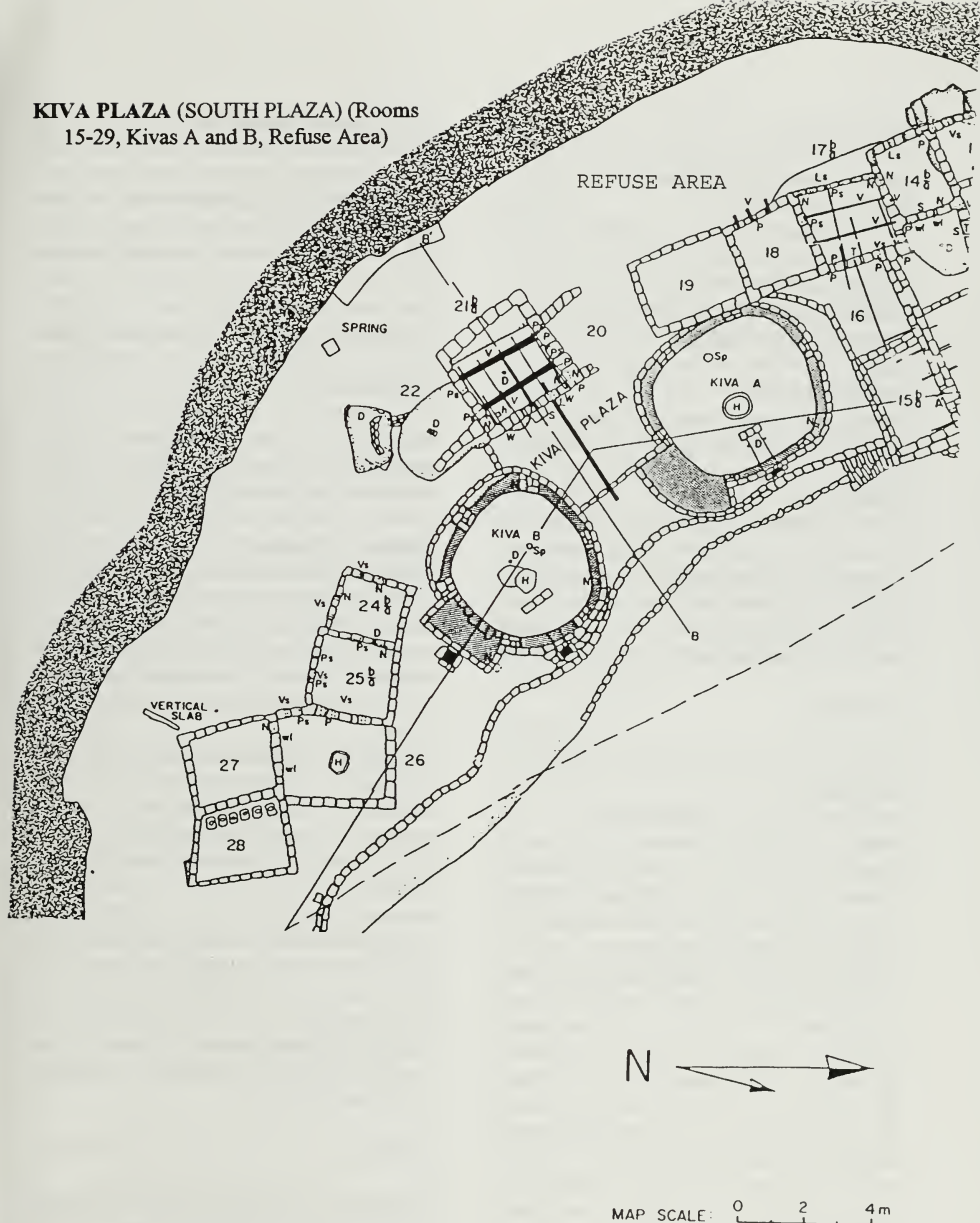


Figure E.3. Kiva Plaza Balcony House Plan View

KIVA PLAZA

Size--14.2 m N-S by 5.20 m E-W

Floor--packed earth

Walls--defined by room walls and retaining wall east of kivas

Ceiling--unmodified alcove

Features--floor steps up between kivas

Remarks--some smoke-blackening on alcove roof

Use--activity area

Nusbaum comments--under discussion of Room 19 he states that a pathway the length of the rooms connects front plaza with rear portion

Fiero comments--pathway was between Rooms 19 and 20 and led from plaza into refuse area; the north half of what remained of Room 20 has been removed by the Park Service so this passageway between areas is much larger than original

ROOM 15a

Size--1.80 m N-S by 2.53 m E-W, rectangular; 2.22 m high

Floor--no evidence original floor

Walls--north wall complete, other walls fragmentary; north wall double the usual width of room walls, 51 cm; north and east walls double, and in 1910 photographs fragment of west wall double; pink plaster

Ceiling--only vigas remain, eight vigas in four sets of two; the vigas are small, the size of secondaries

Features--rectangular opening in north wall 43 cm across by 34 cm high, sill to floor 76 cm, this opening too small to be a doorway, lintel of opening wood; secondaries in wall go through wall creating what may have been a balcony on exterior north wall although there is no mud line or other evidence of a surface of a balcony

Remarks--no evidence fire

Construction date--date of room A.D. 1279; one of the lintels above vent dated to A.D. 1279, the secondaries produced only one outer ring date A.D. 1276 with others spanning from A.D. 1264-1279, an intramural beam dated to AD. 1279.

Use--unknown

Nusbaum comments--balcony on north face

ROOM 15b

Size--unknown, probably similar to lower; rectangular; at present 2.33 m from top of extant wall to floor/roof (Room 15a) level

Floor--fragments of secondaries remain, no evidence of primaries

Walls--very fragmentary evidence, east wall is most complete, set-back on interior and exterior from plane of lower room east wall; north wall also set back from wall plane of lower wall; east wall beam set into wall parallel with wall and extends out past north wall plane.

Ceiling--no evidence except mud line from what may have been west wall

Features--beams at what may have been roof level extend out past wall plane to north and east creating what may have been balconies although the evidence is very fragmentary

Remarks--no evidence fire

Construction date--extant walls not aligned with walls of Room 15a so this room built after Room 15a

Use--unknown

Nusbaum comments--at roof level in this room probably eaves as in Room 5 on north, south, and east walls

ROOM 16

Size--1.63 m N-S by 2.59 m E-W, rectangular; 1.89 m high (although present floor not

original so measurement approximate)

Floor—compacted mud, National Park Service construction

Walls—west wall is east wall of Room 17, south wall not shown on Adams map of site, north wall butts up to east wall of Room 17, north wall a double wall

Ceiling—wood and mud, evidence (sockets) of secondaries in north wall, large primary size beam extends out of west wall (Room 17) E-W across the room, this beam in earliest photos

Features—doorways from this room into Rooms 17a and b will be discussed under those rooms; niche in north wall created when doorway sealed, niche in upper northeast corner of what was a doorway, 44 cm across by 38 cm high, 30 cm deep, sill 1.10 m above floor, wood lintel; sealed doorway was 65 cm across by 99 cm high with wood lintel, sill 53 cm above present Room 16 floor level;

Remarks—no evidence fire, mud lines on alcove roof right above this room mean that at some time a two story roomblock was in this location

Construction date—one date from lintel of sealed doorway, A.D. 1269

Use—may never have been an enclosed space since no evidence of south wall, may have functioned as a passageway into the North Plaza which was sealed off sometime before abandonment

Nusbaum comments—on bases mud lines on alcove says at one time two-story room with heavy walls but afterwards used as open porch

Fiero comments—no south wall so I agree area probably roofed but open from the south, no mud lines on exterior east wall of Room 17a or 17b

ROOM 17a

Size—2.25 m N-S by 2.10 m E-W, rectangular; 1.77 m high

Floor—loose fill

Walls—corners bonded except northwest where west wall butts to north; none of walls plastered;

Ceiling—primaries (two), secondaries (4 extant), no remaining tertiaries or earth

Features—T-shaped doorway in west wall, 52 cm across at top, 43 cm across at base, 79 cm high, 45 cm from sill to floor with sill at some time raised 13 cm with stone set (mortared) on original sill, split juniper lintel; two niches (west and north walls)

Remarks—Nusbaum's Room 15, no evidence fire

Construction date—A.D. 1247 (dates of three secondaries, one of these a cutting date)

Use—center tower, dwelling

Nusbaum comments—Nusbaum felt this central tower in very bad condition

Fiero comments—photographs make it clear that the foundation in the southeast corner was in very bad shape

ROOM 17b

Size—2.25 m N-S by 2.10 m E-W, rectangular; 2.12 m maximum height

Floor—absent but undoubtedly earth on beam supports

Walls—pink plaster, corners bonded

Ceiling—unmodified alcove roof

Features—rectangular doorway 48 cm across by 74 cm high, sill 66 cm from floor, stone lintel; three interior wall niches, four wall pegs

Remarks—some light smoke blackening on walls

Construction date—A.D. 1247 or after, built after lower room

Use—dwelling

ROOM 18

Size—1.95 m N-S by 2.0 m E-W, rectangular;

2.08 m high

Floor--National Park Service construction

Walls--west wall and fragment of south wall remain, north wall is south wall of Room 17a, this room butts up to Room 17 on Adams map, walls plastered but color hard to tell since everything red due to structural fire

Ceiling--fragments of three secondaries in west wall and one primary socket in north wall all that remain, wood and undoubtedly earth over this

Features--niche in northwest corner, two wall pegs and wall peg socket, roof secondaries extend west of wall plane up to 56 cm and are covered with tertiaries, this creates an extension to the back of the alcove at roof level, smoke blackening on back wall of room below this wood feature and not above

Remarks--this room burned, now walls (stones, mortar and plaster) red, ends of wood burned; second story level there is mud line at east end of north wall and some plaster on this wall that ends at mud line

Construction date--A.D. 1261 non-cutting date; also since butts up to Room 17 must be sometime after the A.D. 1247 construction date of Room 17

Use--dwelling

Nusbaum comments--floor still in place in northwest corner (this no longer the case)

Fiero comments--the floor is almost completely gone at present; Charlie Mason signature and date in charcoal above this room on back of alcove; extension to roof suggests the roof was used as work area

ROOM 19

Size--2.80 m N-S by 1.93 m E-W, rectangular; 2.40 m high

Floor--National Park Service construction

Walls--this room butts up to Room 18, plaster smoke blackened

Ceiling--no evidence of roof remains

Features--none

Remarks--walls smoke blackened; 1910 metal holding this wall in place present in 1968 photo

Construction date--unknown, obviously after A.D. 1261

Use--dwelling

Nusbaum comments--back wall insecure so braced to cliff face with iron (this is the only 1910 iron that has been removed from the site); Nusbaum felt that there was a second story due to mud lines on alcove but Nusbaum did not number a second story for Room 18.

Fiero comments--mud lines on back of alcove still obvious and suggest a second story

ROOM 20

Size--2.22 m N-S (estimate) by 1.73 m E-W, rectangular; 2.29 m high

Floor--National Park Service construction

Walls--room built against Room 21, above the level of the roof of this room plaster on south wall, also mud lines on alcove which suggest possibility of a second story or a prepared work area on top of roof of this room

Ceiling--mud line on south wall and back of alcove indicate level of ceiling

Features--none

Remarks--north wall and north portions of east and west walls removed probably in 1964, undoubtedly to ease the flow of visitor traffic during tours

Construction date--unknown, after A.D. 1275

Use--unknown

Nusbaum comments--Nusbaum considered this a two story roomblock, evidence mud lines on alcove

Fiero comments--fresh areas in alcove above room suggest fairly recently large chunks of alcove detached, this may be why room is so fragmentary

ROOM 21a

Size--2.57 m N-S by 2.72 m E-W, rectangular; 1.15 m to 1.94 m high

Floor--loose fill with three areas of bedrock, bedrock pecked to level off floor.

Walls--corners bonded, smoke blackened pink plaster

Ceiling--two N-S primaries, five secondaries, split juniper tertiaries, earth; small square hole in southeast corner

Features--T-shaped doorway in east wall, 56 cm across (top of "T") by 1.04 m high, sill height 42 cm, stone lintel; two fairly large vents in upper east wall and one small vent near base of same wall, three niches, three wall pegs; exterior wall pink plaster east wall; exterior east wall large beam (size of a roof primary) extends out from wall 3.4 m at a height of 2.29 m, unknown function; three shorter beams (size of secondaries) extend out from wall 60 cm at level of Room 21a roof, in association two sockets in wall, may have been supports for balcony across front of this room; stone step below doorway

Remarks--walls and ceiling smoke blackened

Construction date--A.D. 1273, six cutting dates from that year

Use--dwelling

Nusbaum comments--one of best preserved towers, smoked walls but fireplace position not determinable; "a raised portion 9 to 10" high in front of this tower to bring to level"

Fiero comments--Nusbaum must be referring to the higher level of the plaza in the area in front of this room.

ROOM 21b

Size--2.63 m N-S by 1.94 m E-W, rectangular; 1.95 m high

Floor--roof of Room 21a, beams and earth

Walls--bonded corners, east and south walls

white wainscot at base of wall up to 20 cm, no plaster on interior, exterior east wall plastered with at least two applications, pink over tan
Ceiling--unmodified alcove roof

Features--rectangular doorway 45 cm across by 75 cm high, sill 78 cm above floor, stone lintel; toe hold 36 cm below sill on exterior; four niches, four wall pegs, three wall peg sockets; exterior walls one wall peg and two sockets.

Remarks--walls and ceiling smoke-blackened

Construction date--built at same time as lower room, A.D. 1273.

Use--dwelling

Fiero comments--Nusbaum doesn't mention this room

ROOM 22

Size--approximately 1.75 m N-S by 2.12 m E-W, subrectangular; about 2 m

Floor--top of boulder, surface irregular

Walls--east wall butts to Room 21, no plaster

Ceiling--no evidence except mud line, no sockets for roof beams in remaining walls

Features--sill and portion of north door jamb in east wall 47 cm across by 43 cm high (incomplete), probably rectangular, sill to floor 1.0 m, outline of hand in white at level of ceiling on back of alcove

Remarks--evidence of fire on interior at level of ceiling

Construction date--A.D. 1273 or later

Use--storage

Nusbaum comments--rear wall (west) of room disintegrated and crumbled, movement of large boulder has caused south wall to be indeterminable, had upper story "for sure".

Fiero comments--room very fragmentary, mud lines on back of alcove and exterior south wall Room 21a/b suggest at one time two story structure in this location but at present no definite evidence of any but lower room.

ROOM 23

Size--no evidence of room at present

Remarks--Nusbaum's hoodoo room no longer exists at all

Nusbaum comments--rear wall found in crumbling position, run-off responsible for deterioration of front wall.

Fiero comments--not sure what Nusbaum referring to regarding run-off, water from spring may have been a problem; areas of alcove roof in this area look as if large chunks fairly recently detached

ROOM 24a

Size--1.55 m N-S by 1.85 m E-W, rectangular; 1.51 m high

Floor--National Park Service construction

Walls--three walls remain (north missing), room butts up to Room 25, northwest and southwest corners bonded; no plaster

Ceiling--beam and earth, only remains two primary beam sockets

Features--no remaining evidence of a doorway, one niche

Remarks--light smoke-blackening at top of walls

Construction date--unknown, after Room 25

Use--dwelling

Nusbaum comments--small room, one niche

ROOM 24b

Size--1.76 m N-S by 1.57 m E-W, rectangular; 1.33 m high approximately

Floor--absent, beam and earth

Walls--south wall butts up to Room 25, walls not aligned with lower walls suggesting built at some later time and after roof of that room in place

Ceiling--unmodified alcove roof

Features--niche, walls plastered, design lower

east, south and west walls, band of pink plaster with clusters of three triangles above band, three clusters on south wall, two clusters on west, above design plaster white; niche

Remarks--smoke-blackening walls and ceiling, reddened area northeast corner at floor level

Construction date--unknown, after Room 24a and Room 25

Use--small room with decorated walls, only decorated plaster in site, function of room unknown

Nusbaum comments--Nusbaum makes sketch of design

ROOM 25a

Size--2.28 m N-S by 2.05 m E-W, rectangular; 1.90 m high

Floor--National Park Service construction

Walls--southwest, southeast, and northeast corners bonded, west wall butts to north but probably Nusbaum work, no plaster

Ceiling--beam with earth; only remains of three primary sockets, one secondary socket

Features--rectangular doorway in east wall, 43 cm across by 76 cm high, sill to floor 67 cm, closes from Room 26 side; four wall peg sockets.

Remarks--no evidence fire

Construction date--unknown, built at same time as Room 26 and before Room 24

Use--dwelling

ROOM 25b

Size--2.05 m N-S by 2.18 m E-W, rectangular; 1.88 m high

Floor--beam sockets indicate its former location, no longer extant

Walls--southeast corner bonded with Room 23, numerous layers of pink wall plaster, some smoke-blackened, and band of tan plaster top layer at base of wall

Ceiling--unmodified roof of alcove although no mud lines

Features--T-shaped doorway in east wall 52 cm (top) by 98 cm, sill to floor 26 cm, lintel missing; also in east wall rectangular vent and circular opening through wall 16 cm across; south wall niche, wall peg socket, two vents with one directly over the other with a thin stone between, evidence that lower was once closed (groove in jamb and sill), no such evidence in upper; exterior south wall sockets and lack of smoke blackening suggest pole extended across corner behind Room 25b creating a small room (Nusbaum's small store room)

Remarks--no evidence north wall, some smoke-blackening

Construction date--after Room 25a as east walls of these two rooms not in alignment

Use--unknown

Nusbaum comments--vents called cubby holes and stated that they lead to small store room in cliff.

ROOM 26

Size--3.14 m N-S by 2.26 m E-W, rectangular; 1.97 m high

Floor--National Park Service construction with bedrock in southwest corner, fire pit near center of room, some fire reddening on stones outlining pit;

Walls--room butts up to Room 25 and 27, dark pink plaster on west wall, light pink on south wall

Ceiling--viga sockets and mud lines only remaining evidence; wood and dirt

Features--two doorways, the doorway in west wall was described above under Room 25, doorway into Room 27 will be described under that room, some plaster around this doorway on Room 26 side; on second floor level rectangular vent in west wall as well as circular

opening in wall below vent, west wall does not extend to the south end of room suggesting area never an enclosed space

Remarks--north and east walls very fragmentary, firepit only evidence of fire, no smoke-blackening in room

Construction date--unknown, joints suggest after Rooms 25 and 27

Use--meal room

Nusbaum comments--eight meal bins built right against cave (west) wall, also mentions fireplace; felt that there may have been an upper story but since T-shaped door is usually an outside door the roof of the room may have been an open work area.

Fiero comments--meal bins built right against wall very unusual and this number in line also unusual, also strange that the bins are right under a doorway into Room 25a; unfortunately these bins were not rebuilt by Nusbaum and no photograph of them has been found

ROOM 27

Size--2.43 m N-S by 2.22 m E-W, rectangular; 1.73 m approximate height

Floor--bedrock

Walls--all corners bonded, some plaster north and west walls

Ceiling--possible beam socket

Features--rectangular doorway in north wall, 46 cm across by 76 cm high, floor to sill 76 cm, stone lintel, closed from Room 26 side; at second floor level small stones and mortar placed in natural depression in alcove face to create shelf, 1.8 m above room of Room 27a

Remarks--no evidence fire

Construction date--first in this group of rooms, date unknown

Use--unknown

Nusbaum comments--lower courses of walls in bad shape due to water, second story

suggested by reddish drab plaster on back of alcove, two small eroded holes in alcove walled up to form shelves

Fiero comments--there could have been a room or open area above this room, a stone and mortar modified depression in cliff face still exists forming one shelf, evidence for a second shelf minimal, some mortar in natural depression

ROOM 28

Size--2.48 m N-S by 1.89 m E-W, rectangular, height unknown

Floor--bedrock

Walls--walls very fragmentary, no evidence plaster

Ceiling--no evidence

Features--none extant

Remarks--no evidence fire

Construction date--room too fragmentary to establish its relationship to Room 27

Use--at present metates on floor of room

Nusbaum comments--calls room irregular, remains of fireplace-reddened wall in southeast corner, had upper story

Fiero comments--no remaining evidence of the firepit or smoke-blackening; no sign of the partial cross-wall on Adam's map

KIVA A

Size--4.52 m N-S by 4.11 m E-W, keyhole shaped; 2.75 m floor of kiva to level of plaza

Floor--bedrock modified by some pecking, between deflector and vent opening 10 cm deep trench pecked into floor, 38 cm across, 90 cm long

Walls--no plaster, no smoke-blackening

Ceiling--no evidence

Features--bench, six pilasters, southern recess, firepit, deflector, large sipapu, vent shaft--ventilation system oriented to east (not to south

under southern recess as is typical in a Mesa Verde kiva); one small niche below bench in east wall

Remarks--coping around hearth red from heat, deep firepit 30 cm

Construction date--unknown

Use--ceremonial

KIVA B

Size--3.90 m N-S by 3.78 m E-W, keyhole shape; 2.75 m floor of kiva to level of plaza

Floor--bedrock modified to level surface

Walls--no plaster, no smoke-blackening

Ceiling--no evidence

Features--bench, six pilasters, southern recess (oriented to the south), firepit (rebuilt once), deflector, two sipapus (one in line with original firepit and the other with the rebuilt firepit), vent shaft, two wall niches below bench level northeast and northwest walls; no niches in pilasters; there is niche in east wall of southern recess; ventilation system modified prehistorically with the final system oriented to the east; upper opening for original vent shaft intact but no opening at floor level below southern recess

Remarks--some evidence fire in southern recess

Construction date--unknown

Use--ceremonial

Fiero comments--many niches identified by Nusbaum no longer extant

REFUSE AREA

Size--20 m N-S by 4 m E-W near center of area height varies from 1.93 m behind Room 18 to 1.45 m behind Room 21 and 1.45 m behind Room 25

Floor--majority packed earth but a National Park Service soil cement rail along back of Rooms 17-19

Walls--back of alcove forms west wall, south end at present open, east wall is back of roomblocks, north wall is south wall of Middle Passageway

Ceiling--unmodified alcove

Features--Nusbaum mentions and maps two constructed basins for water (springs) along back of alcove

Remarks--all walls smoke blackened as well as top of alcove, base of west wall extending up 60 cm not blackened undoubtedly because refuse extended up to that level

Construction date--along east side of area Room 21 dates to A.D. 1275, north end area Room 17 dates to A.D. 1247 and Room 18 to A.D. 1261

Use--Nusbaum calls this a refuse area based on extensive testing, the smoke blackening and springs suggest it was also used as an activity area

Fiero comments--smoke blackening for most part stops at walls, which means that walls built before smoke blackening occur, so smoke blackening late, A.D. 1273 or after in Room 21 area

SOUTH PASSAGEWAY (Rooms 29a, 29b)

This is the current exit tunnel from Balcony House.

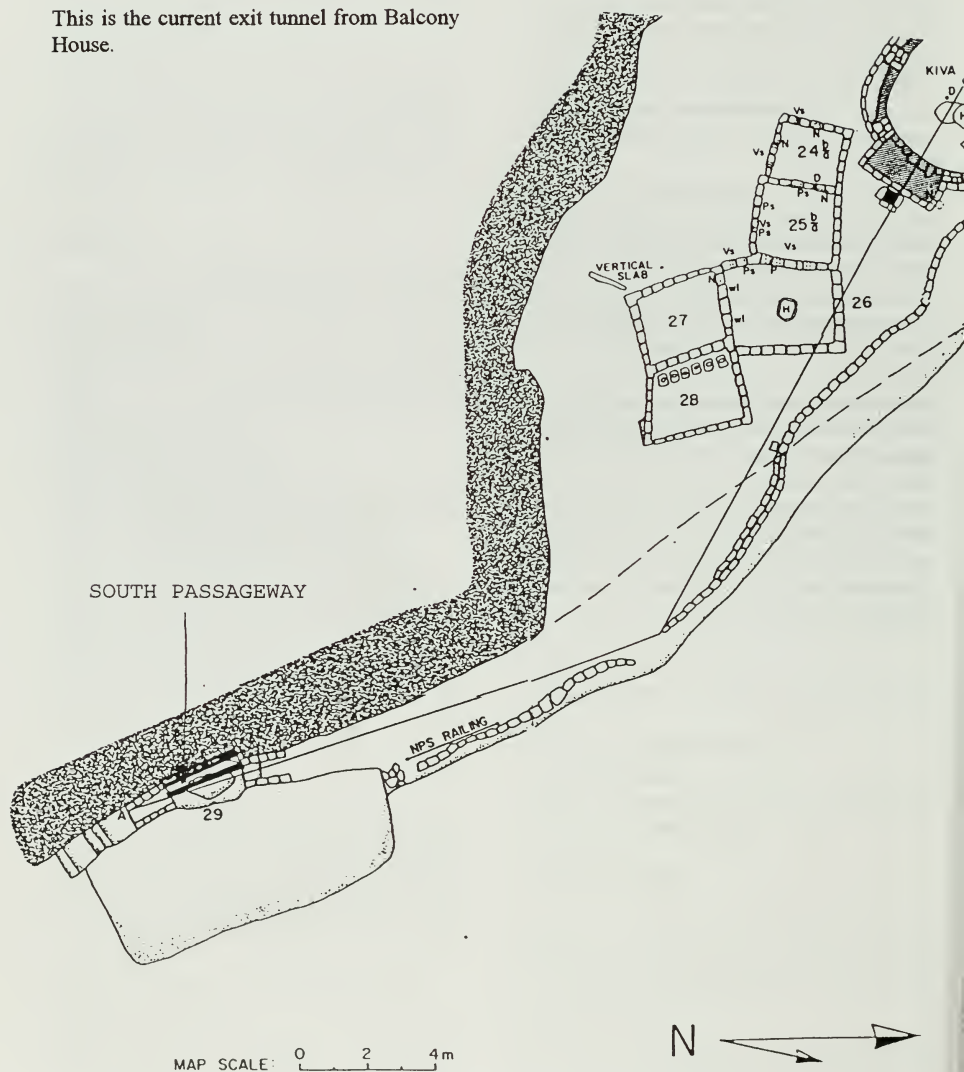


Figure E.4. South Passageway, Rooms 29a, 29b, Balcony House Plan View

ROOM 29 A (South Passageway)

Size--2.26 m N-S by 1.10 m E-W, irregular;
2.06 m high

Floor--National Park Service construction,
shaped boulder in center of floor, boulder
shaped by pecking

Walls--west cliff face, east face of detached
slab, north and south constructed, no plaster

Ceiling--three primaries N-S, secondaries and
tertiaries, then earth

Features--openings in north and south walls,
in south wall opening 47 cm across by 95 cm
high, rectangular, floor of room is sill of
opening, wood lintel; in north wall opening
rectangular, 40 cm across by 70 cm high, sill
even with floor of room, wood lintel

Remarks--no evidence fire

Construction date--A.D. 1278, latest non-
cutting dates, two non-cutting dates of A.D.
1273

Use--entry into site

Nusbaum comments--"Main Fortressed
Entrance"

ROOM 29b

Size--not an enclosed space

Floor--roof of Room 29a, beam and earth

Walls--as in Room 29a west wall cliff face,
east wall face of detached slab, but no north
wall, only built wall is the south wall which is
1.85 m high, 52 cm across; then above this a
set-back of 50 cm, with the then single course
wall extending up another 50 cm with an
opening in this wall at the very top of the wall

Ceiling--none

Features--loop hole in south wall angles down
to south, then at very top of south wall another
opening

Remarks--no evidence fire

Construction date--same as Room 29a, A.D.
1278

Use--lookout platform

Nusbaum comments--"Main Fortressed
Entrance"

BELOW SITE ON TOP OF TALUS

Wall fragments suggest that two small storage
rooms were built in cavity in a boulder (below
Kiva Plaza); also below North Plaza there is a
jumble of stone with no particular
configuration, Rohn mentions turkey pens in
this area (Rohn 1977:86). A little north of
Lower Plaza a very dependable spring.

Room 27a	1	Room 26a	North Wall	46X76	Rectangle	71	57
Room 29	2	Plaza	North Wall				
		Outside	South Wall				

APPENDIX F

ASTRONOMY AT BALCONY HOUSE

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The use of astronomy by the Ancestral Puebloans at Mesa Verde has been the subject of recent study. Modern day pueblo peoples certainly track the movement of the sun and moon for the purpose of maintaining the ceremonial calendar and determining planting and harvest dates. We believe that a system of pecked basins was used by the Ancestral Puebloans at Mesa Verde for the same purposes. The basins constitute fixed locations from which to observe the movement of the sun and moon on the horizon. We also believe that the basins and associated grinding areas were used for the preparation and placement of offerings to the sun or moon. Rooms 8 and 21 at Balcony House contain such features and led us to believe that various forms of astronomy were practiced here (Figure F.1).

Room 8

The largest basin we have located on the Mesa Verde is inside Room 8 of Balcony House. The basin is 25 cm in diameter. Today it receives no light of the sun because of the eastern wall of the room, which was constructed in A. D. 1246-1248 (Fairchild-Parks and Dean 1993). If the basin had been in place prior to that time, it would have been illuminated by light of the rising sun on all days of the year. Furthermore, the large basin would

have been adjacent to basins and grinding areas presently in Room 6 and under the wall dividing the two rooms. The grinding areas may have been used to provide ground offertory material for these basins.

The east wall of Room 8 contains two portals through which light will pass and illuminate features inside the room only on Equinox. The west wall of Room 8 is a masonry wall and contains a roughly triangular stone set vertically on the bedrock. During the Vernal Equinox of 1996, it was noted by Park Rangers Don Ross and Greg Munson that light passed through the south portal and appeared just above the tip of the triangular stone at sunrise. As the sun rose, it was noted that the rectangle of light traveled very precisely down the north side of the triangular stone until it pinched out near the basin in the floor. A time lapse film of this event was made by Greg Munson on the Autumnal Equinox in 1997. A review of the film showed that light from the north portal travels diagonally down the west wall and then illuminates the corner created by the west wall, north wall and floor of Room 8. The light then travels very precisely along the base of the north wall until it pinches out near the wall's midpoint. In addition, if one sits or kneels over the basin in the floor and looks out through the south portal the location of the Equinox sunrise

on the horizon is revealed. As the sun is moving quickly along the horizon at Equinox, these portals would constitute a relatively precise marker for the anticipation and occurrence of Equinox.

The basin of Room 8 may also be associated with the major standstill moon. Room 8 abuts a high rock ledge, the northeast corner of which has been carefully shaped and rounded, and as a result of the shaping of the ledge, the southern major standstill moon can be seen from the basin. A line from the basin just grazes the rounded wall and reaches the southeastern horizon with an azimuth of $135^{\circ}44'$, which would allow one to view the rising major standstill moon. The Big Wall that divides Balcony House into northern and southern portions contains a single window which allows light from the major standstill moon to enter Room 8 when it has elevations between 5° and $6^{\circ}20'$. The first set of major standstills in the thirteenth century occurred between A. D. 1204.8-1207.2 during the first episode of occupation. Today edges of the doorway of Room 8 block the direct view of the basin from the window, but a person sitting in Room 8 next to the basin has a direct sight-line through the window to the standstill moon. Before construction of the Big Wall in A. D. 1275 and the walls of Room 8 in A. D. 1246-1247, the full range of rising positions of the moon and sun, from south to north, could have been observed from the basin.

Room 21

The other marker of astronomical events in Balcony House is in Room 21. This room is located between the two kivas in the south kiva plaza. The east wall of Room 21 is oriented to the Northeast and faces the La Plata Mountains and Mt. Hesperus. The mountains constitute an irregular horizon which is necessary for a

good horizon calendar. A basin 10 cm in diameter is located slightly off center in the floor of Room 21. The east wall of this room contains a finely crafted T-shaped doorway. Two "smoke holes" are located above and on either side of the door. Room 21 is very heavily smoke stained although no fire pit has ever been found in the room. A long wood pole also extends out to the northeast from the east wall of Room 21. We believe that this room is associated with both Equinox and Summer Solstice.

The basin in the floor of Room 21 marks the location from which to observe Summer Solstice. When one stands over the basin, Mt. Hesperus appears in the center of the T-shaped door. The Summer Solstice sunrise has been observed to occur in a notch slightly to the north of Mt. Hesperus. We have also noted that if one stands directly under the long pole, it points to the location of the Summer Solstice sunrise near Mt. Hesperus. However, the exact original location of the pole is suspect as it was moved upward during the excavation and stabilization of Balcony House.

The basin in the floor of Room 21 also marks the position from which to observe Equinox sunrise. When one stands over the basin and looks out through the southern "smoke hole," one will see the Equinox sun rise in the center of this hole. We have also noted a rectangular niche in the upper portion of the north wall near the east wall. This niche is illuminated by sunlight passing through the northern "smoke hole" at Equinox sunrise.

Ceremonial Use of Balcony House

Observation of the movements of the sun and moon was clearly practiced at Balcony House. The dwelling itself is somewhat enigmatic in that the North Courtyard where Room 8 is

located shows very little evidence of habitation and access to it was very restricted. It may be that the area was dedicated to such observances and naturally access to such esoteric knowledge would be restricted. The south end of the dwelling containing Room 21 is much more typical of a habitation area with the spring and abundant smoke staining. The location of Room 21 directly between the two kivas and it's use of less precise markers is much more typical of "public" ceremonial usage. In general, access to Balcony House is difficult at best. As a result, the site may represent more of a ceremonial site than a place used for habitation.

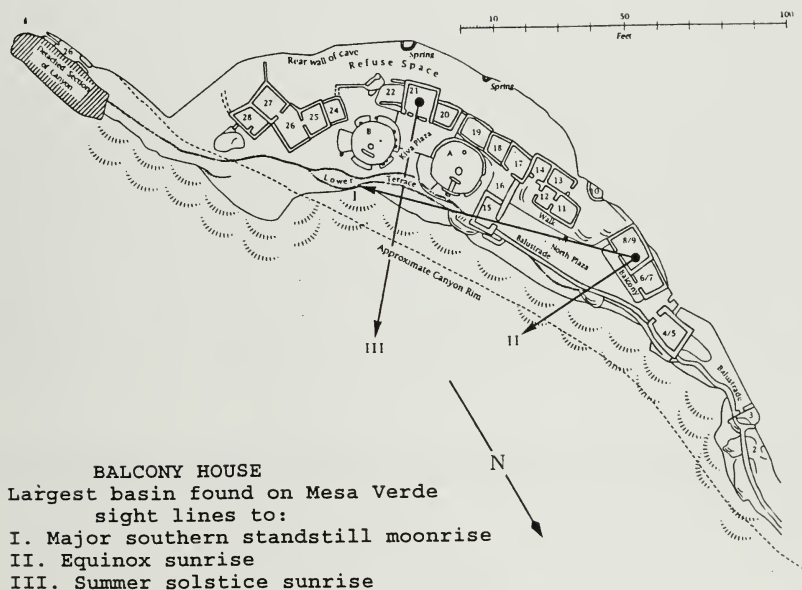


Figure F.1. Balcony House astronomical sight lines.

