The Architecture of Arroyo Hondo Pueblo

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The Architecture of Arroyo Hondo Pueblo, New Mexico

WINIFRED CREAMER

with contributions by
Catherine M. Cameron and John D. Beal

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Foreword

During the early years of the fourteenth century A.D., a major new settlement arose at the base of the Sangre de Cristo Mountains five miles southeast of what was later to become Santa Fe, New Mexico (fig. 1.2). This community, named Arroyo Hondo Pueblo by archaeologists, grew rapidly from a few residences to nearly a thousand rooms and perhaps as many occupants by the year 1330. For the northern Rio Grande valley at this time, Arroyo Hondo would have been a massive settlement. Although it was abandoned after only about 125 years, this boomtown became a forerunner and a prototype for the pueblos of the century just prior to the arrival of the Spaniards.

Archaeological research at Arroyo Hondo Pueblo, which I initiated in 1970, had three central objectives: to use the most modern and comprehensive techniques to expand our understanding of northern Rio Grande Pueblo culture; to explore the growth and dynamics of a large Pueblo IV settlement; and to use Arroyo Hondo Pueblo, along with comparative ethnographic analysis, to examine the cross-cultural implications of rapid population growth and cultural and environmental change (Schwartz 1971).

Over the last two decades, Arroyo Hondo Pueblo has yielded fundamental new information about fourteenth-century life in the northern Rio Grande valley. Because the site was built and abandoned in a relatively short period of time, and because no large, later prehistoric or historic pueblo was constructed on top of it, its full architectural layout and construction sequence, with all their changes over time, are clearly visible.

Five seasons of excavation at Arroyo Hondo and almost two decades of analysis and write-up have provided an extraordinary opportunity to examine the life of this community and to learn about the cultural region of which it was a part. The present volume, the seventh in the Arroyo Hondo monograph series, examines in detail the site's architectural features. It draws comparisons with other communities in the surrounding area and addresses important questions about the origins, history, and significance of this pathbreaking settlement and about the architecture of the northern Rio Grande region during the fourteenth and early fifteenth centuries.

History of the Arroyo Hondo Project

Research at Arroyo Hondo began in 1970 with a survey and test excavations designed to determine the nature of the site. Based on this and later work, the National Science Foundation provided funds to support the field phase of the project (grants GS-28001 and GS-42181). A systematic program of excavation was undertaken between 1971 and 1974, focusing on room and roomblock architecture, site organization and growth, residential configuration, and the makeup of plazas and kivas. In addition, a regional archaeological survey was conducted, along with an extensive ecological analysis.

During the years of the excavations, interim results were published in three preliminary reports (Schwartz 1971, 1972; Schwartz and Lang 1973). In 1974, upon completion of the fieldwork, a film—*The Rio Grande's Pueblo Past*—was made with support from the National Geographic Society. It illustrated the history of the project and presented some initial conclusions. A preliminary synthesis of the project was also published after several years of analysis had been completed (Schwartz 1981).

More than twenty years have passed since the Arroyo Hondo project was first conceived and initiated. The experience has led me to think seriously about the pursuit of large, long-term archaeological projects. Research endeavors the size and duration of the Arroyo Hondo project have problems of continuity in personnel; they require the progressive, interrelated analysis of a vast amount of varied data; and they demand tremendous perseverance in order to pursue all the steps necessary for the publication of results. Throughout this extended process, the original questions that stimulated the project are continually refined and elaborated as the results of analysis and current archaeological thinking are incorporated.

Archaeological Background

For centuries, the northern Rio Grande valley lagged significantly behind the rest of the Anasazi world in population size and cultural complexity. Although the region had been occupied for thousands of years, the first

farming villages did not appear until about A.D. 700. Over the next three centuries, Rio Grande settlers lived in small, scattered farmsteads, surviving on a combination of foraging and horticulture. They resided in circular pithouses or above-ground adobe rooms and moved seasonally to take advantage of the widest variety of resources. During this time the region remained marginal to the more highly developed Four Corners Anasazi area.

In the middle of the 1200s, population in the northern Rio Grande valley began increasing, and the first medium-sized villages appeared—settlements with a dozen to 150 rooms, some containing two or more sets of roomblocks facing a plaza with a kiva. Despite their larger size, these villages continued to be constructed in local architectural styles, and their inhabitants used locally made pottery. This sort of continuity is highlighted in the present study by questions about whether the population growth seen at Arroyo Hondo was local or involved immigration from some distance away, or some combination of the two.

The late thirteenth century also saw the beginning of a transition in settlement configuration to large towns scattered throughout the Southwest and eventually in the northern Rio Grande valley. With some five hundred to two thousand rooms, these settlements were far bigger than most previous communities, except for some of those at Chaco Canyon and the Hohokam village of Snaketown. Examples of these large settlements include Point of Pines and Grasshopper in central Arizona, Awatovi in the Hopi country of northern Arizona, Casas Grandes in northern Mexico, and others in the Zuni country south of Gallup and in the Montezuma Valley near Mesa Verde. Arroyo Hondo was one of the first large towns to be built in the northern Rio Grande valley. The reasons behind this shift from smaller villages to major towns were among the central questions addressed by the Arroyo Hondo project.

Arroyo Hondo Pueblo

Around A.D. 1300, during a time of increased precipitation, a few families found a location for a new settlement that offered a good building site, a free-flowing spring nearby, well-watered soil in an adjacent canyon, and easy access to a number of ecological zones containing a wide range of plant and animal life. Taking advantage of these special qualities, the founding settlers of Arroyo Hondo Pueblo built an alignment of masonry rooms along the edge of the 125-foot gorge.

From the start, agriculture played an important part in the pueblo's economy. Lands in the bottom of the Arroyo Hondo could support irrigation or floodwater farming, while the surrounding higher areas could be dry farmed during years of exceptional precipitation. The settlers probably planted their first fields of corn, beans, and squash in the arroyo and supplemented their harvests by gathering seasonally available wild greens, seeds, and nuts from a territory of about eighty square miles. Among the more than ninety species of animals available to the hunters of Arroyo Hondo, deer provided a major source of protein, while rabbits, antelope, bison, and domesticated turkeys were also significant items in the diet.

Residents of Arroyo Hondo traded actively with other communities in the region, probably exchanging food as well as locally made ceramics. They also obtained resources from more distant areas: painted turtles from villages to the south along the Rio Grande, shells from the Pacific coast and Gulf of California, and—probably indirectly—live macaws from what is now northern Mexico.

Arroyo Hondo Pueblo grew rapidly during its first two or three decades, ultimately expanding to twenty-four roomblocks of one- and two-story apartments clustered around ten plazas (fig. 1.4). Then, soon after 1335, the town's population shrank dramatically. As rooms in the pueblo fell into disuse, some became trash dumps and others filled with wind-blown dirt after their roofs collapsed. By 1345 Arroyo Hondo was virtually abandoned. For the next thirty years, the derelict pueblo was inhabited at most by a small remnant population or perhaps seasonally by small groups. This abandonment marks the end of the Component I occupation.

The reasons for the town's abandonment are not entirely clear, but environmental change was certainly part of the problem. During the late 1330s, a significant drop in annual precipitation may have led to inferior harvests and declining availability of wild plants and animals—all making it difficult for the residents of such a large community to feed themselves. But even without drought, the mere presence of so many people in one place surely was depleting the local resources. Over the years, firewood must have been harder and harder to obtain, and other resources previously taken for granted may have been nearing exhaustion.

Skeletal remains suggest that the people of Arroyo Hondo did suffer from food shortages. Malnutrition—especially iron deficiency—complicated by disease resulted in the death of over half of all children under the age of five, and the average life expectancy was miserably low (Palkovich 1980).

Consistent food shortages and scarce firewood could have been serious problems that sparked a range of social

complications. The founding residents of Arroyo Hondo had all come from much smaller communities, where perhaps the means for resolving conflicts between families and individuals were well established. At Arroyo Hondo, however, with some two or three hundred families in the early fourteenth century, new social mechanisms may have become necessary to allocate land and settle disputes. Social tensions could have stimulated residents to hasten their abandonment of the pueblo once they were already pressured by environmental deterioration.

Sometime during the 1370s, with a new period of increased moisture, a second phase of settlement began. The "Component II" pueblo was built on top of the ruins of the earlier town, its villagers probably drawn to the old location by the presence of the spring in the arroyo and the remains of the old kiva and other features that were convenient to build upon. Yet at its peak, this later village was much smaller than the first community, comprising only two hundred rooms organized in nine roomblocks around three plazas (fig 1.5). The renewed growth did not continue, however. Soon after 1410 the region was again devastated by drought, and as before, rooms were abandoned and demolished as the population declined. Not much later, a catastrophic fire destroyed a significant part of the settlement. Within a few more years, the drought reached a severity unprecedented in the history of the pueblo—the lowest annual precipitation in the thousand years represented in the tree-ring record. With this last adversity, the second and final occupation of Arroyo Hondo Pueblo came to an end.

Before the Spaniards arrived and filled up much of the land unoccupied by Native Americans, Pueblo people moved their villages frequently. Whether the reasons were environmental, social, or a combination of the two, moving and rebuilding villages—even very large settlements—was apparently a common practice (Lekson 1990). Arroyo Hondo is an excellent example of just how rapidly these large villages were constructed and how rapidly they could be abandoned.

The Arroyo Hondo Publication Series

Arroyo Hondo was an immense and complicated project to tackle. In my original planning, I felt that the best results could be obtained by involving a number of scholars with specialized backgrounds and knowledge in each phase of the work. During the first and second field seasons, I recruited several people with unique expertise to work on specific aspects of the research. My intention was for each of these researchers to follow his or her part of the project from fieldwork to analysis and on to the writing of a publishable report. With this kind of continuity, I believed, all the staff could become familiar with the evolution of the research design, could concentrate on an area of specialization and build expertise over the life of the project, and could—as a member of an ongoing team—stay conversant with the results of the other subprojects. The objective was to produce a series of publications in which the authors would contribute to the project through detailed presentations of their data but would also have the freedom to build on these presentations in their own directions and, it was hoped, add important new ideas to the development of Southwestern archaeology.

The multivolume Arroyo Hondo publication series received partial support from another National Science Foundation grant (BNS 76-83501). As the work progressed and the potential contribution of various topics could be better assessed, the original composition of the series changed somewhat. For example, some studies that were originally planned as full volumes, such as pollen analysis and the description of lithic artifacts, developed into shorter reports or appendixes. Sometimes work meant to produce a shorter report was ultimately seen to be of such importance that it was published in a major monograph, as was the case with dendroclimatology.

The plan of moving from fieldwork to manuscripts succeeded exceptionally well for the first six volumes in the series, all of which were written by scholars who had joined the project early in the fieldwork stage. Some were advanced graduate students who were invited to use the Arroyo Hondo material for a thesis (Kelly 1980) or dissertation (Dickson 1979; Palkovich 1980; Wetterstrom 1986). Others were members of the School of American Research's archaeological staff, often working with outside experts (Lang and Harris 1984), or they were consultants asked to analyze some aspect of the data (Rose, Dean, and Robinson 1981).

The last two reports, covering architecture and ceramics, were initiated by School staff members soon after the excavations at Arroyo Hondo were finished. Richard W. Lang undertook a comprehensive description and seriation of the ceramics, and John D. Beal compiled an initial manuscript on architectural features. But both Lang and Beal left the School before the final manuscripts could be completed. Judith A. Habicht-Mauche was later asked to rework and complete the volume on ceramics; she not only did so, but she also moved beyond it to look at, among other topics, the development of the regional social system of which Arroyo Hondo was a part.

For the present volume, Winifred Creamer was asked to further develop Beal's architecture manuscript, using

the data to examine the growth, organization, and decline of the Arroyo Hondo community. Creamer was assisted by Tony Thibodeau, the School's archaeological laboratory coordinator, who worked meticulously to make the collections and field records easily available to her. In addition, Catherine M. Cameron worked closely with Creamer to polish the final draft of the manuscript, check data, and select illustrations—often contributing her own valuable ideas in the process.

To date, published volumes in the Arroyo Hondo series have covered contemporary ecology (Kelly 1980); regional site survey (Dickson 1979); skeletal and mortuary remains (Palkovich 1980); dendroclimatology (Rose, Dean, and Robinson 1981); faunal analysis (Lang and Harris 1984); archaeobotany (Wetterstrom 1986); and ceramics (Habicht-Mauche 1993). Shorter reports have been published on regional metric comparisons of skeletal collections (Mackey 1980); pollen studies (Bohrer 1986); artifacts of wood (Lang 1986); ceramic artifacts (Thibodeau 1993); bone artifacts (Beach and Causey 1984); shell artifacts (Venn 1984); hide, fur, and feathers (Lang 1984); lithics (Phagan 1993); and stratigraphic ceramic samples (Lang 1993).

A final volume in the series was also planned, in which I would synthesize the results of the entire project, returning to its original research questions and examining new issues that had arisen later—some of them relating to problems that reach far beyond Arroyo Hondo and its culture history. This concluding synthesis is currently in preparation.

In spite of delays, changes in authors, and the additional expense of restarting unsuccessful or uncompleted writing projects, I believe the use of numerous skilled individuals as analysts and authors has been highly advantageous. The Arroyo Hondo project was an enormous undertaking that of necessity resulted in a slower schedule of publication than might be desired. Research efforts focusing on small sites may yield faster returns, but the amount of data and the depth of the interpretation that can emerge from work at larger sites justify the extended effort. As I look back over each of the volumes that have now been published, I feel they have all accomplished our original objectives and added significantly to our understanding of both Arroyo Hondo and Southwestern prehistory.

Completing a publication series of this sort involves a number of challenges: the amount of time a researcher-author can spend on a project; the individual's persistence and motivation; the degree to which the project is in competition with the author's other life goals and responsibilities; differences in the time taken to complete various volumes and thus differences in the availability of results to the other authors; differences in research and writing ability; and the continual need to add new funding to ensure that the work can continue. No project of this kind can avoid these and similar problems, and, unfortunately, few of these issues can accurately be predicted in the initial stages of work, sometimes decades before they arise.

Any project that spans more than twenty years requires continuity: a guiding force who will keep all aspects of the work moving forward and who will find ways around difficulties. Each year, time must be dedicated to coordinating analyses, raising funds, motivating authors, exercising quality control over the publication process, and assessing the progress of the total project in order to provide feedback to its constituent parts. The volumes produced by scholars who devoted themselves to the interpretation of Arroyo Hondo Pueblo have made all this effort eminently worthwhile.

The Architecture of Arroyo Hondo

Winifred Creamer presents in this book an impressive set of data and description on the architecture of Arroyo Hondo. The monograph begins with sections on specific construction details and architectural features, and then builds from these elements to discuss room function, residence units, site growth, and broader social implications such as settlement design, the organization of domestic activities, and population trends. Throughout the volume Creamer contrasts the features of the two settlement components and makes detailed comparisons with contemporaneous settlements in the region, which leads her to speculate on several important issues that relate to growth and change at Arroyo Hondo and the cultural trajectory of the region. The importance of this monograph is further enhanced by appendixes covering the tree-ring dates from the site and summaries of architectural data from individual rooms and kivas.

Creamer's intention in writing this monograph was to provide a thorough examination of Arroyo Hondo architecture and its relationship to the prehistory of the region. She has succeeded in a way that should make this book a principal source for understanding the nature of northern Rio Grande architecture. Her monograph is a substantial and important contribution to the Arroyo Hondo series.

Douglas W. Schwartz

Acknowledgments

Begun at the conclusion of fieldwork, this volume reflects the efforts of many people. Field crews, laboratory staff, analysts, typists, reviewers, and editors have all put their stamp on it. Over one hundred people participated in the excavations, all working under the direction of Douglas W. Schwartz. Doug has motivated all of us who produced this book, and his long-term commitment to scholarly publication can be seen in the outcome.

As one who was not present during those seasons of excavation, I appreciate the determined efforts of the entire project group that resulted in the extraordinary archive of field notes and records that exist for the Arroyo Hondo project. There is full documentation of every excavated provenience of the site, including not only field forms but detailed field notes, written and then typed in a standardized format in the days before word processing. These notes create a body of data and commentary written by different people in a way that makes the reports on each provenience comparable. The notes are of fundamental importance to any discussion of the more than 150 rooms that were excavated during the course of the research.

The report on the architecture of Arroyo Hondo that culminated in this book was begun by John D. Beal, who worked all five field seasons at Arroyo Hondo, supervising many of the room, kiva, and plaza excavations. John's intensive work at the site and his intuitive understanding of Rio Grande archaeology were reflected in the extensive preliminary report he prepared on the architecture of the site. This final report incorporates many of Beal's valuable observations, especially in the chapters on site construction, which to a great extent follow his initial format.

The manuscript in whole or in part was reviewed by Chuck Adams, Rory Gauthier, Steve Lekson, and Jan Orcutt, all of whose comments helped make improvements and shape the final book in a positive way. The reviewers took time and great care to provide detailed remarks on specific issues and on the presentation as a whole. Their efforts have been invaluable.

In addition to benefiting from the generous work of the reviewers, the completed manuscript was revised by Catherine M. Cameron. Her work included a new version of the last chapter, additions to several other chapters, and careful revisions of the rest of the manuscript—all complicated by the need to telephone, fax, or correspond over many of the questions that arose. She also wrote figure captions for the numerous illustrations.

Cathy was meticulous in choosing the most accurate phrase for every statement and implacable in searching for inconsistencies in the text. The changes made as a result of her efforts have led to a more precise definition of terms, a more accurate presentation of the data, and a clearer connection between data and conclusions. While Cathy and I have not agreed on every turn of phrase or interpretation of data, working with her has been a learning experience that I appreciate.

Anthony Thibodeau, archaeology coordinator at the School of American Research, helped in every aspect of data entry and database management. The format of the tables was revised and greatly improved by his work. Tony also prepared the final version of Appendix C—basic room and kiva data—and the appendix listing tree-ring dates, which incorporates a previous tree-ring compilation by Richard W. Lang.

Katrina Lasko took on the task of making the line drawings, many of which have been redrawn from originals by crew chiefs and crew members of the field project. The maps of the Component I and Component II phases of the site are also her work. I appreciate Katrina's dedication to producing high quality, accurate, consistent drawings. Photographic illustrations were selected from among thousands of images made by the photographers and crew chiefs of the Arroyo Hondo project, among whom the principal project photographer was David G. Noble. The actual selections were made by Catherine M. Cameron, Katrina Lasko, Jane Kepp, and Douglas W. Schwartz.

School of American Research volunteers helped with the compilation of information in Appendix C and with

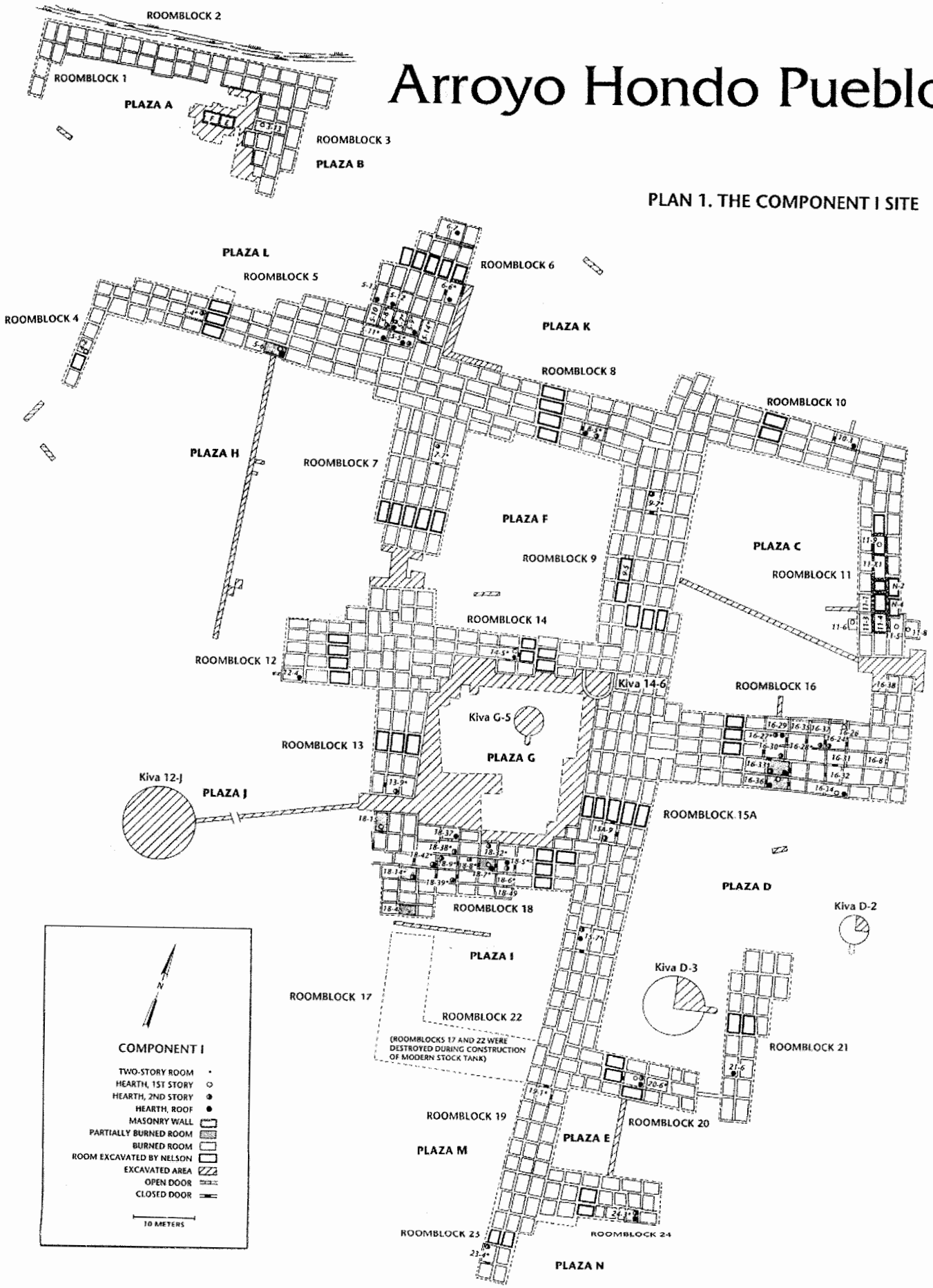
data entry, as did work-study students from St. John's College in Santa Fe. Jane Gillentine, who generously worked on this portion of manuscript preparation, helped improve the room database entries in the formative stages of their preparation.

The experience of writing this book was one that I will remember as a model of cooperative work. The final manuscript was greatly improved by comments from Douglas W. Schwartz, who was always encouraging, enthusiastic, and committed to the project. Our regular meetings to discuss the contents of, and progress on, various sections of the manuscript were consistently profitable. My colleagues at the School of American Research—Jonathan Haas, Judith Habicht-Mauche, and SAR fellows from 1985 to 1989—listened and commented on sections of the manuscript, and many corrections and improvements resulted. Jane Kepp, director of publications at SAR, prodded this book along the path to publication, and I am grateful to her for keeping at the task. I hope everyone who contributed to the research effort at Arroyo Hondo will share my pride in this publication.

Winifred Creamer

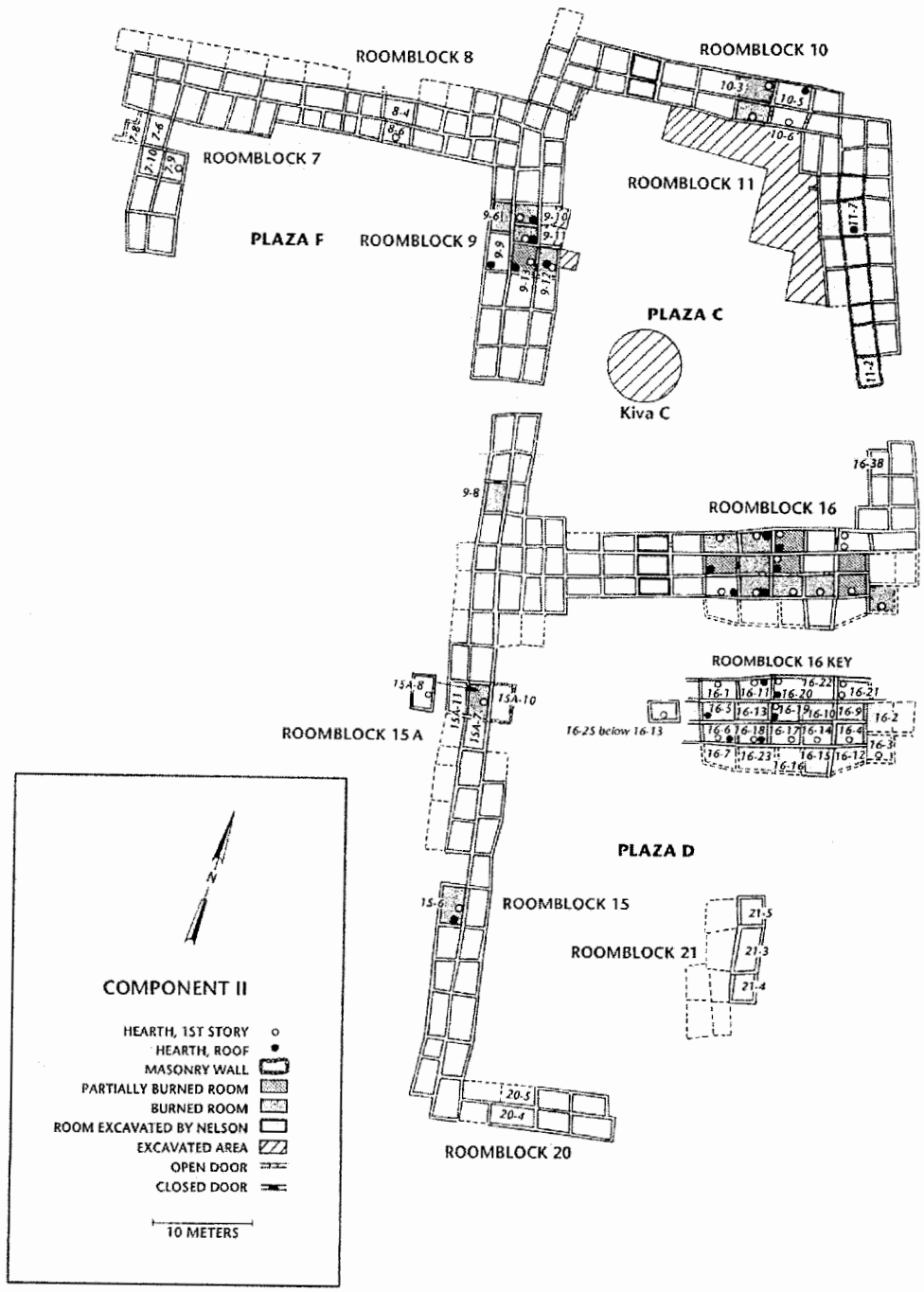
Arroyo Hondo Pueblo

PLAN 1. THE COMPONENT I SITE



Arroyo Hondo Pueblo

PLAN 2. THE COMPONENT II SITE



The Architecture of Arroyo Hondo Pueblo

Chapter 1

Introduction

Arroyo Hondo Pueblo was one of the largest and earliest aggregated settlements in the northern Rio Grande region. During the first decades of the fourteenth century, it grew rapidly from a tiny hamlet to a town of more than one thousand rooms. Peak occupation was short-lived, and Arroyo Hondo may have been largely abandoned during mid-century. It was reoccupied by a much smaller group in the late fourteenth century and completely abandoned by the early decades of the fifteenth century. The aggregation of large numbers of people at a single, rapidly constructed settlement was to occur again and again in different parts of the northern Rio Grande during the following two hundred years. Arroyo Hondo was at the forefront of this trend and may have helped to stimulate a pattern of settlement that became typical of the area into historical times.

Directed by Dr. Douglas W. Schwartz, the School of American Research undertook investigations at Arroyo Hondo beginning in 1970. Project objectives were to examine processes of population aggregation, demographic fluctuation, and the consequences of rapid expansion on the prehistoric ecosystem and inhabitants of the site. The fourteenth-century transition in the northern Rio Grande from settlement in small, isolated hamlets to the aggregation of population into large, multistructured pueblos had dramatic implications for prehistoric culture change. Because the bulk of Arroyo Hondo is not obscured by multiple building phases, it offers an exceptional opportunity to study the establishment, growth, and abandonment of one of the largest of these early aggregated sites.

Architecture is an artifact category with perhaps the greatest potential to inform archaeologists about the organization and activities of prehistoric societies. This volume presents new information on fourteenth-century Puebloan architecture in the northern Rio Grande and on the domestic and ritual activities that the architecture implies. The built environment at Arroyo Hondo, including both architecture and nonarchitectural space, is used to explore the social organization of site residents and the processes through which the site grew and functioned. This chapter provides a background for the analysis and interpretation presented in the remainder of the volume. The first three sections of the chapter place Arroyo Hondo in its geographic, environmental, and temporal context. The history of research at the site is described, and the architectural sample revealed by excavations is outlined (Appendix A). The cultural context in which Arroyo Hondo existed is examined through a review of thirteenth- and fourteenth-century population trends throughout the northern Rio Grande. Finally, sites used for comparison with Arroyo Hondo in the remainder of the volume are discussed.

Arroyo Hondo Pueblo

Located 8 km south of Santa Fe, New Mexico, Arroyo Hondo Pueblo occupies a tongue of short-grass plains at the margin of the Sangre de Cristo Mountains (figs. 1.1, 1.2; Kelley 1980). Here, tributaries of the Santa Fe River break from pinyon- and juniper-covered foothills. Arroyo Hondo is one of these tributary drainages, rising in the mountains to the east and emerging on the gently sloping alluvial plain bordering the Rio Grande Trough (Kelley 1980:15). The arroyo cuts through the foothills in a narrow, steep-walled gorge. Arroyo Hondo Pueblo is situated along the south edge of this declivity at the transition between foothills and plains. A spring, the result of faulting in underlying Precambrian rocks, produces a small flow into the swampy canyon bottom below the site. This water sinks into the streambed less than half a mile downstream.

Before excavation, Arroyo Hondo appeared as a geometric series of gently rounded earthen ridges (fig. 1.3). Weathering had reduced most walls to less than half their original height, although in some places, coursed adobe walls still stood as high as 2.8 m. At the height of its occupation, the pueblo was a long, low set of interconnected structures. The village covered 6 acres and included 24 terraced, one- and two-story roomblocks arranged to enclose or partially enclose 13 rectilinear plazas (figs. 1.4, 1.5). Laid out along north-south and

Figure 1.1. The Arroyo Hondo environment.

east-west axes, roomblocks were 10 to 50 m long, one to six rooms wide, and included from four to more than seventy rooms (Plan 1). Construction was primarily of coursed adobe, although a few masonry rooms were built early in the occupation. Kivas were sunk into plaza surfaces, and plazas also held domestic facilities, such as turkey pens and mealing bins. Rooftop areas were the scene of much domestic activity, especially food preparation. Cultivated land was only a short distance away, in the bottomlands of the arroyo adjacent to the site and on the open grassland nearby (Wetterstrom 1986: 38–41).

Excavations revealed that more than twelve hundred rooms had been constructed at Arroyo Hondo during the fourteenth century in two distinct phases of occupation. More than one thousand first- and second-story rooms were built during the first use of the site, termed Component I (Plan 1). Tree-ring dates suggest that Compo-

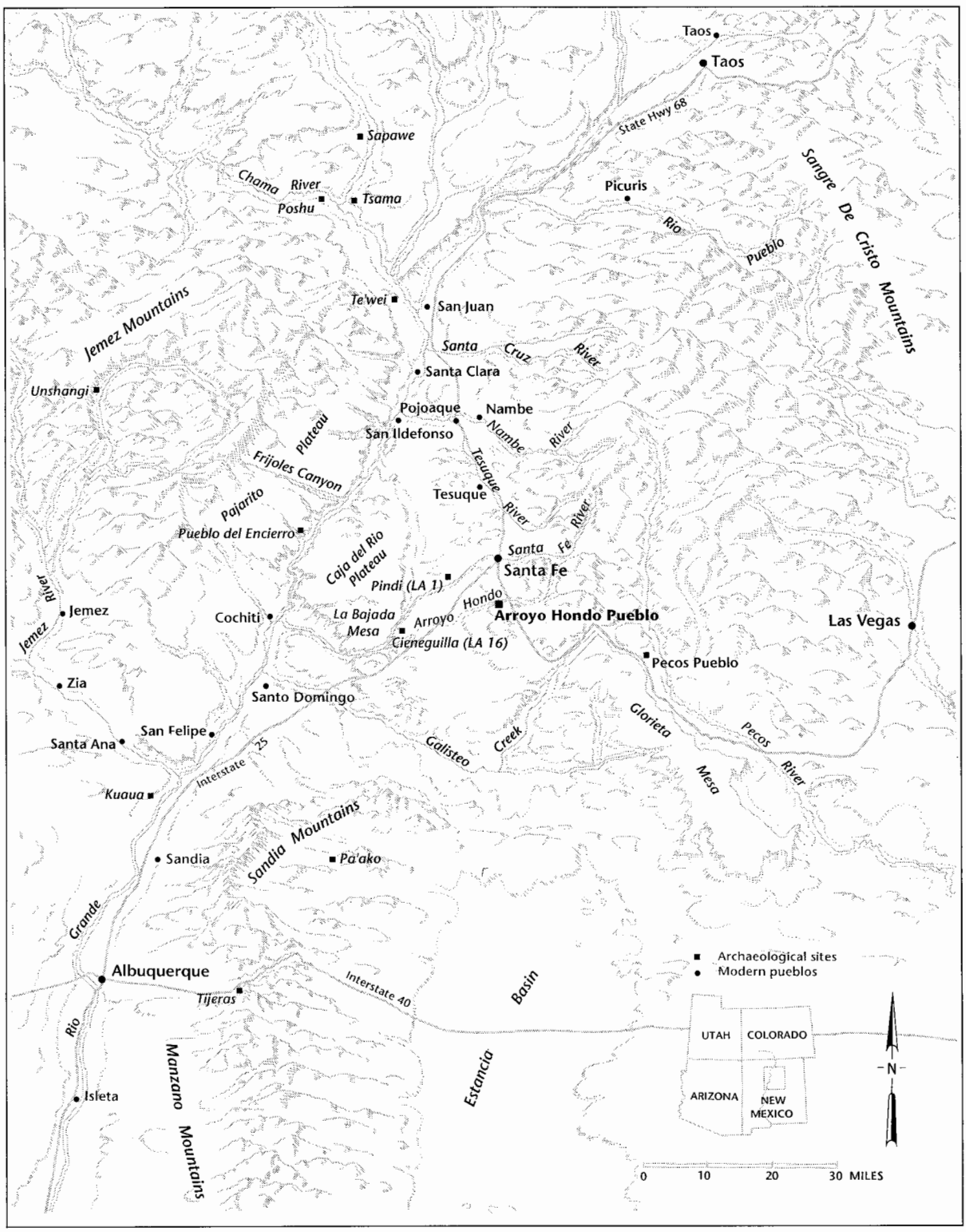


Figure 1.2. Map of region with locations of sites used for comparison with Arroyo Hondo.

Figure 1.3. Arroyo Hondo before excavation. The D-shaped depression in the foreground is a modern stock tank. The arroyo is in the upper part of the photo, with the spring at the very right edge of the photo.

nent I construction was underway by at least A.D. 1315 and ended abruptly after about A.D. 1330 (Appendix B). After a hiatus in occupation, the site was rebuilt with about two hundred single-story rooms; this occupation has been called Component II (Plan 2). The bulk of the Component II occupation occurred in the 1370s and 1380s. A single room was built in A.D. 1410, and the site was apparently abandoned shortly thereafter. The two occupations at Arroyo Hondo are separated by a thick layer of sterile windblown soil and fallen room walls, and the second, smaller settlement was constructed directly over the remains of the earlier, more extensive village. At many Southwestern pueblo sites, later occupations engulf the original settlement to the extent that patterns of site growth are obscured. Arroyo Hondo offers the opportunity to study site development unhampered by extensive later occupations.

Temporal Placement and Use of Chronological Indicators

Arroyo Hondo Pueblo fits within the Pueblo IV period (A.D. 1300–1600) of the Pecos classification. In the northern Rio Grande sequence, occupation at Arroyo Hondo can be dated to the transition from the late Coalition period (Galisteo stage, or A.D. 1200–1325) to the early part of the Classic period (A.D. 1325–1600; Wendorf and Reed 1955). Tree-ring dates clearly place occupation at Arroyo Hondo in the fourteenth century; however, ceramics from the site do not occur in frequencies typically used in the northern Rio Grande to define sites of this period. A recent study of ceramics from Arroyo Hondo (Habicht-Mauche 1993) has shown that the rapid shift from black-on-white styles to the glaze-painted pottery that has been used to mark the beginning

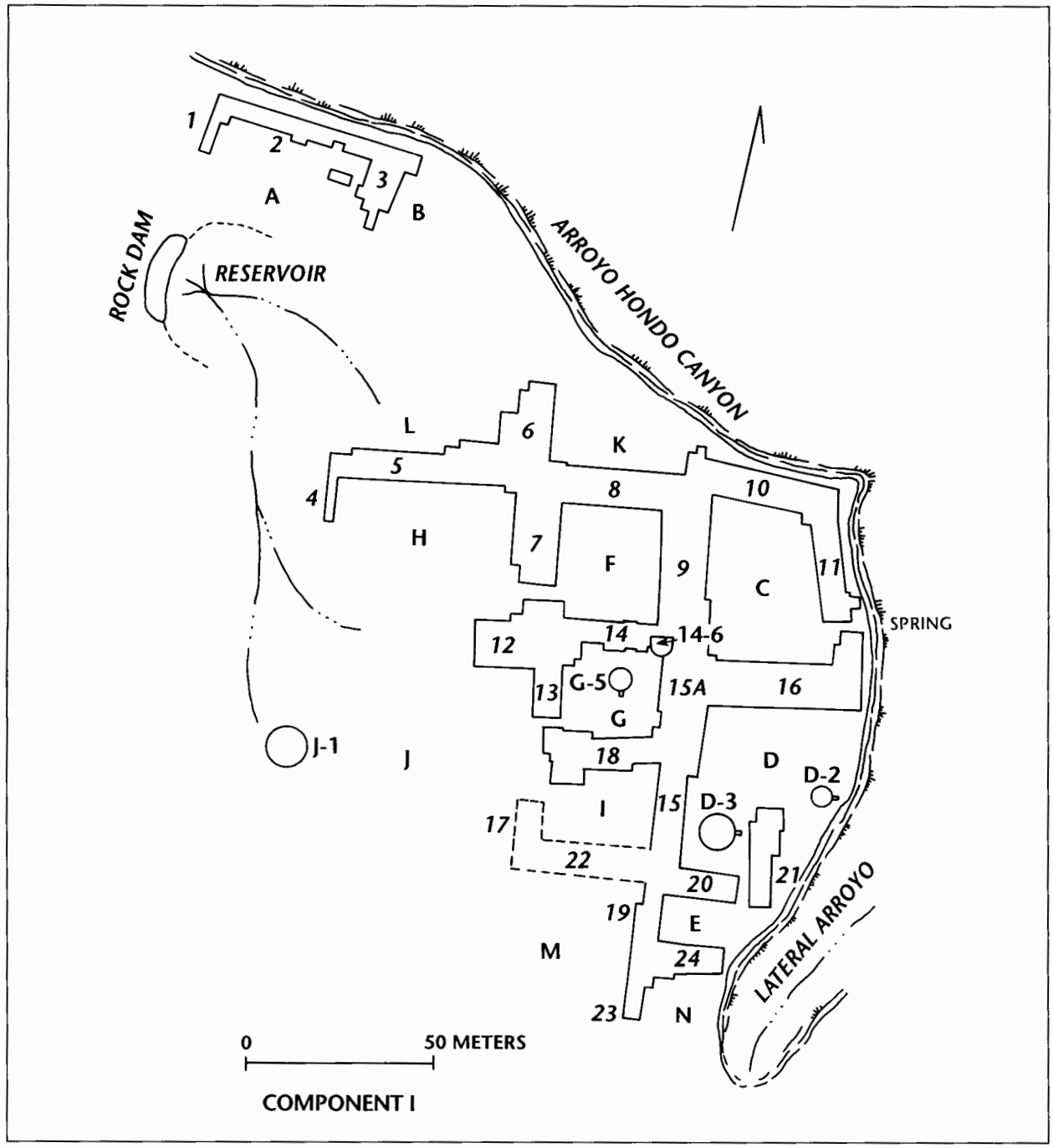


Figure 1.4. Schematic diagram of Component I site showing roomblock and plaza numbers.

of the Classic period was not as dramatic at Arroyo Hondo as it was in areas farther south. Black-on-white styles, especially Santa Fe Black-on-white, which typically define the Coalition period (Wendorf and Reed 1955:145), continued to be made throughout the occupation of Arroyo Hondo. Glaze-painted pottery is found in trace amounts at Arroyo Hondo before 1350 and becomes more common during Component II, although

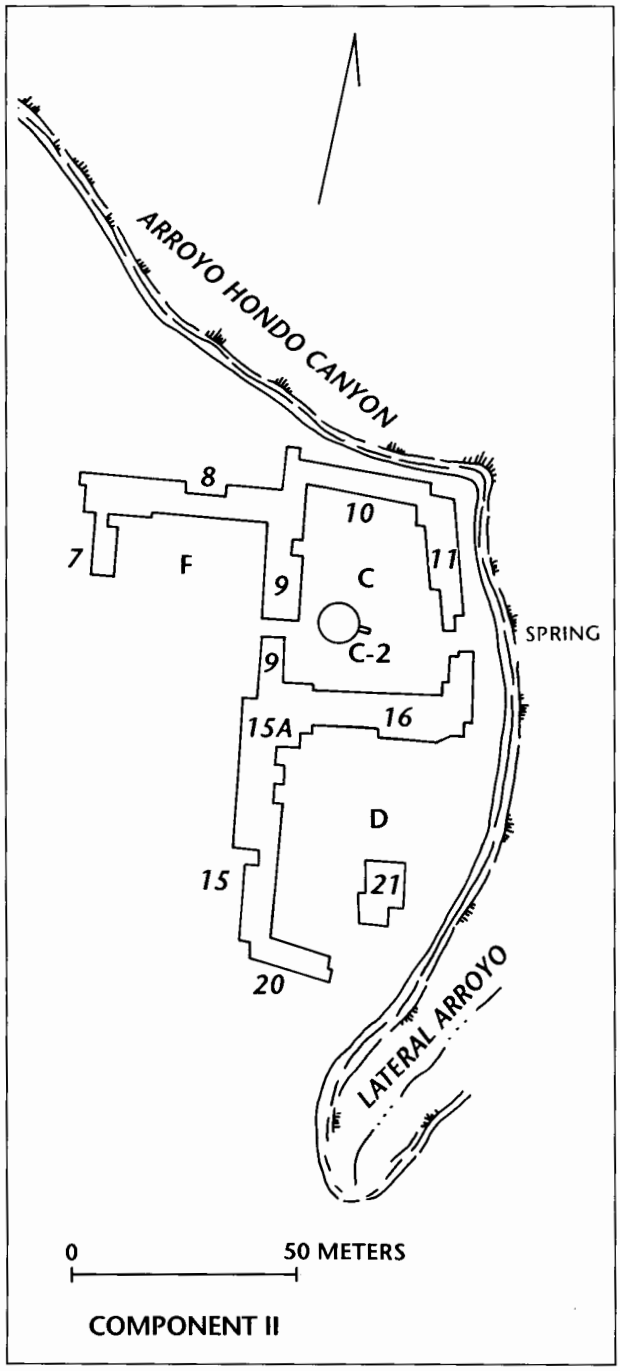


Figure 1.5. Schematic diagram of Component II site showing roomblock and plaza numbers.

black-on-white styles continue to dominate the assemblage until the final abandonment of the site (Habicht-Mauche 1993).

Tree-ring dates are more crucial than ceramics for the temporal placement of Arroyo Hondo. More than three hundred tree-ring dates were obtained from a wide range of proveniences (Appendix B). They establish the founding of the site after A.D. 1300, define periods of construction for Components 1 and 2, and indicate a hiatus in occupation between the two components (see chapter 7). Although tree-ring dates clearly define periods of construction at the site, they are less useful for determining the sequence in which rooms were constructed within each component. In Component I, many tree-ring samples were obtained from plaza areas, and in both components only a few rooms produced clusters of tree-ring dates that could be used to date room construction. In chapter 7, architectural indicators such as room orientation, bonding or abutment of walls, and stratigraphic placement are used to establish temporal relationships among structures at the site.

History of Research

Arroyo Hondo Pueblo was first documented by Adolph Bandelier in 1881 (Bandelier 1881:90–91), although he may never have actually visited it. In 1915, Nels Nelson conducted excavations at the site, sponsored by the American Museum of Natural History. Nelson spent two months clearing a total of 111 rooms (fig. 1.6). Nelson's investigations at Arroyo Hondo Pueblo were never published, although sketchy notes and a site map exist (Nelson n.d.). In 1933, W. S. Stallings of the Museum of New Mexico collected a single tree-ring sample at Arroyo Hondo (Robinson, Harrill, and Warren 1973:57).

School of American Research Excavations

During the summer of 1970, Schwartz conducted a short period of fieldwork at Arroyo Hondo to test the suitability of the site for the study of population dynamics and culture change (Schwartz 1971). Preliminary work centered on the northeastern quadrant of the site, where two rooms were excavated and several rooms previously dug by Nelson were cleared (figs. 1.7, 1.8). Intensive fieldwork began in 1971 and continued each summer through 1974. A field camp was established and laboratory facilities began operation at the School of American Research in nearby Santa Fe. Appendix A describes the excavation strategies and provenience labeling systems used. A hierarchical provenience numbering

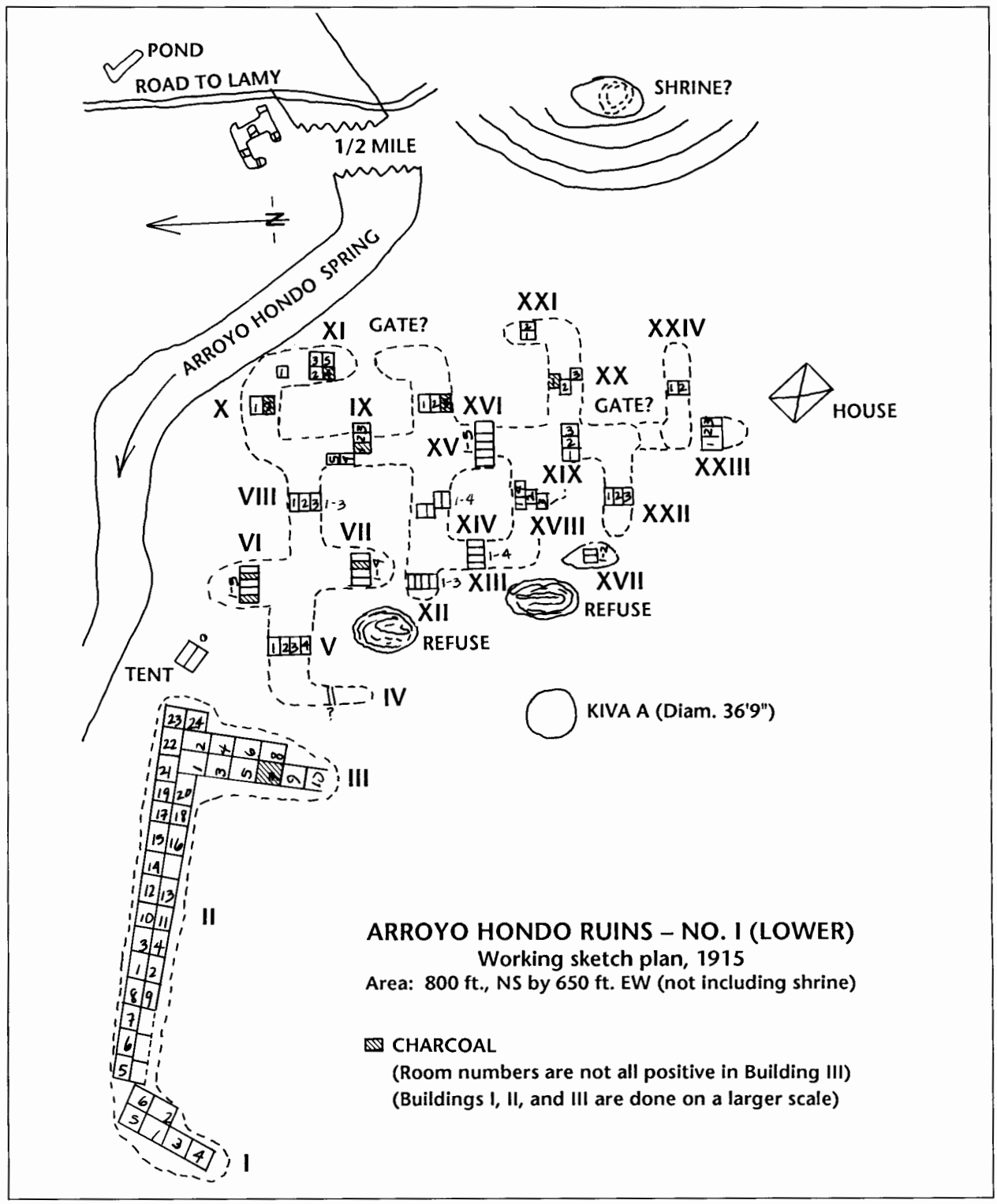


Figure 1.6. Nels Nelson's map of Arroyo Hondo (after Nelson n.d.).

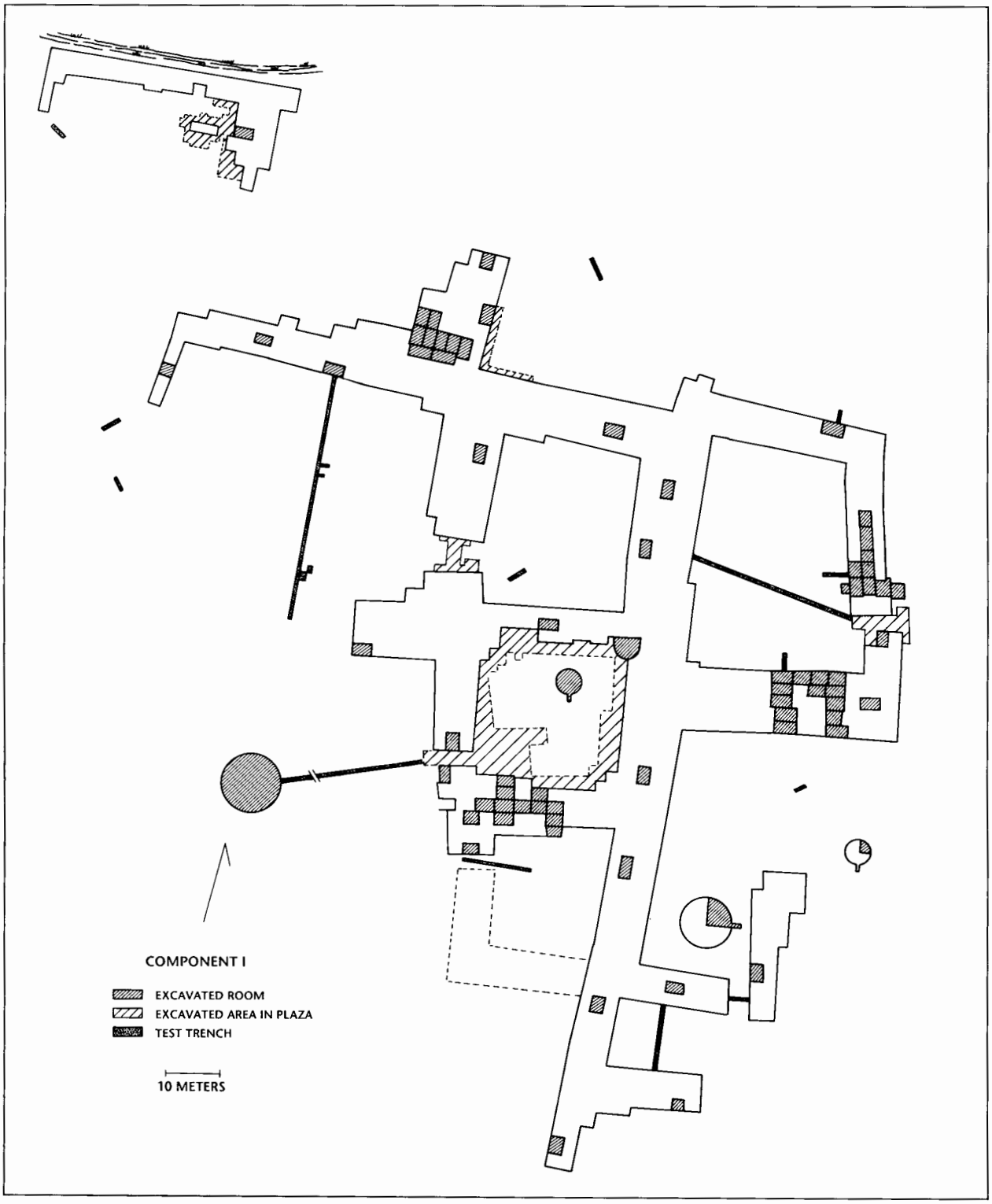


Figure 1.7. Areas of the Component I site excavated by the School of American Research (also see Plans 1 and 2). The surface of the entire site was stripped to reveal wall tops.

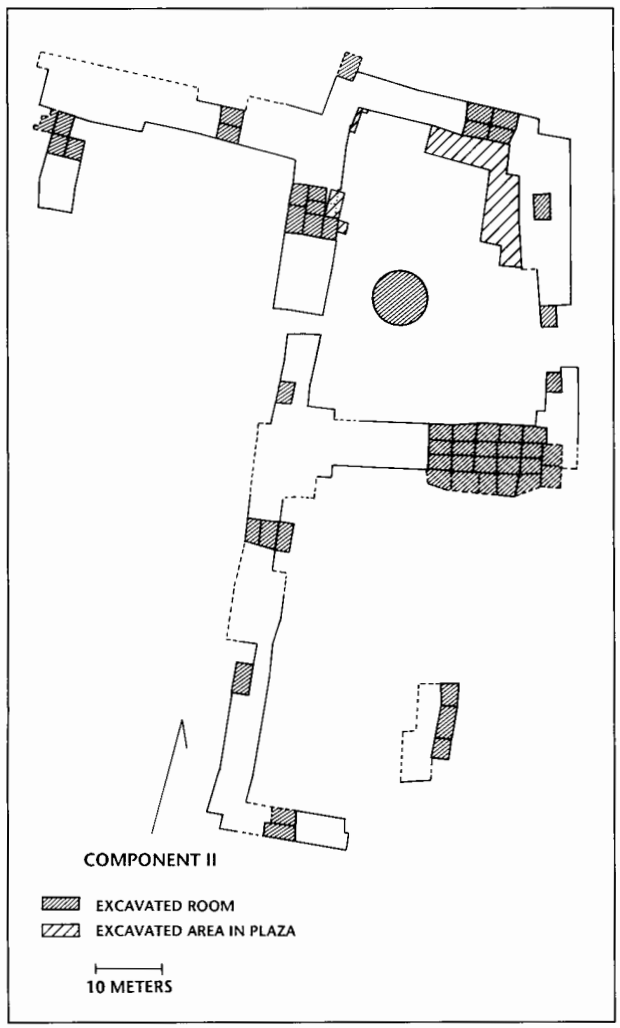


Figure 1.8. Areas of the Component II site excavated by the School of American Research (also see Plans 1 and 2).

system included numbers indicating site, roomblock, room, and stratum. Throughout most of this volume, only the roomblock and room numbers are used (for example, 18–3 indicates room 3 of roomblock 18).

Fieldwork in 1970 began with the clearing of roomblocks 11 and 16 in the northeast part of the site and excavation of an adobe room in each. Three masonry rooms in roomblock 11 were excavated in 1970. In addition, two test trenches were placed in plaza C, adjacent to roomblocks 11 and 16. This initial work provided an assessment of the site's potential for further work, helped to establish the procedures that would be used, and indicated the time that would be needed for excavation of specific areas (Schwartz 1971:11).

Major excavations at Arroyo Hondo began in 1971, focusing on the retrieval of architectural and stratigraphic information necessary to improve our understanding of the character and occupational history of the site (Schwartz 1971). Most important was an assessment of the full architectural extent of the pueblo. Overburden at Arroyo Hondo approached 2.5 m in several parts of the site, and its removal was necessary prior to mapping and intensive excavations. A road grader was used to strip the top 10–15 cm of soil from the roomblocks; hand tools were then used to identify the tops of walls, and the site was mapped (Plan 1 and Plan 2). Carefully monitored heavy equipment, followed by manual excavation, was used to remove sterile overburden from plaza surfaces, test depressions in the site surface for the presence of kivas, and reexcavate rooms dug by Nelson. In addition, roomblocks 11 and 16 were selected for intensive excavation because they were suspected to be the first roomblocks constructed at the site. Kiva 12-J, previously dug by Nelson (n.d.), was also excavated.

In subsequent seasons, excavations (along with regional and ecological survey [Dickson 1979; Kelley 1980]) were directed toward investigating the establishment and growth of the pueblo. In 1972, 53 rooms in 19 roomblocks were excavated to provide samples for tree-ring dating, sherds for ceramic analysis, and architectural detail for information on site growth. Excavation units were chosen to provide samples from each roomblock as well as chronological information for the entire site. Seventeen two-story rooms, six single-story rooms, and one jacal room, all dating to Component I, were excavated, along with twelve single-story rooms dating to Component II. Three plaza gateway areas were tested, as were units in plaza H. The plaza H units were compared with the plaza C tests that had been conducted in 1970.

In 1973, groups of interconnected rooms were excavated to provide information on residence units along with data on architectural features. More extensive plaza excavations were also initiated. In 1974, the final field season, work in rooms and plazas continued, while test trenches were used to locate kivas. By the end of the 1974 field season, excavations had cleared 100 Component I rooms, roughly 10% of the Component I rooms constructed, and 50 Component II rooms, or about 25% of those built during Component II times. More than one thousand square meters of site area were excavated during the project. Excavations and site clearing showed not only the extent of the Component I occupation but also allowed the less extensive Component II occupation to be mapped.

Excavated rooms were chosen both to examine the organization of social units at the settlement and to provide a sample of rooms from different parts of the site to determine patterns of site growth. As a result of this strategy, groups of contiguous rooms were excavated in several locations around the site to explore the size and organization of residence units. However, excavating contiguous rooms to the exclusion of testing in every roomblock would have resulted in a loss of data on site growth. A balance between extensive and intensive excavation was struck at Arroyo Hondo that permits investigation of both questions.

The Architectural Sample

The architectural sample from Arroyo Hondo provides extensive, consistently recorded data on 150 rooms, a very large sample for a northern Rio Grande pueblo (Appendix C). Excavation was undertaken in most areas of the site, including rooms from almost every roomblock, in five of thirteen plaza areas, and in six kivas (all that were identified). The excavation technique used was effective in recording detail that had not been consistently noted in previous archaeological work in the northern Rio Grande, such as detection of second-story rooms, fallen hearths, and roof hatches. Extensive, detailed, and standardized field notes, typed and filed in duplicate by provenience, permitted transfer of architectural data from notes to a data base with relative ease. Excavators' comments and opinions, recorded in field notes, often made it possible to interpret data that would have been equivocal based on a computer-coded form alone.

Detailed room measurements made by Nelson were to have been incorporated into discussions of room size in chapters 2, 3, and 6. However, it was found that Nelson's room measurements differed slightly but consistently from those taken by School of American Research field personnel, and the two groups of data could not be reliably integrated. Nelson's extensive excavations are documented only by short notes, without reference to most room contents or to the presence of second-story rooms (Nelson n.d.).

Samples for chronometric and paleobotanical analysis were taken from almost every provenience during each field season, and all wood remains from structural elements and plaza features were collected. Pollen and flotation samples were taken from all room floors, hearths, storage bins, and cists, and from most other architectural and stratigraphic features. A checklist aided in recording the presence of specific features during excavation, and details were recorded in field notes along with interpretive observations. All field notes, specimen sheets, photographs, section drawings, maps, interim reports, and other documents remain on file in the Arroyo Hondo laboratory at the School of American Research.

Arroyo Hondo in Regional Context

Crown, Orcutt, and Kohler (1990) have recently traced population trends in the northern Rio Grande region for the period from A.D. 1100 to 1400, and their research provides a valuable framework for evaluating Arroyo Hondo. They found that most of the region was sparsely populated until after A.D. 1250. Population increased dramatically between A.D. 1250 and 1350, with most of the population residing in aggregated pueblos (defined as those with more than fifty rooms). Differences were observed in the timing and nature of population increase and aggregation. Of the six districts they define, only three—the Santa Fe (which contains Arroyo Hondo), the Jemez, and the Chama—have sites whose size rivals that of Arroyo Hondo. In each of these districts, population aggregation began in the A.D. 1200s and increased in the 1300s. Of the seven sites that are as large as Arroyo Hondo, most were probably constructed well after Arroyo Hondo's Component I occupation. Arroyo Hondo is an early manifestation of a settlement pattern that prevailed in the northern Rio Grande after A.D. 1300. Crown, Orcutt, and Kohler (1990:26) also suggest that population aggregation in one area may stimulate aggregation in other areas, suggesting a role for Arroyo Hondo in the development of Rio Grande settlement patterns.

Examination of the population trends identified by Crown, Orcutt, and Kohler suggest that Arroyo Hondo may have been settled by a group that had existed in an aggregated community elsewhere. In the Santa Fe district, population increased dramatically during the A.D. 1200s, probably as the result of immigration (Crown, Orcutt, and Kohler 1990:18). Aggregated sites were common even in the early 1200s, and by the 1300s, 80% to 90% of the population lived in aggregated sites. Because population aggregation coincided with population increase, Crown and her colleagues suggest that settlements were established by groups who had existed in aggregated communities elsewhere. The Santa Fe district has 26 sites with more than fifty rooms dating between A.D. 1100 and 1400. Arroyo Hondo stands out as one of two very large sites in the district. Cieneguilla (LA 16), an unexcavated site occupied about the same time as Arroyo Hondo, may also have had about a thousand rooms. Two other sites had fewer than five hundred

rooms, and the remaining sites had fewer than two hundred rooms; most had fewer than one hundred rooms (two sites had an undetermined number of rooms).

Architectural Comparisons

Arroyo Hondo occupies a unique position in the northern Rio Grande region as an early and very large aggregated pueblo that has undergone careful, well-recorded excavation. The following chapters provide a comprehensive description of architectural features and the growth and development of the site. The social and environmental effects of population aggregation in the northern Rio Grande, traced by Crown, Orcutt, and Kohler (1990), are examined from the perspective of Arroyo Hondo Pueblo. Detailed comparisons of Arroyo Hondo with other sites in the area are critical to understanding how the settlement developed and functioned in a dynamic regional system. Throughout the volume, architectural elements and developmental trends at Arroyo Hondo are compared with those from contemporaneous sites. Unfortunately, architectural data comparable to those from Arroyo Hondo are scarce. Many sites in the northern Rio Grande were excavated in the early decades of this century, when reporting standards were not as rigorous as those employed at Arroyo Hondo; many other excavated sites remain unreported. Furthermore, as noted above, occupations contemporaneous with Arroyo Hondo at many sites were obscured by later construction.

The construction methods and architectural details at Arroyo Hondo presented in chapters 2 and 3 are compared, where possible, with those from a small group of relatively large, contemporaneous, and adequately reported sites in the northern Rio Grande Valley (see fig. 1.2). They are Pindi, Te'ewi, Poshu, Tsama, Pueblo del Encierro, Unshagi, and Tijeras. These sites are located between 10 and 100 km from Arroyo Hondo and range in size from about two hundred to six hundred rooms; only Poshu may be considerably larger. All except Unshagi and the above-ground occupation of Pueblo del Encierro overlap both components at Arroyo Hondo, although most continued to be occupied long after Arroyo Hondo was abandoned.

Pindi, located in the Santa Fe district, is the site closest both geographically and temporally to Arroyo Hondo. The second of Pindi's two primary periods of occupation is almost exactly contemporaneous with Arroyo Hondo's Component I. There may be a smaller, subsequent occupation coinciding with Component II (Ahlstrom 1989; Stubbs and Stallings 1953). Te'ewi, in the Chama district, was apparently first established in the mid-thirteenth century, before Arroyo Hondo began to grow, but it continued to be occupied until A.D. 1500, almost a century after Arroyo Hondo was abandoned (Wendorf 1953). Tsama, another Chama district site known only from field notes (McKenna 1970), was occupied during the fourteenth century. Poshu, in the Chama district (Jeançon 1923), and Tijeras (Cordell 1980), just outside the northern Rio Grande region as defined by Crown, Orcutt, and Kohler (1990), were established after 1325, when Component I at Arroyo Hondo was at its peak. Tijeras was abandoned by 1425, but Poshu was occupied until 1500. The above-ground occupation at Pueblo del Encierro, in the Santa Fe district, probably began about 1350 and continued until 1500 (Snow 1976:1). Unshagi, in the Jemez district, was not occupied until 1375 and was inhabited until the early seventeenth century. Pueblo del Encierro and Unshagi are partially contemporaneous only with Component II at Arroyo Hondo.

Pindi, Te'ewi, and Poshu are the most completely reported sites and are used most frequently in comparisons with Arroyo Hondo. The remaining sites are discussed when comparative data are available. Although this group of sites provides the best available comparative base, none was excavated or reported in as much detail as Arroyo Hondo. This discrepancy is considered in comparisons made in the following chapters. Other northern Rio Grande sites are occasionally mentioned throughout the volume. Little information exists for most of these other sites.

Architectural Analysis at Arroyo Hondo

The following chapters present a comprehensive analysis of architecture at Arroyo Hondo and the implications of the architectural analysis for northern Rio Grande prehistory. Initial chapters describe the technology of construction, form, and organization of structures at Arroyo Hondo and the use of nonarchitectural space. These chapters provide abundant glimpses of the domestic and ritual activities in a fourteenth-century Rio Grande pueblo. In chapter 6, inferences concerning the use of structures are suggested and initial attempts are made to group rooms into domestic residence units. Site chronology is examined in chapter 7, using the numerous tree-ring dates recovered from the site. Architectural relationships are used to reconstruct the growth of the settlement. In the final chapter, the social implications of Arroyo Hondo architecture are examined, population size is estimated, and the causes of rapid aggregation and abandonment of the site are explored.

Chapter 2

Component I Construction

Component I structures were built to accommodate a rapidly growing population. The majority of the one thousand Component I rooms were constructed within a period of about fifteen years, between A.D. 1315 and 1330 (see chapter 7). Site layout, construction materials and methods, and architectural details are similar to those of contemporaneous sites in the region. Arroyo Hondo was far larger than most contemporaneous sites, however, and residents apparently had to adjust to an unprecedented influx of people into a single settlement.

One hundred rooms associated with the Component I occupation at Arroyo Hondo were excavated by the School of American Research (table 2.1; Appendix C; Plan 1). They comprise approximately 10% of the total Component I rooms at the site and include 32 one-story and 34 two-story structures. In this chapter, methods used to construct walls, roofs, floors, and entries during Component I are described, as well as features found within rooms. Features include slab- and clay-lined hearths (many in second-story room debris), wall vents, floor cists and basins, wall niches, pole and plank shelves, wall pegs, ladder impressions, post holes, and, infrequently, decorative plaster. Human interments were encountered under the floors of some rooms; these remains are discussed in Palkovich (1980).

Construction methods and features of Component I Arroyo Hondo are compared with those of selected contemporary sites in the northern Rio Grande (see chapter 1, fig. 1.2). Similarities in architectural styles are apparent, although variation in the presence of some architectural characteristics is noted. Because most of these sites also overlap the Component II occupation, comparison of features that are similar in the two components is discussed here. In chapter 3, comparisons are made primarily between the earlier and later occupations at Arroyo Hondo.

Site Layout and Design

Most of the 24 roomblocks that comprise Component I Arroyo Hondo are attached, forming a continuous structure arranged around a number of plazas of fairly uniform size (fig. 1.4). Roomblocks 17 and 21 are offset just slightly from the main structure. Roomblocks 1, 2, and 3, surrounding plaza A, form a separate structure northwest of the main set of roomblocks. Four of the plazas are completely enclosed by the massive roomblocks, four are enclosed on three sides, and three are defined by the intersection of two roomblocks (see chapter 4). Three other plazas (B, H, and J) are only partially defined by roomblocks. Kivas are found in three of the plazas.

Detailed examinations were made of collapsed roof strata to identify multiple-story units. The outer row of rooms in some roomblocks appears to have been single-story whereas the central portion of most roomblocks was composed of two-story structures (table 2.1). There was no positive evidence for three-story construction (although during the first year of excavation, it was thought that some had been found). In all cases examined, second-story rooms were set back from the edge of first-story roof lines, giving the pueblo a terraced appearance.

Contemporary sites in the area show similar layouts, although on a smaller scale. Construction dating to Pindi's Second Ceramic period (A.D. 1300–1350) consisted of multistoried roomblocks enclosing two small plazas (Ahlstrom 1989:370; Stubbs and Stallings 1953: plan). The same was true at Te'ewi (Wendorf 1953: fig. 9) and Poshu (Jeançon 1923: pl. 1), although the plaza areas at these two sites are much larger than they were at Pindi.

The layout of Arroyo Hondo and contemporary sites suggests that the enclosed plaza was a preconceived architectural arrangement that was accomplished by the construction of roomblocks at right angles to one another to surround or define nonarchitectural space. The layout suggests community-level planning in settlement construction. At Arroyo Hondo, planned site growth is also indicated by the rapid construction of some multiroom units and by regularity in room size.

Based on studies by Hibben (1937) and Steen (1977), Cordell (1989:321) contrasts plaza sites, those with ma-

sonry roomblocks around a central plaza, with sites that have massive roomblocks arranged around three sides of a plaza and open to the south. She suggests that plaza sites were less responsive to population increase than the massive roomblock type. The arrangement of roomblocks at Arroyo Hondo, and probably at other contemporaneous sites, was apparently based on a plaza-oriented model, but it would have allowed population increase by staged construction of roomblocks around an increasing number of plazas. This arrangement provided a format for a continually expanding structure. Adams (1991) has recently associated the enclosed plaza with the spread of the katsina cult throughout the Southwest (see chapter 8; spelling of the word *katsina* follows Adams 1991).

Room Stratigraphy

Room fill consisted primarily of fallen adobe walls, fallen roofs, and windblown sand (figs. 2.1, 2.2). Few rooms were trash-filled, suggesting that occupation at the site ended abruptly. Many rooms had artifacts and hearths on roofs or in second-story locations (on a first-story roof, a second-story floor, or a second-story roof) that were identified in room fill. Some rooms had burned (table 2.1), and the fill of these rooms contained burned roof beams, ash, and charcoal.

Construction Methods

Wall Foundations

Component I rooms were built on the ground after minimal leveling and clearing of the construction site. No trenches for wall footings were noted for either masonry or adobe walls. Excavation of 236 wall segments from Component I structures showed that low courses of adobe, 7–15 cm high, served as footings for adobe walls. Adobe footings were also found at Pindi Pueblo, but there they were set into shallow trenches (Stubbs and Stallings 1953:26).

Stones were incorporated in the lowest levels of a few of the adobe walls from Component I, but they cannot accurately be called stone footings. The lack of stone footings in Component I construction contrasts with Component II construction, where they were common (see chapter 3). Because the smooth surfaces of stones do not bond strongly with adobe, slab and cobble foundations may have provided less stability than adobe or trench footings. Stone footings do decrease ground water seepage into adobe walls, however, which could undermine structures. Stone footings during Component II

TABLE 2.1
Component I rooms and room attributes.

Room	Floor Area (m^2)	Burned	Masonry Walls
3-13	7.34		
4-2	4.30		
5-4*	3.99		
5-5*	6.14		
5-6	7.74	×	
5-7*	4.93		
5-8*	— †		
5-9*	5.55		
5-10	5.83		
5-11*	7.50		
5-12	5.98		
5-13	6.64		
5-14*	7.78		
6-6*	8.80		N wall; E wall partially
6-7	6.31		
7-7*	7.21		
8-5*	5.11		
9-5	3.83		
9-7*	6.84		
10-3	9.27		
11-1	6.34		E wall
11-X1	7.85		all walls
11-3	6.41		E wall
11-4	5.02		all walls
11-5	5.72		W wall with adobe
11-6	— †		
11-8	5.92		
11-9	6.64		all walls
12-4	6.73		
13-9*	6.51		
14-5*	6.42		
15-7*	6.26		
15a-9*	7.15		
16-8	— †		
16-24*	6.02		
16-26	5.69		
16-27*	6.32		
16-28*	5.52		
16-30*	6.28		
16-31	5.84		
16-32	7.31		
16-33*	8.86	×	
16-34	6.05		
16-35	6.13		
16-36	7.47	×	
16-37	6.01		
16-38	— †		
18-5*	5.18		
18-6*	6.24		

(*continued on next page*)

TABLE 2.1 (continued)

Room	Floor Area (m^2)	Burned	Masonry Walls
18-7*	4.92	×	
18-8*	5.22		
18-9*	4.98		
18-14*	7.43	×	
18-15	6.23	×	
18-32*	7.39		
18-37	5.15		
18-38*	7.29		
18-39*	6.38		
18-42*	4.86		
18-48	5.96	×	
18-49	4.82		
19-1*	6.95		
20-6*	6.80		
21-6	6.94		
23-4*	4.85		
24-3*	8.00		

Average room size	6.31 m^2
Total complete rooms	62
Total first-story rooms	66
Total second-story rooms	34
Total Component I rooms	100

* Second story present
† Walls incomplete; floor area not included in averages.

construction were probably necessary because walls were built over unstable Component I room fill, not on the level ground surfaces that were available for Component I walls.

Stone footings were used at some contemporaneous sites, probably in response to local conditions. No clear temporal pattern in the occurrence of stone footings is apparent. They are rare at Pindi (Stubbs and Stallings 1953:26), most of which is contemporaneous with Component I (Ahlstrom 1989), but frequent at Poshu (Jeançon 1923:10) and Pueblo del Encierro (Snow 1976:*ix*), both slightly later sites. Stone footings were found at Te'ewi (Wendorf 1953:37), which was first occupied in the mid-thirteenth century, before Arroyo Hondo was founded, although it continued to be occupied until A.D. 1500.

Rooms constructed toward the end of Component I were often underlain by culturally deposited fill, as were rooms in the exterior alignments of roomblocks. One-quarter of the excavated ground-floor rooms were underlain by these deposits, presumably discards from neighboring rooms inhabited earlier. Trash probably was not used to level the site intentionally, but once it was heaped up or thrown in a low spot, it was leveled prior to building in that location.

Stone Masonry Walls

Stone masonry comprises less than 2% of the building mass of Arroyo Hondo (fig. 2.3). Twenty stone rooms were identified: fifteen in roomblock 11 and five in roomblock 6 (Plan 1). Nelson excavated three rooms of stone masonry at Arroyo Hondo in 1915, and the School of American Research excavated three more in 1971. Locally obtained andesite chunks were used in construction, averaging 20 by 15 by 5 cm, with no artificial shaping of the material. Interlocked courses, two stones wide, were built up and mortared in place with a 2–5 cm thickness of mud. Walls averaged 32 cm wide. The smooth side of the stone always faced outward, making a flat surface on either side of the wall. The maximum wall height recorded was only 1.6 m. The height of the former junction of roof and wall could not be determined in the stone rooms.

Abutments between masonry walls were not interlocking, suggesting that walls were built parallel across the long axis and later joined by crosswalls. These long, continuous walls indicate that masonry rooms were planned in advance and not constructed individually. The interstices between wall junctions were usually filled with adobe, pebbles, and small rocks.

Stone may have been used for early construction either because the earliest residents at Arroyo Hondo were accustomed to building in stone or because it was readily available from andesite outcrops at the edge of the arroyo immediately northwest of the pueblo. Andesite fractures naturally into angular, irregularly shaped slabs suitable for coursed masonry. Natural exposures were apparently exploited at the arroyo edge as well as in small rock-quarrying areas. Quarry areas appear as oval depressions averaging 3 m in diameter and 1 m deep. Three of these pits were located to the north of roomblocks 1, 2, and 3 and probably furnished building stone after loose stone blocks eroding out of the arroyo edge had been depleted.

Within a short time, builders at Arroyo Hondo began to use both stone and adobe. The shift from stone masonry to coursed adobe appears in the west wall of room 11-5 (fig. 2.4), and in room 6-6. Apparently, only enough stone was available to build portions of these

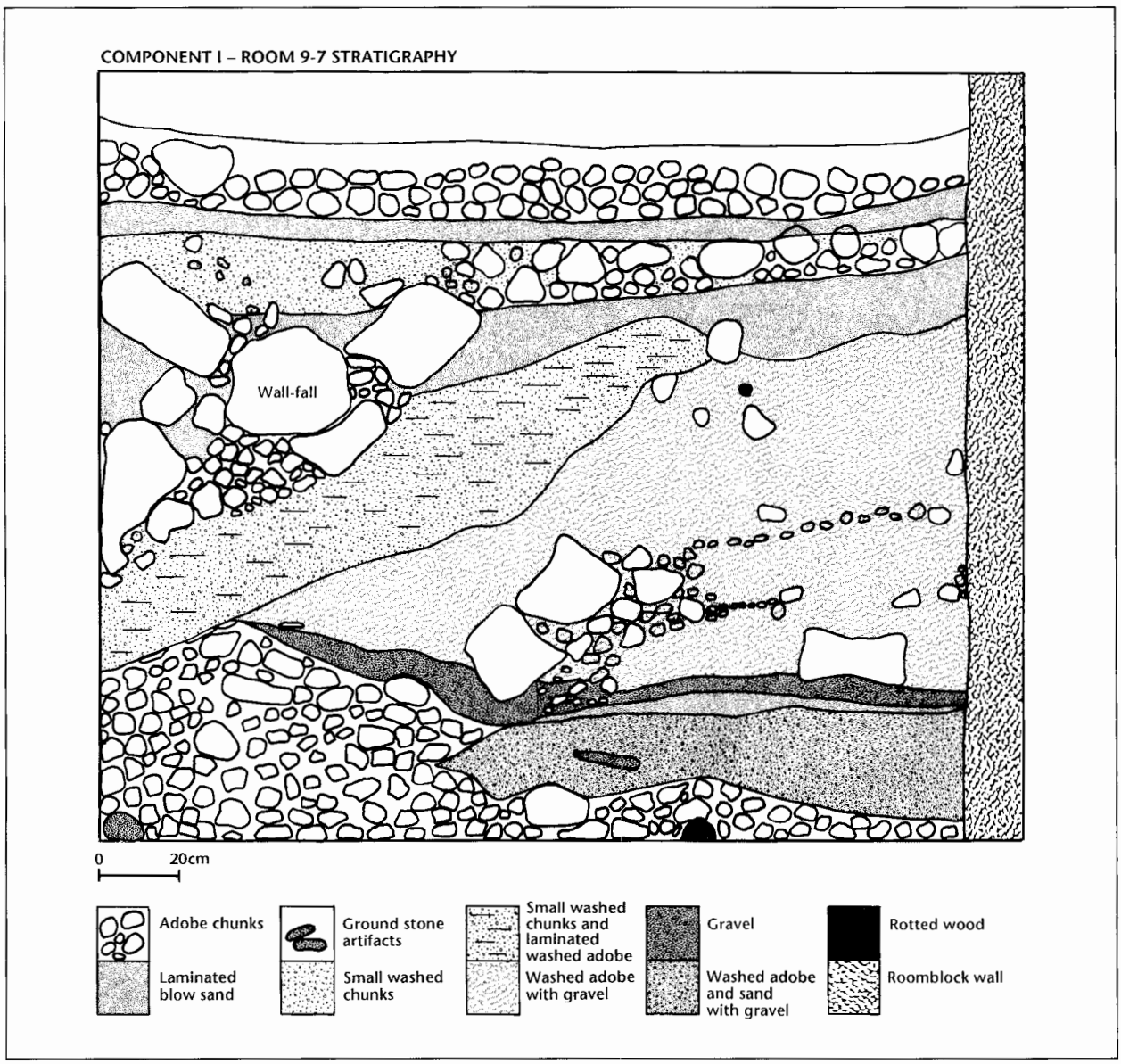


Figure 2.1. Example of Component I room with complex stratigraphy.

walls, so adobe was used to complete construction. Eventually adobe was used for all construction at the site, suggesting that the ready availability of adobe may have been an important criterion in selection of building material. A few contemporary sites in the northern Rio Grande, such as Te'ewi (Wendorf 1953:37–40), were also made of both stone and adobe; most others were entirely of coursed adobe construction, although some, like Unshagi (Reiter 1938), were of masonry.

Adobe Walls

Adobe walls were made of relatively clean clay (fig. 2.5). Rocks and vegetation were removed and trash deposits were not incorporated, nor was tempering material added to the mixture. The clay used in construction underlies the site, as indicated by borrow pits and puddling basins uncovered during excavations in plaza areas and under the floors of rooms.

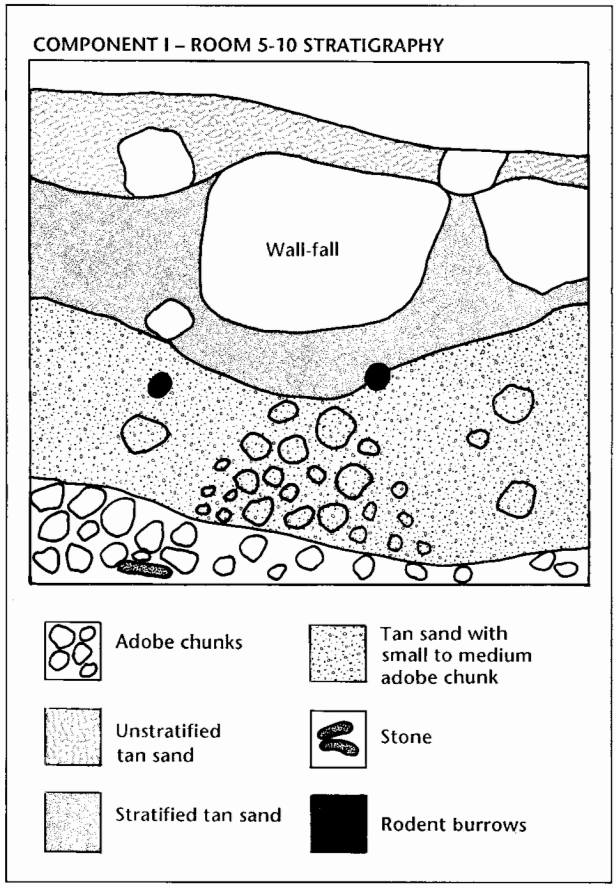


Figure 2.2. Example of Component I room with simple stratigraphy.

Judd (1919) first described adobe walls that were constructed without the use of forms or bricks. Based on their work at Pindi, Stubbs and Stallings (1953:25–26) suggested the term "coursed adobe" to describe this construction method, which was employed at Arroyo Hondo. To create adobe, clay was mixed with water to form a stiff, plastic material capable of supporting its own weight. During construction, the adobe was molded in place by hand to form wall sections or courses. A course was a mound of clay shaped to extend the wall upward. After each course of adobe dried, the next was added. Bonding lines between courses are visible in most walls at Arroyo Hondo. In the northern Rio Grande region, coursed adobe construction occurs at Poshu (Jeançon 1923:9–13), Te'ewi (Wendorf 1953:36–42), and Pueblo del Encierro (Snow 1979:A7), as well as other large sites, such as Sapawe and Kuaua (Cordell 1989:320).

Course heights at Arroyo Hondo tended to decrease from 50–70 cm in the first course to 40–60 cm in the second and higher courses (fig. 2.5). Walls were made thinner as they rose, from up to 32 cm thick at the base to 24–27 cm at higher levels. The exposed faces of each course were smoothed and finished by hand. Four or five courses were laid prior to roofing. The availability and use of adobe at Arroyo Hondo were generally similar to those at other sites in the region (Jeançon 1923:11; Stubbs and Stallings 1953:25; Wendorf 1953:37–38). Course height and width at Arroyo Hondo are both slightly greater than those recorded at Pindi, where course widths averaged 9 inches (23 cm) and course heights averaged 15–18 inches (38–46 cm; Stubbs and Stallings 1953:26). At Poshu, however, Jeançon (1923:13) recorded walls 30–35 cm thick, and at Te'ewi Wendorf reported course heights of 8–46 cm and widths of 20.5–30.5 cm (Wendorf 1953:37).

Vigas were laid across the top of the long-axis walls of a room (see Roof Construction, below). The uppermost course of these walls filled in the space around vigas and leveled off the tops of the walls.

Adobe walls were erected either in a series of parallel long walls subdivided by short-axis walls or sequentially around the perimeter of a structure (Plan 1). The construction of wall abutments shows that in the former pattern, the long walls were completed before the short-axis walls were begun. This pattern suggests that groups of rooms were constructed at the same time. Aggregate construction of this type is found in each of the roomblocks where extensive excavation of contiguous rooms was undertaken, including roomblocks 5, 11, 16, and 18. Not all rooms were built in groups. Some abutments were chinked, indicating that adjacent walls were not built at the same time. Stone, adobe, and pot sherds were used for chinking. Wall abutments suggest that at least one-third of the ground-floor rooms excavated were built as units of more than two rooms; four or five rooms were built as a single unit in some cases.

Two alternative methods of adobe construction were apparently used occasionally: turtlebacks and adobe rubble. One wall of room 16-24 was constructed of turtlebacks—preformed and partially dried oval blocks of adobe. Broken and fractured portions of turtlebacks were recovered in wall fall in this room. Adobe rubble was used infrequently in wall repair. In room 16-28, rectangular chunks of adobe wall rubble were used to rebuild a partially collapsed wall. Four courses of these blocks, cemented together with ashy gray mortar, were positioned on top of the remaining adobe course. Above the fourth course of rubble, coursed adobe was again used to com-

Figure 2.3. Stone masonry wall, the south wall of room 11-4. Only a few of the rooms at Arroyo Hondo were built of masonry, and they were apparently the first built at the site. (Photo AH1-JDB2).

plete the wall. In roomblock 18, adobe rubble had been used to patch holes in the walls of rooms 7 and 32. Both rooms had burned, and the walls had been breached in an apparent attempt to retrieve articles from the debris. The holes were then sealed, using adobe chunks set in ashy mortar. None of the repaired walls had been plastered to restore its original appearance.

Plaster and Other Wall Treatments

Wall plaster was not common at the site. Remnants of grey to white wall plaster were recorded in the fill of some rooms, apparently fallen from second-story walls, although a few first-story rooms had plastered walls. When plaster was used, typically white ash and gypsum, both locally available, were applied to walls in a uniformly thin coat (1 mm). Although some rooms yielded wall fragments exhibiting multiple applications (three in one case), the actual amount of plaster-bearing material in the fallen wall debris was small, suggesting that only small areas were covered. There was no indication that entire rooms were plastered.

The use of plaster varied in other sites in the region. At Te'ewi, almost all walls were covered with thick layers of grey to buff plaster; many were smoke blackened (Wendorf 1953:42). At Poshu, walls appear to have been thinly plastered after construction (Jeançon 1923:12). Seventeen layers of plaster was the average for most rooms. At Pindi, plaster was used primarily in kivas, although five rooms had wall decorations in colored plaster (Stubbs and Stallings 1953:29; see Wall Decoration, below).

A series of indentations or finger impressions was found in the long-axis walls of two ground-floor rooms. These marks were one-half to two centimeters deep and appear to have been made in damp adobe. In room 18-5,

Figure 2.4. Adobe and masonry wall abutment in room 11-5. The first few rooms built at Arroyo Hondo were masonry, but the bulk of the pueblo was built of adobe. This room illustrates the shift from masonry to adobe construction in a single wall. (Photo AH1-JDB4).

the depressions were patterned in four horizontal rows, with twelve indentations per row. This panel was located 80 cm above the floor and encompassed an area of the wall surface measuring 16 by 40 cm. Another example in room 14-5 exhibited eighteen depressions in the first course of the adobe wall (fig. 2.6); however, no definite repetitive pattern was evident. The topmost depressions were aligned in a row of five; the others occurred at random. This cluster covers a wall area measuring 25 by 32 cm. Two other rooms produced similar features, and one set of depressions was identified on a fallen block of wall rubble from a second-story room. The function of finger impressions, if any, is uncertain.

Room Size

Whether built of adobe or stone, Component I rooms were relatively consistent in size (table 2.1). They ranged from 3.99 to 9.27 m^2, averaging 6.31 m^2 (s.d. 1.1). Short-axis walls averaged two meters in length and long-axis walls slightly more than three meters. Component I rooms excavated by Nels Nelson ranged from 3.97 to 11.03 m^2 (n = 106). Room sizes at Arroyo Hondo are similar to those at most other sites in the region. At Pindi, Pa'ako, and Poshu, rooms ranged from 3.6 to 8.75 m^2; at Te'ewi, the upper end of the room size range reached 17 m^2 (see chapter 6). The implications of room size at Arroyo Hondo are discussed in more detail in chapter 6.

Roof Construction

None of the structures excavated possessed an intact roof, though impressed adobe, timbers, and brush—all used in roofing—were recovered from stratified deposits (fig. 2.7). Vigas, the main support members for pueblo roofs, were set across the short axis of the rooms. Measurable heights of beams above the finished floor level

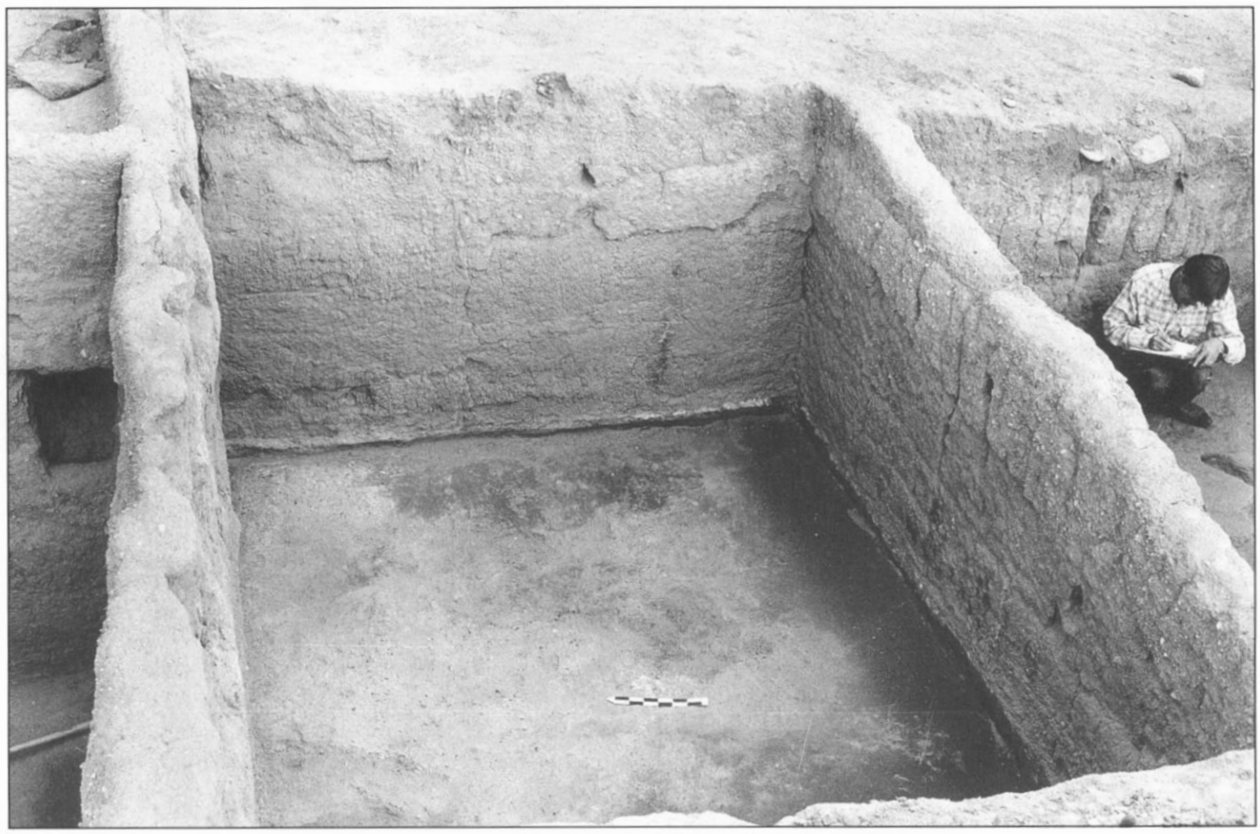


Figure 2.5. Adobe walls in room 16-33. Note striations and changes in texture indicating courses. Crew chief Richard Lang is taking notes in the adjacent room. (Photo AH1-RWL11).

ranged from 1.8 to 2.1 m. This value is lower than roof heights estimated for Pindi (7.5–8 ft, 2.3–2.45 m; Stubbs and Stallings 1953:26) but higher than those recorded for Poshu (1.78 m; Jeançon 1923:8). At Arroyo Hondo, beams were generally set on the fourth or fifth course of molded adobe, depending on the height and number of courses. Mortar impressions revealed that the vigas had been stripped of bark and ranged from 9 to 25 cm in diameter with an average of about 16 cm. Vigas could not be measured for length, but if it is assumed that they bridged the short axis of the rooms, they would have averaged about two meters long.

Three to five beams supported the roof of each structure. Spacing between vigas could be measured in only one room, in which beams 9 cm in diameter were placed at intervals of 40 cm. The small size of these beams rules out the use of this figure as an average spacing figure. The number and spacing of support members would have depended on room length, viga diameter, and whether or not there was a second story above the room.

Latillas (a layer of poles or planks) were laid at right angles to the vigas, bridging the spaces between them. Three kinds of latillas were recognized at Arroyo Hondo from adobe impressions: poles, split poles, and planks (table 2.2). Pole latillas were fashioned from small peeled trees or branches 4–9 cm in diameter. Split-pole latillas were fashioned from larger trees and branches, 8–13 cm in diameter, which were split lengthwise to form hemispherical staves. Both pole and split-pole latillas were made of ponderosa pine, pinyon, juniper, or Douglas fir. Plank latillas were made only of juniper and were fashioned from a log split into several boards, each approximately three centimeters thick. Striations from splitting were visible in adobe impressions and on a few wood samples.

Apart from planned openings, such as smokeholes and hatchways, latillas covered the entire roof area. Of the 38 first- and second-story rooms for which data are avail-

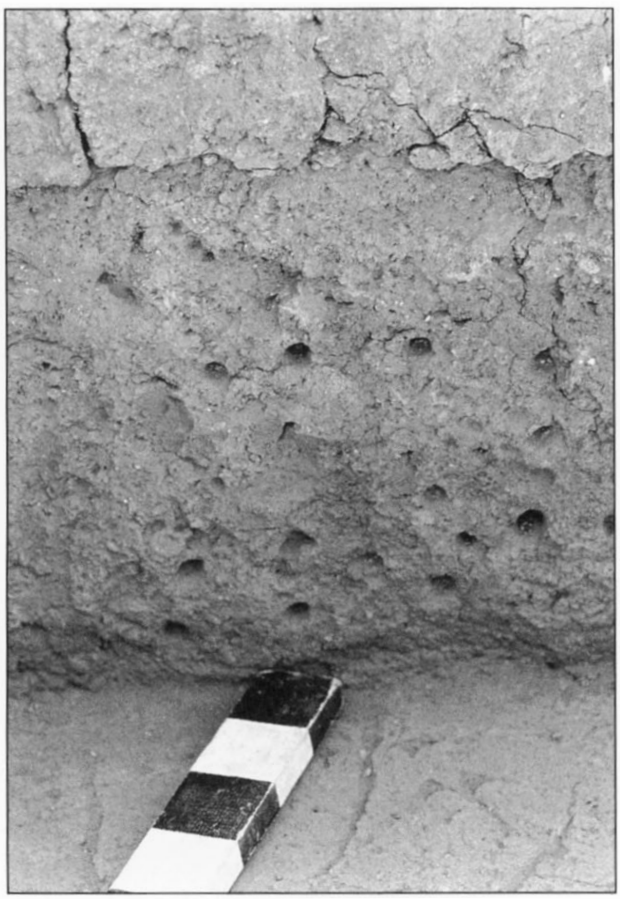


Figure 2.6. Close-up of finger impressions in the wall of room 14.5. Scale indicates 5 cm increments.

Figure 2.7. Portions of burned beams from the fallen first-story roof in room 5-6. The photo shows only some of the burned roof beams; others were removed during excavation. The room burned before abandonment. (Photo AH2-MM11).

able, 22 (58%) had plank latillas, 11 (29%) had a combination of pole and plank or split pole and plank latillas, and 5 (13%) had either poles or split poles (table 2.2). When different kinds of latillas were used together, they were placed side by side, on top of and spanning the support beams or walls. There seems to have been a clear preference for plank latillas in both first- and second-story contexts.

Grass, leaves, brush, pine boughs, slabs of juniper bark, corn leaves and stalks, cholla, and reeds were all used to cover the latillas in the rooms without plank latillas. Brush cover was not used with planks. One fragment of woven yucca fiber or shredded juniper bark matting was recovered in room 5-4, and a fragment of woven corn leaf matting was recovered from room 15-7.

In most cases, a single application of dry adobe clay was placed on the brush covering directly on top of the plank latillas. This layer, 4–9 cm thick, was then sprinkled with water and tramped into place, forming a relatively watertight surface. In three cases (rooms 8-5, 15a-9, and 24-3) wet roofing, adobe clay mixed with water, was applied directly over matting or plank latillas in a single layer 5–7 cm thick. All three rooms had a second story.

Roofing materials can provide clues to the construction sequence of two-story rooms. Materials used in first-story roof construction and second-story floor construction suggest that most second-story rooms were added after the ground-floor rooms had been occupied for at least a short time. All second-story floors identified were of the wet clay variety, whereas the rooftops identified archaeologically were made of dry clay. In the three cases in which a layer of wet adobe formed both a first-story roof and a second-story floor, the second story was apparently constructed at the same time as the first story. In 21 other rooms for which information was obtained, a dry adobe roof was constructed before the wet adobe second-story floor was made. This sequence suggests that the second story was a later addition and was not part of the original room construction. Sealed

TABLE 2.2
Component I latilla types.

Room	First Story			Second Story		
	Pole	Split Pole	Plank	Pole	Split Pole	Plank
5-4		×	×			
5-5	×			×		×
5-6	×		×			
5-7			×			
5-8			×			
5-10			×			
8-5			×			×
9-7	×		×			×
12-4			×			
13-9			×			×
14-5	×					
15-7			×			
15-9			×	×		×
16-27		×				
16-33	×					
16-36		×	×			
18-7	×		×			×
18-8			×			
18-15			×			
18-32			×			×
18-37			×			
18-38			×			×
18-39	×					
18-42			×			
19-1	×		×			
20-6	×		×			
21-6	×		×			
23-4	×		×			
24-3			×			×

	First-story Roof	Second-story Roof	Total
Pole latillas only	4	0	4
Split pole latillas only	1	0	1
Plank latillas	15	7	22
Pole and plank latillas	7	2	9
Split pole and plank latillas	2	0	2
Total	29	9	38

hearths in some lower-story rooms (see Hearths, below) and other indications of a change in room function also suggest that second stories were later additions.

There is little information on roof construction techniques from sites contemporary with Component I. Brief comments on Te'ewi (Wendorf 1953:44) and Poshu (Jeançon 1923:16) suggest that roof construction at these sites was similar to that at Component I Arroyo Hondo. No attempt was made at other sites to distinguish first- from second-story roofs.

Floor Construction

Sixty-five floors in 55 Component I rooms provided information on floor composition and construction; sixteen rooms yielded no information about floors (table 2.3). Floors were laid after structural walls, as indicated by the fact that the lowest course of adobe in the walls extends below the finished floors. Two techniques of floor construction were used for most floors: dry and wet adobe clay. In a few cases, sand, trash, and the original ground surface served as flooring. In one case (room 11-X1), the floor was surfaced with andesite slabs placed on an adobe base and cemented in place with mortar, giving a rough overall appearance.

Almost half of the first-story floors were covered with dry adobe and compacted under foot, though some water may have been sprinkled on the surface to aid in compaction (table 2.3). Most of the other first-story floors were leveled with a layer of dry adobe, then surfaced with 2–5 cm of wet adobe. This type of floor was very hard, with frequent drying cracks.

Thirteen rooms (20% of the excavated ground-floor rooms) exhibited multiple floors in first-story contexts; in five cases a dry-laid floor was covered by another layer of dry, compacted clay (table 2.3). In three cases a floor of unknown type was covered with wet-laid clay. A single instance of a dry-laid adobe floor covered by a wet-laid floor was observed in a possible ceremonial room, 12-11-8. In the other four ground-floor rooms with multiple floors, dry clay, sand, compacted fill, and ground surfaces were used as floors and to create new floors on top of old ones.

Wet-laid clay floors occurred in all second-story rooms where floor construction could be noted. The difference in the way floors were made in first- and second-story rooms appears to be primarily functional. Ground-floor rooms tended to be made of compacted materials, including clay, sand, and fill. Wet clay forms a harder surface than compacted dry materials. In the second-story locations, compacted clay would probably have worn away or trickled through cracks in the ceiling into the ground-floor room below. Second-story floors of wet clay would have cemented the sometimes irregular roofing materials underfoot into a firm, long-lasting surface.

Clay was the most common flooring material at other sites for which floors are described, although the distinction between wet- and dry-laid clay floors was not made (Jeançon 1923:14–15; Stubbs and Stallings 1953:29; Wendorf 1953:43). Jeançon (1923:14) noted that at Poshu, clay floors had an admixture of ash, grease, and charcoal that was polished into a hard surface. Pindi (Stubbs and Stallings 1953:29), Poshu (Jeançon 1923:14–15), and Te'ewi (Wendorf 1953:43) all had one or more floors of stone paving. At each of these sites, multiple clay floors were recorded in rooms. Descriptions of upper-story floors were not provided at other sites.

Doorways

Fifty-five doorways were documented in 44 Component I rooms (67% of the excavated ground-floor rooms). Of these, 23 rooms had one door, 17 had two doors, and 4 had three doors; 22 excavated Component I rooms had no doors (table 2.4). Doorways were marked by easily distinguishable gaps in the wall courses (fig. 2.8). They ranged from 93 to 116 cm in height and from 31 to 53 cm in width. Door sills were raised up to 106 cm above floor level but often corresponded to the first course of adobe. Most doors had wooden plank lintels. Many doorways were eroded, however, and only incomplete measurements of the height of the entry could be made owing to the poor preservation. Lintels could not be recorded for every door.

Doorways in the pueblo were used to connect rooms within the roomblocks—interior rooms in the first story and presumably both interior and exterior spaces in the second story (Plan 1). No second-story doors were preserved in situ. Hatchways and ladders generally connected the two stories of the site and provided the entrances from the plazas into the rooms. Only one doorway in an excavated room (room 18-32) opened directly from a first-story room onto a plaza (enclosed plaza G), but a few other exterior doors from unexcavated rooms were noted during the excavation of plazas A and G (see chapter 4). It appears that most access was from the rooftops and that doorways did not commonly connect rooms with outdoor areas. T-shaped doorways were rare (fig. 2.9).

Thirty-eight (69%) of the doors identified in Component I rooms were blocked (table 2.4; fig. 2.10). Half ($n = 22$) of the 44 rooms in which doors were found had no open wall entry; several rooms had two or three blocked wall entries. Blocked wall entries could indicate a change in social relationships among residents of adjacent rooms (Adams 1983:58; Wilcox 1975:144) or a change in room function. Blocked doors may also be a relic of construction methods. Mindeleff (1891:182) observed that the Hopis opened temporary doors in rooms for use during construction and subsequently blocked them when construction was completed. The use of wall entries in the reconstruction of room function and residence units at Arroyo Hondo is discussed in chapter 6.

TABLE 2.3
Construction methods for Component I first-story floors.

Room	Wet-laid Clay	Dry-laid Clay	Other	No Data on Construction	No Data on Floors
3-13	×				
4-2		×			
5-4	×				
5-5	1			2	
5-6	×				
5-7			Trash		
5-8		×			
5-9		×			
5-10	×				
5-11		×			
5-12	×				
5-13		×			
5-14		×			
6-6	×				
6-7	×				
7-7		×			
8-5	1			2	
9-5					×
9-7	×				
10-3	×				
11-1					×
11-X1			Andesite Slab and clay		
11-3		3	Earth fill (1) Sandy silt (2)		
11-4		×			
11-5	×				
11-6			Compact fill		
11-8	1	2	Use surface (3)		
11-9			Compact fill		
12-4				1, 2	
13-9		×			
14-5	×				
15-7	×				
15a-9	×				
16-8		×			
16-24		×			
16-26		1, 2			
16-27	×				
16-28		×			
16-30			Sand		
16-31		×			
16-32		1, 2			
16-33			Sand (1)	2	
16-34		×			
16-35		×			
16-36		1	Sand (2)		
16-37		×			
16-38		×			

(*continued on next page*)

TABLE 2.3 (continued)

Room	Wet-laid Clay	Dry-laid Clay	Other	No Data on Construction	No Data on Floors
18-5					×
18-6					×
18-7	×				
18-8		1, 2			
18-9					×
18-14					×
18-15		×			
18-32					×
18-37		×			
18-38					×
18-39		×			
18-42					×
18-48					×
18-49					×
19-1	×				
20-6		1, 2			
21-6		1, 2			
23-4	1		Original ground surface (2)		
24-3	×				
Total	21	33	11	5	11

Total Component I floors	70
Rooms with one floor	42
Rooms with two floors	11
Rooms with three floors	2
Rooms with no floor recorded	11

Note: Numbers in columns indicate specific floors in cases of rooms with multiple floors.

Wall entries at Te'ewi (Wendorf 1953:42) and Pindi (Stubbs and Stallings 1953:31) were similar in size to those at Arroyo Hondo, although the single example described at Poshu is much smaller (Jeançon 1923:14). Wall entries were rare at Pindi, occurring in only 21% of the ground-floor rooms; two-thirds of these doors were blocked (Stubbs and Stallings 1953:31). The proportion of rooms with doors could not be determined at other sites, although most of those reported at Te'ewi were also blocked (Wendorf 1953:42). Use of wall entries for outside access was rare at other sites. At Poshu, Jeançon (1923:13) notes that only vents opened directly onto plaza areas from ground-floor rooms. A number of doors at Pindi opened at ground level during the First Ceramic period, but during later periods only one door opened to outdoor space (Stubbs and Stallings 1953:31). Doors to outside space were infrequent at Tsama (McKenna 1970) and absent from Te'ewi (Wendorf 1953:42).

Ceiling Entries

Twenty ceiling entries were identified, five by the presence of ladder depressions in floors (see below), eleven by fragments of adobe hatch coping, and four with both (table 2.5). Although the dimensions of hatchways could not be measured from the materials recovered, the distance between paired ladder-butt depressions in floors ranged from 25 to 35 cm, suggesting the approximate width of the openings. Impressions from fallen hatchways indicate that roof openings were framed with split planks. The fact that no hatchways were identified in second-story roofs may only reflect poor preservation of the upper layers of the site. Evidence for ceiling entries at other sites is provided only at Pindi, where adobe hatch coping was found (Stubbs and Stallings 1953:29).

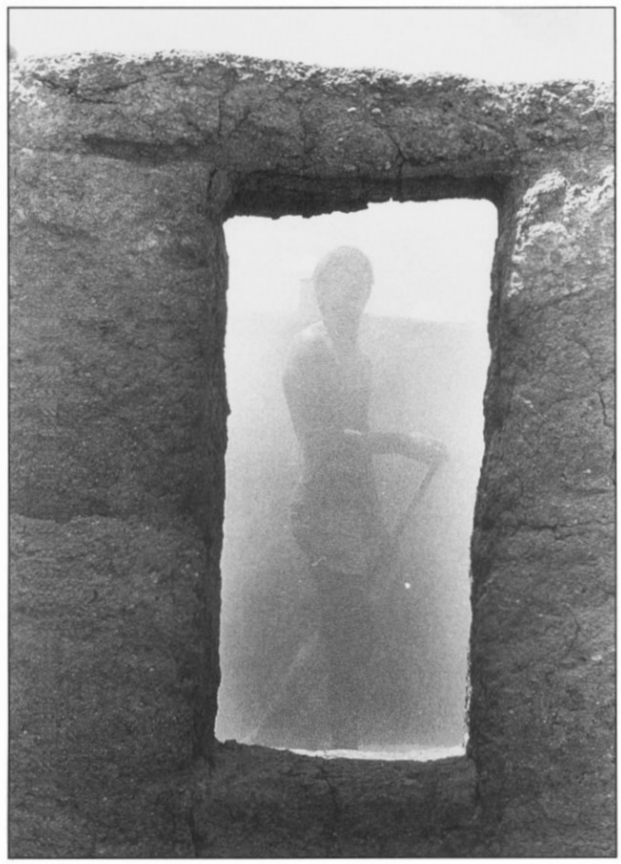


Figure 2.8. Unblocked doorway in east wall of room 18-42 with crew member Greg Stark in the room beyond. (Photo AH3-MM7).

Floor and Wall Features

Ladder Impressions

Ladders providing vertical access were essential in multistoried pueblos. On the basis of impressions in room floors, two kinds of ladders were identified at Arroyo Hondo (table 2.5). Five pairs of small, circular depressions (one with an extra depression) were probably made by rung ladders, though no remains of these ladders were found. Rung ladders would probably have been composed of two long poles or stringers to which rungs were attached. The depressions made by the ladder butts were 3–4 cm in diameter, 3–9 cm deep, and 25–35 cm apart. Generally, a well-worn patch of floor was found in the space between these depressions. A single shallow depression in the floor indicated a beam ladder: a single post of larger diameter with cut notches for footholds. These depressions, 12–20 cm in diameter and 4–18 cm

TABLE 2.4
Doorways in Component I rooms.

Room(s)	Wall(s)	Length (cm)	Width (cm)	Height Above Floor (cm)	Blocked/ Open
Doorways not open to another excavated room					
5–4	S	47†	46	68	O
5–14	S	99	44	58	B
6–6	W	39†	41	89	B
7–7	S	57	47	70	B
8–5	E	93	37	62	O
	W	81	46	60	B
9–5	N	74	34	56	O
9–7	S	94	37	48	B
10–3	W	29†	31	32	B
13–9	W	61	42	70	B
14–5	S	116	36	10	B
	E	79	42	0	B
15–7	S	49†	33	82	B
15a–9	N	86	35	45	B
	E	87	46	41	B
16–8	E	61	37	57	O
16–24	E	70	36	66	B
16–27	E	47	28	90	B
16–28	W	83	35	62	B
	S	65	40	83	B
16–30	S	70	40	48	B
	W	79	40	56	B
16–32	W	61	41	65	B
16–33	E	30†	45	80	B
16–36	E	47†	38	52	B
	W	48†	53	45	B
18–5	E	80	40	50	B
18–15	S	94	38	38	B
18–32*	N	25†	38	100	O
18–39	E	73	32	71	B
	W	73	35	80	B
18–42	W	77	40	79	B
19–1	N	71	32	48	B
	E	110	45	106	B
20–6	S	58†	42	50	O
	W	83	37	83	B
23–4	S	57†	45	50	B
Shared doorways					
5–5/5–7	N/S	108	51	75	B
5–7/5–8	W/E	107	49	54	B
5–7/5–9	E/W	108	42	62	O
5–8/5–10	W/E	110	43	45	O
5–8/5–12	N/S	107	37	45	O
5–9/5–14	E/W	102	45	60	O

(continued on next page)

TABLE 2.4 (continued)

Room(s)	Wall(s)	Length (cm)	Width (cm)	Height Above Floor (cm)	Blocked/ Open
5–10/5–11	S/N	91	44	86	O
5–12/5–13	W/E	41†	42	85	O
16–24/16–28	W/E	72	37	62	B
16–31/16–32	S/N	83	37	72	B
18–5/18–7	W/E	90	38	87	B
18–5/18–6	S/N	62	42	75	O
18–6/18–49	S/N	36†	34	70	O
18–7/18–8	W/E	90	40	90	B
18–8/18–9	W/E	82	37	78	B
18–9/18–39	S/N	80	57	78	O
18–9/18–42	W/E	83	38	70	O
18–37/18–38	S/N	55	47	79	O
Average		83	40	64	

Total blocked doorways	38
Total open doorways	17
Total doorways not open to another excavated room	37
Total shared doorways	18
Total Component I doorways in first-story rooms	55
Total first-story Component I rooms with doorways	44
Percentage of first-story Component I rooms with doorways	67
Total Component I doorways opening into a plaza	1

* Doorway opening into a plaza.
† Dimensions incomplete.

deep, were found in three rooms. Worn areas adjacent to the floor depressions were found with this type of ladder.

Rung ladders appear to have leaned slightly between floor and hatchway, as indicated by the ovoid shape of the floor depressions. Beam ladders may have been set vertically or with a slight inclination, as suggested by ovoid depressions in excess of 10 cm. All ladder information was recovered from first-story proveniences; no second-story floors were preserved. Ladders probably provided entry to rooftops and into second-story rooms as well. Ladder holes have not been reported at the other sites used for comparison in this volume, although ladders must certainly have been in use elsewhere.

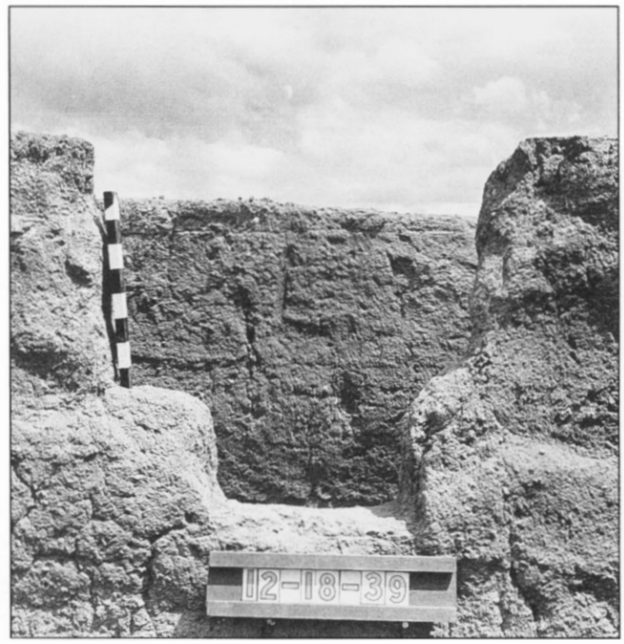


Figure 2.9. T-shaped doorway in north wall of room 18-39, south wall of room 18-9. This feature is one of the few T-shaped doorways observed at Arroyo Hondo. Scale is 40 cm in 5 cm increments. (Photo AH3-MM7).

Hearths

Fifty-one Component I rooms had hearths in either first- or second-story rooms or on rooftops (table 2.6). Three kinds of construction were recognized among the 65 classifiable hearths recorded in these rooms: slab-lined (n = 38, 58%), clay-lined (n = 18, 28%; fig. 2.11), and pit (n = 9, 14%; fig. 2.12). Eight burned areas on floor surfaces and along walls were also recorded (see Burned Areas, below).

More than half of the slab lined hearths (n = 21) were found on rooftops (either first or second story), and another 42% (n = 16) were found in second-story room interiors, as indicated by debris from collapsed rooms (table 2.6; fig. 2.13). The only intact first-story slab-lined hearth that was recorded provides an indication of the construction and dimensions of these features. This hearth, in room 18-15, measured 40 by 60 cm and was 15 cm deep; four tabular slabs were set flat in the bottom of a rectangular pit bordered by two slabs set on edge on the long sides. The slabs were mortared in place before floor construction was completed. On each of the short sides, a low (4 by 8 cm) rim of adobe bordered the fire box. Fragments of other slab-lined hearths, in roof or

TABLE 2.5
Ceiling entry indicators in Component I rooms.

Room	Ladder Seats	Single or Double Pole Ladder	Hatch Coping
5–4*	1	unknown	×
5–5*			×
5–6			×
5–10			×
6–7		single	
15–7*	1	single	
16–28*			×
16–33*			×
16–35			×
16–36	2	double	×
16–37			×
18–7*			×
18–8*			×
18–9*	2	double	
18–14*			×
18–38*			×
18–39*	2	double	×
18–48	2	double	×
20–6*	3	unknown	
24–3*	1	single	

Total rooms with both ladder seats and hatch coping	4
Total rooms with ladder seats only	5
Total rooms with hatch coping only	11
Total Component I rooms with ceiling entry indicators	20

* Second story present.

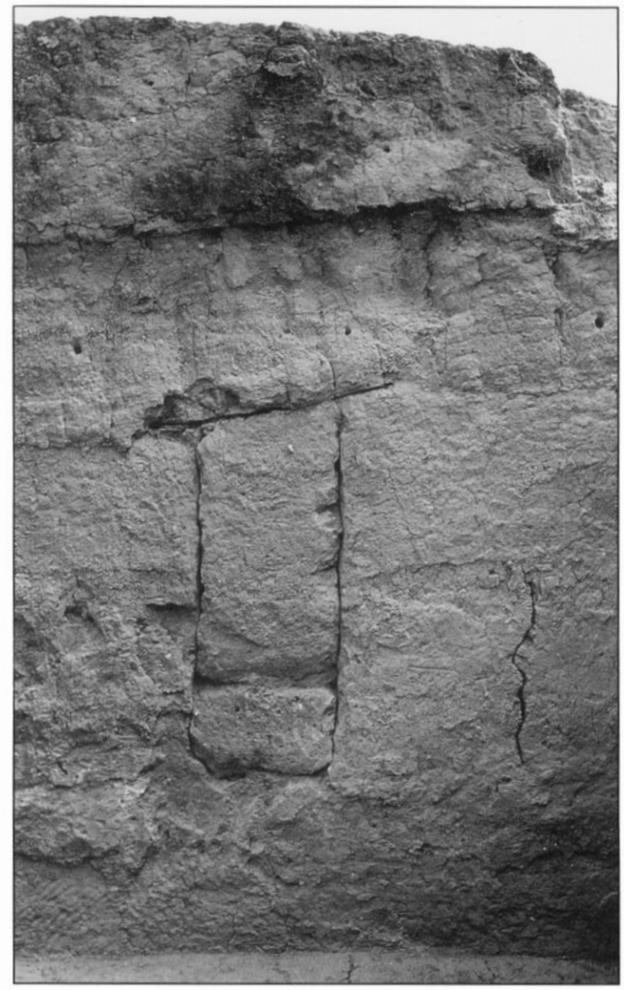


Figure 2.10. Blocked doorway in room 9-7. (Photo AH2-DGN58).

second-story contexts, correspond to this pattern, and it appears that dimensions were comparable among hearths of this kind. Sandstone from the arroyo was used somewhat more often than andesite in hearth construction.

Half of the clay-lined hearths (n = 9) were located inside second-story rooms, and most of the rest were on first-story floors (table 2.6). Two of the first-story clay-lined hearths were associated with possible ceremonial rooms, 11-5 and 16-36. In first-story locations, clay-lined hearths ranged from 40 to 50 cm in diameter and from 10 to 18 cm deep, and all appear to have been circular or subrectangular; upper-story clay-lined hearths are assumed to have been similar.

Pit hearths were located primarily in ground-floor rooms (n = 7); one was on a first-story rooftop and one was in a second-story room (table 2.6). Each of the ground-floor examples consisted of a circular or subrectangular depression dug 5–20 cm into the floor. Though individual features varied, the sizes of the two subrectangular examples (65 by 45 cm in room 5-6, and 56 by 47 cm in room 16-34) were close to that of the single intact slab-lined hearth. Circular pit hearths ranged from 36 to 83 cm in diameter.

More than one-third of all hearths (n = 26) were located inside second-story rooms (table 2.6). Other hearths were almost equally divided between first-story floors, first-story roofs, and second-story roofs. Second-story rooftop hearths may be underrepresented owing to poor preservation of the uppermost layers of the site. More hearths were constructed in indoor than outdoor locations: 63% (n = 41) were located in room interiors and 37% (n = 24) on rooftops.

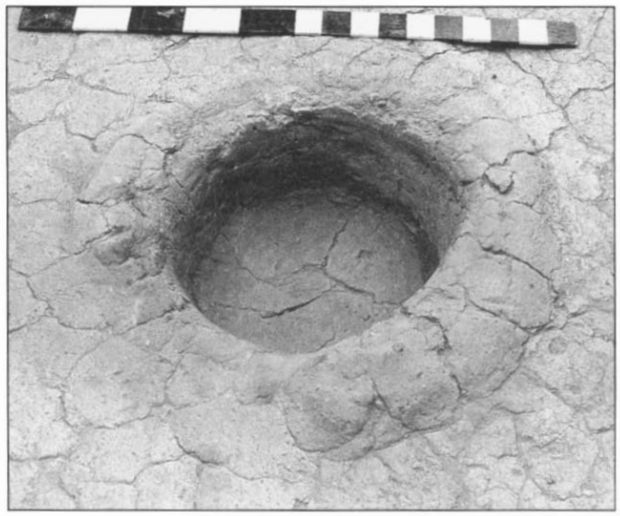


Figure 2.11. Clay-lined hearth in room 11-5, a Component I room. Clay-lined hearths were more common in Component I than in Component II. Some have very pronounced clay rims. (Photo AH1- JDB4).

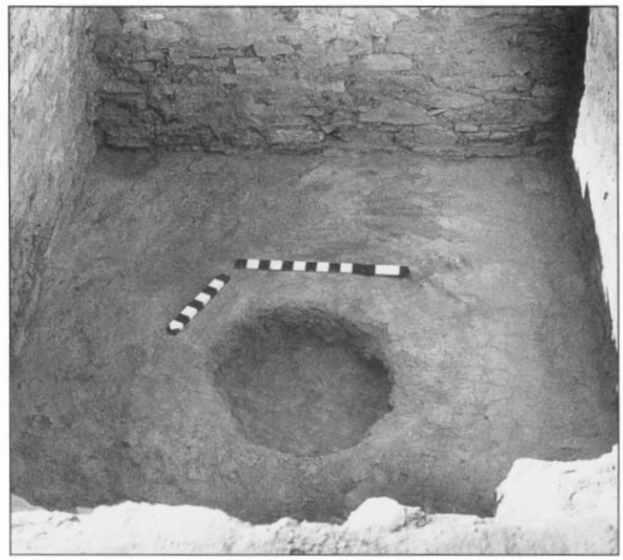


Figure 2.12. Pit hearth in room 11-9. Pit hearths were the least common hearth type at Arroyo Hondo. Smaller scale is 40 cm in 5 cm increments. (Photo AH1-JDB7).

Figure 2.13. Slab-lined hearth fallen from second-story roof of room 24-3. Scale is 40 cm in 5 cm increments. (Photo AH2-MM1).

The majority of first-story room hearths at Arroyo Hondo were located in the center or near the center of the rooms. Two first-story pit hearths (in rooms 11-6 and 16-26) were in the northeast corner of the room. Rooms 16-34 and 16-36 each have hearths positioned at the center of one long wall of the room. The locations of hearths in upper stories are difficult to determine. Thirteen of the 15 ground-floor hearths were in single-story rooms, suggesting that ground-floor rooms were not used for habitation when a second story was present (table 2.6). Four of the 13 ground-floor hearths (two in one room) had been sealed with adobe sometime after their original construction. In only one case was this remodeling associated with the construction of a second-story room.

Rooftop hearths were mostly slab lined, possibly to increase their resistance to the elements (table 2.6). Clay-lined hearths were infrequent on rooftops, again probably because of rapid weathering in exposed locations. Pit hearths were most commonly found in ground-floor locations and were rare on rooftops and second-story rooms. Pit hearths may merely be unfinished clay hearths. Both types are found most commonly in room interiors; however, pit hearths are also more ephemeral than other hearth types, and evidence of their presence on roofs and in upper stories may have been lost when these elements disintegrated.

TABLE 2.6
Hearth types in Component I rooms.

Room	First-Story Floor	First-Story Roof	Second-Story Floor	Second-Story Roof
3–13	Clay			
4–2	Pit			
5–4*			Slab	
5–5*			Slab	Small slabs
5–6	Pit, sealed	Slab		
5–7*			Clay	Slab
5–8*			Clay	
5–9*				Slab
5–11*				Slab
5–12		Slab		
5–13		Slab		
6–6*				Slab
6–7		Pit/Slab		
7–7*			Slab	
8–5*			Clay rim	Slab
9–7*			Slab	
10–3	Burned patch	Slab		
11–5	Clay			
11–6	Pit			
11–8	Clay (3), two sealed			
11–9	Pit			
12–4		Slab		
13–9*			Slab	
14–5*	Pit hearth in subfloor jacal room			Clay
15–7*			Slab	Slab
15a–9*			Slab	
16–24*	Burned patch		Clay	
16–26	Pit			
16–27*	Burned patches		Clay rim	Slab
16–28*			Slab/Clay	
16–30*			Clay	
16–33*			Clay	Slab
16–34	Pit	Slab		
16–35	Burned patch			
16–36	Clay	Slab		
18–5*			Slab/Clay	Slab/Clay
18–7*	Pit			Slab
18–8*			Slab	
18–9*			Slab	
18–14*			Slab	
18–15	Slab			
18–32*			Clay	
18–37		Slab		
18–38*			Slab	
18–39*			Slab	
18–42*			Pit	
19–1*	Burned patch			
20–6*	Clay, sealed Burned patch		Clay	Slab

(*continued on next page*)

TABLE 2.6 (continued)

Room	First-Story Floor	First-Story Roof	Second-Story Floor	Second-Story Roof
21–6	Burned patch	Clay		
23–4*			Slab	
24–3*	Burned patch		Slab/Clay	Slab
Subtotals				
Clay	7	1	9	1
Pit	7	1	1	0
Slab	1	8	16	13
Total	15	10	26	14

Total hearths recorded in Component I rooms	65
Total clay hearths	18 (28%)
Total pit hearths	9 (14%)
Total slab hearths	38 (58%)
Total rooms with hearths (including second-story rooms)	51
Percentage of excavated rooms with hearths	51
First-story floors with hearths	13
First-story roofs with hearths	10
Second-story floors with hearths	26
Second-story roofs with hearths	14
First-story floors with burned patches	8

Note: Numbers in columns indicate multiple hearths of the same type in the same room. Burned patches are not included in the totals, nor is the hearth found in the jacal room beneath room 14–5.

* Second story present.

Far more information about hearths was derived from the excavations at Arroyo Hondo than from excavations at other northern Rio Grande sites. Earlier work at Pindi recorded only 24 hearths during excavation of more than one hundred rooms, whereas at Arroyo Hondo 66 hearths were recorded in 65 one- and two-story rooms. Most of the recorded hearths at Pindi seem to have been clay-lined hearths in ground-floor rooms; fallen rooftop hearths were noted in "a number of rooms" (Stubbs and Stallings 1953:31). At Te'ewi, where four hearths were recorded from excavation of 27 rooms (Wendorf 1953: 44–46), one was clay lined, one was a pit, and two were slab lined. Two hearths were recorded at Tsama from a sample of ten excavated rooms. There is no count of hearths from Poshu, though slab hearths are described (Jeançon 1923:15).

Although most Component I hearths in ground-floor rooms are located in the center of the room, hearth locations varied at other sites. At Pindi, the location of hearths within ground-floor rooms was primarily in the center of rooms, although some were located along the walls (Stubbs and Stallings 1953:31). At Tsama, both hearths are located in the center of long walls, much like those from Component II at Arroyo Hondo (McKenna 1970:8; also see chapter 3). Jeançon noted that most hearths at Poshu were located "against the middle of the wall in a room" (1923:15). At Te'ewi, three hearths were adjacent to room walls and one was in the center of the room (Wendorf 1953:43–44).

Burned Areas

In eight rooms, burned patches were found on the floors and sometimes on adjacent walls, indicating the presence of a small fire or torch (table 2.6). All were in ground-floor rooms, although the disintegration of upper-story rooms would have destroyed evidence of burned patches in these areas. Only one of the rooms with burned patches also had a first-story hearth, but most of the rest had a rooftop or upper-story hearth. The size and shape of the burned patches varied, ranging from 10 to 75 cm across and from circular to rectangular. Burned patches occurred in rooms with little natural light. Five rooms with burned patches were under second-story rooms.

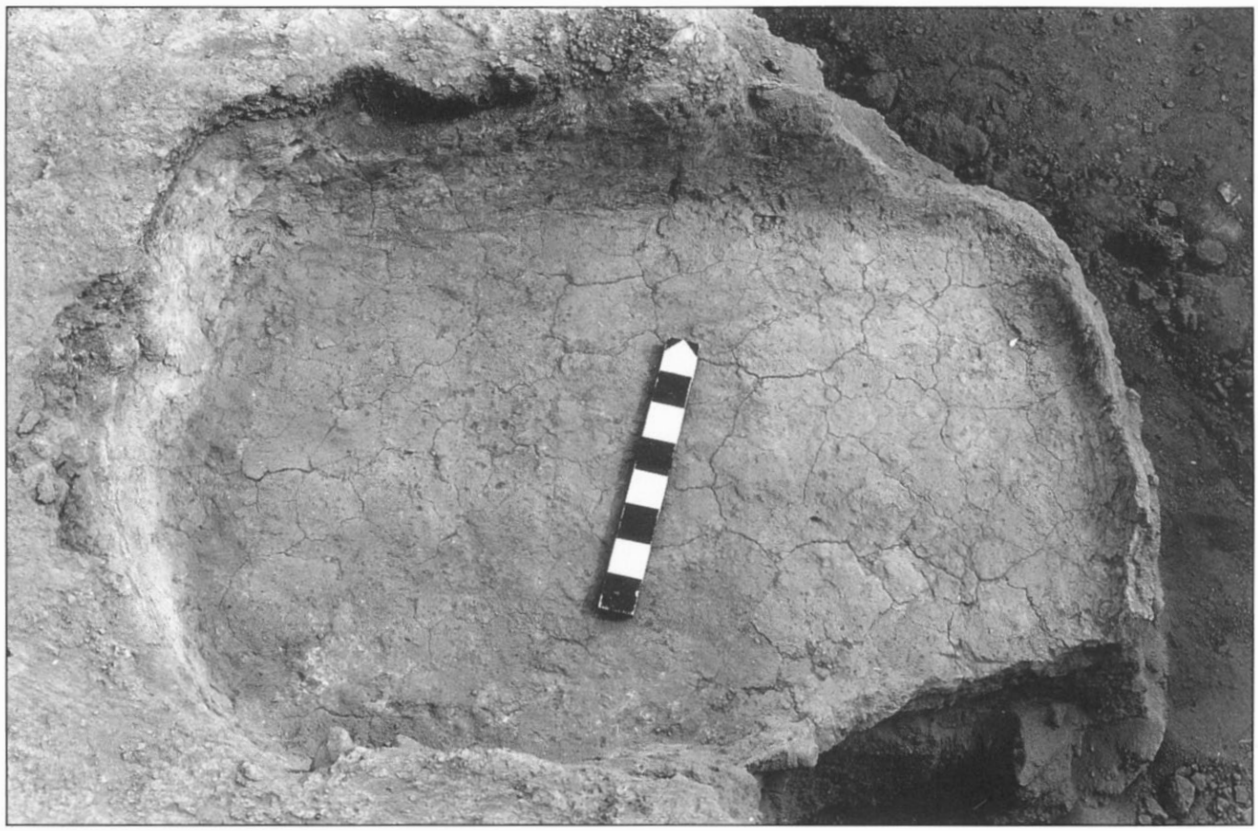


Figure 2.14. Cists of a variety of sizes and shapes were found on room floors. This large, shallow cist is in room 10-3; similar cists were also found in plaza areas. Scale is 40 cm in 5 cm increments. Figures 2.15 through 2.17 show subfloor room cists of different shapes and sizes. The function of these cists is uncertain. (Photo AH2-JDB7).

The use of fire in these locations is assumed to have been brief, though possibly habitual. Only one of the rooms with a burned area had a vent, suggesting that a fire was not intended to be used regularly in the other rooms without vents.

Cists

Twenty-three cists were found in fifteen ground-floor rooms (table 2.7). All were subfloor and were either circular, oval, or bell-shaped in cross-section; each was constructed after the floor was laid (figs. 2.14 to 2.17). Depths ranged from 3 to 45 cm. Openings in floors were usually circular or ovoid, and the interiors of five of the cists were lined with adobe. Cists were located in rooms adjacent to the plazas as well as in roomblock interiors. Four rooms with cists contained hearths, and eleven were in rooms without hearths, suggesting that cists were not commonly associated with habitation rooms.

Cist shapes and contents suggest a variety of uses. The cist in room 18-32 was identified as an adobe puddling basin, apparently in use before the room was constructed (table 2.7). The cist in room 21-6 was bell-shaped and seems to have been used for storage. Large rectangular cists found in other rooms may also have been used for storage. Several smaller cists with plaster-lined interiors may have been used to shell or grind grain. Though pollen analysis of the contents of these features was not performed, they are similar to two features in plaza A that contained relatively high quantities of cheno-am pollen and were suggested to have been winnowing basins (Bohrer 1986:218–219); however, winnowing inside a room seems an unlikely activity. Other cists were probably used for a variety of purposes—for example, as pot stands, indicated by the sherds found in the cist in room 15a-9, as mixing bowls, or as containers for foodstuffs.

Floor features were variably recorded at sites elsewhere in the region. The cists at Pindi are not discussed

TABLE 2.7
Cists in Component I rooms.

Room	Dimensions (cm)	Depth (cm)	Location in Room	Plastered Interior	Contents
5–4	38 by 34	24	near S wall		
	16 by 16	7	near S wall		
5–10	19 by 19	7	base of N wall	×	large culinary sherd
6–7	15 by 15	5	C near E wall		
11–5	19 by 30	21	N wall		sherd
	27 by 35	23	SE corner		vessel
15a–9	35 by 22	20	SE corner		sherds from plain jar
16–26	19 by 18	13	SW corner	×	small slab
16–29	140 by 84	9	NW corner		trash
	132 by 63	21	NE corner		trash
16–36	8 by 8	5	SE corner	×	
	7 by 7	8	SE corner	×	
	80 by 55	10	center of room		ceramics, rodent bone
18–7	45 by 45	30	center of room		
	20 by 20	3	center of room		ash
18–32	95 by 65	40	S center		trash
18–37	—		NE area		trash
18–39	65 by 50	45	SW corner		trash
18–49	80 by 65	20	E center		trash
	—		NW corner		
	—		SW corner		trash
21–6	diameter: top, 40; bottom, 150	45	SE corner		sherds, mano slabs
24–3	84 by 46	30	SW corner	×	

Total cists in Component I rooms	23
Total Component I rooms with cists	15
Percentage of Component I ground-floor rooms with cists	23

in the text, though illustrations indicate their presence (Stubbs and Stallings 1953: figs. 24–28). Only two subfloor cists were found at Te'ewi, although one may have been a firepit; the other may have been used for mixing adobe (Wendorf 1953:44). A number of subfloor cists were noted at Poshu. They occurred in a variety of locations on room floors, and many were bottle shaped (Jeançon 1923:15).

Burials

Twenty-three subfloor burials were found in 14 Component I rooms (Palkovich 1980:93). Almost all were formal interments in a pit that had been dug into the floor. In some cases, the pit had been plastered over, and the room apparently continued to be used. A few other burials ($n = 5$) were found in the fill of Component I rooms. For details of Arroyo Hondo burials, see Palkovich 1980.

Post Holes

Eighteen ground-floor rooms produced post holes ranging from 5 to 27 cm in diameter and 3 to 55 cm deep (table 2.8). Ten post holes were 10 to 15 cm in diameter, and only two were more than fifteen centimeters deep. None were plastered or finished in any way, but they often contained small stone slabs and pottery fragments. Most fall within the range of depressions associated with beam ladders, but they lack worn floor areas. Two post

Figure 2.15. Deep, ovoid cist in room 24-3. Scale is 40 cm in 5 cm increments. (Photo AH2-MM1).

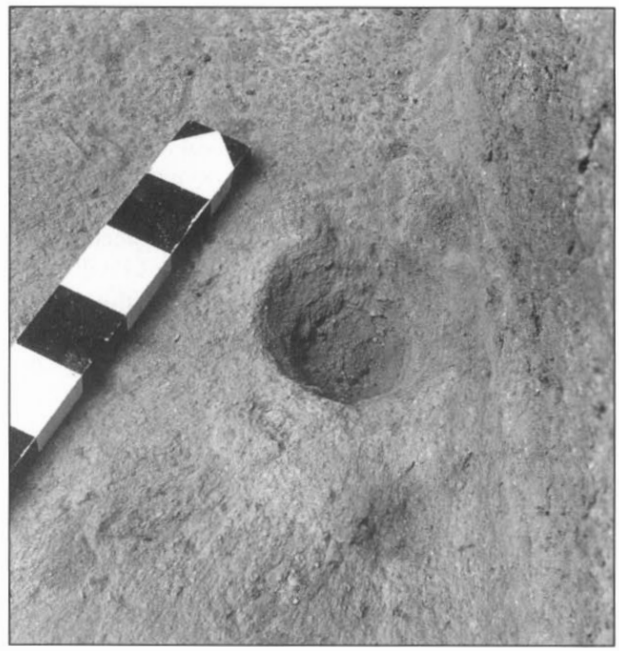


Figure 2.16. Small, round cist in room 16-36. Scale is 40 cm in 5 cm increments. (Photo AH1-RWL11).

holes had been dug along a wall and appeared to have supported a rack or similar feature. Two others were positioned in the center of rooms and may have supported a weak roof member.

Post holes occurred in only a few rooms at Te'ewi (Wendorf 1953:44). Many floor holes were recorded from Poshu, some of which may have been post holes (Jeançon 1923:15). No function was suggested for these features at either site.

Vent Holes

Twenty-three circular vent holes through walls were recorded in 17 rooms at Arroyo Hondo (table 2.9). Vents range from 9 to 41 cm in diameter and appear to have been planned features formed during wall construction (fig. 2.18). These features probably permitted circulation of air through rooms and may also have been used for communication between rooms (Wendorf 1953:42). All were in ground-floor rooms. Vents are likely to have been present in upper sections of wall that were not preserved. Conical, adobe "vent plugs" with finger holes to assist in removal were recovered in three rooms (both first- and second-story). The remaining walls may not have been high enough to reveal the location of the original vent hole in either a first- or a second-story wall.

Two categories of vents were recognized based on their height above the floor: 13 vents were 1 m or more above the floor and 10 were less than 25 cm above the floor. Low vents tended to be in rooms with hearths, whereas high vents tended to be in rooms without hearths. Seventy-five percent of all vents were found in long-axis

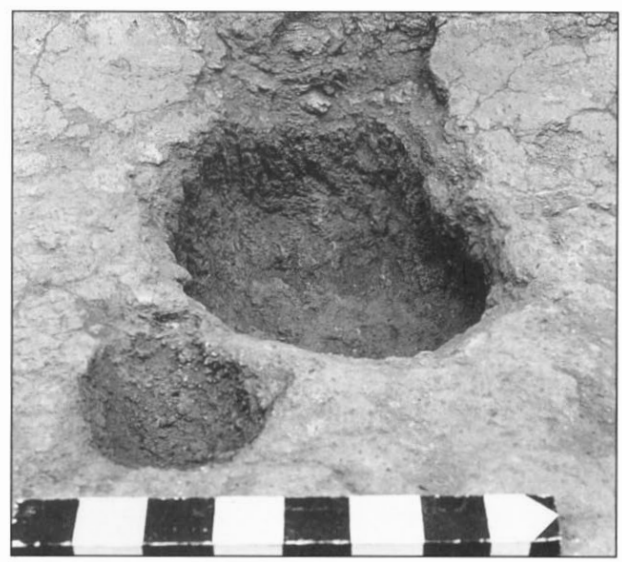


Figure 2.17. Subfloor cists along the south wall of room 5-4. Scale is 40 cm in 5 cm increments. (Photo AH2- JDB5).

walls, perhaps indicating an initial preference for open-air ventilation. Later room additions eventually blocked all but three of the vents from outside air, however. Changes in room use apparently decreased the need for ventilation, or new construction blocked air flow. Alternatively, sources of ventilation may have changed—for example, by the construction of hatchway entries.

Vents appear to be a common feature of pueblo sites in the northern Rio Grande region. Vents at Pindi averaged 16 cm in diameter, but the locations within rooms were not consistent. As at Arroyo Hondo, some were blocked, some were open, and others appear to have been filled with removable vent plugs (Stubbs and Stallings 1953:29). Jeançon (1923:13) noted blocked and open vents from 16 to 26 cm in diameter in both interior and outside walls at Poshu. Twenty-four vent holes were recorded at Te'ewi. They were also similar in size to those at other sites; some were blocked and others open. Unlike at Arroyo Hondo, most vents at Te'ewi were 25–51 cm above floor level (Wendorf 1953:42–43).

Wall Niches

Small rectangular or cylindrical holes penetrating into but not through walls were called "wall niches." Of the seven niches recorded, all but one appear to have been planned features fashioned as the walls of a room were erected (table 2.10; fig. 2.19). Five rooms had only one niche; room 11-9 had two niches. Five niches were at least fifty centimeters above the floor of the room. Openings measured 7 to 28 cm deep. Three niches were sealed with adobe: two permanently and one with a removable plug. These features may have provided storage space for small or prized items. Similar features were recorded in two kivas at Arroyo Hondo (12-G-5, 12-14-6). No niches were found in second-story rooms, probably because second-story walls were so poorly preserved.

Three niches similar in size to those at Arroyo Hondo were reported from Te'ewi (Wendorf 1953:42). Niches at Pindi were reported only from rooms that were believed to have specialized functions (Stubbs and Stallings 1953:29). Niches were not found at Poshu (Jeançon 1923:15).

Pole and Plank Shelves

Evidence of wooden shelving was recovered in two or possibly three ground-floor rooms: 7-7, 9-7, and perhaps 16-24 (table 2.11; fig. 2.20). None of these rooms had a hearth, and each was below a room or rooftop with a hearth, suggesting that the shelves were located in storage areas. Shelves were indicated by paired holes or individual ledges in walls. Two types of shelves are represented: horizontal pole shelves and plank shelves. In room 9-7, horizontal poles spanned the short axis of the room and were held in place by sockets in opposing walls. The poles were set in the adobe wall coursing between 1 and 1.7 m above the floor. Shelves of this type were reported from Pindi (Stubbs and Stallings 1953:29) but not from other sites in the region.

The plank shelf in room 7-7 resembled a small ledge jutting out from the wall; a single rough plank 14 cm long and 5 cm wide was set into the adobe wall. The plank shelf apparently did not extend all the way across the short axis of the room, nor was it anchored in the opposing wall, which implies that it supported little weight. The plank shelf was about 150 cm above the floor. Another shelf in room 16-24, 10 cm deep and extending all along the west wall, may have had a similar function to the shelf in room 7-7, or it may have been an unintentional architectural feature created by offset adobe courses.

Although pole and plank shelves were only found in ground-floor rooms at Arroyo Hondo, they were prob-

TABLE 2.8
Post holes in Component I rooms.

Room	Number of Post Holes
4–2	3
5–7	1
5–9	1
5–10	1
5–13	1
5–14	1
8–5	2
11–X1	1
11–3	1
11–8	1
13–9	1
14–5	16
16–29	3
16–34	2
16–36	2
16–38	7
18–15	1
18–48	1
Total Component I rooms with post holes	18
Total post holes in Component I rooms	46

TABLE 2.9
Vents in Component I rooms.

Room	Vent Height (cm)	Vent Location		Vent Type	Hearth Present in Room	Wall
		High	Low			
3–13	15		×	O	O	W
4–2	9		×	O	O	E
5–5	147	×		O		S
	148	×		B		E
5–9	155	×		O		E
5–11	166	×		B		E
	171	×		B		W
5–14	0		×	B		W
	134	×		O		W
9–7	152	×		B		W
11–5	0		×	B	O	E
11–8	24		×	B	S	E
15–9	0		×	B		E
16–30	98	×		B		S
16–32	146	×		B		N
	133	×		B		S
16–33	106	×		B		N
	142	×		B		N
16–34	119	×		O	O	N
18–14	3		×	O		N
18–15	8		×	B	O	S
	19		×	O		W
20–6	0		×	B	S	S
Total		13	10	B = 15 O = 8	S = 2 O = 5	N = 5 S = 5 E = 7 W = 6

Total vents	23
Total Component I rooms with vents	17
Rooms with two vents	6
Rooms with one vent	11

B = Blocked
O = Open
S = Sealed

ably more common than excavation indicated. Poles suspended from roof beams by rope and rawhide are visible in photographs of pueblo rooms. These features would demand little effort and no advance planning to construct and would leave no trace. Pole and plank shelves of different kinds were probably common features in many living and storage rooms at Arroyo Hondo, where they would have been used to keep small objects, clothing, and perhaps robes or blankets off the floor.

Wall Pegs

Small-diameter (2 cm) holes in walls were observed in six rooms, and many produced the remains of dried, rotten wood pegs (table 2.12). Most of the holes angled upward, though some were set at right angles to the wall. These holes often occurred in groups of two or more, usually in horizontal alignment at heights of 1–1.6 m above the floor of the room. Most holes appear to have

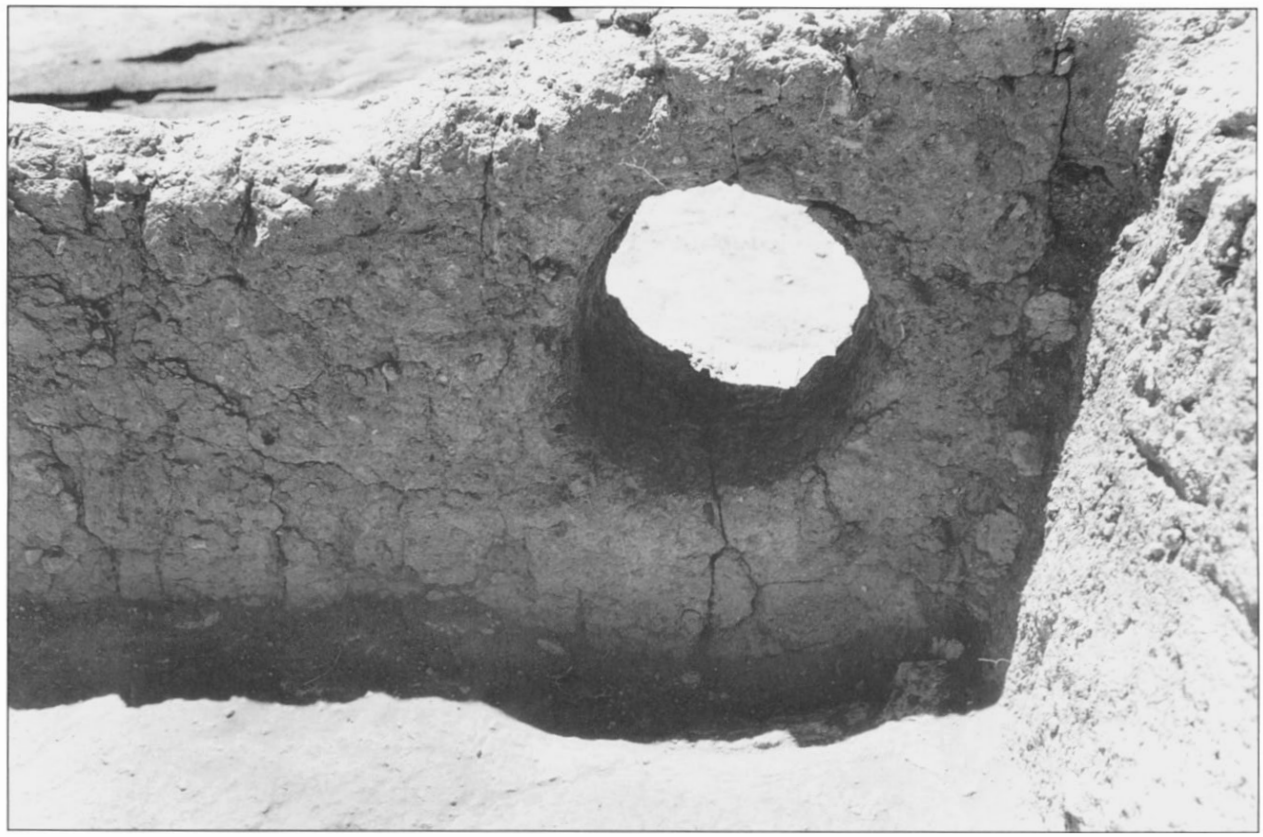


Figure 2.18. Vent in west wall of room 3-13. Vents in walls may have circulated fresh air, directed smoke from interior hearths, and been used as a means of communication between rooms. (Photo AH4-DGN7-14).

been fashioned at the time the walls were erected. Many of these features could have been used to suspend articles of clothing and other objects. Holes entering walls at a right angle and occurring in groups may also have supported plank shelves on which small articles were placed.

The six recorded examples of peg holes were all found in the first-story room of two-story units, and none of these ground-floor rooms had hearths. Apparently peg holes were associated with rooms that were not primary living rooms and are likely to have been used for storage. Similar peg holes, some with rotted wood, were found at Pindi (Stubbs and Stallings 1953:29).

Room Decoration

Decoration of rooms, apart from kivas, was rare at Arroyo Hondo. Two rooms (rooms 9-7 and 16-33) apparently had red or yellow clays applied to walls in various patterns. Remnants of colored plaster were recovered only in second-story room debris. Colored plaster may have been used to decorate some first-story rooms, but no examples were preserved. In room 9-7, geometric designs had been executed in red and yellow on a white background within a red framing line, and yellow paint was observed above the frame. In room 16-33, black lines were painted on a plastered deflector. The relative scarcity of plaster fragments may indicate that only one section of a single wall was decorated in each case. In room 11-5 a decorative strip of unpainted plaster was observed above a wall niche.

Colored plaster was equally rare at other sites. At Poshu, colored plaster, including yellow, red, and black, was used infrequently as decoration (Jeançon 1923:12). At Pindi, five rooms had fragments of colored wall plaster, indicating that the rooms had contained wall decorations in white, black, green, yellow, and red (Stubbs and Stallings 1953:29). No coloration or painting was noted on walls at Te'ewi (Wendorf 1953:42).

TABLE 2.10
Wall niches in Component I rooms.

Room	Wall	Niche Type	Dimensions (cm)	Height above Floor (cm)	Room Hearth
5–6	N	O	14 by 13	50	S
5–8	E	O	9 by 16	70	
11–4	E	S	30 by 40	20	
11–5	N	S	15 by 17	16	O
11–9	E	O	13 by 16	83	O
	E	S	12 by 17	104	O
18–14	S	—†	10 by 14	115	
Total wall niches in Component I rooms					7

S = Sealed.
O = Open.
†No information.

TABLE 2.11
Shelves and peg holes in Component I rooms.

Room	Shelf	Peg Hole
5-5		11
5-9		3
5-14		1
7-7	1	3
8-5		1
9-7	1	3
16-24	1	
Total	3	22

Pit Rooms and Jacal Rooms

Two kinds of living space were identified at Arroyo Hondo in addition to rooms with adobe or stone walls: one a pit room and the other a room constructed of jacal. The pit room may date to the earliest occupation of the site. This structure, room 11-6, was identified 54 cm below the floor of room 11-3. It consisted of a rectangular hole dug into the original ground surface, measuring 1.6 by 1.05 m. A thin adobe wash was applied to the sides of the pit. Floor preservation was poor, characterized by a few hard-packed patches of adobe. A crude pit hearth, located in the northeast corner, measured 45 by 49 by 10 cm. There were no indications of a roof. The

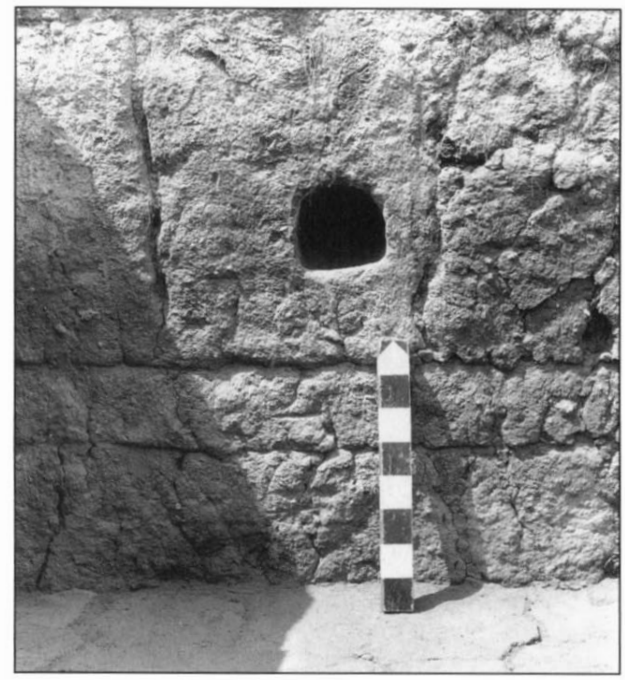


Figure 2.19. Wall niche in the north wall of room 5-6. Scale is 40 cm in 5 cm increments. (Photo AH2-MM13- 4).

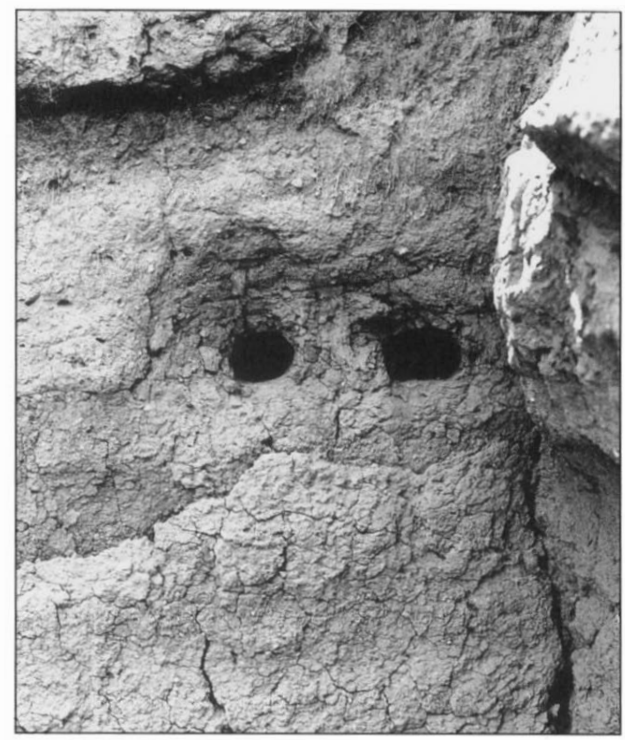


Figure 2.20. Post holes for a shelf in room 9-7. (Photo AH2-RWL9).

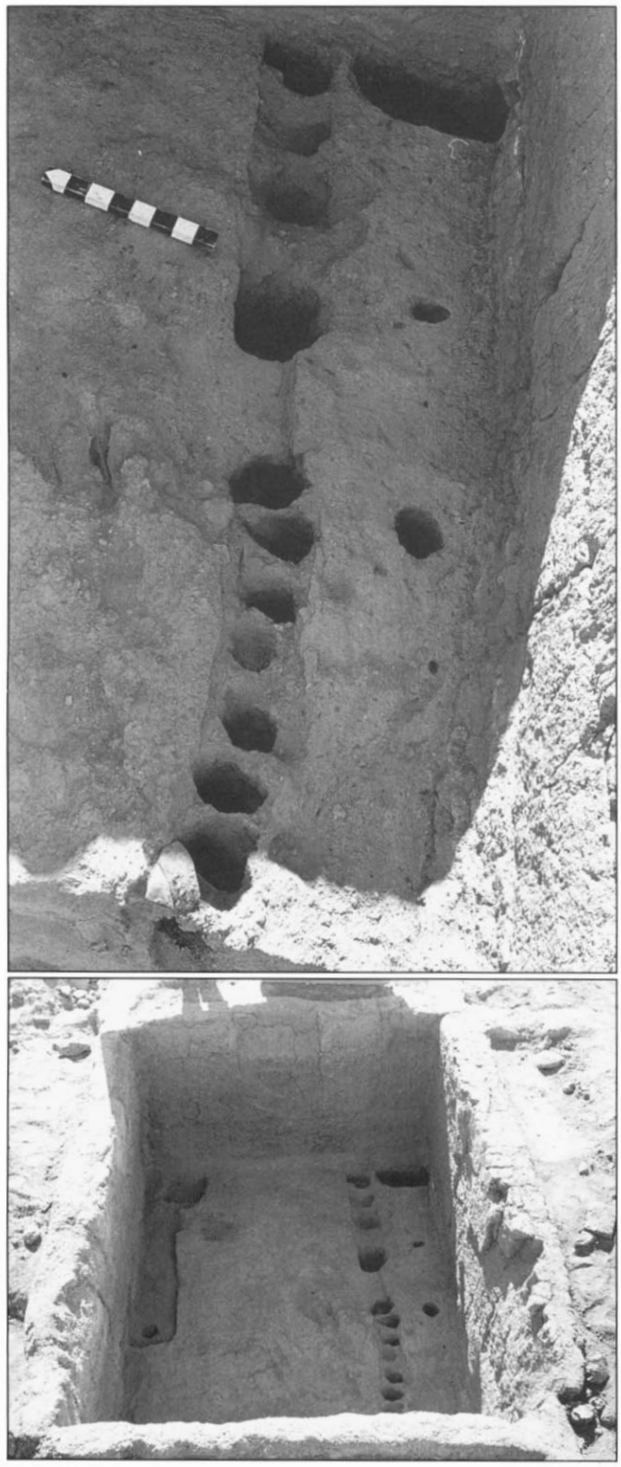


Figure 2.21. Top: Post sockets in the jacal room located below room 14-5. Bottom: location of posts within the room. Scale is 40 cm in 5 cm increments. (Photos AH2-HAAS5-27; AH2-DGN40-15).

use of this structure as a subfloor storage cist was discounted because room 11-3 was constructed after the structure had been abandoned, and the pit extended under the wall of the room into the adjacent plaza. Neither relative nor absolute dates were assigned to the construction or occupation of this room.

A single jacal room was found directly under room 14-5 (fig. 2.21). Although the walls and roof had been destroyed by subsequent construction, post holes and floor features were recovered. Adobe walls enclosed the north and east sides of the structure, and rows of posts formed the south and west walls. The posts were set in individual holes 10 to 20 cm in diameter or in trenches 20 to 25 cm in width; they were spaced at 5 to 12 cm intervals. A 23 cm gap in post alignment in the south wall marked what may have been an entry. Small stones and slabs bordered many of the postholes and served as wedges, steadying the wooden members of the walls. No wattle or adobe plastering of the vertical posts was observed; nevertheless, the post holes were set close together and probably formed jacal walls. A small, circular pit hearth 32 cm in diameter and 15 cm deep was located in the northeast quarter of the compacted adobe floor. It was full of small, burned cobbles.

The use of the jacal structure apparently postdated the adobe rooms on the north and east and predated those on the south and west. When the later rooms were built, the structure was dismantled, and an adobe room was built in its place. Tree-ring dates from the jacal structure included three "v" dates and one cutting date of A.D. 1321, indicating that the structure was built in the first half of the 1320s. Similar structures have been documented at historical pueblos.

Discussion

Between about A.D. 1315 and 1330, nearly one thousand ground-floor rooms were built at Arroyo Hondo. In layout, construction materials, and features, Arroyo Hondo was similar to other sites in the area, although much larger than most. Component I Arroyo Hondo consists of a series of roomblocks built primarily of coursed adobe and enclosing or partially bordering multiple plazas. A second story was often built above interior rooms, so the structure appeared terraced. Several lines of evidence indicate that the construction of the Component I structures was cooperative or coordinated at the community level. Rooms sizes were relatively consistent, averaging a little more than 6 m^2, and wall abutments suggest that some rooms were built as multiroom units. Plazas were also of generally uniform size, sug-

gesting some community-level planning of site layout.

Excavations at Arroyo Hondo provided a wealth of information on construction techniques and room features, often far beyond that available for other sites in the area. Roofs were of wood, brush, and earth construction, but with wooden members taking a variety of forms and brush used as an optional element. Earthen caps could be either wet or dry, and the sequence of earthen cap and second-story floor indicates that most second stories were added after first stories were completely constructed. Clay floors were similar to those found at other sites in the area, but at Arroyo Hondo two types of floor construction could be distinguished: either wet or dry clay. Occasionally multiple floors occurred. Wall entries allowed circulation between rooms and probably provided access to outside terraces for second-story rooms. Most first-floor rooms were probably entered through hatchways in the roof, as indicated by the remains of hatch coping and ladder impressions.

Floor and wall features were many and varied, but most had parallels at other sites in the region. Excavations at Arroyo Hondo uncovered rooftop hearths, which were undoubtedly present at other sites but are generally unreported. The three types of hearths (slab, clay, and pit) defined at Arroyo Hondo were like those identified at other sites, but some of these sites may not exhibit the full range of types. The three types occurred variably in interior or rooftop locations at Arroyo Hondo; not enough information was available from other sites to compare locations. Mealing bins were not found inside rooms during Component I, in contrast to Component II, when a few were found in rooms.

Vent holes, which probably assisted in the circulation of fresh air and removal of smoke and in communication between rooms, were generally similar in size and shape, and to some extent location, to those recorded at other sites in the area. Subfloor cists probably served a variety of purposes, from pot rests to food storage. Only a few post holes were found, and they may have been roof or rack supports. Post holes in rooms were apparently uncommon at other sites, although photographs and oblique references indicate they were present. Wall niches, pole and plank shelves, and wall pegs were all found at Arroyo Hondo but apparently occurred in varying frequencies at other sites. Few rooms were plastered at Arroyo Hondo, in contrast to other sites where plaster was common. Arroyo Hondo had only limited indications of room decoration, consisting of a few fragments of colored plaster in room fill.

Component I Arroyo Hondo was built in a relatively short period of time, and some of the design and construction techniques indicate that efforts were made to accommodate a rapidly growing population. Sequential construction of roomblocks around multiple plazas provided an easy means of expanding the site while maintaining a plaza-centered design. The switch from masonry to adobe construction may indicate expediency in selection of construction materials. Coordinated construction efforts resulted in relatively standardized structures.

The foregoing analysis of architecture from Component I Arroyo Hondo provides a glimpse at how fourteenth-century inhabitants of the northern Rio Grande adjusted structurally to population aggregation. Component II construction, described in the following chapter, shows continuity in construction techniques, although the later settlement accommodated a far smaller population.

Chapter 3

Component II Construction

Construction of the Component II settlement began after several decades of complete or nearly complete abandonment of Arroyo Hondo Pueblo. Tree-ring dates indicate a hiatus in construction between the mid-1330s and late 1350s (see chapter 7), and as much as a meter of windblown fill and collapsed adobe walls filled Component I rooms. The bulk of the Component II settlement appears to have been built rapidly in the 1370s and 1380s. A cluster of dates from a single room at A.D. 1410 marks the end of construction at the site, and final abandonment of Arroyo Hondo probably took place shortly thereafter.

The Component II occupation at Arroyo Hondo was much smaller than the Component I occupation; only about two hundred rooms were built, each a single story high (Plan 2). Schwartz excavated 50 of these rooms, about 25% of the Component II rooms at the site (table 3.1; Appendix C). Component II rooms were similar in size and associated features to rooms of the earlier occupation. Component I structures were used as foundations for Component II walls, constraining the size of Component II rooms and the shape of the settlement. Some changes in construction methods during Component II may have resulted from the smaller population that reoccupied the site at the end of the fourteenth century. Construction methods and architectural details discussed for Component II are the same as those discussed in the previous chapter for Component I. Throughout this chapter comparisons are made between the two components; occasional comparisons are made between Component II and other contemporary sites.

Site Layout and Design

Component II consisted of ten roomblocks surrounding one enclosed plaza and two partially enclosed plazas (fig. 1.5). The five northern roomblocks and four of the southern roomblocks form two closely adjacent but not contiguous structures surrounding plaza C. Only roomblock 21 is offset slightly from the others. A single kiva in plaza C was associated with the Component II occupation. The roomblocks are superimposed on earlier Component I structures. The use of Component I walls as foundations for Component II construction apparently determined the layout of the later occupation.

When Arroyo Hondo was occupied for the second time, it was not one of the largest sites in the region, but in size and layout Component II was similar to other contemporaneous sites. For example, Pueblo del Encierro's earliest above-ground construction is contemporary with Component II, and the site was similar in size—198 ground-floor rooms. Initially, Pueblo del Encierro consisted of two parallel roomblocks with plazas and kivas on the south sides (Snow 1976). Eventually, roomblocks were built at right angles to the original two and enclosed one plaza and partially enclosed another (Snow 1976: fig. A2). However, Pueblo del Encierro may not have taken on its final shape until the mid-fifteenth century (Snow 1976:*xx*). Unshagi consists of about one hundred seventy five rooms in five roomblocks, which completely enclose one plaza and partially define two others. The later occupation at Tijeras Pueblo differed from the others; it was slightly smaller than Component II, with about one hundred rooms arranged in a U, open to the east, surrounding a plaza (Cordell 1980:11).

Room Stratigraphy

The stratigraphy of Component II rooms was similar to that of Component I rooms (figs. 3.1 and 3.2). Most of the rooms were filled with fallen adobe walls and fallen roof material. Many more Component II rooms burned than had burned in Component I, and burned beams and burned organic material were common. Some Component II rooms were built over more than a meter of aeolian deposits that had covered Component I rooms.

Construction Methods

Site Preparation and Wall Footings

Excavators performed subfloor tests on 37 walls in 25 rooms to identify methods of site preparation. Homogeneous deposits beneath the floors indicated leveling of the location before building, whereas stratified subfloor remains indicated clearing of debris. The use of previously occupied locations made a greater degree of leveling necessary in Component II than in Component I. Fill used in leveling included sand, trash, and adobe chunks from fallen Component I walls. Most rooms were built up from the remains of the earlier component. Trash that had accumulated in rooms was either removed or packed down, and the earlier walls were used as footings for later walls.

Four types of footings were recorded in Component II rooms: slab, cobble, bell-puddled adobe over Component I walls, and rubble (table 3.2). Wall footings were not consistent within rooms, and one room often exhibited two or more types. Slab footings of locally available andesite were used in the walls of 12 rooms (fig. 3.3). Slabs were placed on the ground, in some cases only at corners or every few feet, and perhaps as markers rather than as a foundation (see below). Some slabs were set close together on end and sunk a few centimeters into the ground. The large slabs (15 by 30 by 50 cm) projected into the adobe portion of the wall. These footings, never more than one layer high, were completely covered with adobe, which was then coursed as usual. Stone slabs were sometimes set on end in one wall of a room and horizontally in another. Once an orientation was established, however, it continued throughout the wall. In one instance, slabs were set along the interior face of the first course of adobe and more adobe was puddled over and around the slabs to the floor, more than doubling the wall width. This buttress ranged from 20 to 35 cm above floor level against a Component I wall stub.

Cobble footings were found in 12 Component II rooms (table 3.2). Cobbles ranged from 5 to 35 cm in diameter; the largest ones were found at room corners. Like stone slabs, cobbles were incorporated in the walls. In several walls, cobbles were placed in the molded adobe to a height of 30 cm. Instead of being stacked to build a low wall, the stones never touched but were completely encased in the molded adobe.

Overall, 65% of the footings studied were built of slabs and cobbles; in contrast, stone footings were absent from Component I construction. The stones in some of the

TABLE 3.1
Component II rooms and room attributes.

Room	Floor Area (m^2)	Burned	Masonry Walls
7-6	7.56		
7-9	7.35		
7-10	6.73		
8-4	8.82		
8-6	7.45		
9-6	6.98	×	
9-8	6.80	×	
9-9	8.69		
9-10	5.67	×	
9-11	4.81	×	
9-12	7.37	×	
9-13	7.56	partial	
10-3	9.11	×	
10-4	7.44	×	
10-5	8.29		
10-6	7.20		
11-2	5.02		all walls
11-7	6.59		all walls
15-6	8.81	×	
15a-7	6.17	×	
15a-8	7.05		
15a-10	6.21		
15a-11	— †		
16-1	6.48		
16-2	2.63†		
16-3	2.75†	×	
16-4	5.66	roof	
16-5	6.30	roof	
16-6	6.04		
16-9	5.10	partial	
16-10	7.46		
16-11	6.00	×	
16-13	5.95	×	
16-14	6.99	×	
16-15	7.44		
16-16	5.61		
16-17	6.86	×	
16-18	6.59	×	
16-19	5.64	roof	
16-20	5.58	roof	
16-21	5.75		
16-22	6.74		
16-23	9.80		
16-25	5.95		
16-38	5.22		all walls partially
20-4	1.21†		
20-5	6.56		

(continued on next page)

TABLE 3.1 (continued)

Room	Floor Area (m^2)	Burned	Masonry Walls
21-3	6.14		
21-4	— ‡		
21-5	— ‡		
Average room size			6.76 m^2
Total complete rooms			44
Total Component II rooms			50

†Walls incomplete; floor area not included in averages.
‡Excavation limited to area around burial.

footings may have served as markers for wall layout, which perhaps accounts for the large stones located in room corners. This practice was recorded by Mindeleff (1891:101) among the Hopis. As discussed in chapter 2, slab and cobble foundations provide less stability for walls but may have been used to prevent groundwater seepage and to stabilize walls built on room fill.

Twelve Component II walls used remains of Component I walls as footings (table 3.2). Wall stubs projected about fifty centimeters above the surrounding ground surface and were prepared for reuse by removing deteriorated adobe, usually to the level of the next complete course. Then a mass of adobe was laid down to form a foundation prior to actual wall construction. These foundations have a flared profile when viewed in transverse section and have been termed "bell-puddled" footings. No special methods of bonding the new adobe to the masonry or adobe "stem walls" were recorded. Bell-puddled footings ranged from one and one-half to two times the width of the wall built above them.

A single example of rubble footings was recorded in room 9-6. Roughly rectangular chunks of adobe from preexisting walls were mortared together to form the lower courses of a long-axis wall. The upper portion of the wall was made of coursed adobe. No attempt was made to smooth the finished surface of the rubble section of the wall.

Walls

Only two Component II rooms were constructed of masonry: rooms 11-2 and 11-7. Both were reused Component I masonry rooms. All other excavated Component II rooms were constructed of coursed adobe. None of the walls in the excavated Component II rooms stood more than one meter high, and most were lower. In general, adobe wall construction of the later occupation was similar to that in Component I. Component II adobe had more foreign matter than Component I adobe because builders used clay from the ruins of earlier walls. In seven cases, Component II walls were built parallel to Component I walls (table 3.2). The later walls conformed exactly to the earlier walls, and no filling or chinking was necessary.

Wall abutments are more difficult to characterize for Component II rooms than for earlier rooms (Plan 2). Fewer Component II rooms were excavated; the single largest contiguous group of rooms from the later component was excavated in roomblock 16. In roomblocks 9 and 16, parallel walls were constructed to make groups of at least three rooms at a time. Throughout the site, some rooms were made up of smaller wall segments, at most extending the length of two rooms.

Room Size

Component II rooms ranged in size from 4.81 to 9.80 m^2 with an average area of 6.76 m^2 (table 3.1). Each roomblock in which rooms were excavated had one room that was larger than average. Component II rooms were comparable in size to Component I rooms (average area 6.31 m^2) and to rooms at other sites in the region (see chapters 2 and 6).

Roof Construction

Weathering destroyed most Component II roofs, but burned rooms provided some information on roof construction. Component II roofs were similar to Component I roofs; construction was of vigas, latillas, matting, and dry clay. Apparently in some roofs, no vigas were used, and latillas provided the main load-bearing supports. Since Component II buildings were exclusively single story, their roofs did not have to bear great loads and vigas might not have been necessary. In Component II rooms in which vigas were used, there was little evidence for beams of large diameter; the maximum diameter for vigas was 11 cm, compared with 16 cm for Component I beams (see chapter 2). Ponderosa pine was the species most often used, though pinyon and Douglas fir were also found. Vigas were stripped of bark before being set in position across the short axis of a room.

Pole latillas were used most often in the rooms in which latillas were recorded (table 3.3); this finding con-

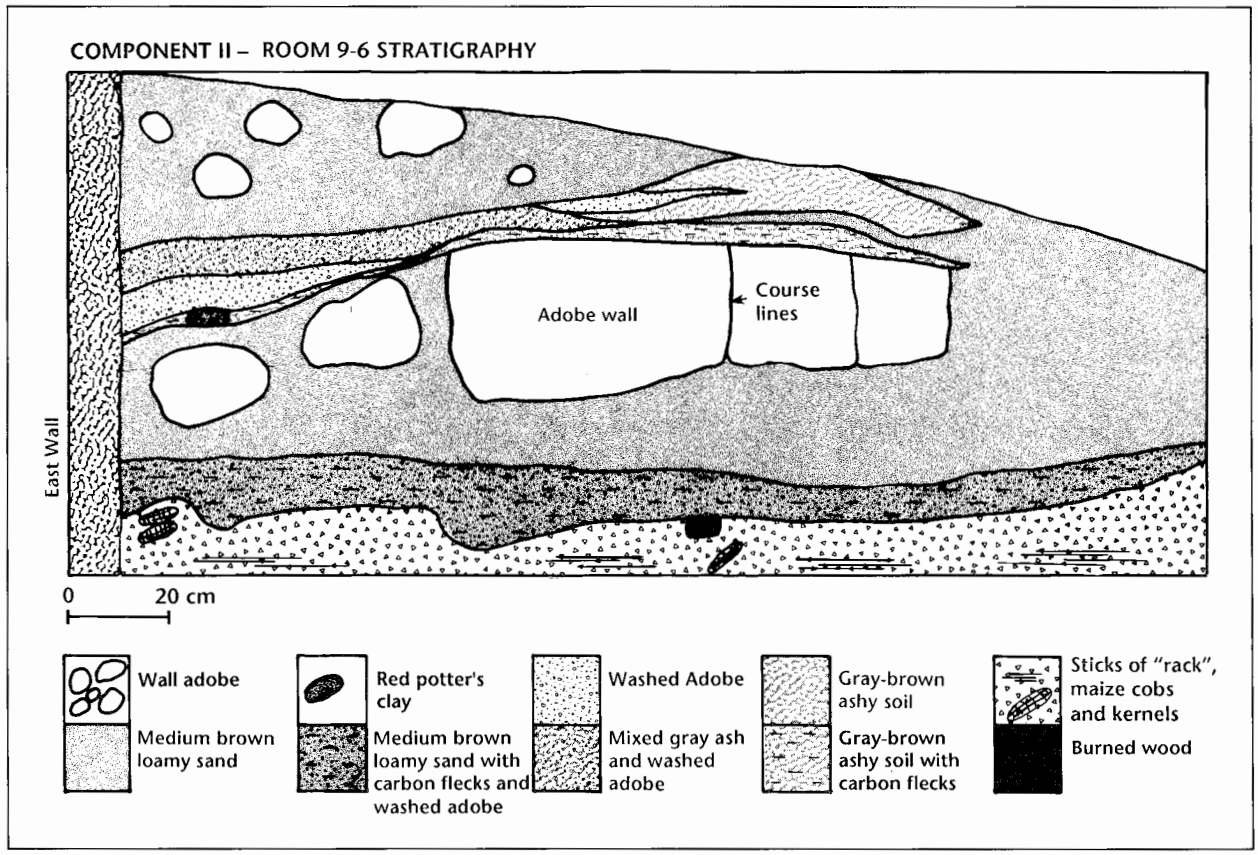


Figure 3.1. Example of Component II room with complex stratigraphy.

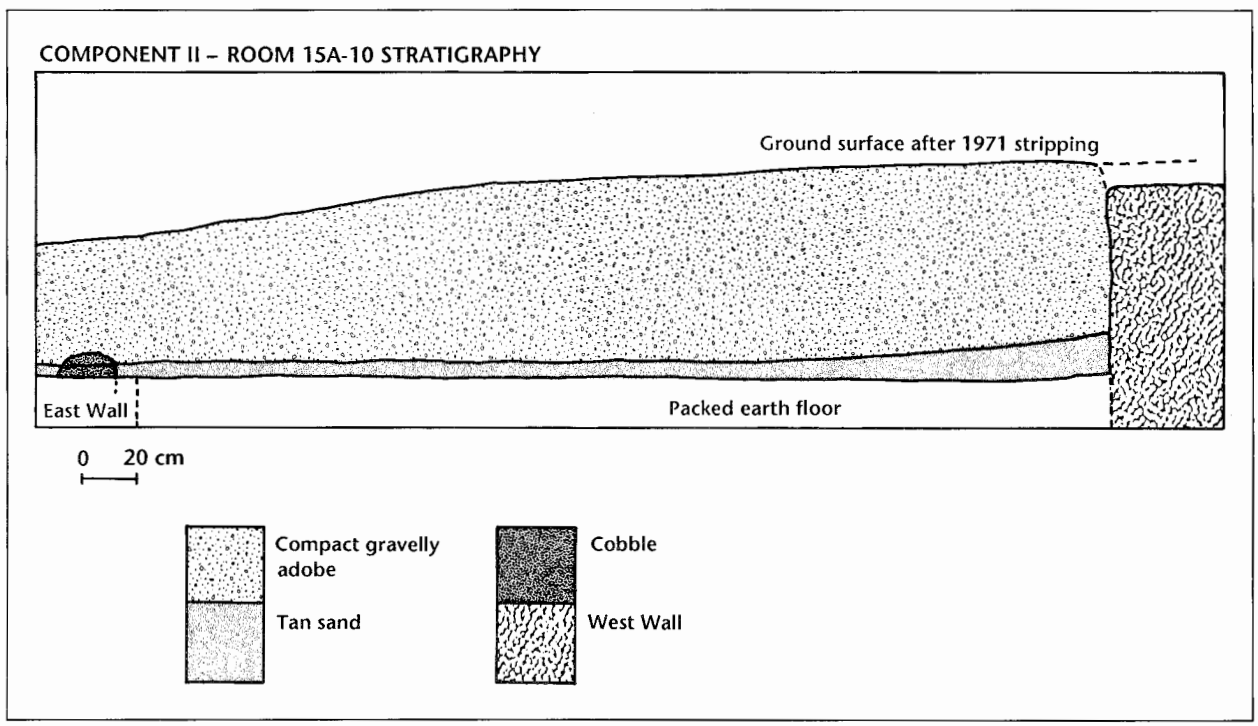


Figure 3.2. Example of Component II room with simple stratigraphy.

TABLE 3.2
Component II wall footings.

Room	Slab	Cobble	Puddled Adobe over Component I Walls	Rubble	Use of Adjacent Component II Wall
7-6			×		
7-8			×		
7-9	×	×			
7-10		×	×		
8-4		×			N, E
8-6			×		W
9-6	×	×	×	×	
9-9	×	×	×		E
9-10	×				
9-12	×				
9-13	×		×		W
10-4		×	×		
10-5	×				
11-2*					
11-7*					
15-6		×	×		N
15a-8		×			
15a-10	×	×			
16-2			×		
16-4	×				S
16-14	×				
16-21	×				
20-4	×	×			
20-5		×	×		
21-3		×	×		
Total footings recorded	12	12	12	1	

* Masonry room.

trasts with that from Component I, where plank latillas were the most common type. Split pole and plank latillas were also employed, though less frequently. Almost half the rooms had a mix of latilla types used in roof construction. Pole latillas were 4 to 6 cm in diameter, and planks were 9 cm wide and 3 cm thick. In some cases, latillas were oriented across the short axis of rooms rather than the long axis, as would be expected when they were used with vigas. Matting placed over the latillas included pine boughs, grasses, small sticks, and cholla. The matting was covered with a layer of dry clay 4 to 6 cm thick.

Floor Construction

Fifty-nine floors in 49 Component II rooms provided information on floor composition and construction (table 3.4). As in Component I rooms, floors were laid after the walls were constructed. Dry clay floors (n = 28, 47%) and wet clay floors (n = 27, 46%) were the most common types in Component II, as they had been in Component I, and were constructed in the same manner (see chapter 2). Three (5%) of the Component II floors consisted simply of dry sand spread around the room to level the surface. In one room (room 15a-10), the surface consisted of clay and trash. Three rooms provided no information on floor composition.

Wet clay floors in Component II tended to be slightly thicker (4 to 8 cm) than Component I floors (2 to 5 cm). They often showed handprints and footprints, as well as cracks from the shrinkage of the clay during drying. The cracks were sometimes chinked but otherwise ignored. Dry clay floors were 3 to 10 cm thick. Wet clay floors were found in sixteen rooms with hearths and in

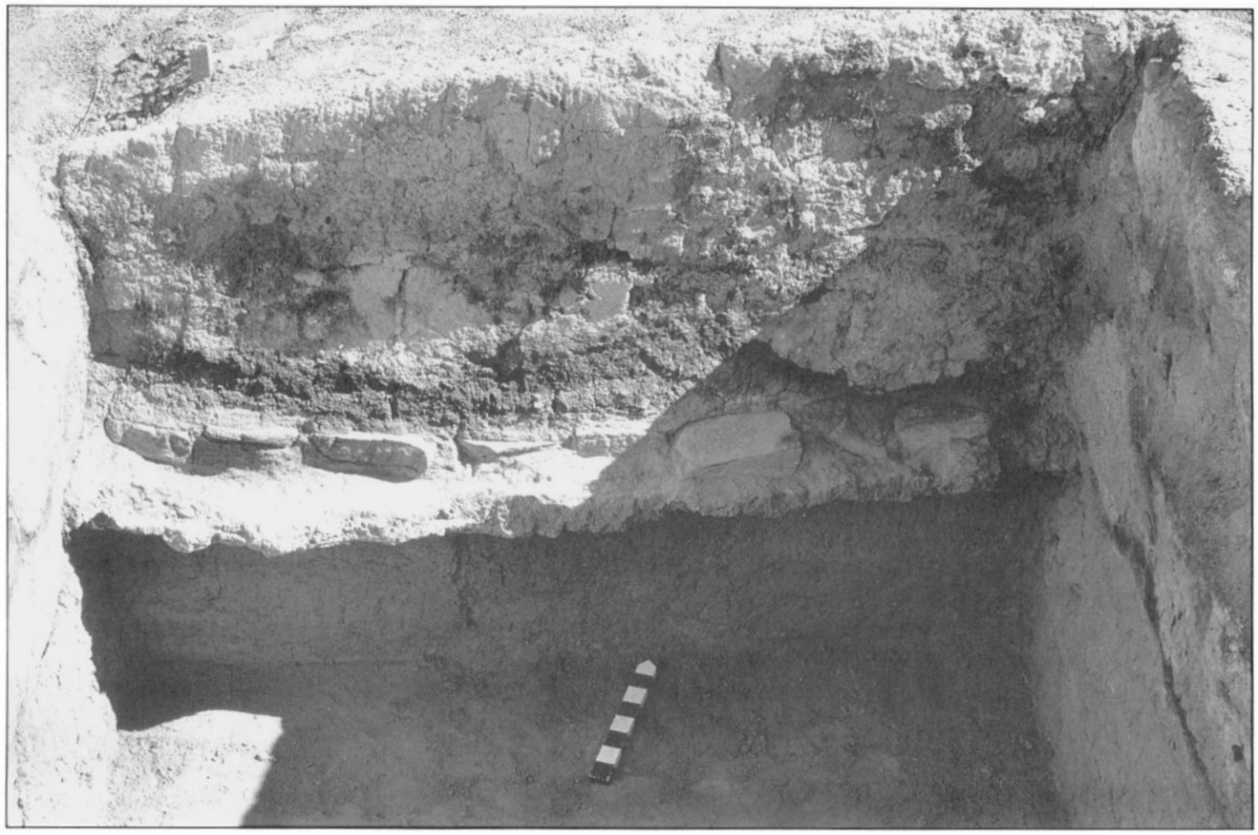


Figure 3.3. Slab footings beneath the north wall of room 9-6, after the removal of the underlying fill. This type of footing was used only during Component II. Scale is 40 cm in 5 cm increments. (Photo AH2-RWL7-35).

ten rooms without, and dry clay floors were found in twelve rooms with hearths and in thirteen rooms without, providing no clear association between floor type and hearths.

Of the 50 Component II rooms excavated, nine had multiple floors. It appears that the original floor was always heavily worn or eroded before it was replaced. The original may have been in such poor condition that it was easier to construct a new floor than to repair the old one. One floor was replaced after being damaged by fire (room 16-17); the others were refinished because of wear or erosion. Little consistency in floor replacement was noted: sand floors were replaced with either dry or wet clay, wet clay floors were replaced with wet or dry clay, and dry clay floors were resurfaced with wet clay. There is a slight trend toward more permanent floor surfaces, but no clear pattern is evident.

At Pueblo del Encierro, approximately 20% of the ground-floor rooms had multiple floors, as at Arroyo Hondo, but almost half of the multifloored rooms at Pueblo del Encierro had three or more floors. The length of occupation of individual rooms at this site may have been longer than at Arroyo Hondo.

Doorways

Eleven doorways were found in the excavation of Component II rooms (table 3.5). In the low sections of some walls, the remains of door sills may have eroded away. Six Component II doorways were represented only by sills or fragments. No lintels were preserved. The position and dimensions of doorways appear to have been determined prior to room construction since sills were located at course lines within the wall. In most cases, adobe appeared to have been puddled at the course line to raise the sill about five centimeters. The variation in sill height (table 3.5) observed among Component II rooms seems to have resulted from the use of Component I walls as footings.

TABLE 3.3
Component II latilla types.

Room	Pole	Split Pole	Plank	Other
8-6	×	×		
9-6	×		×	
9-10		×	×	
9-11	×			
9-13	×			
10-4			×	sticks
10-5	×	×		
10-6	×		×	
15-6	×			
15-7	×		×	
16-13	×			
16-17	×			
16-18	×			
16-19	×			
16-20	×	×		
Total	13	4	5	1

Pole latillas only	7
Pole and split pole latillas	3
Plank and split pole latillas	1
Plank and pole latillas	3
Plank and other latillas	1

TABLE 3.4
Construction methods for Component II floors.

Room	Wet-Laid Clay	Dry-Laid Clay	Other	No Data on Floors
7-6	×			
7-8		×		
7-9	×			
7-10		×		
8-4		×		
8-6	×			
9-6		×		
9-8	1		sand (2)	
9-9	×			
9-10	1, 2			
9-11	1, 2			
9-12	×			
9-13	×			
10-3	1	2		

(*continued above*)

TABLE 3.4 (*continued*)

Room	Wet-Laid Clay	Dry-Laid Clay	Other	No Data on Floors
10-4	×			
10-5	×			
10-6	×			
11-2		×		
11-7	×			
15-6		×		
15a-7		×		
15a-8	2	1	sand (3)	
15a-10			clay/trash	
15a-11		×		
16-1		×		
16-2		×		
16-3	×			
16-4	×			
16-5	×			
16-6	2	1		
16-9	×			
16-10		×		
16-11	×			
16-13	×			
16-14		×		
16-15		×		
16-16	×			
16-17	1	2		
16-18		×		
16-19			1, 2, 3	
16-20	×			
16-21		×		
16-22		×		
16-23				×
16-25		×		
16-38		×		
20-4		×		
20-5	×			
21-3		1	sand (2)	
21-4				×
21-5				×
Total	28	27	4	4

Total Component II floors	59
Rooms with one floor	39
Rooms with two floors	7
Rooms with three floors	2
Rooms with no floor recorded	3

Note: Numbers in columns indicate specific floors in cases of rooms with multiple floors.

TABLE 3.5
Doorways in Component II rooms.

Room	Wall	Length (cm)	Width (cm)	Height Above Floor (cm)	Blocked/Open
Doorways not open to another excavated room					
8-6*	S	20	38	15	O
9-8	N	50	50	55	B
10-6	E	—†	37	82	—‡
Shared doorways					
9-9/9-13	E/W	—†	—†	—†	—‡
9-12/9-13	W/E	29	32	11	B
10-4/10-6	E/W	—†	—†	91	sill only
16-5/16-13	E/W	41	27	41	B
16-10/16-14	S/N	—†	—†	—†	—‡
16-13/16-18	S/N	11	43	33	O
16-17/16-19	N/S	47	35	21	O
16-21/16-22	W/E	65	41	51	B
Average		38	38	44	

Total blocked doorways	4
Total open doorways	3
Total doorways not open to another excavated room	3
Total shared doorways	8
Total Component II doorways	11
Total Component II rooms with doorways	16
Percentage of Component II rooms with doorways	32
Total Component II doorways opening into a plaza	1

* Doorway opening into a plaza.
† Dimensions incomplete.
‡ No information.

Only one-third of Component II rooms had doorways, and only one room had multiple doors. In Component I about two-thirds of the rooms had doorways, and about half the rooms with doorways had two or more. It is possible that there were fewer interconnected rooms during Component II and that access to rooms was primarily through roof entries. However, the extensive deterioration of Component II walls may have skewed the observed frequency of Component II doors. Two Component II doors opened from rooms onto plaza areas: a door opened onto plaza C from an unexcavated room in roomblock 11 and the door in room 8-6 opened onto plaza F. Only a few doors opened onto plazas during Component I. Access to interior space appears to be restricted in both components.

Ceiling Entries

Little evidence for ceiling entries was recovered from Component II rooms, even though they were undoubtedly the principal means of access to rooms. Tabular slabs, probably part of a hatch coping, indicated a ceiling entry in one room, and clay hatch coping was found in another. The edge of the opening, a split-plank latilla, was impressed in the clay, showing that construction techniques were similar to those of Component I ceiling entries. Ladder impressions (described below) in six of the rooms are further indication of the use of ceiling entries. Erosion of the uppermost levels of Component II structures probably eliminated evidence of ceiling entries in many rooms.

Floor and Wall Features

Ladder Impressions

Depressions in floors for beam or rung ladders were recorded in six rooms, indicating the presence of ceiling entries (table 3.6; see chapter 2 for discussion of these ladder types). Rooms 9-11, 9-13, 10-5, and 10-6 had evidence of beam ladder seats. These depressions ranged from 8 to 19 cm in diameter and 1 to 4 cm deep. Patches of heavily worn and pitted floors were associated with most of the ladder impressions. Rung-ladder impressions were recorded in rooms 15a-8 and 16-5. The sockets measured 10–13 cm in diameter and 2.5–9 cm deep. A worn patch of floor associated with these sockets marked the landing area.

Hearths

Forty hearths were found in Component II rooms, either on room floors or on rooftops (table 3.7). Almost 70% were in ground-floor rooms, compared with 23% in Component I. As noted in the previous chapter, ground-floor rooms in the two-story Component I pueblo were primarily used for storage and lacked hearths. In addition, rooftop hearths dating to Component II may be underrepresented, owing to erosion of the upper portion of the site. Finally, because it lacked a second story, Component II would be expected to contain more ground-floor habitation rooms and therefore more ground-floor hearths than Component I. Nevertheless, because ground-floor rooms are better preserved than those in upper stories, Component II hearths provide a wealth of information on hearth construction.

Component II hearths were of the same three types identified in Component I: slab, clay, and pit (table 3.7). Slab-lined hearths (n = 30, 75%) were more common in Component II than in Component I (58%; fig. 3.4). These rectangular pits were lined with stone slabs measuring roughly 20 by 10 by 4 cm and set on end or on edge, depending on the depth of the pit and the size of the stone. Andesite and sandstone slabs framed the pit most often, and discarded ground-stone tools were sometimes incorporated into the hearth as side walls, paving, or "fire dogs" (andirons). In some cases the lining of the bottom of the hearth was perfunctory, with two or three small slabs placed at the center of the pit and the rest of the hearth floor composed of wet clay plaster. At times a rim was formed above the finished floor by allowing part of a slab to project above the edge of the pit. Clay rims also formed the perimeter of some hearths. These rims were 2 to 5 cm high, 8 to 10 cm wide, and enclosed at least two sides of the pit.

Seven clay-lined hearths (17%) were found (table 3.7). Two were circular or oval and the others were rectangular. Like slab-lined hearths, clay-lined hearths were set below the finished floor surface of the room. The interior of the hearth was plastered with a layer of clay 2 to 4 cm thick. The plaster was similar to that used in wall construction (see chapter 2), though it appeared to have been cleaned carefully and had a fine texture. The clay hearth in room 16-11 was 42 cm wide by 53 cm long by 17 cm deep and was built against the north wall of the room. It had been sealed and contained a bone awl and the fragments of a utility vessel.

Three pit hearths (8%) were identified (table 3.7). The pit hearth was the simplest of the three kinds, consisting of a depression excavated into the floor of a room. Pit hearths were 40–60 cm in diameter and 8–10 cm deep.

Rectangular ash pits were constructed at the sides of and parallel to two slab-lined hearths (in rooms 8-6 and 16-3) and one clay-lined hearth (in room 15a-7). Stone slabs were incorporated into these features. In one, slabs were set on edge to form the west side of the pit and were set into the bottom of the pit as paving. Otherwise, the pit was unfinished. An ash deposit within the pit had been sealed over while the hearth was still in use.

Small depressions or pits were associated with two hearths. In room 10-4, two unlined pits (one 6 cm in diameter and 1.5 cm deep, the other 11 cm in diameter and 6 cm deep) were offset to one side of the hearth and may have been pot supports. Several hearths had fire dogs or pot support sockets in their rims. These roughly circular pits, 3 to 8 cm in diameter, were usually found in pairs spaced 15 cm apart along one side of the hearth. They may have supported stone or clay pot stands and formed two legs of a tripod, with the third leg in the hearth pit itself. In two rooms (rooms 7-9 and 10-4) artifacts were sealed in pits under the hearth.

As in Component I, about two-thirds of the Component II hearths were found inside rooms, and the others on rooftops (table 3.7). In Component II, however, only slab-lined hearths were on rooftops, whereas clay and pit hearths were found exclusively inside rooms. As noted above, rooftop hearths dating to Component II may be underrepresented owing to erosion of the upper portion of the site. Twelve hearths located inside rooms had been sealed, which suggests that the hearth was abandoned at some point, and the function of the room may have changed. The sealing of half of the hearths in rooms left almost equal numbers of unsealed room hearths and rooftop hearths in use during Component II times.

TABLE 3.6
Ceiling entry indicators in Component II rooms.

Room	Ladder Seats	Single or Double Pole Ladder
9-11	1	single
9-13	1	single
10-5	1	single
10-6	1	single
15a-8	2	double
16-5	2	double

Figure 3.4. Slab-lined hearth and adjacent ashpit in room 8-6. Slab-lined hearths were the most common hearth type during Component II. Scale is 40 cm in 5 cm increments. (Photo AH3-RWL9).

Hearths within rooms were usually placed along a long-axis wall near its center. Similarly, at Unshagi, most hearths were located along the walls, with some apparent preference for the east wall of the room (Reiter 1938:49). In contrast, Component I hearths were located primarily in the center of the room (chapter 2). At Pueblo del Encierro, rectangular hearths were the most common type, but the frequency of hearths was much greater than it was at Component II Arroyo Hondo and apparently at other sites (Snow 1976:A5). Many excavated rooms had multiple hearths, which may indicate a longer occupation of individual rooms at Pueblo del Encierro than at Arroyo Hondo, as was noted above in the discussion of multiple floors at these sites.

TABLE 3.7
Hearth types in Component II rooms.

Room	First-Story Floor	Rooftop
7-9	Slab/Clay rim	
8-6	Slab/Clay rim	
9-9	Burned patch	Slab/Clay
9-10	Slab/Clay rim	Slab
9-11	Slab/Clay rim, sealed	Slab
9-12	Slab/Clay rim	Slab
9-13	Slab/Clay rim, sealed	Slab
10-3	Pit	
10-4	Slab, sealed	
10-5	Burned patch	Slab
10-6	Slab, sealed	
11-7		Slab
15-6	Slab	Slab
15a-7	Clay	
15a-8	Clay	
16-1	Clay	
16-3	Slab	
16-4	Burned patch Slab, sealed	
16-5	Burned patch	Slab
16-6	Slab, sealed	Slab
16-11	Clay, sealed	Slab
16-14	Slab, sealed	
16-17	Slab	
16-18	Slab (2), sealed	Slab
16-19	Clay, sealed Pit, sealed	
16-20	Clay, sealed	Slab
16-21	Clay Pit	
16-25	Slab, sealed	
Subtotals		
	Clay 7	
	Pit 3	
	Slab 17	Slab 13
Total	27	13

Total hearths recorded in Component II rooms	40
Total clay hearths	7 (17%)
Total pit hearths	3 (8%)
Total slab hearths	30 (75%)
Total rooms with hearths	28
Percentage of excavated rooms with hearths	56

(*continued on next page*)

TABLE 3.7 (*continued*)

First-story rooms with hearths	24
First-story roofs with hearths	13
First-story floors with burned patches	4

Note: Numbers in columns indicate multiple hearths of the same type in the same room. Burned patches are not included in totals.

Burned Areas

Four Component II rooms (9-9, 10-5, 16-4, and 16-5) exhibited isolated areas of fire-blackened floors, and two of these rooms had more than one such area (table 3.7). Component II burned areas are similar to those found in Component I rooms. Fire blackening occurred in or near room corners, and the marks were roughly circular. Smoke stains were evident, and the floors were occasionally fire reddened. The burned floor patches suggest infrequent use, since regular burning would produce a single regular feature. These burned areas are assumed to be marks of temporary torches used to light poorly illuminated rooms. Although only a few burned patches were recorded, the burning of many Component II rooms (described below) may have obliterated signs of other similar features. Burned patches are not mentioned in reports of other sites in the region, but they were probably overlooked, rather than absent, elsewhere.

Cists

Fourteen subfloor cists or basins were encountered on room floors during excavation (table 3.8). They were of the same general types observed in Component I rooms (figs. 2.14 to 2.17). The cists ranged from 4 to 31 cm deep and were circular, oval, or subrectangular. Five were lined with a coat of plaster 1 to 4 cm thick. Few artifacts were recovered from cists that could indicate their function.

Two cists (in rooms 10-3 and 15-6) were deep, subrectangular, and plastered on the interior (table 3.8). These pits could have been used for storing grains. Three cists (in rooms 7-9, 7-10, and 9-8) consisted of plastered oval depressions in the floor surface that may have been used to shell or process grain or seeds. Cists of this general shape were suggested to have been used for winnowing of amaranth, chenopodium, or other grain based upon pollen analysis of two shallow basins in plaza A (Bohrer 1986:218–219). The other Component II cists (n = 9) were generally shallow, unplastered ovals and appear to have been used to hold items. Some cists of this type held ceramic vessels, judging from the sherds recovered from one of them in room 12-15a-7. Others may have held corn, like the examples in rooms 15-6 and 15a-7. Still others may have been adobe mixing areas for at least part of their use life.

None of the cists in Component II rooms were subjected to pollen analysis, so there is no direct information on cist function. Pollen analysis of floor material in room 15a-7 did not yield any information that would suggest a function for the cist in that room (Bohrer 1986:226, sample 38). Subfloor cists were noted at Unshagi (Reiter's "category 1") that are like those recorded at Arroyo Hondo (Reiter 1938:52–53). No function was suggested for the Unshagi cists.

Burials

Six subfloor burials were recovered from five Component II rooms. Five of the burials had been interred during Component I, and later a Component II room was built over it; only a single Component II burial was recovered from a Component II room. This pattern contrasts with that found in Component I rooms, where a number of burials were recovered. See Palkovich 1980 for details of Component II burials.

Post Holes

Eight Component II rooms had post holes (table 3.9). Two of the three post holes in room 10-5 may have formed a drying rack. The two posts were placed at opposite ends of the room. Horizontal poles could have been secured between the posts, forming a set of bars from which articles could be hung. Alternatively the posts could have been put in to provide additional support for roof beams. The function of post holes in other rooms was less clear. At Unshagi, post holes were rare and were generally viewed as an indicator of roof supports (Reiter 1938:51–52).

Vent Holes

Twenty-one vent holes were recorded in 16 Component II rooms; 16 vent holes were sealed (table 3.10; see fig. 2.18). In most cases, vents appeared as circular or oval openings 9 to 10 cm in diameter, somewhat smaller than those in Component I. The openings ranged from floor level to 42 cm above the floor, in contrast to Component I vents, many of which were more than one me-

TABLE 3.8
Cists in Component II rooms.

Room	Dimensions (cm)	Depth (cm)	Location in Room	Plastered Interior	Contents
7-9	56 by 48	8	SE corner	×	rodent burrow
7-10	39 by 33	9	SE corner	×	sherds, mouse skeleton
9-8	97 by 52	5	SE corner	×	ash, carbon, heavy trash
9-9	45 by 43	29	along E wall		andesite slab
10-3	129 by 82	31	center of room	×	sherds, bone, lithics
10-4	27 by 22	12	room center, under hearth		ash, bone awl
10-6	30 by 26	4–16	NW quadrant		corncob, wood fragments
15-6	99 by 94	28	SE corner	×	maize kernels and cobs
	17 by 16	7	center E wall		maize kernels
15a-7	40 by 25	10	center of room		
	45 by 30	10	center S wall		sherds
16-3	21 by 21	8	NW corner		carbon, caliche
	18 by 12	17	NW corner		caliche
21-3	15 by 15	10	SE quadrant		

Total cists in Component II rooms	14
Total Component II rooms with cists	11
Percentage of Component II rooms with cists	21

ter above floor level. This reflects the fact that very few upper wall sections were preserved from the Component II occupation. Component II vents were not carefully finished, and all appear to have been made at the time the wall was built. The vents were found in long-axis walls. One vent plug was recovered from room 12-16-11.

Thirteen vents occurred in rooms with hearths, and eight were in rooms without hearths. More than three-quarters of the vents were plugged, possibly when construction of new rooms blocked outside access. For example, almost all the Component II vents recorded in roomblocks 9 and 16 were plugged. Each of these roomblocks was three rooms wide, and the closing of vents may be related to construction of the outside rows of rooms.

Wall Niches and Wall Pegs

Neither wall niches nor wall pegs were noted in Component II structures, again because so few upper walls were preserved in Component II. Niches and pegs may once have been present in upper portions of walls.

TABLE 3.9
Post holes in Component II rooms.

Room	Number of Post Holes
9-9	4
9-10	2
9-11	2
9-12	2
9-13	1
10-5	3
10-6	1
16-3	2

Total Component II rooms with post holes	8
Total post holes in Component II rooms	17

TABLE 3.10
Vents in Component II rooms.

Room	Vent Height (cm)	Vent Type	Hearth Present in Room	Wall
8-4	13	B		S
8-6	0	O	O	N
9-8	1	B		E
9-9	22	B		E
9-10	19	B	O	S
	5	B		E
9-11	24	O	S	E
	15	B		W
9-12	11	B	O	W
10-5	1	B		S
10-6	26	O	S	S
	13	B		N
15a-8	25	B	O	W
16-5	0	B		N
	42	B		S
16-6	3	B	S	N
16-18	17	O	S (2)	S
16-19	21	B	S (2)	S
	10	B		N
16-23	17	B		N
21-3	0	O		N
Total		B = 16 O = 5		N = 7 S = 7 E = 4 W = 3

Total vents	21
Total rooms with vents	16
Rooms with two vents	5
Rooms with one vent	11

B = Blocked
O = Open
S = Sealed

TABLE 3.11
Hanging poles and racks in Component II rooms.

Room	Hanging Pole	Rack	Probable Shelf
8-4			1
9-6		1	
9-9		1	
9-13	1		

Racks and Pole and Plank Shelves

In four Component II rooms, there was evidence of racks or platforms, which may have been used for storage (table 3.11). Room 9-6 burned while still in use, and its floor was covered with carbonized corncobs to a depth of 15 cm (fig. 3.5). Willow branches up to 91 cm long and pine sticks 60 cm long were placed 1 to 3 cm apart on the floor across the short axis of the room. The cobs were arranged on top of this rack, perpendicular to the sticks. Another layer of sticks was added before each subsequent layer of cobs. The sticks between each layer of corn provided air circulation and would have slowed spoilage, making it possible to store a large quantity of cobs.

In the north and south walls of room 9-9, a series of nine pairs of sockets containing wood fragments indicates that poles 3.8 m long and 6 to 7 cm in diameter were set across the room, on top of the second course of adobe, to create a platform. The poles were 31 to 47 cm above the floor, covered about two-thirds of the room, and appear to have been built into the wall when the room was constructed. The posts crossed the narrow axis of the room and covered half to two-thirds of the floor. Worn areas of the floor indicate that the remainder of the room was accessible and had a ladder landing area. No materials were recovered that indicate how the feature was used.

Rooms at great pueblo sites in Chaco Canyon in northwestern New Mexico had roomwide platforms that covered one or both ends of a room (Lekson 1987: 46–48, fig. 3.3). The Chaco platforms were higher above the ground (average 1.40 m) than those at Arroyo Hondo. Lekson suggests that the Chaco platforms may have been used for either sleeping or storage. The Arroyo Hondo platform may have served similar functions. The platform in room 9-9 could have been heaped with harvested crops, or vessels with rounded bases could have rested between poles. The poles were set high enough above the floor that large vessels could have been stored underneath them. Alternatively, the platform could have served as a support for bedding.

The east and west walls of room 9-13 appear to have supported a horizontal pole, indicated by wood fragments retrieved from sockets in both walls. The pole apparently extended across the short axis of the room near the north wall. The ends of the pole were set 7 to 8 cm into the wall and were 32 cm (west wall) and 50 cm (east wall) above the floor. The pole could have been used to hang blankets, skins, clothing, hunting paraphernalia, or even a loom. In room 8-4, an flattened oval shelf or plank hole was noted in the wall of the room.

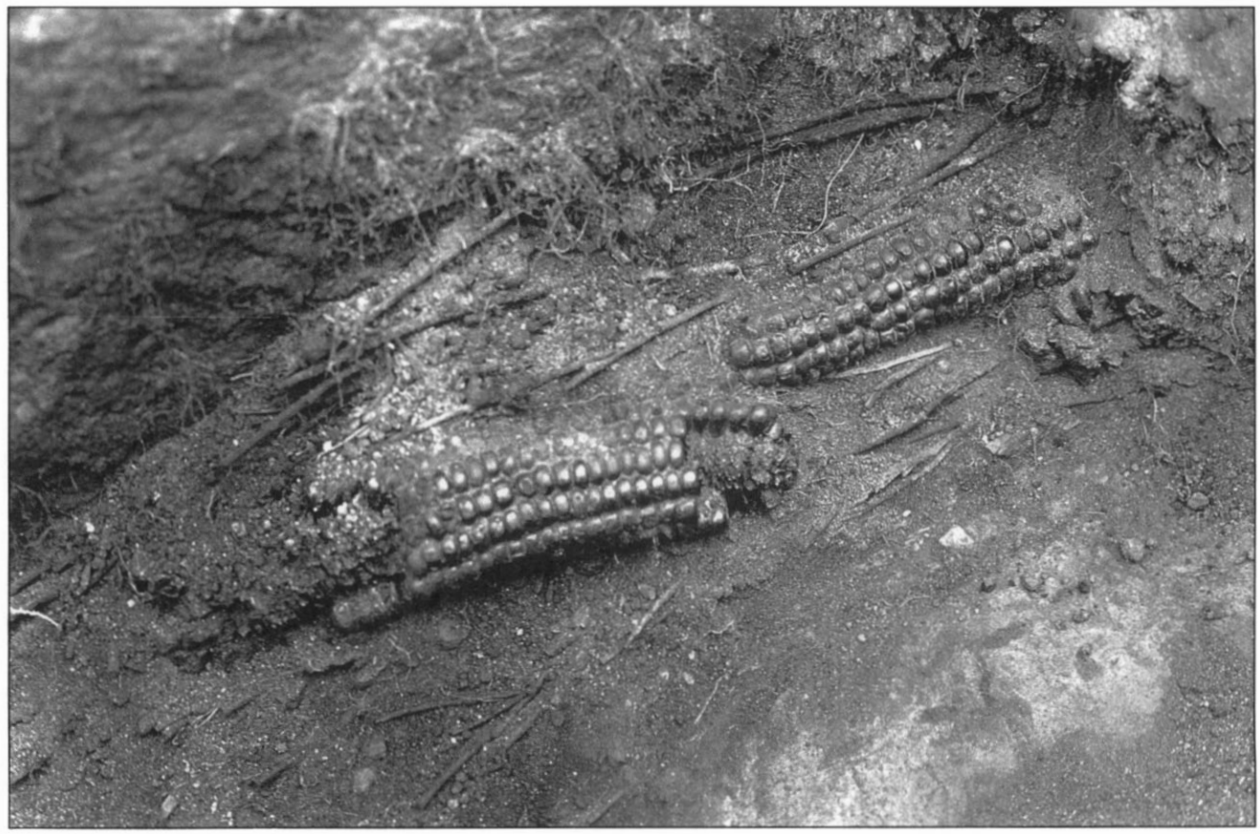


Figure 3.5. Corncobs being excavated in room 9-6. This room burned with a rack of stored corn in place. (Photo AH2-DGN25-35).

Three of the Component II rooms with racks or shelves had no hearth, and one, room 9-13, had a sealed hearth. No Component I rooms with shelves had hearths. This finding supports the inferred storage function of these features.

Mealing Bins

Four mealing bins were encountered inside Component II rooms (table 3.12; fig. 3.6). All four were located in room corners, and three used the room walls as bin walls. Low, clay rims partially or completely enclosed these areas and set them apart from the rest of the room. Three of the four bins were positioned in the southeast corner. All were located in rooms with hearths. The bins were all similar in construction, with bin floors generally higher than the surrounding floor surface, indicating that they were built after the floor was laid. One bin in room 9-10 exhibited three superimposed floor levels; another bin, in room 8-6, had a possible metate rest.

The use of mealing bins in rooms is uncommon at Arroyo Hondo. No Component I rooms contained mealing bins; Component II rooms with mealing bins comprise only 8% of the total number of excavated rooms, and three of the four examples found came from the same small area of the site. During both periods, mealing bins were found in plazas and may also have been located on roofs, although no clear evidence of rooftop mealing bins was found.

Burned Rooms

Of the 53 Component II rooms excavated at Arroyo Hondo, 21 (40%) had burned (table 3.1). In four of these rooms, all located in roomblock 16, only the roof of the room burned. Two other rooms were only partially burned. The majority burned completely, leaving carbonized remains and fire-reddened floors and walls. Burned rooms were often clustered together: in roomblock 16, 11 of the 22 excavated rooms had burned; in

TABLE 3.12
Mealing bins in Component II rooms.

Room	Size (cm)	Height above Floor (cm)	Location in Room	Bin Rim Height (cm)	Bin Rim Width (cm)
8-6	75 by 85	2	SE corner	6.5	8
9-10	92 by 49	11	NE corner	9.5–17	11
9-12	80 (diameter)	0	SE corner	6	6–10
9-13	102 by 61	4	SE corner	3–9.5	16–18

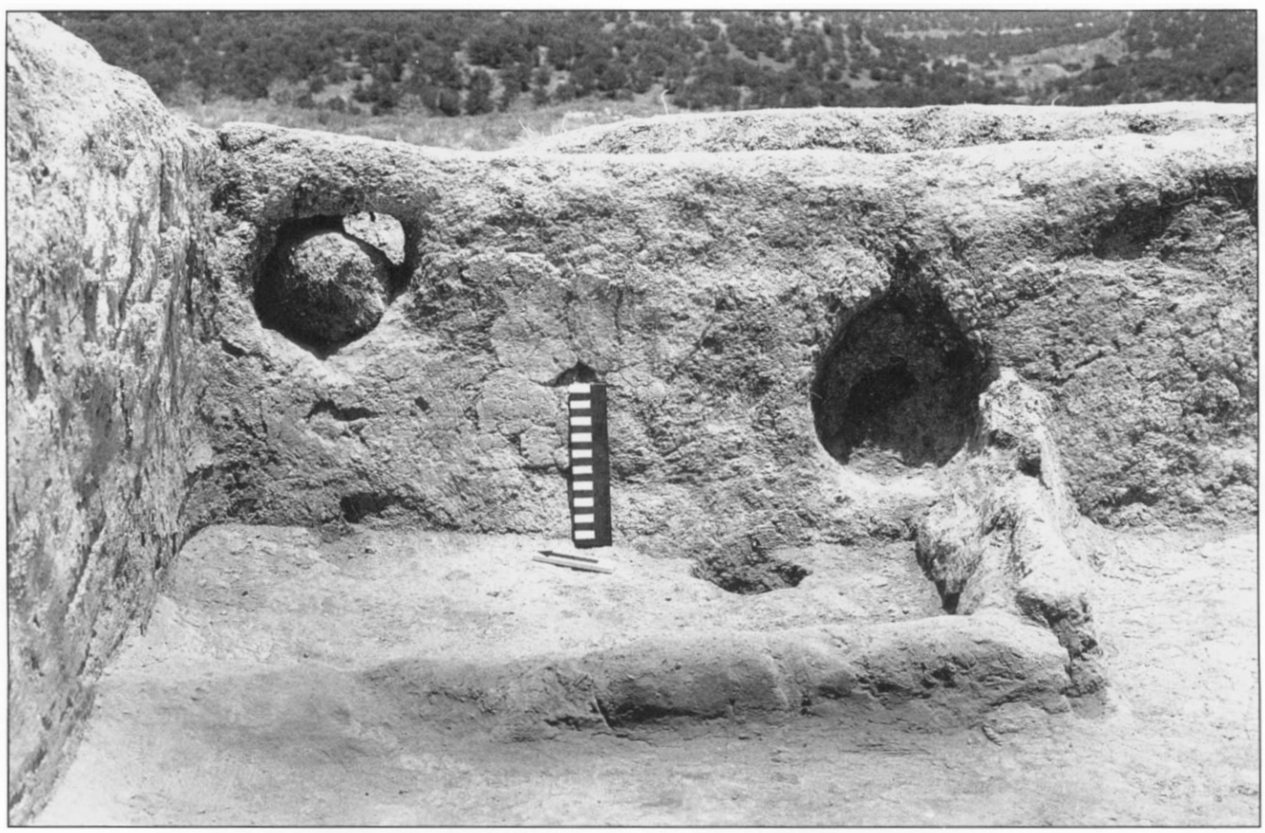


Figure 3.6. The raised clay rim defines a mealing bin in the corner of room 9-10. Mealing bins were rarely found in rooms at Arroyo Hondo. Note the vents (one partially plugged, the other blocked) above the mealing bin. (Photo AH3-RWL4-35).

roomblock 9, six of the seven excavated rooms were burned. There were far more burned rooms during the Component II occupation than there had been during Component I; in Component I, only 7 of the 66 excavated ground-floor rooms (10%) had burned.

In both roomblocks 9 and 16, rooms that burned are contiguous, although some adjacent rooms are not burned, suggesting that the fires did not completely destroy entire roomblocks. One of the burned rooms in roomblock 16, room 16-17, is the latest construction at the site, with beams dated at A.D. 1410 (Appendix B). Tree-ring dates from other Component II rooms in roomblock 16 suggest construction in the 1380s. If all of the roomblock 16 rooms burned at the same time, the burning event occurred after A.D. 1410, and it may have been connected with the final abandonment of the site.

There was some trash deposition in room 16-11 (a burned room), which may indicate that the roomblock was not entirely abandoned immediately after the fire. However, the majority of rooms in roomblock 16 appear to have been abandoned when the fire occurred.

Tree-ring dates indicate that most of the burned rooms in roomblock 9, and four other burned rooms at the site, were also constructed in the 1380s, and burning in these rooms must have occurred sometime after this decade (Appendix B). There is evidence for the clearing and reuse of room 9-8 as an open-air work area after the fire, while room 9-11 was used as a trash dump. None of these rooms was repaired, however, indicating that most people left sometime after the fire. Whether burned rooms in Component II are the result of a single event in the early fifteenth century, or of multiple earlier events, is unknown.

Summary and Comparison of Components I and II

Component II Arroyo Hondo differed from the Component I site primarily in size. The later occupation was much smaller and lacked two-story rooms. A few differences in construction methods were noted between the two components, and minor differences in the occurrence and location of features. Differences in construction methods may be partly attributed to available materials, construction over Component I walls, and possibly greater concern for preservation of walls. Difference in the occurrence and location of features is related to lack of second-story rooms, to greater erosion of Component II walls, and possibly to minor changes in architectural styles between the two periods.

Fewer Component II rooms seemed to be the result of multiroom construction units; most rooms may have been constructed individually. The site layout follows the layout of the Component I site, and room sizes are very similar in the two components. The use of Component I wall stubs for later wall foundations determined the structure of Component II construction.

Component II builders invested more effort in preparation of the ground surface than Component I builders, probably because of the need to level Component I trash and walls. Most Component II walls were footed on stone or on Component I wall stubs; in Component I, only low puddled-adobe footings, if any, were used. Footings were needed in the Component II construction because walls were built on unstable room fill from the earlier component. In the early and rapid phases of Component I, construction footings may not have been necessary because walls were built on the original ground surface.

Stone masonry, used to construct several rooms and portions of rooms during Component I, was not used for new masonry at all in Component II wall construction, though some masonry rooms in roomblock 11 were cleaned out and reused. Apparently the source of easily usable andesite was exhausted early in the history of site construction at Arroyo Hondo. At least one Component II room wall (room 16-38) included stones embedded in thick adobe mortar, very different from the solid stone walls of Component I rooms in roomblocks 6 and 11.

Roof construction during Component II may reflect the change in available materials. Viga diameters are smaller in the later occupation, presumably because trees were cut when they were younger (chapter 7). Ponderosa pine was most commonly used for Component II vigas. During Component I, the more readily available pinyon was used for vigas; both the switch in species and the smaller size of Component II vigas suggest that Component I construction may have depleted readily available timber. In some Component II roofs, no vigas were used and the roof was simply composed of latillas, brush, and mud; whether this was the result of a lack of available timber or decisions not to construct second-story rooms is unknown. Other roofing materials were similar in both occupations. Tree-ring dates do not indicate reuse of Component I timbers for Component II construction.

Floors were made in similar ways by builders in both periods. Dry-laid clay floors were somewhat more common than wet-laid clay floors in Component I ground-floor rooms, whereas the two types were roughly equal in Component II rooms.

The more varied dimensions of wall entries, particularly the height of the sills in Component II rooms, appear to be primarily a result of the reuse of Component I wall stubs in room construction. Sills were generally the height of the Component I wall stub being used as a footing for the wall of the room. There was less evidence of ceiling entries for Component II rooms than there had been in Component I rooms owing to the erosion of the uppermost levels of the site, but ceiling entries were probably equally common in both occupations.

The location of hearths and the relative frequency of different types of hearths varied between Component I and II. Component I hearths were most frequently on rooftops or in second-story rooms. Component II hearths were more common in ground-floor rooms, where habitation rooms were presumably now located. Slab hearths

were the most common type in both components, but clay and pit hearths were found far less frequently in Component II than in Component I. Component I hearths tended to be located in the center of the room; Component II hearths were along room walls. Most of these differences probably result from the location of habitation rooms in upper stories in Component I and lower stories in Component II. Clay and pit hearths may have been uncommon on rooftops because they could not withstand the elements. The shift in the location of hearths from the center of the room to a location along long-axis walls may also reflect a shift in architectural styles. Stubbs and Stallings (1953:31) note that "in the later glaze sites" (presumably referring to sites dated later than Pindi Pueblo), firepits were almost always built along the wall.

Other features recorded inside rooms were similar for both components of occupation at Arroyo Hondo. Subfloor cists, wall niches, pole and plank shelves, and ladder impressions were found in rooms dating to each component. Wall pegs and decorative colored plaster, recorded in some Component I rooms, were not found in Component II rooms, probably because of greater erosion of the upper sections of Component II walls. Colored plaster may have been more common in the Component I sample because of the ceremonial rooms excavated in the early occupation (see chapter 6); no ceremonial rooms were found in Component II. Mealing bins were found inside a few Component II rooms, as well as in plaza areas where they had been located in Component I (see chapter 4). Whether this indicates a change in use of space between the two components or is the result of the sample of rooms excavated is undetermined.

Architectural differences between Component I and Component II Arroyo Hondo reflect a smaller resident population in the later occupation. Only two hundred rooms were built, in contrast to the thousand rooms built during Component I. The use of Component I wall stubs for Component II rooms produced a site layout like that of Component I. Similarity in architectural details between the components indicates considerable continuity in the two occupations. Component II might well have been built by descendants of the people who built Component I, although the Component II builders were providing for a much smaller population.

Chapter 4

Plazas

The roomblocks of Arroyo Hondo Pueblo partially or completely enclosed 13 plazas (table 4.1; fig. 1.4). These open areas provided access to dwellings; were the location of religious structures, activity areas, and burial places; and may have served as meeting grounds and stages for public ritual performances. The enclosed plaza settlement plan was adopted in the Rio Grande area during the fourteenth century and has been associated with the development of the katsina cult (Adams 1991). Arroyo Hondo was one of the earliest large plaza-oriented sites in the region (see chapter 8) and is one of the few sites in which plazas have been excavated.

Schwartz directed extensive excavations in three plazas that were in use during Component I: plazas A, G, and K. Plaza C was used during both Components I and II, but most of the use surfaces and features recovered date to Component II. Plaza C was the only excavated plaza dating to the later component. Test excavations were also conducted in plazas D, E, F, H, and I, primarily to locate kivas and examine plaza gateway areas.

Plaza excavations at Arroyo Hondo provide a wealth of detail on the use of these important activity areas in the northern Rio Grande during the fourteenth and early fifteenth centuries. Schwartz excavated almost 10% (494 m^2) of the 5359 m^2 of Component I plaza area (calculated for those plazas for which area could be defined) and 13% (100 m^2) of the 1260 m^2 of Component II plaza area, a far larger excavated sample of plaza space than at any contemporary site in the region. Until recently, plazas have had low priority in most archaeological excavations. As a result, little information on plazas at other sites in the northern Rio Grande is available for comparison with the data from Arroyo Hondo.

Plazas at Arroyo Hondo probably began as work areas open on two or three sides. As construction of roomblocks progressed, some work areas became enclosed plazas: first plaza C and then plazas F and G (see chapter 7). This development in turn created new open plazas (D, E, H, I, J, and K). Numerous features indicate that a variety of domestic activities took place in plazas; features included mealing areas, ovens, turkey pens, basins, dividing walls, ramadas or *portales*, and numerous burials (Palkovich 1980). Use of plazas for religious activities is indicated by the location of kivas in several of these open areas (see chapter 5). Stratigraphy was similar in all excavated plazas, although they differed in the depth of deposits, number of use surfaces, and numbers and types of features. In the following sections, a general discussion of plaza stratigraphy is followed by a description of the excavation and stratigraphy of Component I and II plazas. Plaza features are discussed for each component.

Plaza Stratigraphy

Plaza surfaces were continually built up, worn down, and compacted by the elements and daily traffic (fig. 4.1). Defining these surfaces archaeologically was often difficult. Well-compacted and easily distinguishable surfaces containing few features generally occurred in high-traffic areas, such as gateways and the center of the plaza. Areas close to walls and in corners yielded well-defined stratigraphy and numerous features. A range of occupational strata and use surfaces could be found within 2 to 4 m of roomblock walls and traced over large sections of the plaza, but these surfaces were not always continuous.

Deposits within the plazas were grouped in three categories. First, rubble from the collapse of surrounding rooms was the most abundant, in some places as much as two meters thick (fig. 4.1). Second, occupation debris—trash, turkey dung, fragmentary artifacts, eroding adobe, and blown sand—formed deposits that were limited in extent and variable in thickness. In plazas G and K, this stratum was 30–70 cm thick, but in plaza A it did not exceed 25 cm. Differences in these deposits may be related to the length and intensity of occupation in each area. Third, strata formed prior to intensive occupation of the area—sterile clay soil or gravels with intrusive borrow pits or puddling basins for adobe—were common. Earlier features were filled with refuse before later features and structures were built.

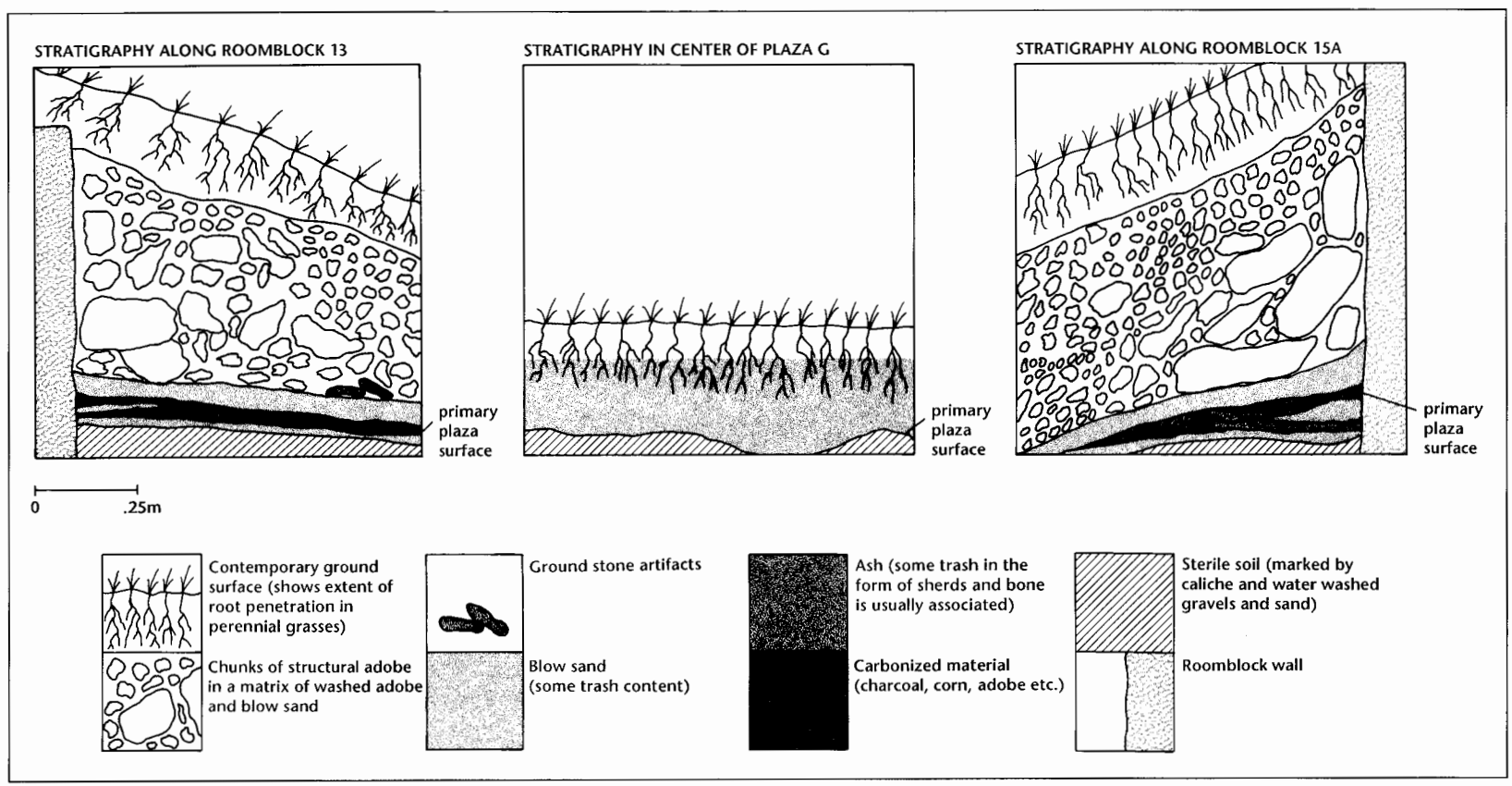


Figure 4.1. Example of plaza statigraphy: selected points on the western edge, in the center, and on the eastern edge of plaza G.

Component I Plazas

Plaza A

Test trench A-1 was excavated in plaza A in 1971. Excavation of the east half of plaza A was undertaken in 1974. In total, more than 8% (40 m²) of the 475 m² of plaza A was excavated (figs. 4.2, 4.3). The upper plaza surface was located about fifty centimeters below the ground surface (table 4.2). Features recorded in this hard-packed surface included a borrow pit, a midden-filled basin, and adjoining masonry rooms (table 4.3). The masonry structures are unique at the site (see description below). No tree-ring dates are associated with the upper surface, which contained about half as much midden as the lower plaza surface. It seems likely that this surface is associated with the construction and use of the outer rows of rooms in roomblocks 1, 2 and 3, and that it was occupied at the end of the Component I occupation. However, since the masonry rooms are stratigraphically higher than a feature dated at A.D. 1329 (see below), it is possible that the upper surface features are associated with seasonal use of roomblocks 1, 2, and 3 between about A.D. 1340 and 1360, a period in which Arroyo Hondo was sparsely occupied or for the most part abandoned.

The lower level contained most of the plaza A features, including possible winnowing basins, borrow pits, storage pits, ovens, and post holes (tables 4.2, 4.3). It was 10 cm or more below the upper level. A cluster of tree-ring cutting dates from feature H at A.D. 1329 suggests that the lower surface dates to Component I. The surface runs under adjacent rooms of roomblocks 2 and 3, indicating that the rooms facing the plaza were built somewhat later, at the time when the upper surface was in use. Features in the lower plaza surface suggest that construction and food storage, processing, and preparation were carried out. Plaza A does not contain the full range of features found in other plazas at Arroyo Hondo, which may reflect the partial excavation of the plaza area or may indicate a shorter period of use of roomblocks 2 and 3 and plaza A than of other parts of the site.

TABLE 4.1
Plaza attributes.

Plaza	Component	Area (m²)	Area Excavated (m²)	Completely Enclosed by Roomblocks
A	1	475	40 (8%)	no
C	1, 2	1260	100 (8%)	yes
D	1, 2	864	tested	no
E	1	208	tested	no
F	1, 2	825	tested	yes
G	1	672	310 (46%)	yes
H	1	open	tested	no
I	1	551	tested	yes
J	1	open		no
K	1	504	44 (9%)	no
L	1	open		no
M	1	open		no
N	1	open		no

TABLE 4.2
Correlation of excavation layers and plaza surfaces, Plaza A.

	modern ground surface
upper fill, wall fall	
Level 2, trash	
	Plaza surface 1, trash
	Plaza surface 2, trash
Level 3, trash	

Plaza G

Excavations in plaza G were extensive, encompassing more than 46% (310 m²) of the 672 m² of enclosed area (figs. 4.4, 4.5). Plaza G has one definite plaza surface, in addition to more ephemeral upper and lower use surfaces (table 4.4). The uppermost excavated layer was primarily overburden of trash, adobe from collapsed surrounding structures, and sand blown in after the plaza was abandoned. This layer included some cultural material that was collected in a sample of test units around the plaza (stratigraphic tests 1–8).

The second layer included trash and wind-deposited sand covering a hard-packed use surface (G-2-3) that contained most of the features identified in plaza G (table 4.5). These features included mealing bins, numerous post holes, pits, depressions, low stone walls forming small enclosures, rock alignments, and ladder seats. The surface of the plaza was not absolutely continuous, and in places where breaks in the surface could be identified the label G-2-4 was used. In the units excavated closest to the walls of the roomblocks, the plaza surface appeared to be the least compacted, and distinct lenses of plaza use surfaces could sometimes be identified. Toward the center of the plaza the lenses were compacted, leaving an impression that only a single use surface was present. This situation reflects the reality of everyday use of plaza surfaces, with daily accumulation of trash and fine windblown sand.

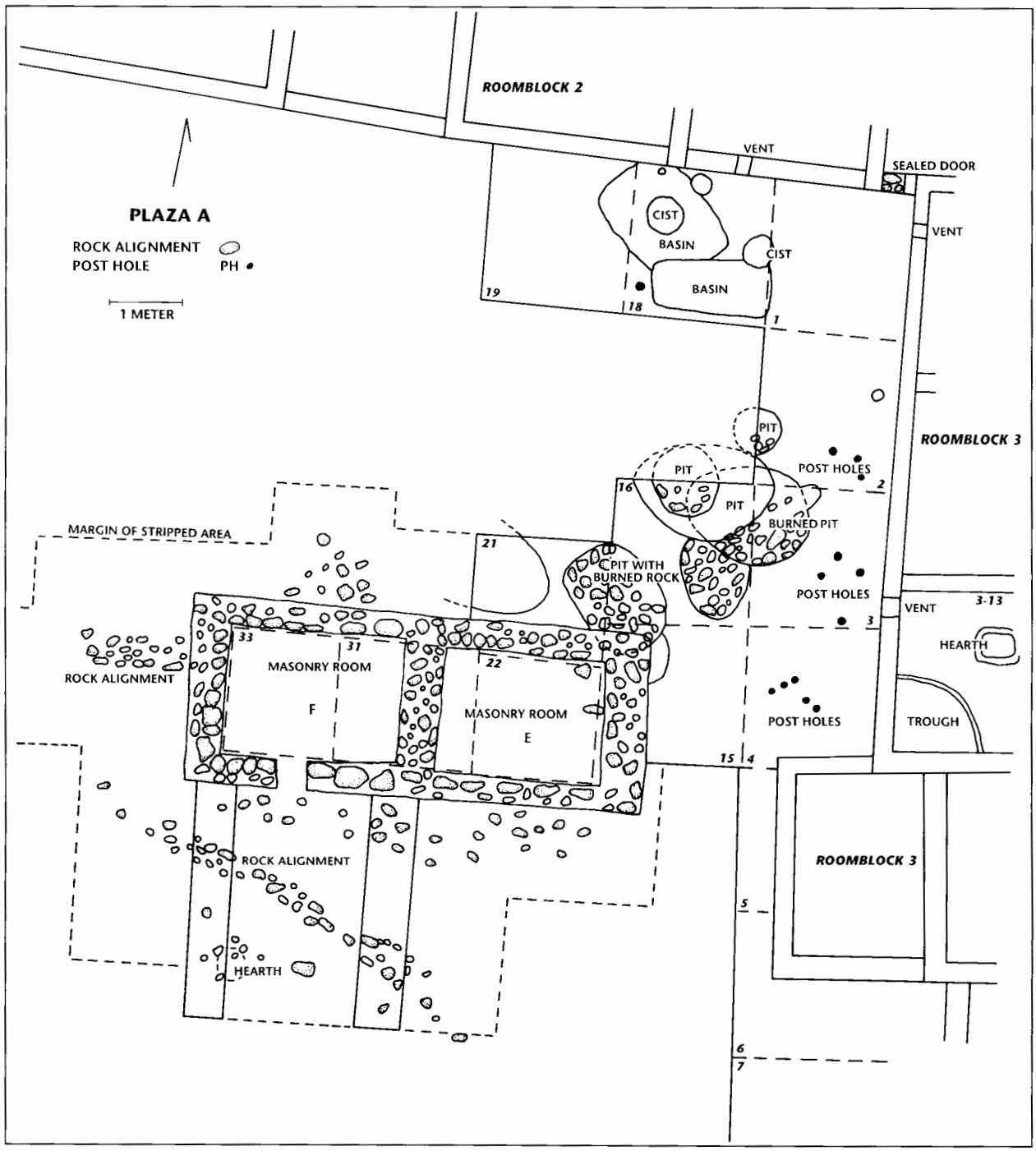


Figure 4.2. Plaza A plan view.

Figure 4.3. Plaza A, looking east, showing the masonry rooms in the foreground (features E and F). Scale is 1 m in 25 cm increments. (Photo AH4-MM4-11).

TABLE 4.3
Plaza A features.

Excavation Unit	Feature Type	Dimensions (m)	Content	Function
12-A-1	Borrow pit	larger than test unit	trash	source of adobe clay
12-A-1-E	Masonry room	2.6 by 1.9	midden	ceremonial
12-A-1-F	Masonry room	2.2 by 2.1	midden	ceremonial
12-A-1-I	Basin	1.9 diameter by 25 deep	midden	unknown
12-A-2-A	Basin	1.6 by .85 by .12–.15	midden	winnowing (Bohrer 1986: 218–19)
12-A-2-B	Pit	.55 diameter by .15 deep	midden	unknown
12-A-2-C	Basin	1.65 by 1.2 by .20		winnowing (Bohrer 1986: 218–19)
12-A-2-D	Pit	.45 diameter by .25 deep	midden	unknown
12-A-2-G	Rock-filled pit	2.0 by 1.3 by .50	rock/midden	possible oven
12-A-2-H*	Burned pit	1.8 by 1.45 by .45	rock-lined	oven
12-A-2-J	Borrow pit	larger than test unit	midden	source of adobe clay
12-A-2-K	Pit	.65 diameter by .25 deep	midden	unknown
12-A-2-L	Bell-shaped pit	.85 top diameter by .40 deep	midden	storage
12-A-2-18x, y, z	Post holes	.25 diameter by .15 deep	none	unknown

Note: All burials in Plaza A are reported in Palkovich 1980.
*This provenience is the source of all tree-ring dates for Plaza A.

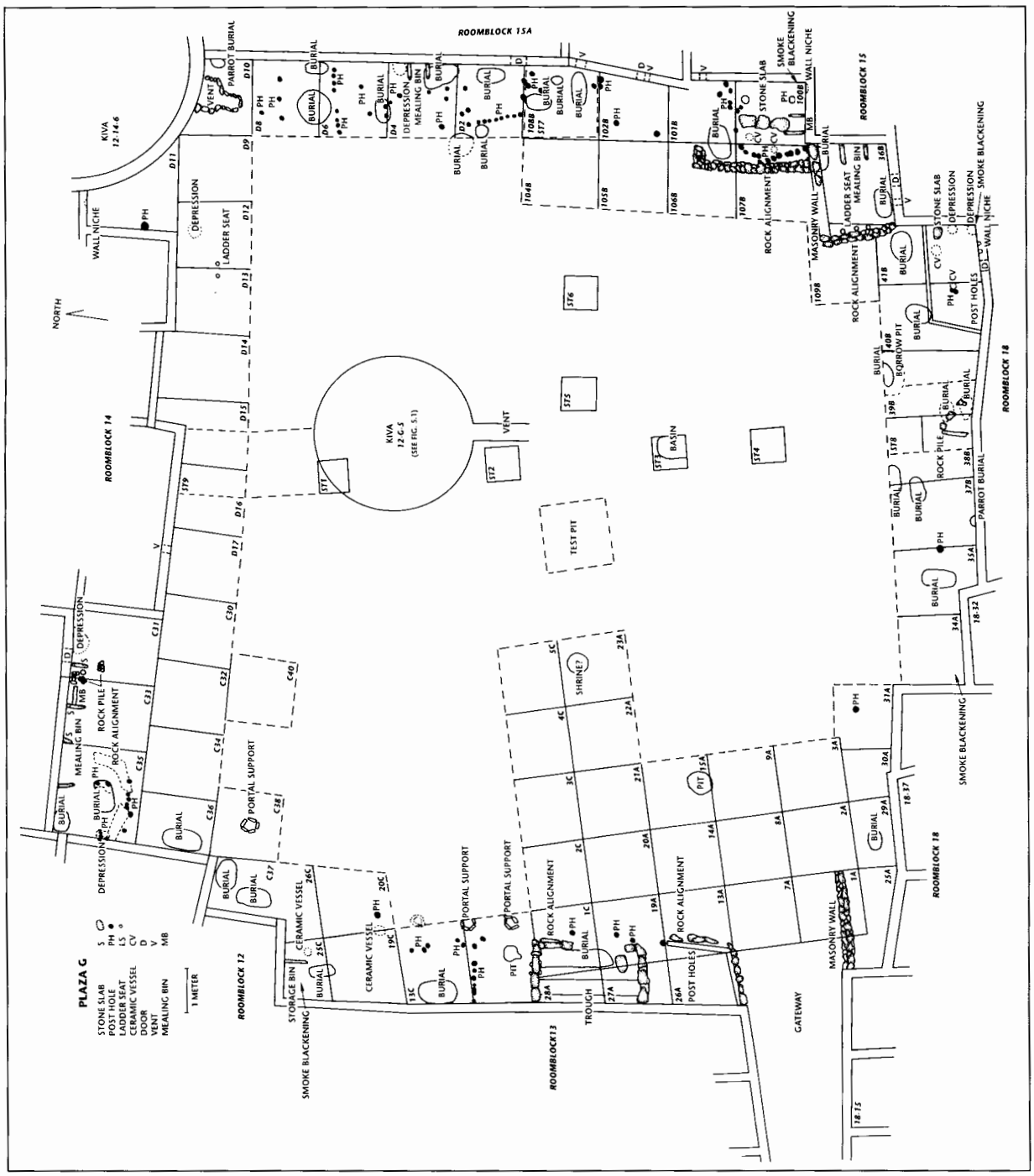


Figure 4.4. Plaza G plan view.

Figure 4.5. Aerial view of plaza G. Kiva G is in the center of plaza G and D-shaped kiva 14-6 can be seen at the top left. (Photo AH4-DGN40-12).

Numerous tree-ring dates were obtained from the primary use surface in plaza G (Appendix B), but only two were cutting dates. These were A.D. 1322 and 1324, both in features associated with plaza surface G-2-3; the three "v" dates were 1321 (from the upper surface) and 1329 and 1330 (from surface G-2-3). These dates, along with 37 non-cutting dates (also from plaza surface G-2-3) ranging from A.D. 1226 to 1330, place primary use of plaza G in Component I.

The lowest level, the first to be used in plaza G, had few features other than a series of post holes and several borrow pits, and it appears to have predated all the rooms around it. The borrow pits were apparently used to obtain clay to make adobe. The pits were later filled with trash and covered over when the plaza began to be used for daily activities.

TABLE 4.4
Correlation of excavation layers and plaza surfaces, Plaza G.

		modern ground surface
Layer 1	wall fall, trash	
		Plaza surface 1
Layer 2	wall fall, wash	
		Plaza surface 2—greatest number of features
Layer 3	trash, sterile soil, borrow pits	

TABLE 4.5
Plaza G features.

Excavation Unit	Feature Type	Dimensions (m)	Content	Function
12-G-2-3-1	Group mealing area	3.46 by 1.9/1.63 by .03–.36 high	trough, burial, stone slab	grinding
12-G-2-3-2	Masonry wall	3.15 long by .96 high by .35 wide	irregular stones/adobe mortar	grinding area associated with roomblock 18, then burial area; forms enclosure 21
12-G-2-3-3	Keyhole-shaped pit	.53 by .40 by .25	trashy sand	storage cist?
12-G-2-3-4, 5	Post supports	.3 by .3 by .35	5-6 stone slabs lining the holes, and ponderosa pine post butts within	stabilized post butts; may relate to a secondary surface portal
12-G-2-3-15	Ceramic vessel	—	none	unknown
12-G-2-3-16 Complex (6, 8, 10, 12, 16)	Post holes and low walls with trench	postholes, .09–.16; trench, .15 deep by 2 wide; walls, .23 high	wood and post impressions in N/S trench; 7 post holes outside trench, extending N.	windbreak or ramada
12-G-2-3-17	Possible windbreak	alignment, 1.3 long; post holes, .07–.13 diameter by .15–.21 deep	7 post holes, all but one with wood	windbreak
12-G-2-3-21	Enclosure (between feature 2 and roomblock 18)	ca. 5 m^2	terrace, burials, manos, slabs	unknown
12-G-2-3-23	Rock pile (burned)	various	mostly ground stone tools	clearing of a burned room?
12-G-2-3-32	Pit	.57 by .57 by .35	sandy fill with a high percentage of ash and carbon	cist?
12-G-2-3-36	Rectangular trench	—	none	unknown
12-G-2-3-41	Post hole	—	none	unknown
12-G-2-3-24	Enclosure; 7 separate features listed below	4.5 m^2	see features listed below	turkey pen
12-G-2-3-43	W wall of feature 24	ca. 1.6 long	—	wall of turkey pen
12-G-2-3-44	N wall of feature 24	ca. 3.0 long	—	wall of turkey pen

TABLE 4.5 (continued)

Excavation Unit	Feature Type	Dimensions (m)	Content	Function
12-G-2-3-45 (within 24)	Post holes (2)	—	none	roost supports?
12-G-2-3-46 (within 24)	Bottom portion of B/W vessel	—	none	water dish?
12-G-2-3-47 (within 24)	Culinary vessel	—	none	feeding vessel?
12-G-2-3-48 (N wall, roomblock 18)	Doorway	.54 by .32; .92 above plaza surface	none, sealed	access to plaza
12-G-2-3-49 (within 24)	Pole hole	.10 by .08; .55 above floor	none	roost support
12-G-2-3-50 (within 24)	Pole hole (both 49 and 50 in N wall, roomblock 18)	.05 by .04; .54 above floor	none	roost support
12-G-2-3-51	Enclosure	—	following 6 features associated	grinding area
12-G-2-3-52	Ladder seats (2)	.06 by .06 by .04	none	access to second-story rooms in roomblocks 15a and 18 or ramada over feature 55
12-G-2-3-53	Post holes (2)	.12 by .12 by .05 .10 by .10 by .06	none	pole supports for ramada over feature 55
12-G-2-3-54 (N wall, roomblock 18)	Doorway	.79 (incomplete) by .31; .73 above plaza surface	none, sealed	access to plaza
12-G-2-3-55	Mealing bin	.40 m^2; slabs: .65 by .04, .53 above surface; .52 by .03, .35 above surface	2 felsite slabs, no groundstone associated	grinding
12-G-2-3-56	Masonry wall	2.70 (incomplete) by .31 by .45	felsite and andesite slab in heavy adobe matrix	forms N wall of feature 51
12-G-2-3-57	Vent	.17 by .17; .42 above plaza surface	none, sealed	ventilate room in roomblock 15a
12-G-2-3-58	Rock alignment	length unknown, .15 high	stone slabs	forms W wall of feature 51
12-G-2-3-59	Vent	.18 by (incomplete); 1.18 above plaza surface	none, unsealed	ventilation unrelated to a hearth (too high)
12-G-2-3-60	Doorway and vent	doorway: .66 by .45, .35 above surface; vent: .16 diameter, .79 above surface	none, door sealed and vent left	access to plaza and ventilation of roomblock 15a
12-G-2-3-61	Rectangular vent	.25 by .12, 1.05 above surface	none, sealed	ventilation of roomblock 15a
12-G-2-3-62	Doorway	.80 (incomplete) by .43, .62 above surface	none, unsealed	access to plaza

(*continued on next page*)

TABLE 4.5 (continued)

Excavation Unit	Feature Type	Dimensions (m)	Content	Function
12-G-2-3-63	Stone rubble wall	3.47 by .32 by .17; turns at N end to E for .52 m	irregular stones	forms enclosure with roomblock 15a and features 64 and 65
12-G-2-3-64	Post hole alignment (N-S, 12)	.23 average depth; no diameters given	may contain post remains (juniper)	pen or windbreak
12-G-2-3-65	Post hole alignment (E-W, 8)	.23 average depth; no diameters given	may contain post remains (juniper)	pen or windbreak
12-G-2-3-66	Mealing bin	.24 m^2; slabs: .45 by .07, .22 above surface; .62 by .04, .27 above surface	2 felsite slabs; 4 slabs pave the interior	grinding
12-G-2-3-67	Ceramic vessel	—	sherds	unknown
12-G-2-3-68	Ceramic vessel	—	sherds	unknown
12-G-2-3-69	Slab paving	.48 by .35 by .05 average slab size	3 slabs	entrance into enclosure and feature 66
12-G-2-3-70	Possible shelf hole	.28 by .09 by .06, .69 above plaza surface	none	support for small plank shelf
12-G-2-3-71	Post hole	—	none	support for small plank shelf (see feature 70)
12-G-2-3-72	Post hole	—	none	unknown
12-G-2-3-73	Post hole	—	none	unknown
12-G-2-3-74	Rock alignments	—	stream cobbles	step associated with feature 62 or lithic cache material
12-G-2-3-75	Pit	.55 by .55 by .17	lithics	possible fire pit
12-G-2-3-83	Bin	.84 m^2; slab: .62 long	none	storage
12-G-2-3-85	Post hole	—	none	unknown
12-G-108B-86	Post hole	—	none	unknown
12-G-108B-87	Post holes (3, no pattern)	—	none	unknown
12-G-2-3-110	Post hole	—	none	unknown
12-G-2-3-111	Post hole	—	none	unknown
12-G-2-3-112	Post hole	—	none	unknown
12-G-2-3-113, 114, 115, 116, 119, 121, 123, 125	Post hole alignment	alignment ca. 1.8 long	dendros in features 116, 118, 119, 121	unknown
12-G-2-3-126	Post hole	—	dendro sample	unknown
12-G-2-3-128	Post hole	—	none	unknown
12-G-2-3-129	Post hole	—	none	unknown
12-G-2-3-130	Post hole	—	dendro sample	unknown
12-G-2-3-132	Post hole	—	dendro sample	unknown
12-G-2-3-134	Post hole	—	none	unknown
12-G-2-3-135	Post hole	—	dendro sample	unknown
12-G-2-3-137	Mealing bin	N slab: .52 long; S slab: .48 long; ca. 1 m^2	mano fragment	grinding
12-G-2-3-139	Depression	ca. 2.5 diameter	none	unknown

TABLE 4.5 (continued)

Excavation Unit	Feature Type	Dimensions (m)	Content	Function
12-G-2-3-140	Post hole	—	none	possible windbreak or divider (see below)
12-G-2-3-141, 142, 143	Post hole alignment (E-W)	alignment: ca. .32 long	none	see feature 140
12-G-2-3-144	Post hole	—	dendro sample	see feature 140
12-G-2-3-146	Post hole	—	none	see feature 140
12-G-2-3-147, 149, 151, 153, 154, 155, 156, 157	Post hole alignment (E-W, 2 rows of 4)	alignment: ca. 2.0 long	dendros in features 147, 149, 151	unknown
12-G-2-3-160	Post hole	—	none	unknown
12-G-2-3-161, 163, 164	Post hole alignment (E-W, 3)	alignment: ca. 1.16 long	dendro sample in feature 161	divider
12-G-2-3-165	Post hole	—	dendro sample	unknown
12-G-2-3-167	Post hole	—	none	unknown
12-G-2-3-168	Parrot burial	ca. .44 by .28	none	unknown
12-G-2-3-170	Wall niche	ca. .16 by .12 deep	none	unknown
12-G-2-3-171	Post hole	—	dendro sample	unknown
12-G-2-3-173	Depression	ca. .4 diameter	dendro sample	unknown
12-G-2-3-175, 178	Ladder seats	ca. .32 apart	none	roof entry
12-G-2-3-176	Vent (S wall, room-block 14)	ca. .24 wide	sealed	ventilation for room-block 14
12-G-2-3-177	Doorway (S wall, room-block 14)	ca. .44 wide	none	unknown
12-G-2-4-1	Depression	ca. .8 by .52	none	unknown
12-G-2-4-2	Rock pile	ca. .3 by .16	stones	unknown
12-G-2-4-3	Whole vessel (Poge B/W)	—	feature 5	unknown
12-G-2-4-4	Rock pile	ca. .2 diameter	stones	unknown
12-G-2-4-5	Cranium	—	bone	unknown
12-G-2-4-6	L-shaped rock alignment	ca. .4 long	stones	unknown
12-G-2-4-7	Unknown alignment	ca. .56 long, .08 wide	not noted	unknown
12-G-2-4-8	Mealing bin	bin: ca. .78 m^2, E slab: .56 long, W slab: .68 long	features 3, 4, 5, 6, 7; 2 upright slabs	grinding
12-G-2-4-9	Mealing bin	bin: ca. .72 m^2, E slab: .36 long, W slab: .56 long	dendro, burial	grinding
12-G-2-4-15, 17	Post holes	ca. .2 apart	dendros	unknown
12-G-2-4-19	Post hole	—	dendro	unknown
12-G-2-4-21, 23, 25, 27	Post hole alignment	alignment: ca. .5 long	dendros	unknown
12-G-2-4-29	Post hole	no dimensions	dendro	unknown
12-G-2-4-32	Portal support	ca. 1.75 long by .4 wide	dendro, stones	unknown
12-G-2-4-38	Post hole	—	dendro	unknown
12-G-2-4-40	Upright slab	ca. .68 long	W slab of feature 8	forms mealing bin
12-G-2-4-41	Large dendro	ca. .52 long by .12 wide	wood	possibly part of ramada

(continued on next page)

TABLE 4.5 *(continued)*

Excavation Unit	Feature Type	Dimensions (m)	Content	Function
12-G-2-4-42	Post hole	—	dendros	unknown
12-G-2-4-44	Post hole?	—	dendro	unknown
12-G-2-4-46	Depression	ca. .48 by .24	3 post holes, dendros	unknown
12-G-2-4-48, 50, 51	Post hole alignment in feature 46	alignment: ca. .28 long	dendro in feature 48	unknown
12-G-2-4-52	Post hole	—	none	unknown
12-G-2-4-53	Post hole	—	dendro	unknown
12-G-C31-100	Depression	ca. .8 by .52	none	unknown
12-G-C31-102	Upright stone slab	ca. .56 long	stone	unknown
12-G-C33-104	Upright stone slab	ca. .6 long	stone	unknown
12-G-C33-105	Upright stone slab	ca. .32 long	stone	unknown
12-G-C35-106	Upright stone slab	ca. .52 long	stone	unknown
12-G-C35-107	Post holes (2, paired, in burial)	.24 apart	none	unknown
12-G-C35-108	Post holes (4, aligned between features 110 and 111)	alignment: ca. .5 long	none	unknown
12-G-C35-109	Post hole	—	none	unknown
12-G-C35-110	Rock alignment	ca. 1.2 long by .36 wide	stones	forms enclosure with feature 111 and roomblock 14
12-G-C35-111	Rock alignment	ca. 1.75 long by .4 wide	stones	forms enclosure with feature 110 and roomblock 14
12-G-C38-112	Portal support	ca. .5 diameter	stones	
12-G-C25-113	Culinary vessel	—	sherds	unknown

Note: All burials in Plaza G are reported in Palkovich 1980.

Plaza K

Ten 2 by 2 meter grid squares were excavated in the southwest corner of plaza K along the walls of roomblocks 6 and 8 (figs. 4.6 and 4.7). Almost 9% (44 m^2) of the 504 m^2 of plaza K was excavated. Four levels were defined, though levels 3 and 4 overlap in some areas (table 4.6). Levels 1, 2, and 3 were trash and wall fall. Features were only found in the lowest levels, 3 and 4. The surface of level 4 was the primary plaza surface and included most of the features found in plaza K (table 4.7). In the east-west grid squares, level 3 is the equivalent of north-south level 4. The plaza K surface contained mealing areas, post holes, hearths, basins, and turkey pens, features similar to those found in the other plazas. Two tree-ring dates obtained from the plaza K surface were both non-cutting dates (A.D. 1293vv and 1317+v), but they suggest that the area was in use during Component I.

Component I Plaza Features

Gateways

Four Component I entry passages or gateways, providing access to plazas, were investigated (fig. 4.8). The gateways into plazas G and C were completely excavated, and those in plazas E and F were tested. The gateway into plaza C was associated with both the Component I and II occupations (see below), but only the Component I use is discussed here. The gateways occur near the conjunction of roomblocks, and in three of the four tested areas, one side of the gateway was bordered by aggregate construction (a group or groups of rooms built at the same time). On the other side of the gateway, rooms were built one at a time, suggesting that the passage area was gradually narrowed by construction.

Gateways ranged from 2.5 to 4.1 m wide and were as long as the roomblocks were wide. None were bridged by second-story rooms, and only the passage in plaza

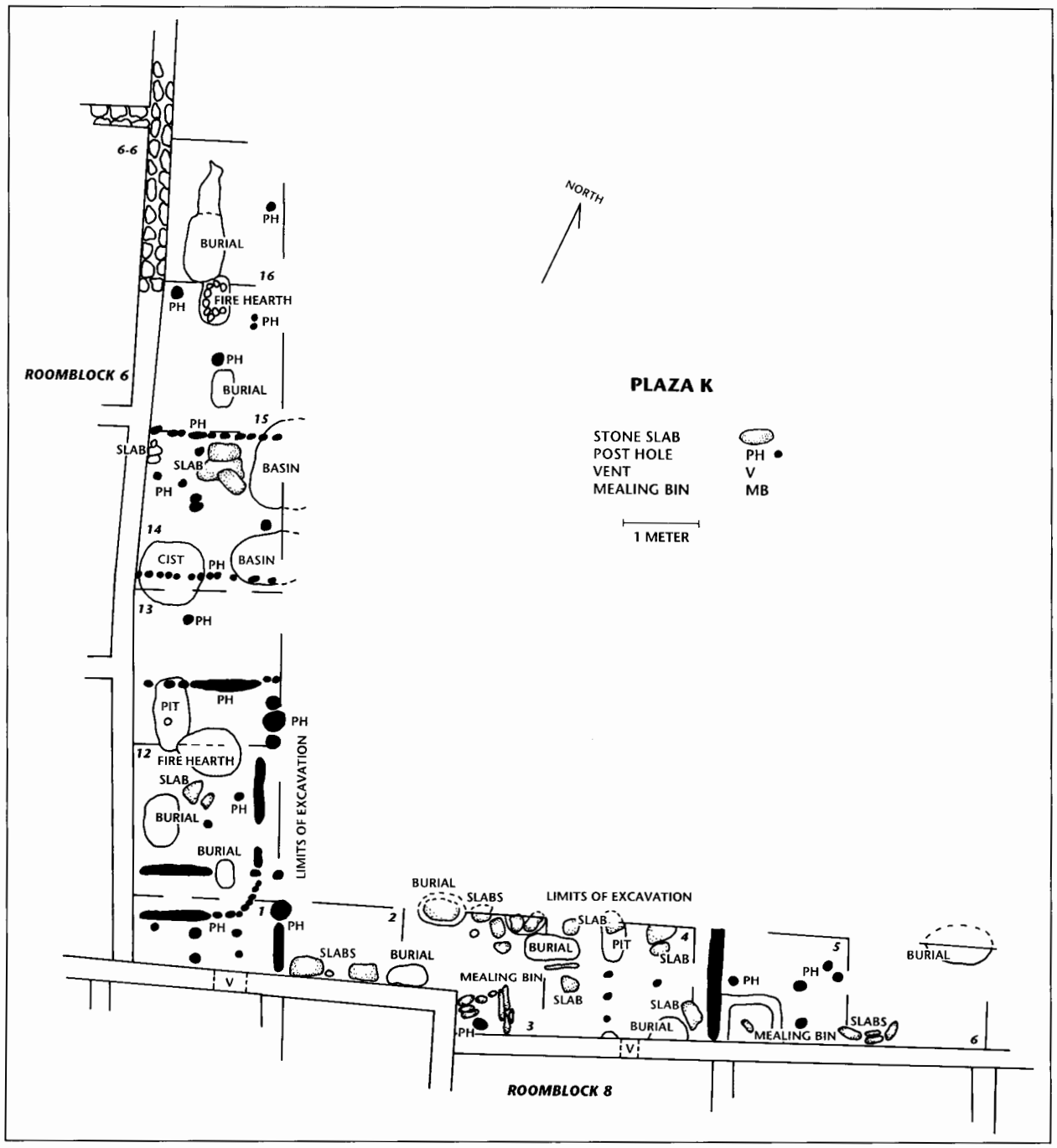


Figure 4.6. Plaza K plan view.

G contained internal features. The walking surface was compacted trash, windblown sand, and eroding adobe from adjacent walls. Deposits were deepest near the walls and thin and compacted near the center of the passage. In plaza G, a palisade was constructed across the gateway. Later, a masonry wall was erected across the entrance and may have kept in turkeys that were allowed free run in the abandoned plaza (fig. 4.8). Similar blocking of the gateways was not observed in the other passages tested.

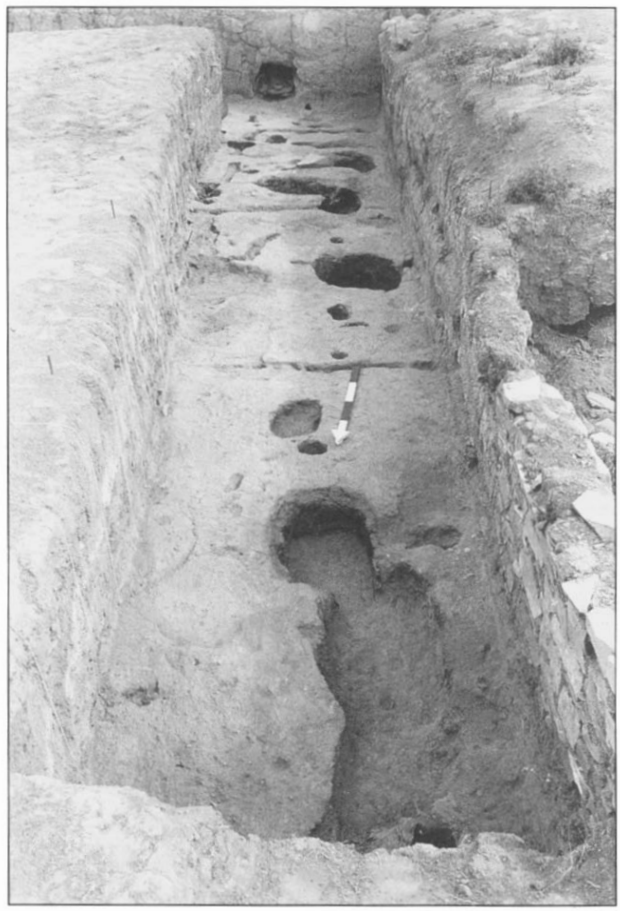


Figure 4.7. Overview of plaza K from the north along the west wall of roomblock 6. The numerous excavated features show the variety of domestic activities that took place on the plaza. Scale is 1 m in 25 cm increments. (Photo AH4-DGN63-25).

TABLE 4.6
Correlation of excavation layers and plaza surfaces, Plaza K.

		modern ground surface
Layer 1	wall fall, trash	
Layer 2	trash fill	
Layer 3	trash fill	
		Plaza K surface
Layer 4	trash, features	

Mealing Areas

At least six mealing areas were found in plaza G and one in plaza K (tables 4.5 and 4.7; figs. 4.4 and 4.6). Most were constructed of vertical stone slabs abutted against roomblock walls and were roughly rectangular, ranging from 60 to 80 cm in both width and length (fig. 4.9). Bordering slabs were set 3–6 cm below the mealing surface, and junctions with walls were often mortared. The bin in plaza K (12-K-5-18) was clay-lined with a raised rim on three sides. Manos and metates often accompanied these features.

In plaza G, adjacent to roomblock 13, an unusual feature may represent a group mealing area (12-G-2-3-1; table 4.5, fig. 4.4). This stone-walled, clay-plastered trough was 30 cm deep and 40 cm wide and was partially surrounded by a masonry wall. Smoothing marks and finger indentations could be seen in the clay. Stone slabs lined the bottom of the trough but were not embedded in the plaster. Little wear was visible on this unusual facility. Two adjacent mealing bins (12-G-2-3-8 and 12-G-2-3-9) also suggest that food-processing activities may have been cooperative, with two or three people working together. Although this possible group mealing area is unique at Arroyo Hondo, adjacent mealing bins were also recorded in the Component II occupation of plaza C (see below).

Turkey Pens

Enclosures that contained fragments of eggshell and large amounts of turkey dung were found in plazas G and K (figs. 4.4 and 4.6), although not in plaza A (see Lang and Harris 1984 for detailed information on turkey husbandry at Arroyo Hondo). Most of the enclosures were indicated by post hole alignments (figs. 4.10, 4.11). Two turkey pens were recorded in plaza G (features 12-G-3-42 to 50 and 12-G-3-64 to 65) and four in plaza K (features 12-K-14-2, 12-K-13-6, 12-K-1/12/13-9, and 12-K-1/1/12-10). Trenches and individual post holes show that pens were built of sticks and branches adjacent to or in the corners of roomblocks, with the roomblock making one or two sides of the pen. The wooden walls of these enclosures were made of posts 3–10 cm in diameter. The smaller staves were often seated in shallow trenches rather than in individual holes. Posts with larger diameters were spaced from 12 to 18 cm apart. The pens, encompassing about 40 m^2, seldom exceeded two meters across the short axis. No indications of enclosure height were recovered. In plaza G, two pens yielded broken jars or pots believed to be food or water vessels for turkeys. Horizontal-rail roosts may be indicated by paired post

TABLE 4.7
Plaza K features.

Excavation Unit	Feature Type	Dimensions (m)	Content	Function
12-K-15-1	Pit hearth	.65 by .42 by .30	burned rock and wood	unknown; culinary?
12-K-15-1a	Post hole	.15 by .15 by .15	none	unknown
12-K-14-2	Post holes (two parallel lines, 22 total)	.05–.10 diameter, .05 deep	none	jacal or wattle and daub enclosure; turkey pen?
12-K-13/14-3	Cist	.80 by .70 by .60	light midden	storage
12-K-14-4	Basin	.85 by .65 (incomplete) by .15	trash	winnowing
12-K-13-5	Pit	.85 by .40 by .35	light midden	unknown
12-K-13-6	Trough/post alignment	post molds: .08 diameter and .05 deep	none	possible partition for turkey pen
12-K-12/13-7	Pit	.85 by .60 by .40	ash, burned wood, and rock	roasting pit
12-K-13-8	Series of 3 post holes	.30 by .20, .17 by .20, .17 by .25	none	possibly part of ramada or portal
12-K-1/12/13-9	Outline of enclosure (alignment of posts and troughs)	trough: .85 by .12 by .06; post A: .15 by .15; post B: .15 by .05; other posts .06 to .15 diameter, .15 deep	none	turkey pen?
12-K-1/2/12-10	Outline of enclosure (trough and trough/post alignment)	trough: 1.0 by .20 by .12; trough with post: .75 by .13 by .12; post: .24 by .15	none	turkey pen?
12-K-1-11	4 ladder seats	all .10 diameter	none	ceiling entry
12-K-3-12	Series of slabs and horizontal blocks	—	slabs	possible disassembled mealing bin
12-K-3-13	Post hole	.15 by .67	none	unknown
12-K-4-14	Wood slat	.60 by .05 by .02	none	unknown
12-K-4-15	Pit	.50 (incomplete) by .30	none	part of feature 16
12-K-4-16	Series of 4 post holes	—	none	divider
12-K-5-17	Trough	2.0 by .12 by .18	none	part of feature 16
12-K-5-18	Mealing bin	.85 by .60 by .10	one large metate	grinding
12-K-6-19	Semicircular rocks (3)	—	none	unknown
12-K-14-20	Pit	1.0 by (incomplete) by .25	light midden; unburned angular stones	unknown

holes in the plaza floor in conjunction with wall sockets in the adjacent roomblock walls.

Turkey pens are reported from Pindi, where they are roughly square and located along the south and east roomblocks of the plaza (Stubbs and Stallings 1953:47). The fact that turkey pens are not reported from other sites is likely due to lack of plaza excavation.

Portales

Alignments of post holes parallel to roomblock walls were found in plazas G and K and may have formed parts of ramadas or *portales*, shelters with open sides and a thatched roof that extend like a porch out from a roomblock wall (features 12-G-2-3-4 to 5, 12-G-2-3-53, 12-

Figure 4.8. Gateway to plaza G (center of photo). The wall across the gateway was added late in the use of plaza G, perhaps to pen turkeys that were allowed to run free in the plaza. (Photo AH3-JDB3-9).

G-C38-112, 12-K-13-8; figs. 4.4 and 4.6). Stone slabs were set at the bottom of many of the post holes as footings, and stones were used as wedges to stabilize the posts (fig. 4.12). Several deeply set posts (for example, feature 12-K-3-13) may also have supported ramadas, though most post holes ranged from 25 to 35 cm deep. No evidence of roofing materials, such as adobe impressions or wood, was recovered, which suggests that brush was used as roof covering. The large number of post holes in plaza areas made it difficult to identify individual ramadas or *portales*.

Windbreaks or Dividers

Features that divided or subdivided certain areas of plazas into smaller units were indicated by post hole alignments perpendicular to roomblock walls. Five dividers were identified in plaza G and one in plaza K (features 12-G-4-16, 12-G-4-17, 12-G-3-110 to 135, 12-G-3-140 to 146, 12-G-3-161 to 164, and 12-K-15 to 17; figs. 4.4 and 4.6). Small-diameter sticks (5 cm average) set 3 to 8 cm apart formed open-sided compartments or stalls projecting about two meters into the plazas. These dividers were probably not roofed, and their maximum height was less than 1.5 m. No artifacts or other features were associated with these partitions; they may have provided sheltered work space or reflected individual rights to use the enclosed space.

Masonry Walls and Terraces

Three areas in plaza G around mealing bins were outlined by low masonry walls (12-G-2-3-51, 12-G-2-3-63, and 12-G-C35-110). All of the enclosures were built in corners defined by room walls and encompassed 3 to 7 m^2 (fig. 4.4). The possible group mealing area (12-G-2-3-1), described above, was also surrounded by masonry walls. Two other walls enclosed areas of similar size but without evidence of grinding activities (12-G-2-3-16 and 12-G-2-3-21). One of these areas (12-G-2-3-21)

Figure 4.9. Mealing bin (above scale) in plaza G. Scale is 40 cm in 5 cm increments. (Photo AH3-JDB7-3).

was filled with trash to form a terrace almost a meter above the plaza surface. The height of other masonry-walled enclosures was lower. One wall of adobe-plastered block and slab masonry around a mealing bin was 45 cm high (feature 12-G-2-3-51). Walls surrounding the group mealing area were about 36 cm high. Three other wall sections (12-G-2-3-63, 12-G-2-3-16, and 12-G-2-3-51) consisted of irregularly shaped stones forming a mud and masonry alignment less than 25 cm high. (The height of 12-G-2-3-110 is unknown.) The low height of these walls suggests that they were not built to room height but provided some protection for grinding or other activities. Masonry walls were not found in the other excavated plazas at Arroyo Hondo.

Basins

Four shallow, subrectangular basins were found in plazas A and K (A-1-A, A-2-C, A-1-I, and K-14-4); none were found in plaza G (figs. 4.2, 4.13). Each basin was plastered and ranged from 85 to 165 cm long, 85 to 120 cm wide, and 12 to 20 cm deep. Pollen analysis of two basins in plaza A suggests that they may have been "winnowing basins" for chenopodium or amaranth seeds (Bohrer 1986:219). The plants would have been shaken or beaten over these features, and the edible seeds allowed to fall into the basin below.

Firepits or Ovens

In plazas A and K, features containing burned and fire-cracked stone, ash, or charcoal were found (tables 4.3 and 4.7). Two circular or subrectangular hearths in plaza K (12-K-15-1 and 12-K-12/13-7) were similar in size to hearths within rooms, averaging 40 to 60 cm in diameter, but were twice as deep—30 to 40 cm. A single, subrectangular pit in plaza G (12-G-2-3-75), measuring 56 by 55 by 17 cm, contained burned rocks but was not itself burned. It resembled hearths found in rooms, but it may not have functioned in the same way.

Figure 4.10. The narrow trench bounding this corner of plaza G was the foundation for a post and brush turkey pen (Feature G-2-3-24). The remains of the posts (some wrapped for dendrochronological analysis) can be seen in the trench. The pen was filled with stratified eggshell and turkey dung. Food and water vessels and a horizontal roost were found inside. (Photo AH3-JDB6-5).

Figure 4.11. Excavation of turkey eggs from plaza K. Several turkey pens were located in plaza K. (Photo AH4-DGN51-9).

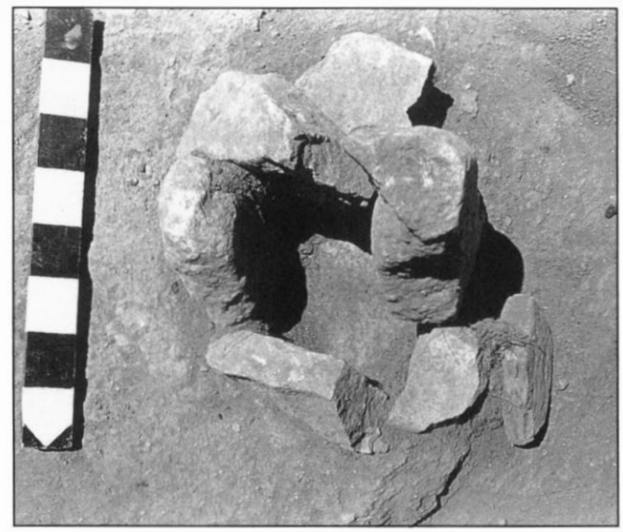


Figure 4.12. Post support for portal *in plaza G. Scale is 40 cm in 5 cm increments. (Photo AH4-JDB2-15).*

A larger oval hearth (feature A-2-H) in the northeast quarter of plaza A measured 180 by 145 by 45 cm, produced stratified ash and charcoal deposits as well as burned rock, and had a trough or tunnel to the ground surface—possibly a vent (table 4.3; fig. 4.14). This pit superimposed several other large, deep, trash-filled pits that showed no evidence of burning (features A-2-I, A-2-K, and A-2-L). Nearby, another large unburned pit (A-2-G) was filled with burned rock. The stratigraphic position and trash filling of these features implies they received occasional intensive use, perhaps seasonally. The number of burned stones filling features A-2-H and A-2-G implies they were used as ovens. Charred wood from A-2-H produced three cutting dates at A.D. 1329.

Burned Wall Areas

Smudging and burning at wall corners was identified at four locations in plaza G (fig. 4.4). These blackened areas occurred on the wall from 30 to 96 cm above one of the plaza surfaces and were generally triangular—the bottom about 30 cm wide and tapering upward. The absence of burned or carbonized materials below these marks suggests that a torch or similar heat source produced the burning. Similar features were not recorded in the other Component I plazas (but see Component II Plaza C, below), probably because the preserved sections of wall were very low.

Unfired Circular Pits

All plaza areas tested produced trash-filled circular or subrectangular pits without evidence of burning (figs. 4.2, 4.4, 4.6). These pits ranged from 55 cm to 1 m in diameter and from 15 to 35 cm deep. The sides of the pits undercut the mouth of the features to some extent. Interior surfaces were not plastered, and artifacts suggesting function were not recovered. Five of the seven excavated examples occurred close to mealing complexes or hearths and may have been involved in food processing tasks.

Rubble Masonry Shelters

Two rooms built in plaza A out of mud and stone appear to have been shelters or storage areas (table 4.3; figs. 4.2 and 4.3). Both rooms were built at the same time, facing south, with standing walls 20 to 35 cm high and 35 to 60 cm wide. Large tabular slabs and blocks were used for the lowest courses of the structures; upper courses were made of small angular stones set in adobe mortar. Rubble from collapsed walls formed a low mound over the structures. A door 55 cm wide in the westernmost room was the only entry identified. No interior features were encountered during excavation. Roofing materials and stratified deposits other than wall rubble were absent.

The bases of the walls of these rooms were higher than feature A-2-H to the east (a possible oven), which was tree-ring dated to A.D. 1329 (Appendix B). The architectural style of this masonry was quite different from

Figure 4.13. The two large, shallow basins located in plaza A (features A and C), visible in the center of the photo, were suggested to be winnowing basins based on pollen analysis of their contents. The small round cist adjacent to the basins was of undetermined function. Another small cist, found above basin C, was removed when basin C was excavated. (Photo AH4-MPM3-31).

any other at the site, suggesting that the rooms were constructed after A.D. 1329. They may date to a period when the surrounding rooms were abandoned, and plaza A was in use only periodically.

Other Features

Each plaza studied yielded one or more unidentified subsurface features (figs. 4.2, 4.4, and 4.6). Circular to subrectangular pits or depressions ranging from 20 to 87 cm in diameter and 3 to 42 cm deep were usually filled with trashy soil and yielded no artifacts that indicated the features' function. These features may have been unused burial pits, tanning or hide-dressing pits, or small borrowing areas for adobe plaster. A large number of post holes from plaza locations could not be identified with distinct features. They may have been remnants of drying racks, ladder seats, frames for hide and skin preparation, or other structures.

Burials

Forty-eight human interments—almost half of the Component I burials recovered—came from plaza areas (Palkovich 1980:10). These remains were recovered from oval pits averaging 1 m long, 70 cm wide, and 20–140 cm deep. Ten burials were recovered from plaza K and 38 from plaza G, one from test excavations in plaza D, and four from the Component I use of plaza C. None were found in plaza A. Only 30% were adults. All graves lay close to roomblock walls, where plaza deposits were deepest and least compacted (Palkovich 1980:fig. 25). This location may have been selected because the earth was softer than in other areas of the plaza and could be easily excavated with simple tools. For a complete discussion of burials at Arroyo Hondo, see Palkovich (1980).

Component II Plaza C

Plaza C was the only enclosed plaza that dated to Component II. More than 100 m^2 (about 8%) of the total 1260 m^2 of this plaza was excavated. Many of the excavated features were similar to plaza features from Component I. Extensive excavation in plaza C was undertaken to provide a view of Component II plaza space comparable to the extensive Component I excavations in plaza G.

Areas Excavated

Plaza C testing included excavation of three trenches and of kiva C-2 (see chapter 5); excavation of former plaza surfaces below rooms 16-29 and 16-35; testing in the corner of roomblocks 9 and 10, in grid squares C-A-44 to 48, and in the gateway area (12-C-3) between roomblocks 11 and 16; and stripping of two broad areas (2 by 7 and 3 by 4 m) in the northeast corner of the plaza (figs. 4.15, 4.16). The following discussion is based primarily on the broad areas stripped to reveal the pattern of features.

The area of plaza C tested was provenienced differently during initial stripping of surface material to the level of plaza surface 1 and in the subsequent excava-

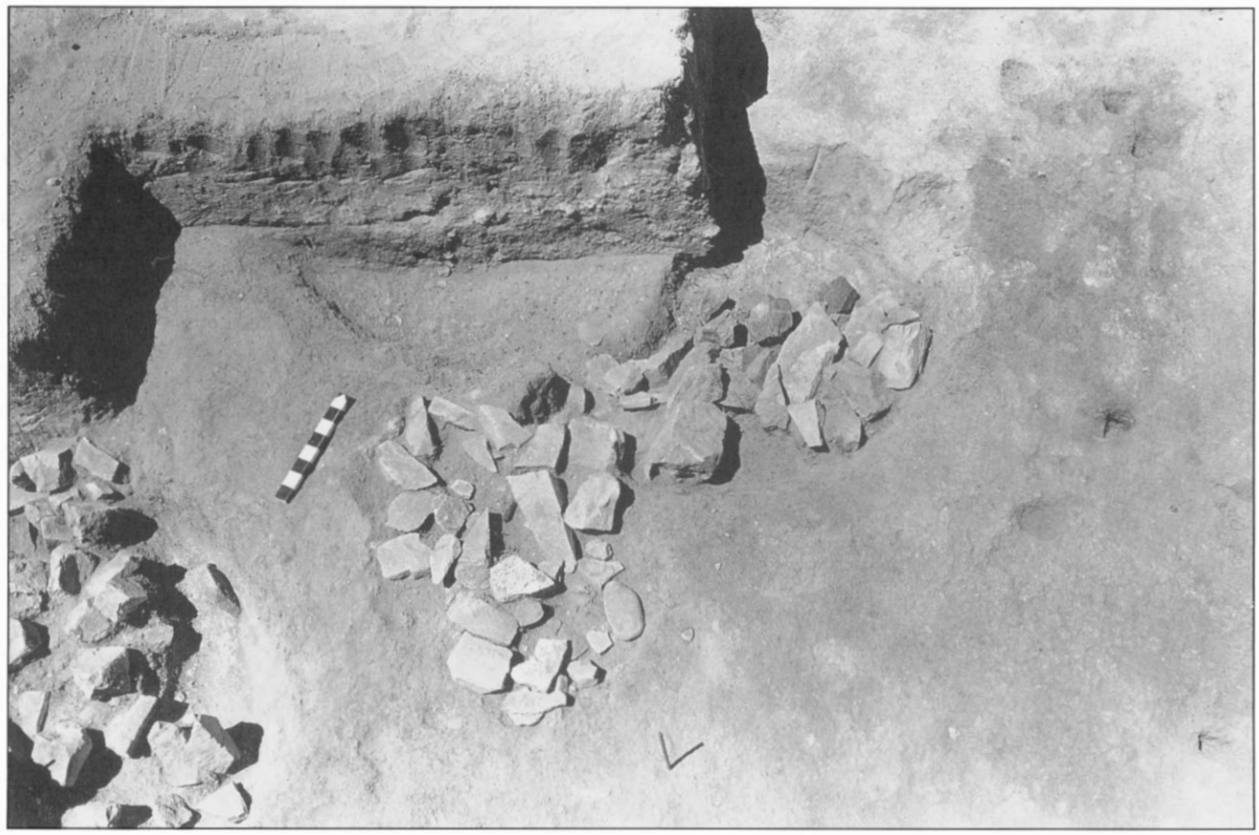


Figure 4.14. The pit and stones mark the location of feature H in plaza A, a possible oven. The pit contained stratified ash, charcoal, and burned rock and may have had a vent to the surface. Burned wood in the pit was dated at A.D. *1329. Scale is 40 cm in 5 cm increments. (Photo AH4-MM3-32).*

tions. Briefly, four broad areas were stripped of surface material (fig. 4.15). Area 12-C-5 was located at the junction of roomblocks 10 and 11. This zone was approximately 4.5 by 3.8 m. Area 12-C-6 was adjacent to 12-C-5 on the west and measured 4 by 3.4–3.65 m. The next adjacent area was 12-C-7, which measured 5.8–6.05 by 3.4–3.05 m. The largest stripping area was 12-C-8, south of 12-C-5 and including the area adjoining the edge of roomblock 11. This stripping area was 12.75–12.9 by 2.75–7.75 m. Below plaza surface 1, the plaza C surface was divided into 1 by 1 m grid squares, identified as 12-C-A-1 to 12-C-A-48 (grid numbers 12-C-A-20, 28, 33, 36, 37, 40, 41, 42, and 43 were not used). The correspondence between stripping areas and grid squares can be seen in figure 4.16. Some objects discussed as features, such as metates and manos, are identified by their field catalog number rather than the grid square provenience.

Plaza C Stratigraphy

Plaza C was excavated in 15 layers, and nine plaza surfaces were identified (table 4.8). Plaza surfaces 1–6 dated to Component II. Plaza surfaces 1 and 3 contained no features, whereas plaza surfaces 2, 4, 5, and 6 contained the features discussed below (table 4.9; figs. 4.15, 4.16, and 4.17). Plaza surface 2 was partially burned and blackened, probably associated with Component II burning of rooms around plaza C (fig. 4.15). This surface held few features, though some post holes were present—perhaps for ladder butts and drying racks. Two burial pits were associated with plaza surface 2, as were several burned patches close to the walls of roomblock 10.

Plaza surface 4 contained the greatest number of features (table 4.9; figs. 4.16, 4.17, and 4.18). By the time this surface was in use, the southernmost rooms of roomblock 10 had been built. Shallow basins were dug in

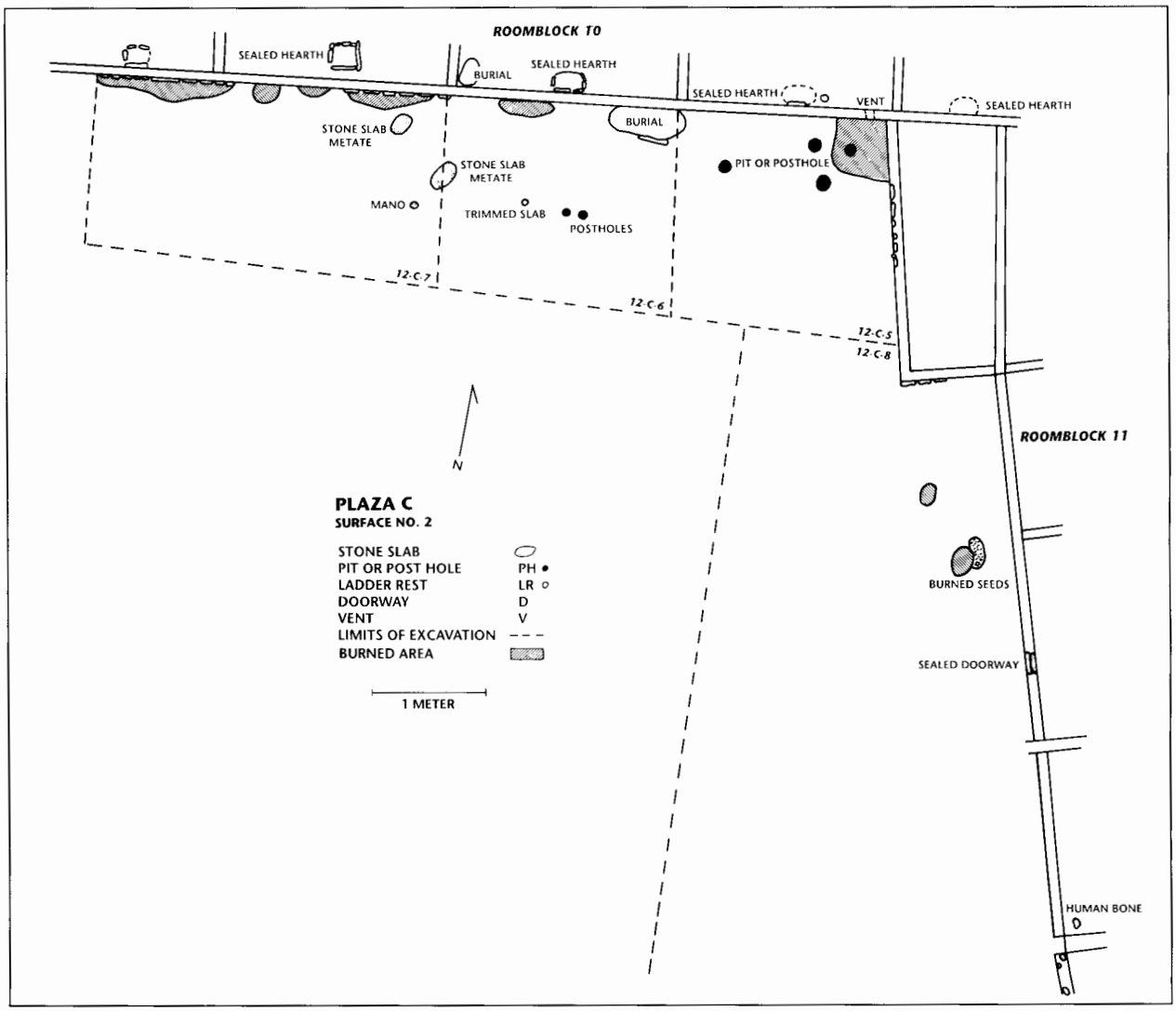


Figure 4.15. Plaza C surface 2 plan view.

front of several rooms. Mealing bins abutted the walls of the roomblocks, and numerous post holes held supports for ramadas, ladders, and possibly drying racks. Most of the post holes were located along roomblock 11, whereas most of the other features were located adjacent to roomblock 10. A small alcove along the east side of roomblock 9, revealed by excavation of area 12-C-9, yielded a bin or basin and a mealing area, both partially enclosed by the walls of surrounding rooms and an upright-post enclosure (fig. 4.16).

Between plaza surfaces 3 and 4 was a layer of turkey dung (layer 4) with shell fragments, and post holes in alignments suggesting turkey pens (table 4.9; fig. 4.17). These features extended the length of the excavated area. Apparently, turkeys were not kept along the east side of roomblock 9, since no dung or remains of pens were recovered there. The position of the layer of dung and pens over the most heavily utilized plaza surface indicates that the pens were built in plaza C when use of the plaza was declining. Evidence of turkey pens was also found in plaza surfaces 5 and 6, however, and turkey dung was found in the layers in between these surfaces, indicating plaza C was used to keep turkeys early in the Component II occupation as well as at the end of the occupation (or possibly at the end of Component I occupation).

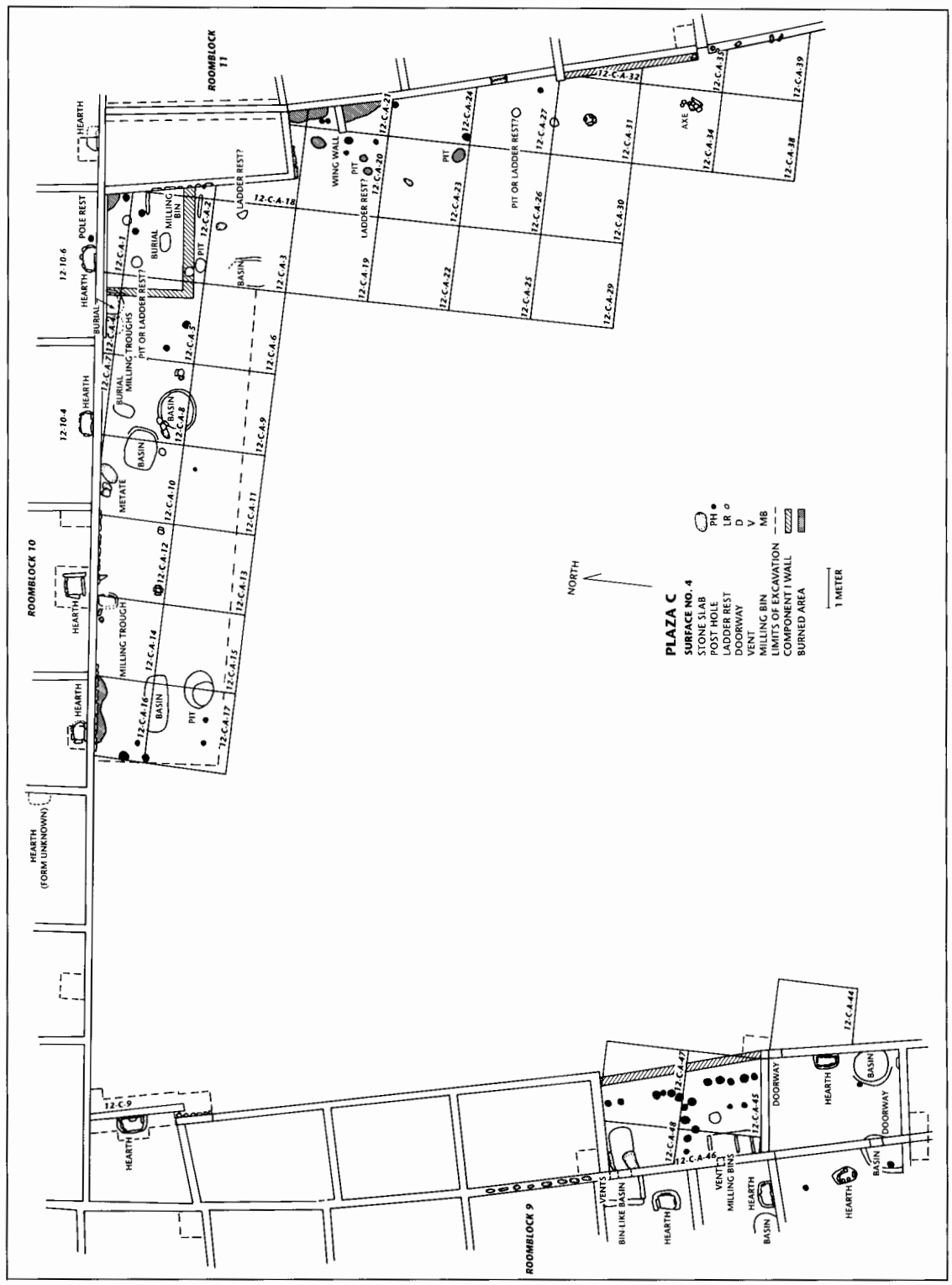


Figure 4.16. Plaza C surface 4 plan view, showing the greatest extent of plaza C excavations.

TABLE 4.8
Correlation of excavation layers and plaza surfaces, Plaza C.

		modern ground surface
Layer 1	wall fall, wash	
		Plaza surface 1—no features, poorly compacted
Layer 2	wall fall, wash	
		Plaza surface 2—partially burned
Layer 3	wall wash	
		Plaza surface 3—dark gray lens
Layer 4	turkey dung	
		Plaza surface 4—most features
Layer 5	dung and trash	
		Plaza surface 5—turkey pens
Layer 6	turkey dung	
Layer 7	turkey dung	
		Plaza surface 6—turkey pen
Layer 8	sand lenses	Early Component II
		Component I–II transition surface 7
Layer 9	sterile wash	
		Plaza surface 8—Component I
Layer 10	sand and dung	
		Plaza surface 9—Component I
Layer 11	sand, gravel, trash	
Layer 12	sterile	
Layer 13	trash	borrow pit
Layer 14	burned corncobs and carbonized wood	
Layer 15	adobe wash and rubble	

Plaza surfaces 7 and 8 date to the end of Component I and to the transition between the two components. No features were found on these surfaces, but their presence may indicate that plaza C was used between components, either continuing to be used by the remnant population living in roomblock 16 or by seasonal visitors who used rooms in roomblock 16 during occasional visits to the site.

A large number of tree-ring dates were obtained from plaza C (Appendix B). Debris between plaza surfaces 1 and 2 and burned debris on plaza surface 2 yielded two cutting dates at A.D. 1375 and one at A.D. 1384; a "v" date of 1385 was also recovered. Non-cutting dates ranged from A.D. 1323 to 1390 but were primarily in the 1370s and 1380s. Samples from layers between plaza surfaces 2 and 4 yielded cutting dates from the mid–A.D. 1370s to the mid-1380s. Non-cutting dates associated with these layers and with the top of plaza surface 4 range from A.D. 1332 to 1391 but are also primarily in the 1370s and 1380s. The similarity of dates for samples found between plaza surfaces 1 and 2 and between plaza surfaces 3 and 4 suggests that deposition within the plaza was rapid. No tree-ring dates were obtained for plaza surface 5 or for layers 5–13.

The northeastern portion of plaza C (the area that received the most sunlight) seems to have been used extensively over a relatively long period of time. As the roomblocks around the plaza grew, changes took place in plaza use. These changes are indicated by the presence of turkey pens prior to the construction of roomblocks 10 and 11; borrow pits during the construction of these roomblocks; and mealing bins, basins, and ramadas during the period of greatest occupation. Still later, it appears that turkeys were brought back to the plaza. Abandonment of the plaza is indicated by the small number of features and the presence of burials in its upper surface.

Gateways

Two gateways were present on opposite sides of plaza C, one between roomblocks 11 and 16 and one through roomblock 9. These passages allowed access to the plaza. The gateways differed in width (6 and 3 m, respectively). The narrower, gateway 9, was only present during Component II times. The gateway between roomblocks 11 and 16, 12-C-3, was open throughout both occupations. This gateway was probably located to provide access to the spring in the bottom of the arroyo. Gateway 9 passed through the only area without extensive Component I wall fall, a consideration that may have made it a desirable passageway. It also connected plaza C with open-sided plaza F to the west, which was the only plaza without direct access to the spring.

Excavation of gateway 12-C-3 yielded only two features. One was an isolated skull, 12-C-3-10-1, found in gateway fill (see Palkovich 1980). The other was a line of stones at the western edge of the gate. No features were found in gateway 9.

TABLE 4.9
Plaza C features.

Excavation Unit	Feature Type	Dimensions (m)	Content	Function
Plaza Surface 2				
Corner of roomblocks 10 and 11	Burned area	1.0 by 1.0 by .13	red-brown to black surface	burning
S wall of 12-10-4	Burned area	.95 by .28	black surface	burning
Walls of roomblock 10	Burned areas (4)	1.55 by .30, .60 by .16, .49 by 35, 2.5 by 40	blackened surface	burning
12-C-6-3	Metate	—	none	grinding
12-C-7-1	Mano	—	none	grinding
12-C-7-2	Metate	—	none	grinding
Stripping area 12-C-8	Burned patches (2)	.36 by .26, .55 by .35	blackened surface	burning
Stripping area 12-C-8-1	Burned seeds	.51 by .20	seeds	unknown
Plaza Surface 3				
Features 1–4	Turkey pens (4)	6.65 by 2.5, 4.55 by 2.0*, 5.8 by 2.85, 9.5 by 2.3	turkey dung	pen
Plaza Surface 4				
12-C-A-1	Burned area	.55 by .35	blackened, flaky wall	unknown
12-C-A-1	Pit	.16 diameter by .02 deep		pole ladder seat?
12-C-A-1	Post hole	.05 diameter by .03 deep	none	unknown
12-C-A-1/2	Paired post holes	.15–.16 diameter	none	ladder?
12-C-A-2	Pit	.10 diameter by .01 deep		
12-C-A-2	Pit	.25 by .20 by .06		pole ladder seat?
12-C-A-2-3	Mealing bin	1.15 by .95	none	grinding
12-C-A-3	Pit	.19 by .13 by .05		pole ladder seat
12-C-A-3/20	Basin	.95 by .80 by .09	none	unknown
12-C-A-3 to 12-C-A-17 and 12-C-A-3 to 12-C-A-38	Borrow pit complex	larger than test unit	none	source of adobe clay
12-C-A-3-1	Basin	1.35 by .65 by .07		winnowing?
12-C-A-4-1	Mealing troughs (2)	.46 by .43 by .08, .46 by .49 by .08	none	grinding
12-C-A-8-2	Basin	.91 by .87 by .11	trash, soil, turkey dung	winnowing?
12-C-A-10-1	Basin	1.0 by .74 by .09	trash, soil, turkey dung	winnowing?
12-C-A-10-2	Metate	.51 by .30 by .14	none	grinding
12-C-A-12	Burned area	1.85 by unknown	blackened wall	unknown
12-C-A-14-2	Mealing trough	.44 by .30 by .02	none	grinding
12-C-A-15-1	Pit	.92 by .71 by .43	trash	trash disposal
12-C-A-15-1	Pit	.60 by .46 by .62	trash	trash disposal
12-C-A-16	Post hole	.12 diameter by .04 deep	none	unknown
12-C-A-16	Burned area	1.72 by .26	blackened, ashy surface	unknown
12-C-A-17	Paired post holes	.05 diameter by .03–.07 deep	none	ladder?
12-C-A-17-1	Basin	1.35 by .61 by .075	trash, soil, turkey dung	winnowing?
12-C-A-19	Burned area	.40 by .25	blackened surface	unknown
12-C-A-19	Hearth	.14 diameter by .03 deep		hearth

(*continued on next page*)

TABLE 4.9 *(continued)*

Excavation Unit	Feature Type	Dimensions (m)	Content	Function
Plaza Surface 4 (continued)				
12-C-A-19	Pit	.13 diameter by .05 deep		pole ladder seat
12-C-A-19	Post hole	.07 diameter by .06 deep	none	unknown
12-C-A-19	Post hole	.07 diameter by .09 deep	none	unknown
12-C-A-21	Burned area	.95 by .35	blackened wall	unknown
12-C-A-21	Burned area	1.04 by .40	blackened wing wall	unknown
12-C-A-23	Burned area	.36 by .28	blackened surface	unknown
12-C-A-24	Post hole	.08 diameter by .09 deep	none	unknown
12-C-A-27	Pit	.20 diameter by .04 deep		pole ladder seat?
12-C-A-27	Post hole	.07 diameter by .03 deep	none	unknown
12-C-A-45	Pit	.26 diameter by .09 deep		pole ladder seat?
12-C-A-45	Pit	.13 diameter by .05 deep		rung ladder seat
12-C-A-45	Pit	.13 diameter by .06 deep		rung ladder seat
12-C-A-46-1	Mealing bin	1.13 by .63 by .03	none	grinding
12-C-A-48-1	Mealing bin	1.08 by .57 by .07	none	grinding
E of 9-11	Mealing enclosure (11 posts)	1.73 by 1.19	surrounds units 12-C-A-45/46	various
E of 9-10	Mealing enclosure (6 posts)	1.8 by 1.55	surrounds units 12-C-A-48-1	various
S along roomblock 10	Portal (11 posts)	14.35 by 1.25–2.37	various	shade
W along roomblock 11	Portal (5 posts)	10.0 by 1.25	various	shade
Plaza Surface 5	Turkey pen	destroyed by borrow pit	turkey dung	pen

Note: All burials in Plaza C are reported in Palkovich 1980.
*This pen may be superimposed on a smaller pen, 3.05 by 1.80.

Mealing Areas

Seven mealing areas were encountered in the excavated portion of plaza C, two in plaza surface 2 (fig. 4.15) and five in plaza surface 4 (table 4.9; fig. 4.16). In plaza surface 2, two stationary metates were found. One consisted of a single 51 by 30 by 14 cm stone set 12 cm into the plaza floor, leaving 2 cm of the metate exposed. The grinding surface was level. The other was similar in size and positioning.

In plaza surface 4, a clay-rimmed trough for a single metate was found abutting the wall of roomblock 10 (table 4.9; fig. 4.16). This feature, 12-C-A-14-2, had a clay collar 8 cm wide on three sides; the roomblock formed the remaining side. The trough measured 44 by 30 cm and sloped markedly from the back of the feature, by the roomblock wall, out toward the plaza. Another mealing area similar to the one just described provided space for two metates. Low clay rims outlined the feature (12-C-A-4-1) and formed a dividing wall between two compartments, each 46 cm wide and from 43 to 49 cm long. The floor of each compartment was slightly inclined. In addition, part of a Component I wall appears to have been modified to support two upright stone slabs at one side of the bins. The slabs may have served as windbreaks.

Two slab-bordered mealing areas providing room for two metates were also recovered in plaza surface 4 against roomblock 9 (table 4.9; fig. 4.16). Tabular slabs set on edge and abutting the walls of the roomblock outlined these bins. In one example, 12-C-A-48-1, two roughly rectangular depressions for the metates were visible; the other, 12-C-A-46-1, had separate slab-bordered compartments for the metates. The slabs projected from 38 to 70 cm from the roomblock walls and formed enclosed areas 113–115 cm wide. Neither mealing area had a prepared floor, and the surfaces were not inclined. Both of these mealing areas were surrounded by separate post enclosures (described below).

One other mealing area, 12-C-A-2-3, was a slab-bordered bin for one metate (table 4.9; fig. 4.16). This feature resembled those described above, but with the

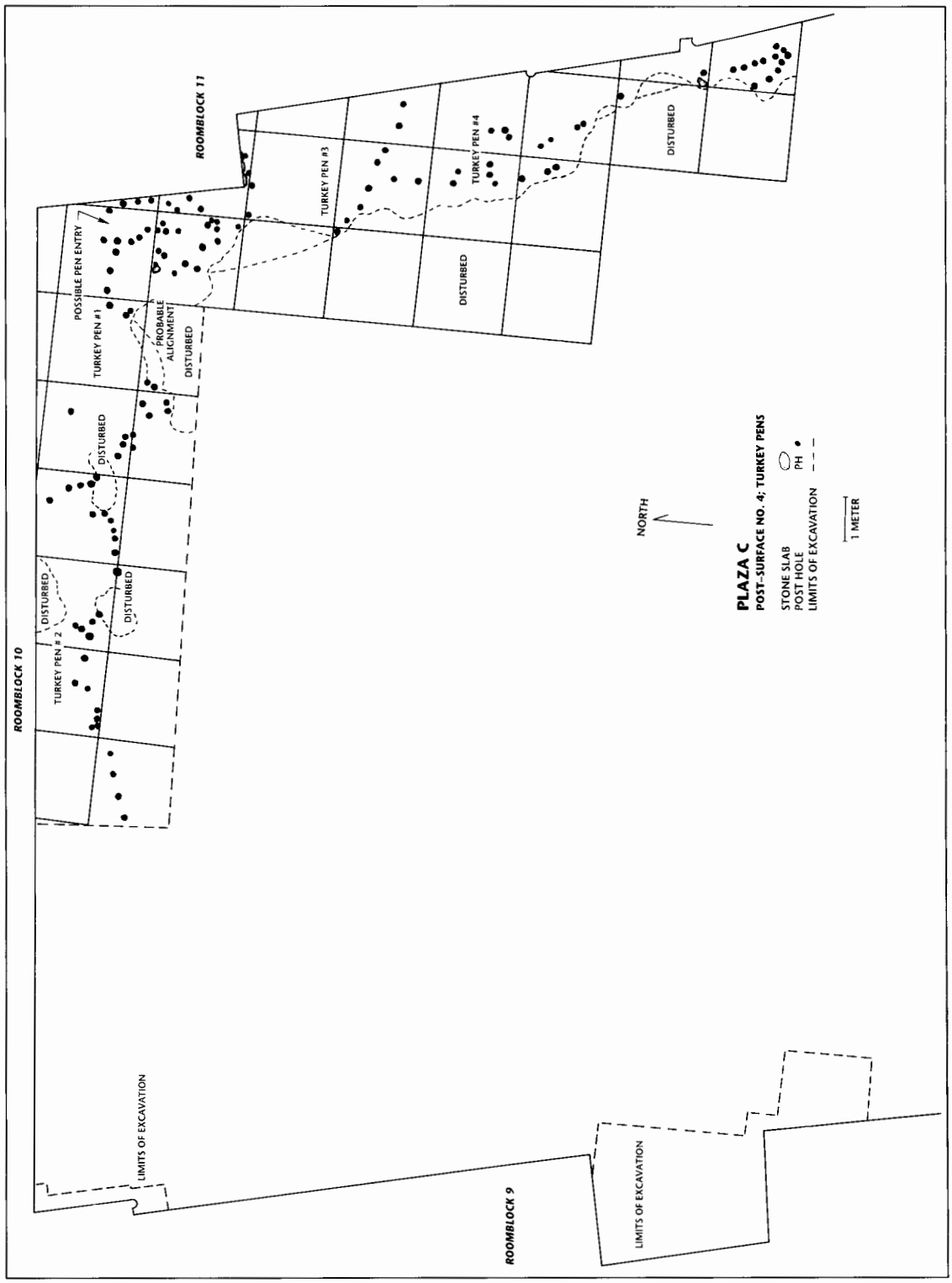


Figure 4.17. Plaza C post-surface 4 plan view.

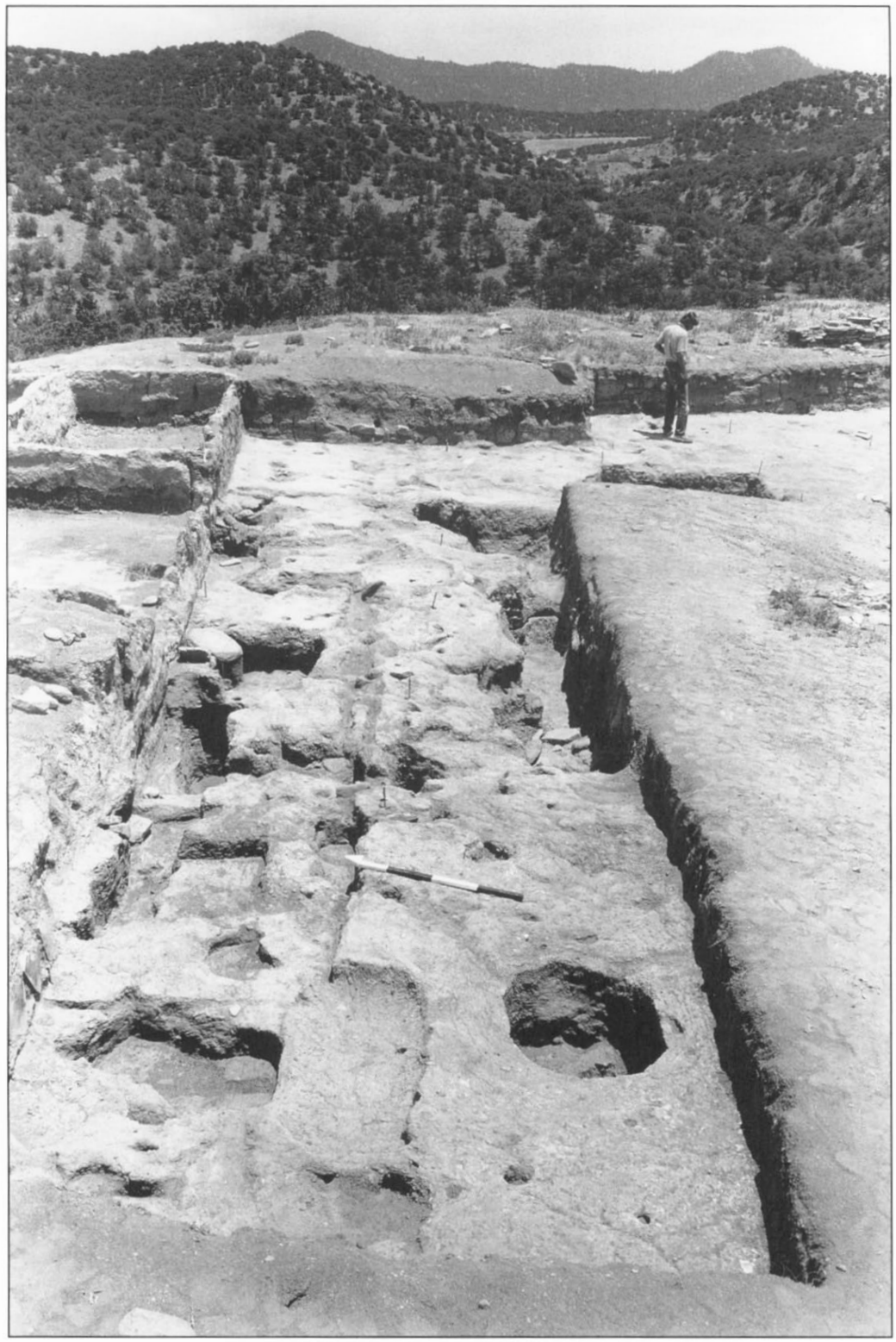


Figure 4.18. Overview of north side of plaza C, looking east, showing numerous excavated features. Plaza C was the only excavated plaza dating to Component II, and it exhibited the same diversity of domestic features found in Component I plazas. Scale is 1 m in 25 cm increments. (Photo AH4-DGN32-15).

slabs forming a smaller bin, about 50 by 55 cm. The interior of the bin was a rectangular basin 7 cm below the level of the plaza. The floor of the basin was slightly inclined.

The occurrence of mealing bins for two metates suggests that grinding may have been a cooperative activity, as has been suggested for Component I. There may have been some difference in the kinds of foodstuffs ground in the clay-lined and slab-lined mealing areas. The higher sides of the slab-lined bins would have been appropriate for fine grinding, because the slabs could block a stray gust of wind. The clay-rimmed bin would have been suitable for shelling nuts or for coarse grinding of seeds or grain.

Turkey Pens

Two surfaces of plaza C held evidence of turkey raising in the area of roomblocks 10 and 11 (table 4.9). Plaza surface 5 was used before roomblock 10 was constructed, and it produced large amounts of turkey dung and eggshell fragments and evidence of one turkey pen. The remains of four turkey pens were found above the heaviest domestic use of the plaza (above plaza surface 4; fig. 4.17).

The pens consisted of posts set in rows that cordoned off sections of the plaza close to the walls of the roomblocks. The enclosures were semicircular, and in most cases the walls of the roomblocks formed one side of the pen. Posts ranged from 8 to 20 cm in diameter and were generally spaced about twenty centimeters apart. All four pens in plaza surface 3 were connected. Pens 1 and 3 may have been separated by a narrow entry; pens 3 and 4 and 1 and 2 abutted each other. The pens averaged 11 to 12 m^2 in area, and some pens may have been further subdivided into compartments. Although some wood was recovered from these enclosures, most of the posts appear to have been removed after the pens were abandoned.

Portales

Post holes lined with small andesite slabs, probably representing ramadas or *portales*, were found along the south side of roomblock 10 and the west side of roomblock 11 (fig. 4.16). These structures ran parallel to the roomblocks for 10 m or more. A row of posts would have supported one side of the ramada, while the edge of the roomblock supported the other side. No evidence of roofing was found, though brush and grass were probably used. Evidently, these structures shaded the work areas beneath them. For example, the *portal* along roomblock 10 covered three mealing bins, three winnowing basins, and a stationary metate. Presumably these features and the *portal* were in use at the same time.

Basins

Four basins were associated with plaza surface 4 (12-C-A-3-1, 12-C-A-8-2, 12-C-A-10-1, and 12-C-A-17-1; table 4.9; fig. 4.16). These subrectangular to circular basins usually had a clay rim and plastered interior. The basins ranged from 85 to 135 cm long, 61 to 87 cm wide, and 7 to 11 cm deep. Basins may have served as winnowing or threshing areas for wild and domestic seed plants like those found in plaza A (Bohrer 1986:218–219). The basins were similar to Component I basin features found inside rooms, and a similar basin in Component II room 15-6 held corn that was apparently being shelled when the room burned.

Hearths

One possible hearth was found in plaza C (table 4.9; fig. 4.16). Feature 12-C-A-19 was a shallow, fire-reddened pit, 14 cm in diameter and 3 cm deep, located near the west wall of roomblock 11. Apparently it was used for only a short time, since no burned materials were recovered and the walls were not blackened by the fire. Though other features associated with burning were found in plaza C, none was a hearth of the types known from room interiors or rooftops.

Burned Areas

Six smoke-blackened and fire-reddened plaza surfaces and sections of wall were found on the south face of roomblock 10 and at the junction of roomblocks 10 and 11. In most cases these areas extended no more than 30 cm into the plaza. Walls appear to have acted as reflectors for fires built in the plaza. Five burned areas were found near wall corners, which would have readily reflected both heat and light.

Circular Pits

Twelve unlined pits from 10 to 92 cm in diameter and 10 to 62 cm deep were found in various plaza locations (fig. 4.16). The floors of these features were flat to rounded, and the smaller pits had more rounded bases. The interior walls were unplastered, though some had been made smooth through use. No artifacts were associated with them, but the smaller ones may have served as pot supports. The larger pits may have held vessels buried below the plaza surface, used for storage or curing

Figure 4.19. Overview of "post enclosure" complex in plaza C, indicated by the pattern of post holes. The enclosures were apparently built of closely spaced poles but were not covered with adobe, as in jacal construction. Mealing areas were found in each enclosure. Roomblock 9 is in the background. Scale is 40 cm in 5 cm increments. (Photo AH4-RWL1-22).

skins. At Arroyo Hondo, buried vessels were found in situ only in the floors of kivas (see chapter 5). Buried pots are known from other sites in the northern Rio Grande region, although not from plaza contexts. For example, two pots buried in the floors of rooms are reported from Tsama (McKenna 1970:8). One appears to have been located in room 161 at Pindi, as well (Stubbs and Stallings 1953: fig. 13). Extensive plaza excavations were not conducted at these two sites.

Post Enclosures

Two post enclosures were encountered along the east side of roomblock 9 (figs. 4.16, 4.19). A small room-sized alcove in the block had been subdivided into two distinct areas by upright posts set in linear alignment, one across the mouth of the alcove and the other through the center of the alcove. The walls of roomblock 9 formed two sides of each enclosure. Post diameters ranged from 10 to 21 cm, and the interval between posts averaged twenty centimeters. The resulting cubicles were each about 4 m^2 and enclosed mealing areas outlined by upright stone slabs (12-C-A-46-1 and 12-C-A-48-1). Each enclosure also had a doorway 45 to 70 cm wide. Features of this type have not been reported from other contemporaneous sites in the region, and this example appears to be unique to Arroyo Hondo.

Other Features

The surface of plaza C was dotted with a number of subsurface features, primarily post holes and depressions, many of which could not be identified with a particular feature (fig. 4.16). These features may have been ladder butt seats, post holes for drying racks, frames for preparing skins, or supports for wooden racks.

Burials

Eight of the twelve Component II burials came from plaza C, two-thirds of the total from this component (Palkovich 1980:13). Four were from features in plaza surface 5 (Palkovich's surface 1), three were from plaza surface 4 (Palkovich's surface 2), and one burial was found in plaza surface 2 (Palkovich's surface 4). Six were subadults and six were adults. Of the six adults, three were female, two were male, and one was undetermined.

Other Features

Check Dam

A trench 4.5 m long and 80 cm wide was excavated to examine a check dam at the northwest corner of the site, south of plaza A (see fig. 1.4). Deposition was 1.5 m deep, and consisted of clayey brown soil with discontinuous lenses of carbonized and organic material. The check dam was a semicircular structure of andesite slabs and irregular chunks that appear to have come from the adjacent outcrop. It was 19.9 m long, 8.5 m wide, and had a maximum height of 1.72 m. It collected water that drained away from the main group of roomblocks toward plaza A.

Roomblock 17

Testing in plaza I was undertaken to confirm the presence of roomblock 17, noted by Nelson in 1914 but covered by fill related to the installation of a modern stock tank. Excavations revealed a compact surface, apparently the gateway between roomblocks 17 and 18.

Discussion

At Arroyo Hondo, roomblock construction rapidly created enclosed plazas, which were the location of a wide range of domestic and probably religious activities. Excavations in both Component I and II plazas revealed mealing bins, basins, hearths, ovens, and other features related to outdoor food processing and preparation. Walls, ramadas, and *portales* formed protected spaces that decreased the impact of wind and sun on outdoor work areas. These protected areas may have been used by leather, wood, or stone workers, clothing-makers, and individuals engaged in other tasks. Though there is no distinctive evidence of pottery-making facilities in the plazas, this activity may have been carried out as well. Domestic turkeys were penned in plazas (Lang and Harris 1984). The dead were frequently interred below plaza surfaces, apparently while the plazas were in active use; many of these burials were subadults (Palkovich 1980:8). The presence of kivas in plazas (chapter 5) suggests that plazas were the scene of religious activities.

In plaza G, a single set of overlapping surfaces held plaza features dating to Component I, showing only one relatively short period of intensive use. The sequence of events was similar for Component II plaza C, which began with a rapid spread of features over a single plaza surface. Plazas showed some differences in the types of features they contained. Plaza A was most different from the other plazas, possibly because it was subject to less intensive excavation, was occupied for a shorter period, or was in an area detached from the main portion of the site. Component I plazas G and K and Component II plaza C were generally similar in terms of the types of features they contained.

Plaza A had a number of large, deep, rock- or trash-filled pits, two of which may have served as ovens. These pits are unlike those found in other plazas. A two-room rubble and adobe structure in the center of Plaza A was also unique at the site. It may have been constructed as a seasonally used dwelling during the hiatus in occupation between Components I and II. No mealing bins, turkey pens, or clear evidence of wall dividers or ramadas were found in plaza A, although these features were common in all other excavated plazas.

In plaza G, areas closest to roomblock walls contained most of the recorded features, and portions of the plaza perimeter were divided into separate units with walls of various types. In plaza K, a single divider wall was made of poles placed upright in post holes or trenches. In plaza G, in addition to pole dividing walls, a number of low walls were constructed of masonry. Some dividing walls enclosed mealing bins and others may have served as windbreaks or shelters for other kinds of activities. Construction of masonry walls in plaza G could be associated with the presence of kiva G-5 or might indicate that plaza G was occupied longer than the other plaza areas that were excavated. Component II plaza C had no clear evidence of divider walls, but two post enclosures surrounding mealing bins in plaza C, which may have functioned as spatial dividers, were unique at the site.

Excavations at Arroyo Hondo have revealed evidence of intensive domestic use of plazas. No other contemporary site in the northern Rio Grande has produced such detailed information on the use of plaza space, primarily because excavations at other sites have been confined to architectural areas. In the following chapter, the use of kivas, religious structures located primarily in plazas, is examined at Arroyo Hondo.

Chapter 5

Kivas

Five Component I kivas and one Component II kiva were excavated by Schwartz. Component I kivas G-5 (figs. 5.1, 5.2) and 14-6 (figs. 5.3, 5.4) and Component II kiva C-2 were completely excavated. Kivas D-2 (figs. 5.5, 5.6) and D-3 (figs. 5.7, 5.8) were partially excavated (4.5 m^2 and 11.5 m^2, respectively). The largest, kiva J (figs. 5.9, 5.10), originally excavated by Nelson in 1915, was completely reexcavated. The Component I kivas ranged from an estimated 4.4 to 10.5 m in diameter, and the single Component II kiva measured 7.5 m across (table 5.1; appendix C). All but one were round, subterranean, and located in plaza areas. Kiva 14-6 was D-shaped and constructed above-ground in the corner of a roomblock adjacent to plaza G. Kiva J was located at the far edge of open plaza J, away from the roomblocks.

Based on analogy with modern Pueblo kivas, the activities carried out in kivas at Arroyo Hondo were specialized and ceremonial. If kivas represent group activities that integrate domestic groups, the number of Component I kivas at the site may have been a response to the rapid growth of Arroyo Hondo during this period. Only a single kiva was identified during Component II, yet the frequency of kivas was similar for both components: one for every two hundred rooms. Even when the calculation is redone using floor area, the room to kiva ratio is still similar for both components (about .033 m^2 of kiva area per meter of room area). During Component I, however, there may have been two types of kivas with different functions. Kiva J is at the lower end of the size range for great kivas. It may have been used for community-wide activities, whereas smaller kivas were used for the activities of specific religious or ceremonial groups. The homogeneity of the techniques used to build kivas in both components indicates a shared norm for kiva building among the site's inhabitants.

In addition to the kivas, another ceremonial structure, a probable shrine, was located on a hill near the site (see below). Although the shrine cannot be exactly placed temporally, it is presumed to have been in use during one or both occupations of Arroyo Hondo.

Locating Kivas

Extensive test excavations were performed throughout the site area to locate kivas. All depressions that might indicate abandoned or destroyed kivas were trenched. Kivas C-2 and J were identified from depressions in the site surface caused by the collapse of their roofs. Other kivas were located during plaza trenching. Kiva G-5 was discovered during stratigraphic testing in plaza G, and kiva 14-6 was discovered when the removal of overburden in plaza G exposed a curving section of the kiva wall.

A number of low, circular areas at the site, suspected to be kivas, were trenched, but in most cases kivas were not found. In plaza H, six of these depressions were tested; five were trash-filled borrow pits, probably the source of adobe used in building the adjacent roomblocks. The sixth was the location of Nelson's test of trash deposition, carried out in 1915. In plazas A, E, F, and K, tests in circular depressions also yielded evidence of borrow pits; testing in plaza D located kivas D-2 and D-3. Test trench D-4 contained a borrow pit.

In spite of an intensive search for kivas at Arroyo Hondo, it is possible that not all kivas were located. For example, it is likely that a kiva was located in plaza C during Component I, since this plaza area was the first to be used at the site. The kiva found in plaza C dates to Component II, but it may have been cleaned out and rebuilt so extensively that previous use during Component I was obscured.

Component I Kivas

Four Component I kivas were completely or partly subterranean, and one was above-ground (kiva 14-6; table 5.1). When in use, the subterranean kivas would have resembled low, circular mounds of roof thatch or earth located in plaza areas. The above-ground kiva would have appeared as a bulge in the corner of roomblocks 14 and 15a, where a semicircular wall extending

TABLE 5.1
Kiva attributes.

	14-6	C-2	D-2	D-3	G-5	J
Shape	D-shaped	round	round	oval	round	round
Component	I	II	I	I	I	I
Diameter (m)		7.5	4.4*	9.2*	4.7	10.5*
Area (m^2)	24.5*	44.2	15.2	66.4	17.3	86.8
Portion excavated	100%	100%	25%	25%	100%	100%**
Approximate remaining wall height (cm)	185	180	123	58	180	100
Material	adobe	masonry	adobe	adobe	adobe	masonry
Orientation	N-S	E-W		E-W	N-S	N-S
Type of hearth	rectangular, adobe-lined	rectangular, adobe, slab-lined		open pit/slab	clay-lined pit	pit
Hearth dimensions (cm)	55 by 40 by 52–62	60 by 40 by 39		47 by 40 by 61	44 by 52 by 51	100 diameter by 25 deep
Ash pit	no	no	no	yes		yes
Deflector	yes	yes		yes	yes	no
Ventilator	yes	yes		yes	yes	no
Vent material	split post and adobe collar	adobe and stone		wood post and andesite slab	wood post and adobe	
Number of niches	5	0			4	0
Niche location	NE corner, E wall				N, E, W, SW	
Sipapu	yes	yes		yes	yes	no
Number of post holes	5	5	3		1	7
Post hole location	center	N, NE, S, SE, center	NE corner		S end	near all walls
Number of cists	0	1	1	1	0	20
Cist location		in vent	near E wall	base of deflector		near all walls
Layers of wall plaster	up to 8 on E and N walls; 3 on S wall	1	2	7	4	0
Layers of floor plaster	0	1	2		1	0
Painted plaster colors	red and yellow on E-SE, N wall		a little red on outer layer	white with red and yellow on outer layer		
Other features	1 wall post mold; culinary olla; 2 "toe molds" in E wall			sealed pit; 2 floor slabs	sand-filled olla with mouth at floor level; T-shaped plank covering subfloor pit	8 possible loom holes

* Estimated
** Re-excavated

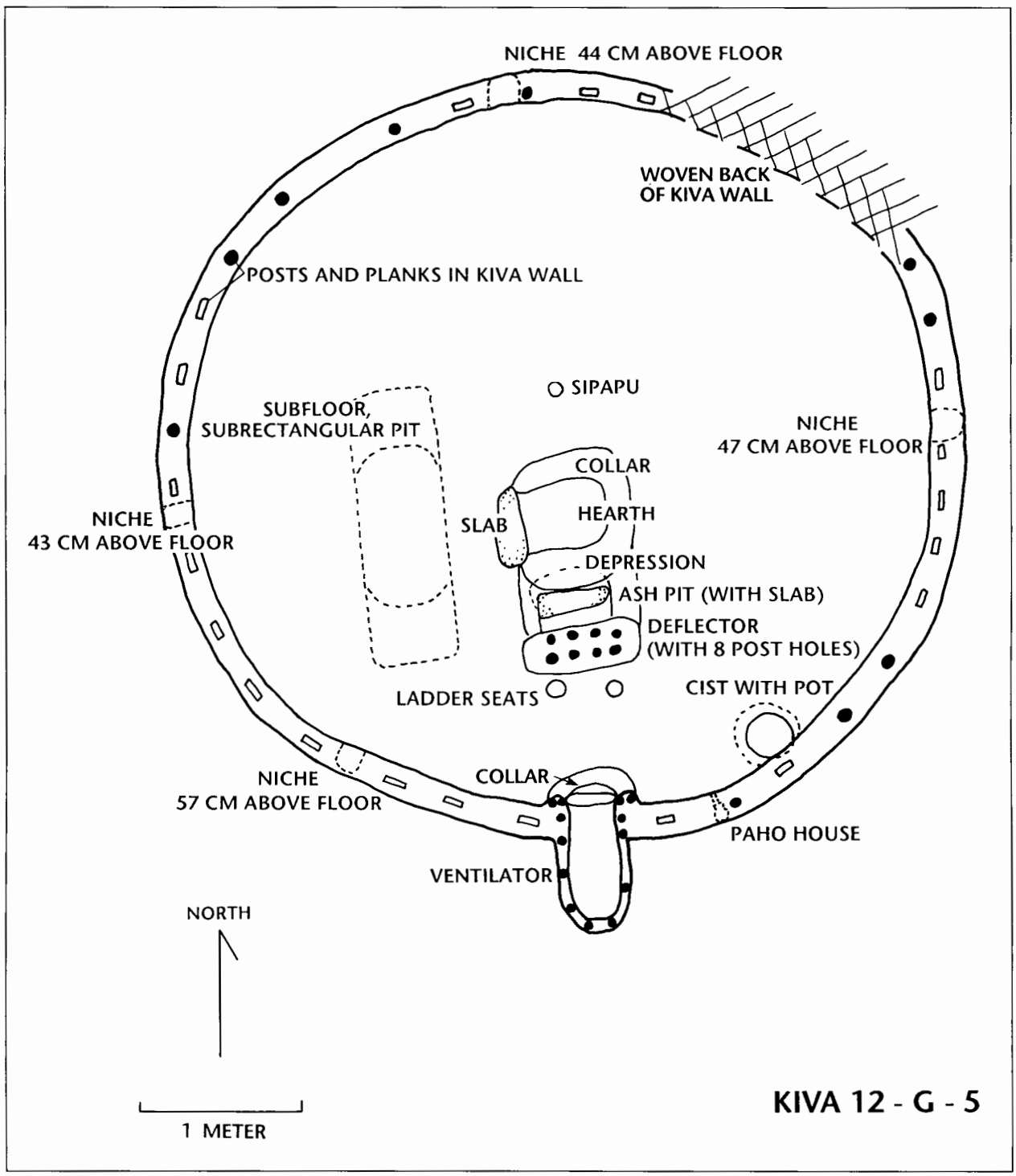


Figure 5.1. Kiva G-5 plan view.

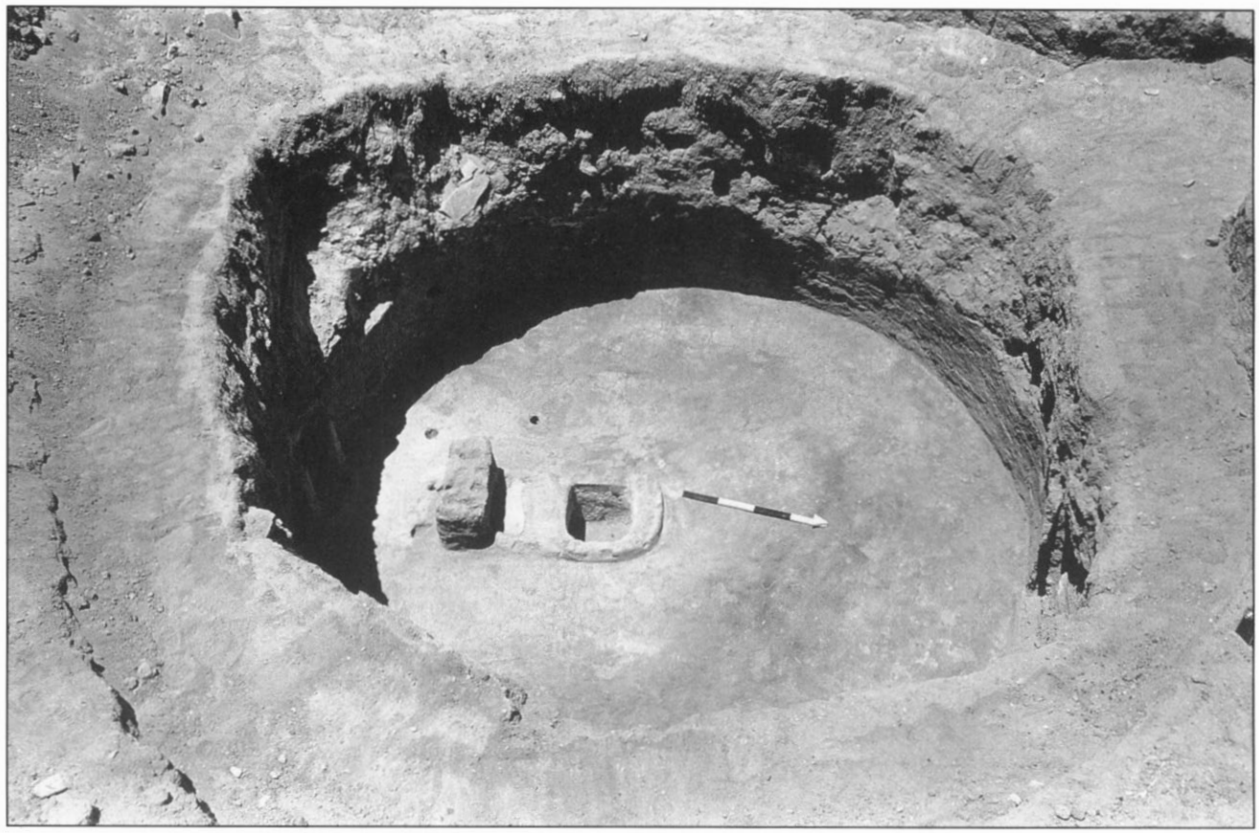


Figure 5.2. Overview, kiva G-5. The firepit, deflector, and several floor features are visible, and the ventilator can be seen in the wall at the left. Scale is 2 m in 50 cm increments. (Photo AH4-JDB5-21).

into the plaza enlarged a room into a D-shaped structure. This kiva may have been slightly later than the others since it postdated plaza surface G-3, the lowest level in plaza G. Three tree-ring dates from the roof of kiva 14-6 suggest construction before A.D. 1320, although none were cutting dates. A single, very early non-cutting date (A.D. 1289+vv) was obtained from kiva D-3 (Appendix B). No other Component I kivas produced tree-ring dates.

There appeared to be no pattern to the location of kivas within plazas. Kiva G-5 was close to the center of plaza G, whereas kivas D-2 and D-3 were on eastern and western edges of plaza D, on opposite sides of roomblock 21 (see fig. 1.4). Kiva D-2 was directly adjacent to the arroyo. Kiva J was at the far western edge of plaza J, at some distance from the main roomblock. Kiva J may have been a community structure, which may explain its peripheral location. Features within Component I kivas included formalized hearth complexes, sipapus, a possible foot drum, wall niches, and "paho houses."

Construction Techniques

Component I kivas were constructed using similar techniques. First, a large pit, 1 to 2 m deep, was excavated (table 5.1). Posts and planks were set around the edge of the pit to form walls, and these were covered with adobe (fig. 5.11). Adobe over plank wall construction of this type was identified only in kivas at Arroyo Hondo. The walls were then plastered with a mixture of white ash or gypsum and water, or with fine micaceous clay (fig. 5.12). The number of plaster layers varied; walls were apparently replastered when it became necessary to make repairs or for artistic or ceremonial reasons. Three kivas (D-2, D-3, and 14-6) had painted or colored plaster forming a border between the lower and upper sections of the walls. Design motifs extended horizontally along the wall, sometimes punctuated by pendant dots or figures. The dominant colors, red and yellow (probably from hematite and limonite), were painted over white or gray plaster.

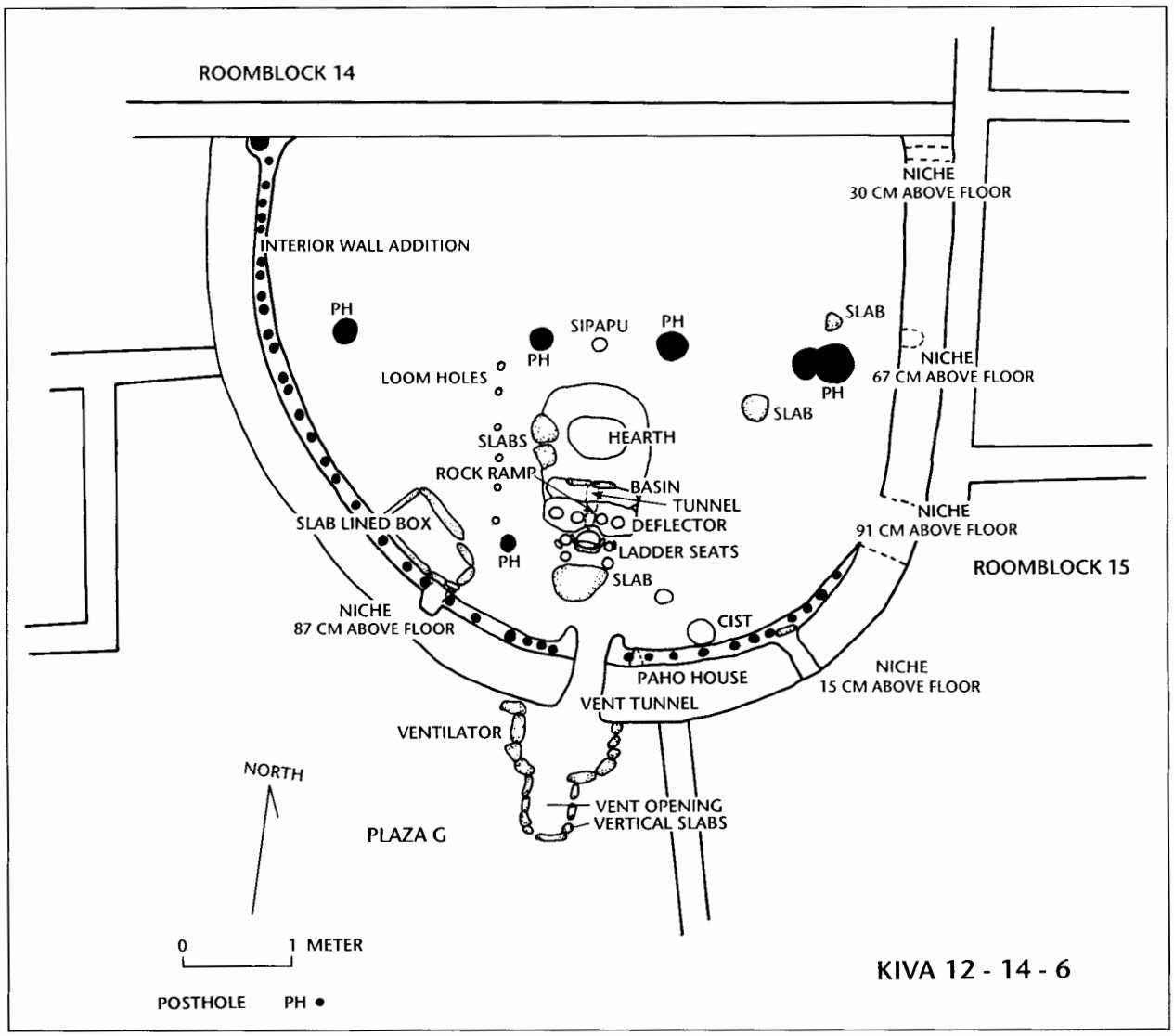


Figure 5.3. Kiva 14-6 plan view.

All kivas appear to have been floored with a layer of dry clay 5–9 cm thick, which was sprinkled with water. This layer was trampled firmly, and in one case (kiva J) it may have constituted the only flooring. In the other kivas, additional surface layers of plaster or fine wet clay were applied. The floor of kiva D-3 had been remodeled, but the other kivas had only a single floor. The same plaster mixture was used on floors as on walls. Painted floors were not detected.

Hearth Complexes

In three of the four Component I kivas where hearths were excavated, they consisted of a firepit, ashpit, and deflector (table 5.1). These features were encircled by a low clay rim except on one side of the fire pit (fig. 5.13). In kivas D-3 and 14-6, tunnels connected a cist with the ash pit. Slabs sometimes stained with red ocher or hematite lined the cist and in one case formed the bottom of the tunnel. In this area stone slabs were set flush with the floor. Deflectors were built around wooden posts. In kiva 14-6, the deflector was made of adobe puddled around a single row of large-diameter (10 cm) posts. This deflector was relatively narrow for its height. A second type of deflector, found in kivas G-5 and D-3, used a double row of posts of smaller diameter. Adobe was puddled around and between the posts, and the resulting deflector was relatively thick for its height.

Figure 5.4. Overview, kiva 14-6. Unlike the other kivas at Arroyo Hondo, kiva 14-6 was above-ground, D-shaped, and built into the corner of roomblock 14. The firepit, ashpit, deflector, and ventilator are visible; beyond the deflector, two small holes define the ladder landing area. The small opening in the wall just left of the ventilator is the paho hole. Scale is 1 m in 25 cm increments. (Photo AH4-MPM6-28).

Ventilators

All completely excavated kivas except kiva J had ventilators—air shafts that provided a draft for the fire (table 5.1; see figs. 5.1, 5.3, 5.7). The ventilators consisted of a short horizontal tunnel through the kiva wall and a vertical shaft to the surface (fig. 5.14). The openings of all ventilators had adobe shoulders that extended a short distance into the kiva and were supported by a post and lintel frame. Each also had a shallow trough running across the ventilator opening, probably meant to hold a slab in place over the vent when there was no fire. In kiva G-5, a frame of posts and planks was used to block the vent.

Ventilator tunnels varied: in kiva G-5, a row of upright posts encased in adobe formed the walls of the tunnel, which was roofed with split planks; in kiva D-3, ventilator walls were formed with horizontal, coursed slabs. The slabs, which were fairly large (40 by 20 by 12 cm), were mortared in place with adobe. The tunnel was roofed with split planks, anchored by one or two courses of stone. The vent tunnel in above-ground kiva 14-6 consisted of two sections (fig. 5.14). The part that penetrated the coursed adobe wall was an unsupported molded arch. The section through the cribbed or "beehive" chamber in the plaza was shaped by stone slabs set in circular courses that shortened as they rose to form a domelike roof over the tunnel.

Ventilator shafts were similar in kivas G-5 and D-3. Though vertically set stone slabs occasionally formed the lower portions of the shaft walls, the upper portion was made of posts covered with adobe to form a jacal-like tunnel. The shaft was curved or circular, and the ends of the vent tunnels were rounded. No remains of vent shafts were found above-ground. The ventilator shaft for above-ground kiva 14-6 was differently constructed. Be-

yond the beehive structure that formed the vent tunnel for kiva 14-6 was a masonry-lined hole into which wind was drawn (fig. 5.14).

Floor Holes

Kivas built during Component I exhibited numerous floor holes (table 5.1). These features may have served as seats for roof-support posts or entry ladders. In kivas G-5 and 14-6, small cylindrical holes sealed with plaster were located in line with the hearth and ventilator complexes. The cavities were filled with fine pumice sand. Kiva D-3 had an empty hole in a similar location. These features may have been *sipapus* (small holes in the floor of modern Pueblo kivas representing the place of emergence from the underworld; Cordell 1984:73). Both historically and prehistorically, the sipapu has been recorded in corresponding positions. Small holes between the ventilator mouth and the ladder landing area, which showed heavy wear around the opening, may have been seats for beam ladders. In kivas G-5 and 14-6, vessels were found sunk into the floor and filled with sand (figs. 5.15, 5.16). A similar feature in Component II kiva C was positioned like a sipapu. The subfloor vessel in kiva G-5 was covered with large culinary sherds, whereas the one in kiva 14-6 was covered with a wooden lintel. In kiva 14-6, a series of loom holes was located west of the firepit complex (fig. 5.17).

Subfloor Pits

In kivas G-5 and D-3, subfloor pits were filled with stone slabs, some with ocher staining (table 5.1). In kiva 14-6, a subfloor pit was lined with slabs as well as filled with them. The pits also contained trash, including sherds. One held a digging stick. All the pits were plastered over and were indicated by slumped areas in the kiva floor. The pit in kiva G-5 appears to have been roofed with split planks before it was plastered (fig. 5.18). The pits may have been used as foot drums that were filled and closed off, or they may have been used for some other activity before the kiva was built.

Paho Houses

In kivas 14-6 and G-5, small-diameter, bottle-shaped cavities are located to one side of the ventilator shoulder in the kiva wall (see fig. 5.14). In kiva G-5, this cavity was formed by a small Tesuque Smeared-Indented jar. Both features contained stone balls and concretions. A stick that may have been a *paho* (prayer stick) was recovered in one of these "paho houses." The contents of these features suggest ceremonial use, as depositories for prayer sticks and other sacred objects.

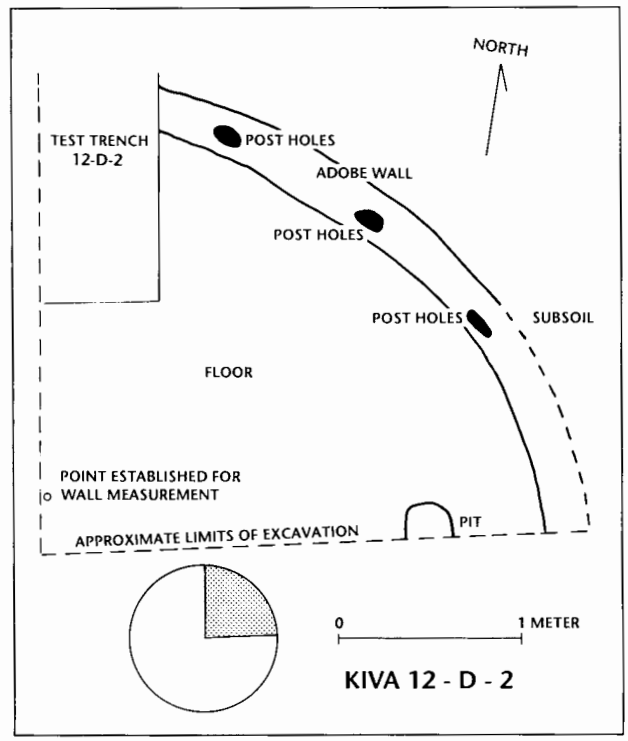


Figure 5.5. Kiva D-2 plan view.

Wall Niches

Sealed wall niches were found in two kivas (14-6 and G-5; table 5.1). In kiva G-5, three of the four wall niches were located at the cardinal directions, and one was slightly offset. All were relatively small diameter, deep holes. In kiva 14-6, the five wall niches were variable in size, diameter, and location (figs. 5.19, 5.20).

Human Remains

As many as eight individuals were found in kiva G-5 (Palkovich 1980:18–21, 121–124). All were adults—six female, two male—ranging in age from about 30 to 60. They were located on and slightly above the floor of the partially trash-filled and apparently abandoned kiva, not in burial pits. Stone slabs were lying on top of several of the skeletons. Palkovich (1980:18–21) suggested that they died accidentally, perhaps when the roof of the kiva collapsed. It is also possible that they were killed. The stone slabs appeared to be clustered on top of the skele-

Figure 5.6. Overview, kiva D-2. Only one-fourth of this kiva was excavated. Excavations revealed no floor features, although post holes used in wall construction are visible at the top of the photo. Scale is 1 m in 25 cm increments. (Photo AH4-DGN49-28).

tons rather than dispersed over the kiva, as would be expected from a roof collapse. Further, one would expect one or more of the kiva walls to have collapsed when the roof did, but all of the kiva walls were intact to a height of more than a meter. (The walls did collapse during excavation of this kiva.) These factors might indicate that the abandoned kiva was the scene of a stoning.

Kiva I at Te'ewi yielded the remains of 30 individuals on the floor or in the remains of the structure's roof (Wendorf 1953:46). The kiva had burned, and none of the individuals were in burial pits. According to Wendorf,

> The remains of twenty-four or more individuals [were] found on the floor of the kiva. Two, an infant and an adult, were near the center of the room. The remainder were around the edges, adjacent to the wall. All were burned. Fragments of another individual were also found in the ventilator. Scattered bones of six different individuals were found above the fallen and burned roof. Many of these had been burned or showed other signs of violence.
>
> [The] Kiva [was] apparently in use when destroyed by fire. Skeletal material above the roof may represent individuals who managed to climb out of structure and were then killed. The disarrangement of the bodies above the roof material indicates that they may not have been buried, but killed and left uncovered (1953:46).

This event may be an example of intergroup violence, since it is possible that the fire was not accidental. Although the situation at Arroyo Hondo was not exactly parallel, it is possible that the individuals found in kiva G-5 were also victims of a raid.

Burials were also found in the fill of kivas D-2 and D-3, though they appear to be interments made after the kivas were no longer in use.

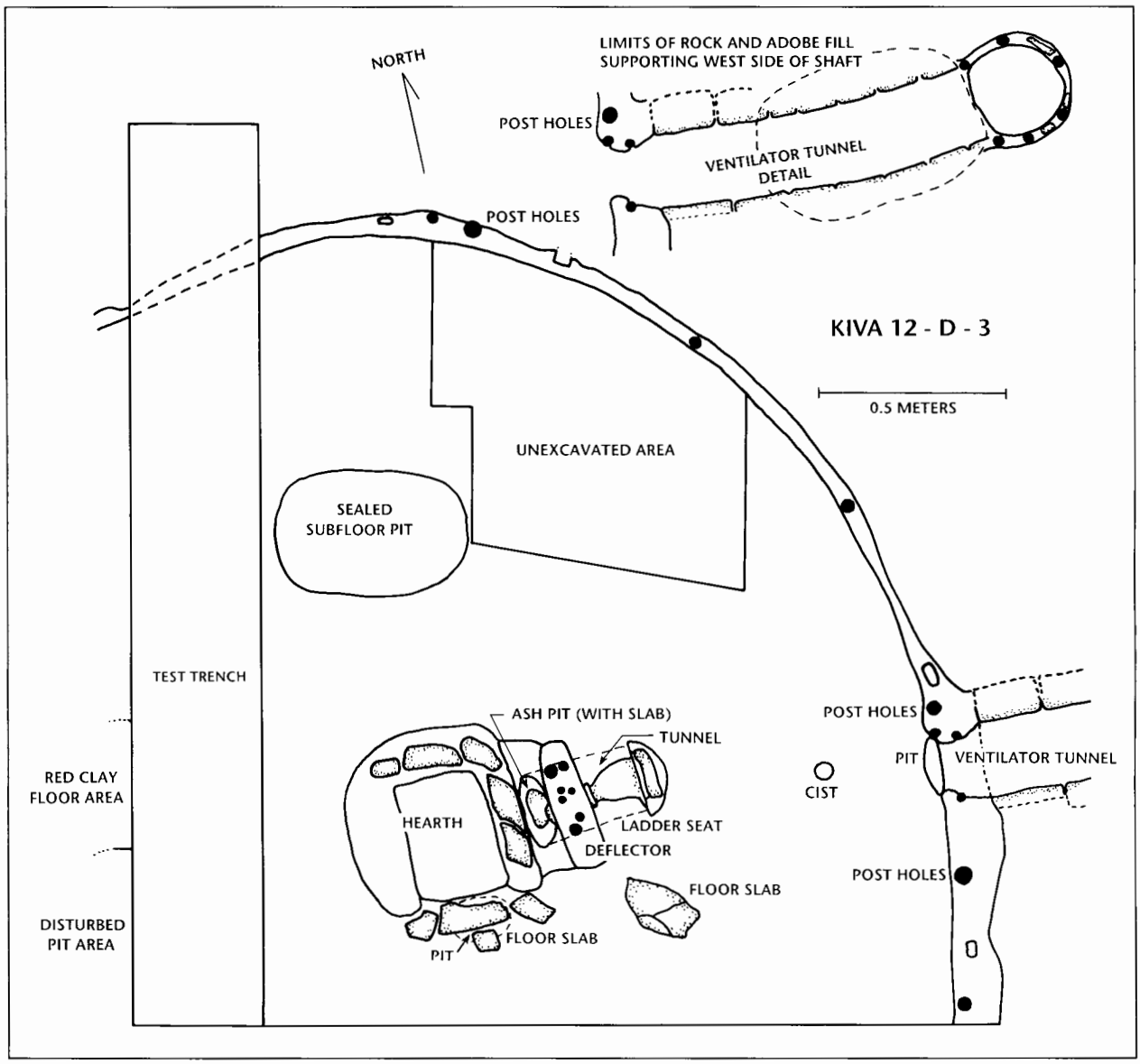


Figure 5.7. Kiva D-3 plan view.

Figure 5.8. Overview, kiva D-3. Only one-fourth of this kiva was excavated after it was found in a plaza test trench. Excavations revealed a firepit, deflector, and several other features. Scale is 1 m in 25 cm increments. (Photo AH4-RWL3-28).

Component II Kiva C-2

A single Component II kiva was excavated in plaza C, designated kiva C-2 (table 5.1; figs. 5.21, 5.22). It was 7.5 m in diameter and the floor was 1 to 1.5 m below the surrounding plaza surface. When the structure was in use, it probably appeared as a low or flat-topped circular mound visible above the plaza surface. Entry was through the roof by means of a ladder angling across the hearth complex. Most of the material recovered from the structure was associated with roof fall, rather than floor contact.

The kiva appears to have been destroyed by fire, as indicated by burned roof components and the burned and smoke-blackened walls and floor. In some places the adobe was fired brick-hard. Evidently, much of the wood in the roof was salvaged after the fire and removed for reuse elsewhere. The absence of floor contact material and a clean ash pit suggest that the kiva may have been burned intentionally. Although there is no evidence that this kiva was used during Component I, it may have been. Plaza C was apparently the earliest plaza in use at the site and quite likely contained a kiva.

Construction Techniques

The walls of kiva C-2 were made of adobe blocks, stone slabs, and repeated applications of adobe. Much of the wall was made by applying wet handfuls of adobe plaster to the walls of the excavated pit. The adobe blocks were hand-formed and probably extended the wall above the plaza surface. Block size ranged from 10 by 20 by 15 cm to 20 by 60 by 20 cm. The stone slabs used in the walls were set on end, side by side around the base of the foundation pit. The lower portion of the wall from floor level

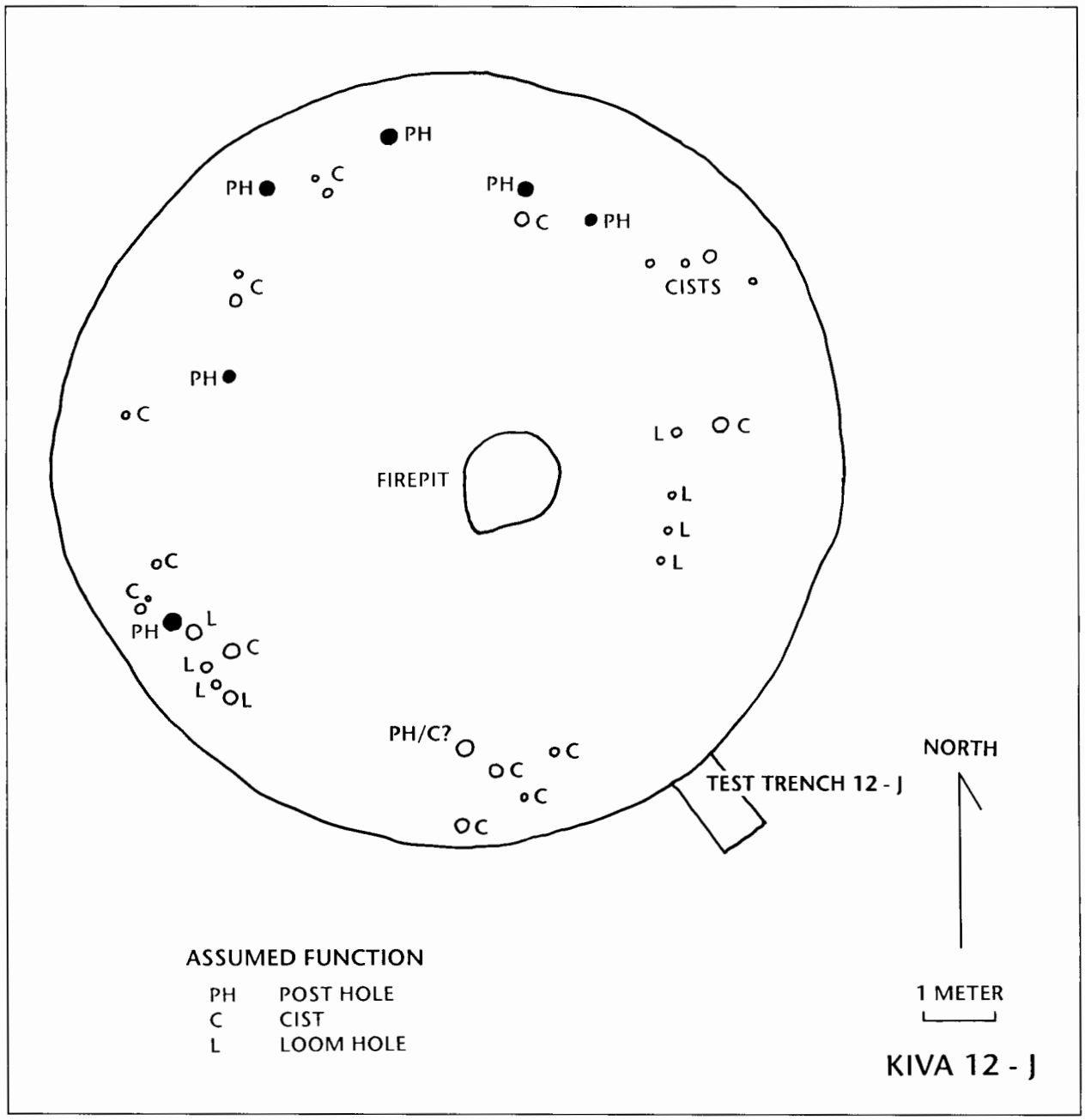


Figure 5.9. Kiva J plan view.

Figure 5.10. Overview, kiva J. Kiva J was the largest kiva at Arroyo Hondo and the only one that was not located in an enclosed plaza. It is at the lower end of the size range for great kivas. (Photo AH1-AS36-2).

to 30 cm above the floor was finished with the same fine plaster that was used to finish the floor. This plastered border ran around the entire perimeter of the kiva. Behind the plaster was a backing of adobe, and behind that, a series of ponderosa pine bark panels set vertically and horizontally into the wall around the perimeter of the structure. The panels extended as much as 15 cm below the floor-wall junction and were apparently positioned in the wall before the floor was finished. The floor of the kiva was made of a layer of clay 3 cm thick, laid directly on the ground. A layer of plaster made of fine, sandy, adobe clay mixed with ash and possibly powdered gypsum covered the layer of clay.

Four posts around the perimeter of the structure, and one central post, supported the roof. The posts ranged from 23 to 42 cm in diameter. The roof was made of poles set across the main beams and then covered with matting and a layer of clay. Vigas ranged from 12 to 18 cm in diameter, and the pole latillas ranged from 5 to 8 cm in diameter. The layer of sticks, twigs, grasses, and juniper bark over the latillas was 4 to 5 cm thick, and the dry clay cap was probably 8 to 20 cm thick.

Figure 5.11. Kiva G-5, showing the impressions of posts and planks that were placed around the edge of the kiva pit and then covered with adobe and plaster to form interior walls. The possible foot drum is visible on the right, at the bottom of the photograph. (Photo AH4-DGN43-5 or AH4-DGN46-36).

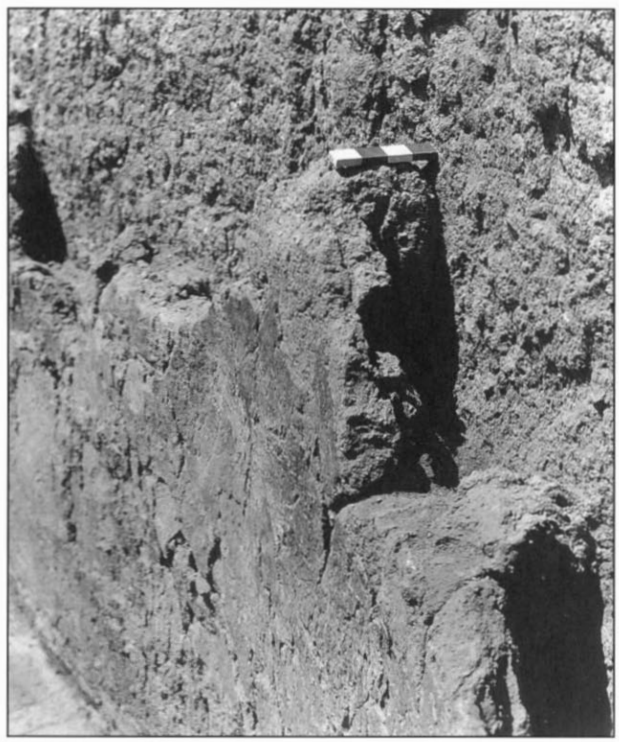


Figure 5.12. Kiva 14-6, showing layers of adobe and plaster that covered posts and planks set around the edge of the kiva pit.

Figure 5.13. Kiva G-5, showing the relationship of the firepit, ashpit, deflector, and ventilator. Wall niches can be seen on either side of the ventilator. Scale is 1 m in 25 cm increments. (Photo AH4-JDB5-16).

Figure 5.14. Excavated ventilator in kiva 14-6. The photo shows the adobe collar around the shaft opening, and the slab lining of the exterior ventilator tunnel. The exterior tunnel had been covered with a "beehive" construction that was erected as a windscreen; beyond that was a masonry-lined hole into which wind was drawn. The paho *hole with its slab covering can be seen to the left of the ventilator at the point where the wall and floor meet. Scale is 40 cm in 5 cm increments. (Photo AH4-DGN36-35).*

Hearth Complex

Inside the kiva, the firepit, ashpit, and deflector were encircled by a roughly rectangular clay ridge 9 cm high (table 5.1; fig. 5.23). The firepit was a rectangular box of stone slabs with a clay floor. The ashpit was a rectangular clay-lined feature with a small stone set in one corner. This feature was separated from the firepit by a ridge of clay. Five posts were set in the rim of the ashpit and functioned as a deflector. The posts, set in a line, were 8 to 10 cm apart; no chinking between posts was noted. The posts were probably no more than 35 cm high, or they would have hit the ladder. Fragments of both ladder stringers were found in place, anchored by stone slabs (fig. 5.24). Six loom holes 25 cm apart were arranged in a line between the ventilator and the hearth.

Ventilator

East of the ladder landing area (see fig. 5.21) was an adobe-shouldered ventilator (table 5.1). Originally, the opening was 37 by 30–40 cm. A narrow trough 8 cm deep creased the shoulder of the ventilator and probably held a stone slab cover in place over the ventilator opening when the firepit was not being used. The tunnel portion of the ventilator was 1.5 m long; its walls were stone slabs, as were the walls of the shaft. A cache of lithic artifacts was found in the floor of the vent at the inter-

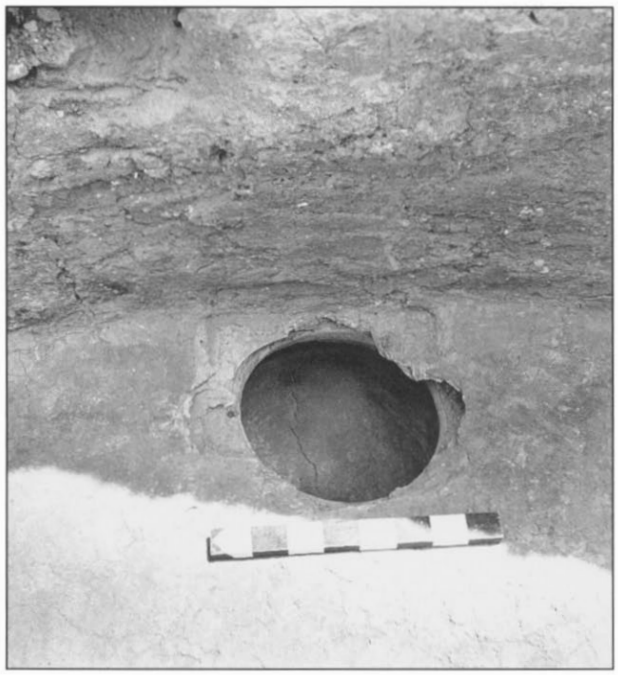


Figure 5.15. Vessel in cist built into the floor of kiva G-5. It had been filled with sand and covered with a large culinary sherd. Scale is 40 cm in 5 cm increments. (Photo AH4-JDB6-27).

Figure 5.16. Pot placed in cist in the floor of kiva 14-6. It had been filled with clean, coarse sand and sealed with a wooden lintel. Pots in subfloor cists at Arroyo Hondo were found only in kivas. (Photo AH4-DGN46-32).

section of the tunnel and shaft. The cache included a large stone slab with a hole bored through the center, a core, and a circular stone disk.

Sipapu

The sipapu was located west of the hearth complex, in line with both hearth and ventilator (table 5.1; fig. 5.25). It consisted of a hole in the kiva floor covered by a schist slab with a hole through its center. The slab was plastered around the edges so it fit smoothly into the floor, leaving only the hole showing. A small kiva jar of Wiyo Black-on-White was found inside the sipapu. Other than the sipapu, no wall niches or floor cists were found in kiva C.

The Shrine

What appears to have been a shrine was located on a hill a short distance southeast of Arroyo Hondo. It has been assigned a separate site number, LA 10608. The shrine consists of an doughnut-shaped mound of stone, a rectangular wall outline (possibly recent), and a small lithic scatter (fig. 5.26).

The mound is constructed of medium to large unshaped boulders of local granitic rock. They are piled somewhat haphazardly and apparently without mortar around an open space, cleared of stones but now overgrown with cholla and pinyon. The mound is approximately 30 cm (two or three cobbles) high around the cleared center. It grades off gradually toward the sides, and the shape of both the outer and the inner margins of the mound is slightly oval. The outer margin of the oval is about twenty meters from east to west and eighteen meters from north to south. The inner, cleared area is almost seven meters from east to west and about five meters north to south.

A single, undiagnostic culinary sherd was found at the site, and the lithic scatter was equally undiagnostic. Although it cannot be placed chronologically, after inspecting the site, Alfonso Ortiz, a Tewa and author of *The Tewa World* (1969), concluded that the mound was a shrine (personal communication, 1991).

About five meters south of the mound is a square, dry-laid rock structure, 3.5 m on each side, 5 to 80 cm wide, and about 25–50 cm high (2 to 4 stones). A 60 cm gap in the southwest corner seems to represent a doorway. The undersides of most of the rocks of this structure are covered with lichen, suggesting that it has been extensively tampered with or is very recent. This structure does not appear on Nels Nelson's 1915 sketch map of the shrine.

Figure 5.17. The trowel marks the center of six loom holes located west of the firepit complex in kiva 14-6. In modern pueblos, weaving, when performed in kivas, is a men's activity. The pit in the foreground is a post hole. (Photo AH4-MPM7-13).

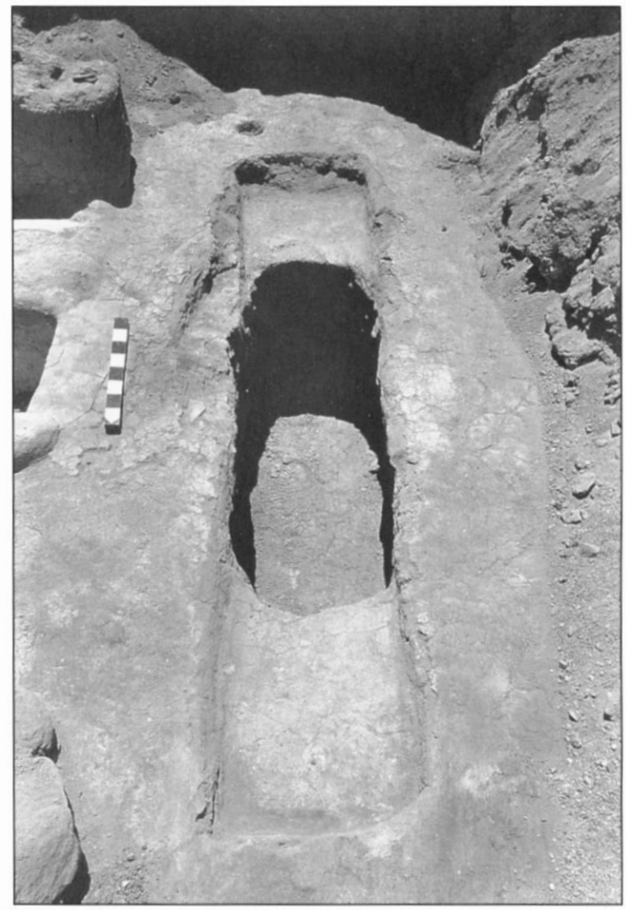


Figure 5.18. This vault beneath the floor of kiva G-5 may have been a foot drum. It had been filled with stones and was located just west of the firepit complex. Scale is 40 cm in 5 cm increments. (Photo AH4-JDB7-29).

Discussion

Although Component I kivas were similar in construction techniques, they varied in size (table 5.1) and possibly in function. Kiva J, with a diameter of 10.5 m, falls in the lower range of size for "great kivas," as defined by Vivian and Reiter (1965:84). Great kivas were used as community structures throughout the Anasazi region beginning in the Basketmaker period. Kiva D-3, at 9.2 m in diameter, is also large and may have had some communitywide functions. Kivas G-5, 14-6, and D-2 were much smaller. Ellis (1950:287) has distinguished "big" and "little" kivas among modern Pueblo groups. She suggests that big kivas, found in villages singly or in pairs, were community structures used for affairs in which the whole village participated. Little kivas were the locations for retreats or ceremonies by kiva societies, the small religious groups of which villages are composed (Ellis 1950:296).

Alfonso Ortiz (personal communication, 1991) provides detail on this pattern for Tewa villages. He reports that large kivas were used by the entire community throughout the year. Smaller kivas were used by particular sodalities with specialized religious functions, such as hunting societies or war chiefs. In summer, the Summer Moiety held ceremonies in the large kiva, and in winter, the Winter Moiety presided over its ceremonies there. Ortiz also notes that at San Juan Pueblo two rooms located within roomblocks are the property of each moiety. These rooms are windowless and have solid

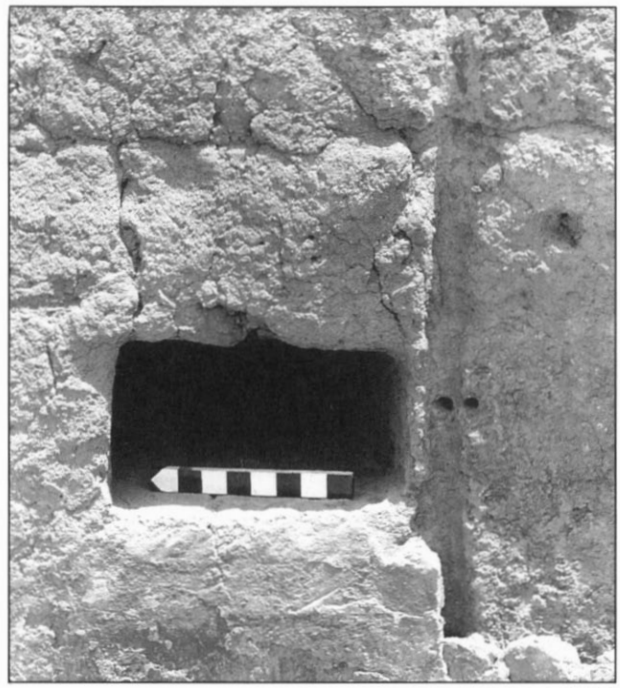


Figure 5.19. This large, rectangular niche was located in the east wall of kiva 14-6. The interior of the niche is plastered, and it extends back to the interface with a parallel wall to the east. A vertical post mold, part of the wall of kiva 14-6, is visible to the right of the niche. Scale is 40 cm in 5 cm increments. (Photo AH4-MPM6-19).

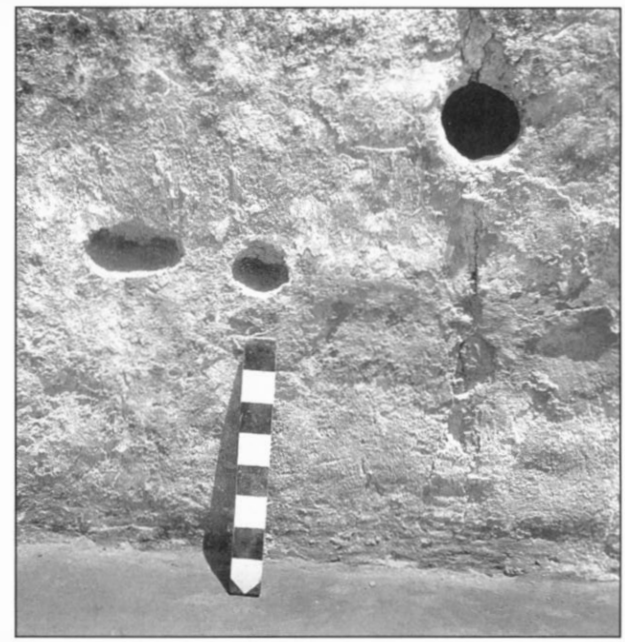


Figure 5.20. The uppermost, circular hole is a wall niche in the east wall of kiva 14-6. The two lower holes are thought to be toe holds, although they show no evidence of use. Scale is 40 cm in 5 cm increments. (Photo AH4-MPM6-18).

doors to afford privacy for ceremonial activities, but otherwise their architecture differs little from that of domestic structures. Similar ceremonial rooms are also found at other pueblos (Ortiz, personal communication, 1991) and perhaps at Arroyo Hondo (see chapter 6).

Large and small Component I kivas at Arroyo Hondo may all have been in use at the same time and may have functioned somewhat like ethnographically known kivas. The most active period of site growth at Arroyo Hondo fell between A.D. 1315 and 1330. Community structures, such as kiva J and possibly kiva D-3, could have served as meeting halls for activities promoting communication and solidarity among the many groups of people who converged at this large settlement. The use of enclosed plazas for communitywide activities may also have been developing at this time (Adams 1991).

Component I kivas at Arroyo Hondo are similar to those at other sites in the northern Rio Grande region. At Te'ewi, four kivas were recorded. Three of these were 6.2–7.7 m in diameter and one was 10.4 m in diameter, roughly the same as kiva J at Arroyo Hondo. Kiva features were similar, including a vessel buried below the floor (Wendorf 1953:fig. 17), sipapus, loom holes, floor cists, and in kiva II at Te'ewi, a floor drum (Wendorf 1953:48). Human remains found in kiva II at Te'ewi (Wendorf 1953:46) and in kiva G-5 at Arroyo Hondo may represent parallel events signaling social strife.

Five kivas were also excavated at Pindi (Stubbs and Stallings 1953). Three subterranean kivas dated to an early phase of construction, and two above-ground D-shaped kivas were constructed later in the site occupation. Similarly, D-shaped kiva 14-6 at Arroyo Hondo also seems to be slightly later than other Component I kivas. Two of the subterranean kivas at Pindi had walls constructed of poles and adobe covered with plaster, like those at Arroyo Hondo. Unlike kiva 14-6, the above-ground kivas at Pindi were simply built of coursed adobe without a pole and adobe interior wall. Most kiva floors at Pindi were adobe, like those at Arroyo Hondo, but one was paved with flat stones. Floor and wall features in

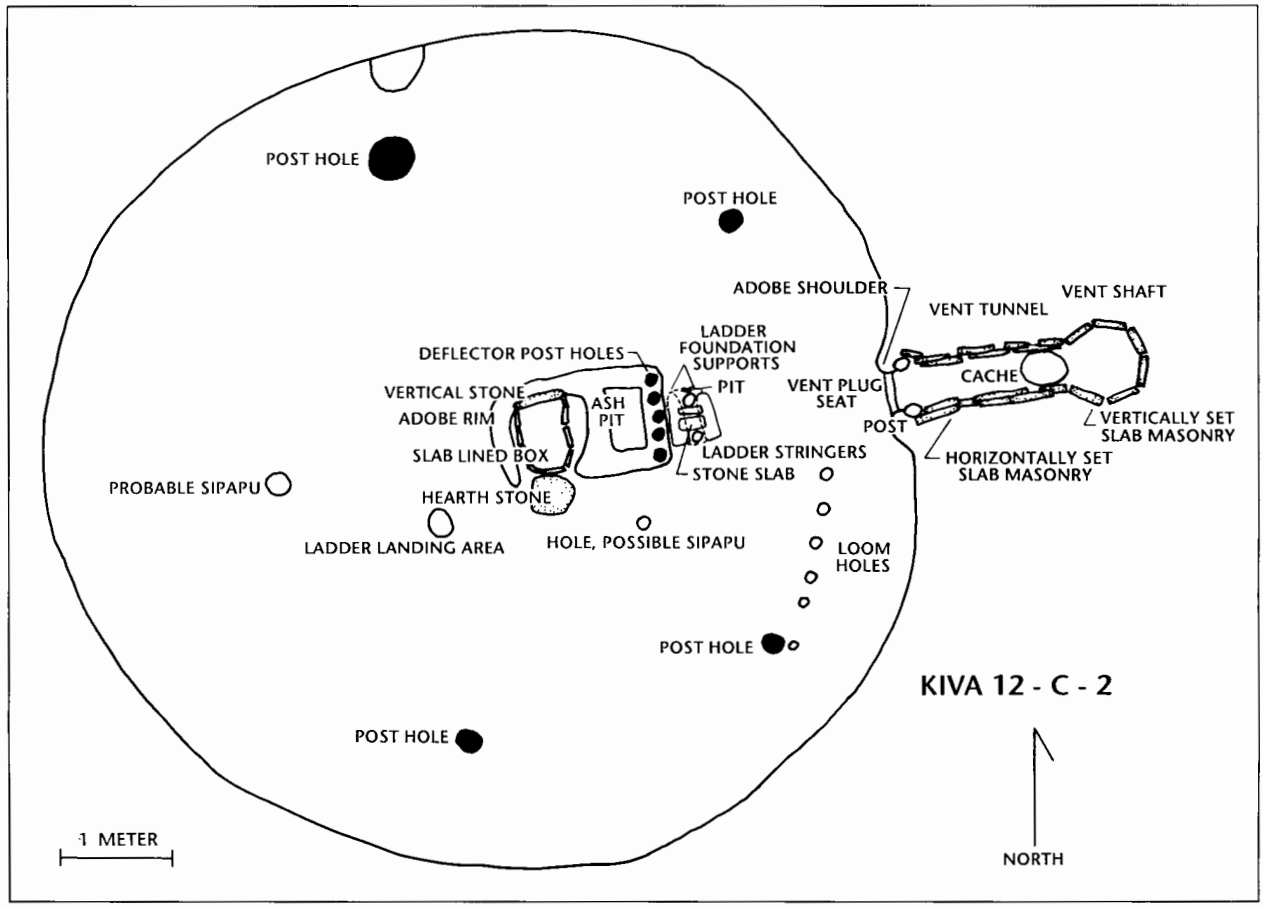


Figure 5.21. Kiva C-2 plan view.

Pindi kivas seem to be similar to those in Component I kivas at Arroyo Hondo.

The single kiva dating to Component II shows the continuity in construction techniques and features with kivas built during Component I as well as similarity with other contemporaneous Rio Grande kivas. Component II kiva C-2 is smaller than the "big" Component I kivas (kivas J and D-3) but is larger than the small Component I kivas (G-5, D-2, and 14-6; table 5.1). It served a smaller resident population at Arroyo Hondo, but whether it functioned as a community structure for the entire village, as a ceremonial structure for some portion of the population, or both, is unknown. The number of kivas at Arroyo Hondo during each component seems to approximate one kiva for every two hundred rooms or the equivalent in population. During Component I, however, kivas may have varied in function, and a simple equation between numbers of kivas and numbers of residents may be misleading.

Kivas at Unshagi and Pueblo del Encierro, sites partly contemporaneous with Component II, appear to be very similar in construction techniques and features to kiva C-2. Three kivas at Unshagi were all small, ranging from 4.5 to 7.4 m in diameter (Reiter 1938:60). In kiva A at Unshagi, the most completely described, the walls of the pit had been partially covered with bark and grass, similar to the bark panels found at kiva C-2 at Arroyo Hondo. Hearth complexes and ventilators very similar to those in kiva C-2 were also reported at Unshagi kivas. At Pueblo del Encierro, one large kiva (9 m in diameter) was reported, as were a number of smaller kivas (Snow 1976:94–97). They contained an east-west alignment of firepit, ashpit, deflector, loom anchor sockets, roof support posts, sipapus, and in some cases, wall paintings.

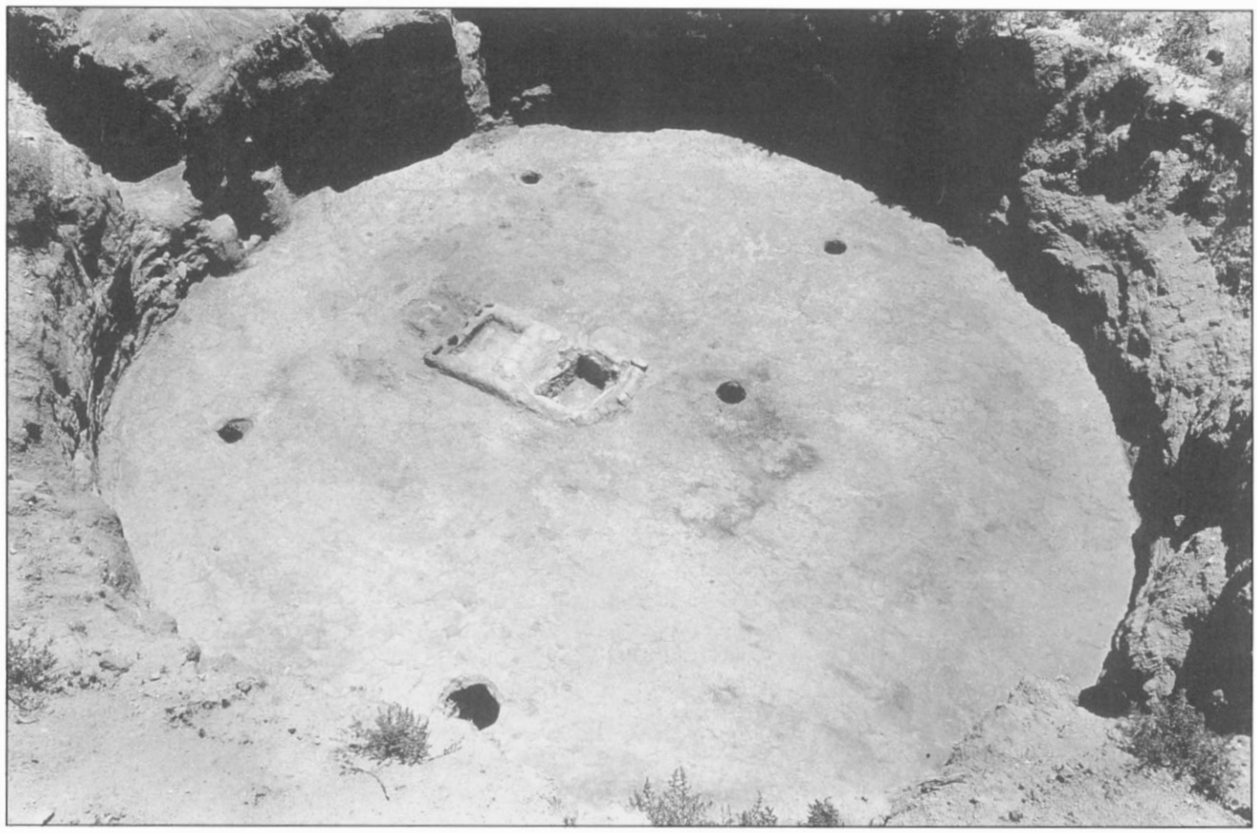


Figure 5.22. Overview of kiva C-2, the only Component II kiva found at Arroyo Hondo. Note the similarity in floor features to Component I kivas. (Photo AH2-DGN43-16).

All are features similar to those found in kiva C-2.

Kivas at Arroyo Hondo are similar in techniques of construction and internal features in both Components I and II. They are also similar to kivas at contemporary sites in the northern Rio Grande. The uniformity of kiva construction maintained in the face of substantial aggregation of population suggests that the people who lived at the site during both components shared basic cultural traditions. During the period of Arroyo Hondo's most rapid expansion, new arrivals to the pueblo must have been relatively frequent. Ritual systems, represented architecturally by kivas, may have played an important role both in integrating settlements at the regional level and in assimilating the new population into existing settlements.

The presence of large and small kivas during Component I at Arroyo Hondo implies that the population of the site was large enough to include several public groups using kivas. During Component II, only a single kiva was in use, and it is likely that the smaller population supported a smaller number of these groups.

The probable shrine near the site provides an additional focus for ritual by the residents of Arroyo Hondo. Although there is no evidence to indicate how the shrine functioned, shrines, especially on hills and high places, were common throughout the prehistoric Southwest.

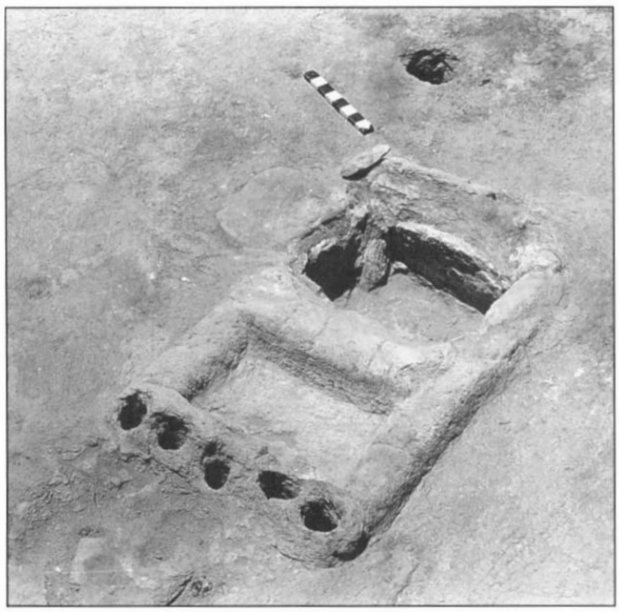


Figure 5.23. Firepit (top half of the feature), ashpit (bottom half of the feature), and deflector in kiva C-2. The deflector consisted of posts set in the clay ridge that encircled the firepit and ashpit. The ladder landing area was directly in front of the deflector. The hole behind the firepit is a post hole that formed part of the roof support. Scale is 40 cm in 5 cm increments. (Photo AH2-DGN30-18).

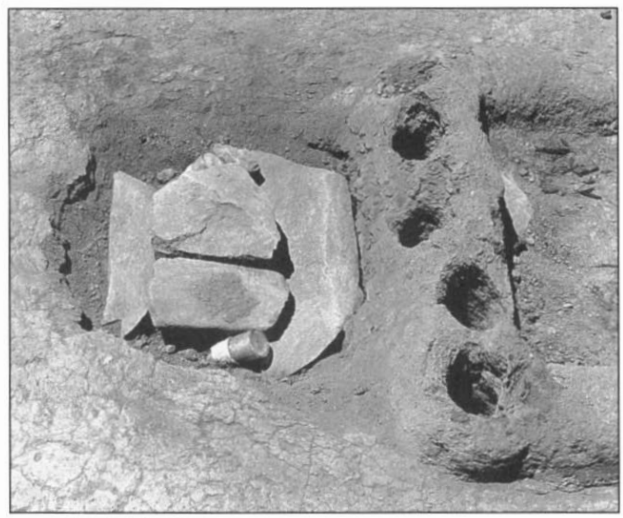


Figure 5.24. Stones in the center of the photo were part of the ladder landing area in kiva C-2 and were used to anchor ladder stringers. The metal canisters on either side of the stones mark the location of the ladder stringers. The four post holes at the right once formed the deflector at the end of the firepit complex. (Photo AH2-JDB13-29).

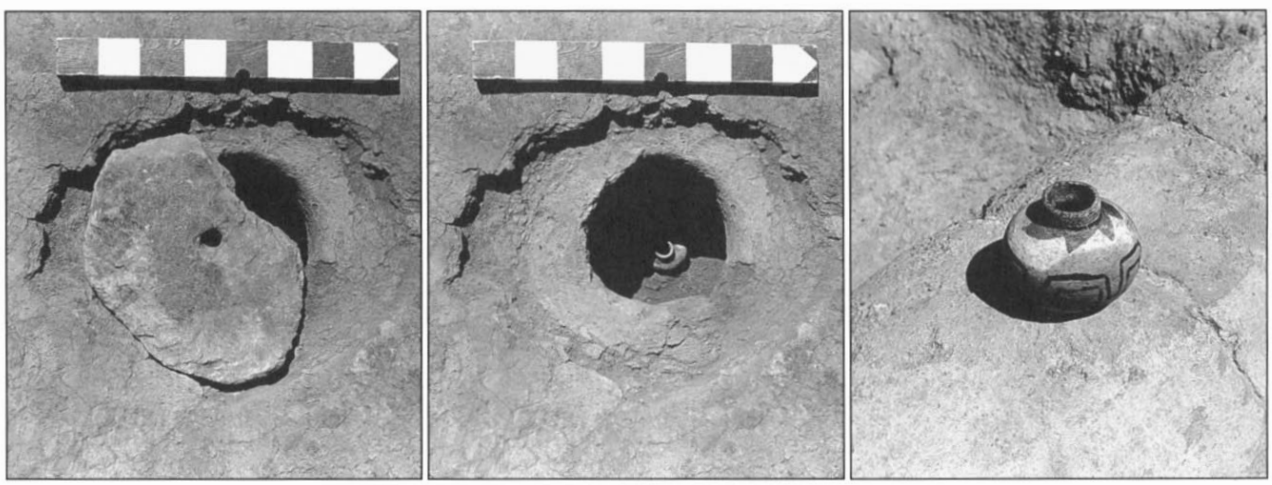


Figure 5.25. Sipapu *in the floor of kiva C-2. The sipapu was located beyond the hearth complex but in a direct line with the hearth complex and vent. The sipapu consisted of a cist in the floor of the kiva that had been covered with a stone slab; a hole had been drilled in the center of the slab. The slab was plastered so it fit smoothly into the floor. Inside the cist was a small Wiyo Black-on-white kiva jar. Scale is 40 cm in 5 cm increments. (Photos AH2-JDB11-8; AH2-JDB11-9; AH2-JDB11-14).*

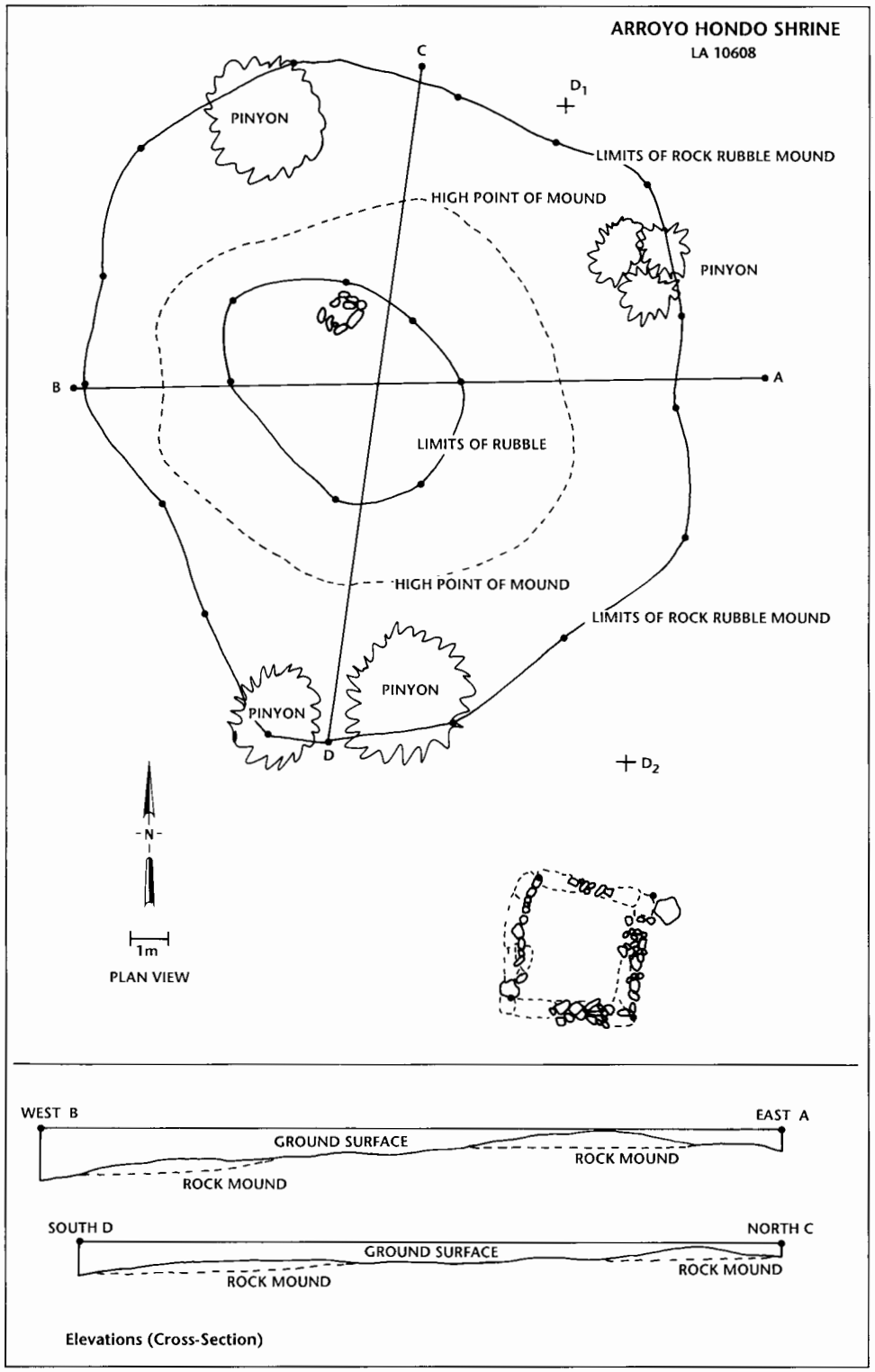


Figure 5.26. Plan view of the shrine located three-quarters of a mile from Arroyo Hondo. The small rectangular structure may be recent.

Chapter 6

Use of Space: Room Function and Residence Units

Southwestern archaeologists have a long-standing interest in determining how prehistoric rooms were used. Not only do proposed room functions imply a range of prehistoric activities, but rooms with identifiable functions can be grouped into tentative household dwellings. Prehistoric population estimates and the reconstruction of social systems are generally based on the assumptions about household dwelling size and configuration. Excavations at Arroyo Hondo provided an opportunity to examine the use of both interior and exterior space in a large Rio Grande pueblo. In this chapter, ethnographic and archaeological studies of room function are reviewed and a list of functional indicators is compiled. These indicators, especially the location of hearths, are used to assign a function to rooms at Arroyo Hondo. Rooftop work areas, a spatial category not often recognized archaeologically, are identified. Functional categories of rooms and the location of interconnecting wall entries are then combined to examine the structure of residence units that presumably housed a single domestic group.

Room Function

At pueblo sites, Southwestern archaeologists have identified a number of functional categories of rooms, including living rooms, storage rooms, mealing rooms, granaries, piki rooms, and religious or ceremonial rooms, though this last category may overlap with living and storage uses (Adams 1983; Dean 1969; Rohn 1965). A variety of features defines each functional type, such as the presence of firepits, fire-blackened walls, storage features, and room size (table 6.1). These functional indicators are usually based on Pueblo ethnography, primarily the Western Pueblos (Adams 1983; Hill 1970:46–47). Some types of rooms identified in the Western Pueblo area, such as granaries (Adams 1983; Dean 1969) and piki houses (Adams 1983), are apparently not present at Arroyo Hondo.

Almost all of the 150 excavated rooms (100 from Component I and 50 from Component II) could be assigned to one of four room types based on the presence of functional indicators listed in table 6.1. The room types identified at Arroyo Hondo were storage rooms, living rooms, ceremonial rooms, and ceremonial storage rooms. Rooftop work areas were also identified. Some rooms had been converted from living to storage rooms and others could have been either living or storage rooms. Function could not be determined for a few rooms. In the following sections, each of these room types is described and the excavated rooms at Arroyo Hondo that fall within each type are discussed.

Several problems in determining room function at Arroyo Hondo should be noted. Although the use of ethnographic analogy is essential, assumptions of a continuity in the function of Puebloan architectural features from past to present are made cautiously. Another problem involves the source of data on Puebloan architecture. The most detailed studies have been made among the Western Pueblos, especially the Hopis (Adams 1983; Dean 1969, 1970; Mindeleff 1891), partly because these groups were affected by Euroamerican contact so much later than the Rio Grande Pueblos were. However, the use of the Western Pueblos as a model for spatial use among other Southwestern Pueblo groups may be questionable. For example, as discussed below, rooms of different functions seem to vary in size among the Western Pueblos, whereas rooms at Arroyo Hondo did not. Furthermore, and perhaps most important, pueblo rooms, like structures in all societies, are often multifunctional or their function may change through time. Therefore, the assignment of room function to rooms at Arroyo Hondo represents only an approximation of actual room use at a particular point in time.

TABLE 6.1
Variables used to establish room function.

Room Type	Attributes	Reference
Living room	firepit	Adams 1983; Dean 1969; Hill 1970
	jacal wall *	Dean 1969
	plastered walls	Dean 1969
	niches	Dean 1969
	doorways	Dean 1969
	entrybox *	Dean 1969
	shelves	Dean 1969
	area >2.4 m^2	Dean 1969
	fire-blackened walls/ceiling	Dean 1969
	mealing bins	Adams 1983; Hill 1970
	debris from cooking/eating	Hill 1970
	water storage	Hill 1970
	top floor location	Adams 1983
Storage room	absence of granary features	Dean 1969
	size of room	Hill 1967
	small side or top entry	Adams 1983
	evidence of foodstuffs	Adams 1983
	"implements not used daily"	Adams 1983
Rooftop work area (courtyard)	firepits	Dean 1969
	mealing bins and metates	Dean 1969
	large holes for storage or grinding	Dean 1969
Mealing room	mealing bins in room	Dean 1969
	not usually smoke blackened	Dean 1969
Granary	absence of smoke-blackening	Dean 1969
	wall pegs	Dean 1969
	pole shelves	Dean 1969
	specialized door features:	
	high sill	
	exterior grooves	
	stone slab door	
	doorway loops	
	platform in front of door	Dean 1969
	corn crib ridges	Adams 1983
Ceremonial room	benches	Rohn 1971
	loom holes	Adams 1983; Rohn 1971
	firepit	Adams 1983
	large size of room	Adams 1983
	mealing bins	Adams 1983
	niches	Adams 1983
Religious storage	no firepit	Adams 1983
	religious artifacts	Adams 1983
Kiva	"contextual uniqueness"	Smith 1952
	circular, "D," rectangular, or keyhole shape	Dean 1969; Hill 1970
	completely or partially subterranean	Dean 1969; Hill 1970
	ceiling height over 68 inches	Dean 1969
	firepit complex	Dean 1969; Hill 1970
	loom anchors	Dean 1969; Hill 1970

(*continued on next page*)

TABLE 6.1 (continued)

Room Type	Attributes	Reference
	wall niches	Dean 1969
	sipapus	Dean 1969; Hill 1970
	rock-paved flooring	Dean 1969
	decorated walls	Dean 1969
	pilasters *	Dean 1969

* These features are not present at Arroyo Hondo but are included here for the sake of completeness.

Storage Rooms

A storage room was probably most effective if it was dry and had limited access to protect stored goods but was accessible to persons wishing to remove items. Ethnographic evidence indicates that rooms with few apertures and few interior features were used for storage (Parsons 1925; White 1935). As a result, archaeologists usually define storage rooms by lack of interior room features or artifacts that indicate other activities (table 6.1). Recovery of tools from a relatively featureless room may indicate storage, though this situation has also resulted in the definition of "work rooms" as a functional type (Ciolek-Torrello 1985; Lambert 1954). At Arroyo Hondo, rooms that had no hearth, usually one or no wall entry and lacked other interior features, such as niches or vents, were considered to be storage rooms (tables 6.2, 6.3). These rooms are assumed to have held foodstuffs or objects not used regularly.

COMPONENT I

Twenty-six Component I rooms (26% of those excavated) were identified as storage rooms (table 6.2). Two of these were in second-story locations, the rest were in the first story. Four had two wall entries but no other features that suggest use apart from storage. Other Component I rooms appear to have had a combination of storage and other uses. Seven Component I single-story rooms lacked interior features but did have a rooftop hearth. They were classed as living or storage rooms (table 6.2). If the rooftop hearth was the principal heat source and cooking area used by the occupants, then these rooms could have been living rooms, although they would be cold for sleeping. Alternatively, the room could have been used for storage and rooftop activities as part of a multiroom unit that was not connected by a wall entry.

Fifteen first-story rooms appear to have been living rooms that were converted to storage rooms. Most rooms in this group had no hearth, although two had pit hearths. These rooms may also have had two or three wall entries, niches, peg holes, or vents. Most were under a second-story living room, suggesting that they were converted to use for storage when the second-story living room was built. For example, one-story room 5-8 had a plastered-over niche and three wall entries (one blocked) but no hearth; room 4-2 had a pit hearth and a vent and was located under a living room (table 6.2). The categories of storage room and living room converted to storage room grade into one other and are difficult to distinguish. For example, room 16-32, a storage room, was close in contents to room 5-14, a room converted from living to storage.

COMPONENT II

Seventeen Component II rooms (34% of those excavated) were identified as storage rooms. None of these rooms had hearths, and all had one or no wall entry (table 6.3). Some had vents or shelves. Four other rooms could have been used as either living or storage rooms, since no hearth was found in the room itself, but one was found on the rooftop. These four rooms were otherwise similar to storage rooms in that they had one or no wall entry and vents and shelves were the only recorded room features. No evidence of living rooms converted to storage was found for Component II rooms.

Living Rooms

Living rooms at pueblo sites have been identified as those rooms having a firepit or fire-blackening on the walls and ceiling, larger sizes, location in an upper story, and presence of niches, wall entries, shelves, mealing bins, and pottery vessels (table 6.1; fig. 6.1). Each of these features implies storage or access and suggests activities associated with food preparation. The presence of a source of heat is widely assumed to indicate a room used for cooking, sleeping, and other group activities,

TABLE 6.2
Component I room function.

Room	Floor Area (m^2)	Story	Room Hearth	Roof Hearth	Door	Room Features	Rooftop Work Area	Function
3-13	7.34	1	×			V		L
4-2	4.30	1	×			V		L/S
5-4	3.99	1						S
5-4	3.99	2	×					L
5-5	6.14	1			1	2V,11P		L/S
5-5	6.14	2	×	×			×	L
5-6	7.74	1	×	×		N	×	L
5-7	4.93	1			2			L/S
5-7	4.93	2	×	×			×	L
5-8	2.54 *	1			3	N		L/S
5-8	2.54 *	2	×					L
5-9	5.55	1			2	V,3P		L/S
5-9	5.55	2		×				L
5-10	5.83	1			2			S
5-11	7.50	1			1	2V		CS
5-11	7.50	2		×			×	C
5-12	5.98	1		×	2			LorS
5-13	6.64	1		×	1			LorS
5-14	7.78	1			2	2V,P		L/S
5-14	7.78	2						S
6-6	8.80	1			1			O
6-6	8.80	2		×		Gr	×	L
6-7	6.31	1		×				LorS
7-7	7.21	1			1	Sh,2P		S
7-7	7.21	2	×				×	L
8-5	5.11	1			2	P		S
8-5	5.11	2	×	×			×	L
9-5	3.83	1			1			NF
9-7	6.84	1			1	V,Sh,3P		CS
9-7	6.84	2	×				×	C
10-3	9.27	1		×	1			LorS
11-1	6.34	1						NF
11-X1	7.85	1						S
11-3	6.41	1						S
11-4	5.02	1				N		L/S
11-5	5.72	1	×			V,N		L
11-6	1.64 *	1	×					L
11-8	5.92	1	3×			V		L
11-9	6.64	1	×			2N		L
12-4	6.73	1		×			×	LorS
13-9	6.51	1			1			S
13-9	6.51	2	×				×	L
14-5	6.42	1	(×)jacal		2			L
14-5	6.42	2		×			×	L
15-7	6.26	1			1			S
15-7	6.26	2	×	×			×	L
15a-9	7.15	1			2	V		S
15a-9	7.15	2	×				×	L
16-8	1.70 *	1			1			S

(*continued on next page*)

TABLE 6.2 (continued)

Room	Floor Area (m^2)	Story	Room Hearth	Roof Hearth	Door	Room Features	Rooftop Work Area	Function
16-24	6.02	1			2	Sh		S
16-24	6.02	2	×					L
16-26	5.69	1	×					L
16-27	6.32	1			1			S
16-27	6.32	2	×	×			×	L
16-28	5.52	1			3			S
16-28	5.52	2	×					L
16-30	6.28	1			2	V		L/S
16-30	6.28	2	×					L
16-31	5.84	1			1			S
16-32	7.31	1			2	2V		S
16-33	8.86	1			1	2V		CS
16-33	8.86	2	×	×			×	C
16-34	6.05	1	×	×		V	×	L
16-35	6.13	1						S
16-36	7.47	1	×	×	2		×	L
16-37	6.01	1						S
16-38	— *	1						NF
18-5	5.18	1			3			L/S
18-5	5.18	2	×	×				L
18-6	6.24	1			2			S
18-6	6.24	2						NF
18-7	4.92	1	×		2			L/S
18-7	4.92	2		×				L
18-8	5.22	1			2			S
18-8	5.22	2	×					L
18-9	4.98	1			3			L/S
18-9	4.98	2	×				×	L
18-14	7.43	1				V,N		L/S
18-14	7.43	2	×					L
18-15	6.23	1	×		1	2V		L
18-32	7.39	1			1			S
18-32	7.39	2	×					L
18-37	5.15	1		×	1		×	LorS
18-38	7.29	1			1			S
18-38	7.29	2	×					L
18-39	6.38	1			3			L/S
18-39	6.38	2	×					L
18-42	4.86	1			2			L/S
18-42	4.86	2	×					L
18-48	5.96	1						S
18-49	4.82	1			1			S
19-1	6.95	1			2			L/S
19-1	6.95	2						L
20-6	6.80	1	×		2	V		L
20-6	6.80	2	×	×			×	L
21-6	6.94	1		×			×	LorS
23-4	4.85	1			1			S
23-4	4.85	2	×					L
24-3	8.00	1						S
24-3	8.00	2	×	×				L

(continued)

TABLE 6.2 (continued)

S	Storage room
L	Living room
L/S	Living room converted to storage room
LorS	Living room or storage room
C	Ceremonial room
CS	Ceremonial storage room
O	Other function
NF	Function indeterminate
Gr	Abundance of ground stone tools
N	Niche
P	Peg hole
Sh	Shelf
V	Vent

* Wall lengths incomplete.

TABLE 6.3
Component II room function.

Room	Floor Area (m^2)	Story	Room Hearth	Roof Hearth	Door	Room Features	Rooftop Work Area	Function
7-6	7.56	1						S
7-9	7.35	1	×				×	L
7-10	6.73	1						S
8-4	8.82	1				V,Sh		S
8-6	7.45	1	×		1	V,MB		L
9-6	6.98	1				R		S
9-8	6.80	1			1	V		S
9-9	8.69	1		×	1	V,Sh		LorS
9-10	5.67	1	×	×		2V,MB	×	L
9-11	3.76	1	×	×		2V	×	L
9-12	7.37	1	×	×		V,MB		L
9-13	7.56	1	×	×	1	Sh,MB	×	L
10-3	9.11	1	×				×	L
10-4	7.44	1	×		1			L
10-5	8.29	1		×		V	×	LorS
10-6	7.20	1	×		1	2V		L
11-2	5.02	1						S
11-7	6.59	1		×			×	LorS
15-6	8.81	1	×	×			×	L
15a-7	6.17	1	×				×	L
15a-8	7.05	1	×			V		L
15a-10	6.21	1						S
15a-11	— *	1						NF
16-1	6.48	1	×					L
16-2	2.63 *	1						NF
16-3	2.75 *	1	×					L
16-4	5.66	1	×					L
16-5	6.30	1		×	1	2V	×	LorS
16-6	6.04	1	×	×		V	×	L
16-9	5.10	1						S
16-10	7.46	1			1			S
16-11	6.00	1	×	×			×	L

(*continued on next page*)

TABLE 6.3 (continued)

Room	Floor Area (m^2)	Story	Room Hearth	Roof Hearth	Door	Room Features	Rooftop Work Area	Function
16-13	5.95	1			1			S
16-14	6.99	1	×		1			L
16-15	7.44	1						S
16-16	5.61	1						S
16-17	6.86	1	×		1			L
16-18	6.59	1	2×	×	1	V	×	L
16-19	5.64	1	2×		1	2V		L
16-20	5.58	1	×	×			×	L
16-21	5.75	1	2×		1			L
16-22	6.74	1						S
16-23	9.80	1				V		S
16-25	5.95	1	×					L
16-38	5.22	1						S
20-4	1.21 *	1						NF
20-5	6.56	1						S
21-3	6.14	1				V		S
21-4	— †	1						NF
21-5	— †	1						NF

S Storage room
L Living room
LorS Living room or storage room
NF Function indeterminate

MB Mealing bin
N Niche
R Rack
Sh Shelf
V Vent

* Wall lengths incomplete.
† Excavation limited to area around burial.

since the fire would have kept the room warm. Because of the cool mountain climate during much of the year, heat would have been necessary at Arroyo Hondo. In historical pueblos, food was prepared and cooked in a room with a hearth or stove. Grinding sometimes took place in the living room, although it might also be done in a separate grinding room, in the plaza, or on the rooftop. Hill (1970) notes that evidence of water storage should be found in a living room. If water was kept in jars set in pot rests or shallow pits in room floors, it is likely to have been a feature in living rooms at Arroyo Hondo.

At Arroyo Hondo, living rooms were identified as those that contained a hearth, two or more wall entries, and such features as niches, vents, peg holes, or shelves. Location in an upper story was also an important indicator of use as a living room. Some rooms without hearths were designated as living rooms because they had a rooftop hearth that could have been used for cooking and food preparation. Living rooms tended to have two or three wall entries, though some rooms classified as living rooms had one wall entry or none (tables 6.2, 6.3). Location (on the second floor) and presence of a hearth were the primary indicators.

COMPONENT I

Forty-one Component I rooms (41%) were considered to be living rooms based on the presence of a room hearth (in 36 rooms) and the presence of a storage room below (in three cases). (In one case the lower room may have been used for ground-stone manufacture or storage; table 6.2.) Three of the rooms without interior hearths had rooftop hearths. Seven first-story rooms could have been either living or storage rooms; as noted above, the presence of a rooftop hearth suggested they were living rooms.

COMPONENT II

Twenty-four Component II rooms (48% of those excavated) were considered living rooms (table 6.3). All had a room hearth and eight also had a rooftop hearth; several had vents. Four living rooms, three of which were located in the same area of the site, also contained mealing bins. Two of the rooms with mealing bins also had rooftop hearths and possibly rooftop work areas. The construction of mealing bins within rooms does not seem to have replaced the rooftop work area. Four rooms (8%) were classed as living or storage rooms, and the presence of a rooftop hearth suggests they were living rooms.

Ceremonial Rooms

Ceremonial rooms within roomblocks are the most speculative category of room function identified at Arroyo Hondo. There are ethnographic examples from the northern Rio Grande of rectangular rooms in roomblocks used for meetings of secret societies, for storage of costumes and paraphernalia associated with rituals, and as the home of individual heads of societies (Lang 1972; Parsons 1925; White 1935). These rooms are often described as larger than other rooms in the pueblos. Dozier noted that unusual features are associated with a ceremonial room:

> The discovery of a ceremonial house or room will very likely indicate either a lineage (clan segment) or an association unit. The "group house" among the Pueblos provides a room to contain ceremonial items used in the rituals of such organizations. It is possible that wall and/or floor paintings or perhaps some of the fetishes and ceremonial paraphernalia of such a room may be found in situ (1965:40).

Because ceremonial rooms may have had dual functions as living rooms, they can be difficult to identify. Archaeologists have used a number of features to identify ceremonial rooms in Southwestern sites. Rohn (1971) noted that some rooms at sites in the Mesa Verde area included such features as benches and loom holes associated with kivas, and he concluded that these rooms formed a separate category of ceremonial rooms. At Broken K Pueblo, one room in each of two of the four main roomblocks at the site was identified as a "kiva," based on such features as a hearth with a deflector and ventilator, loom anchor holes, and artifacts, especially lithics, not found in other room types (Hill 1970:39–41).

At Walpi, Adams was told that religious rooms included "a clan house, which is a house belonging to a specific clan and occupied and maintained by the clan matriarch. . . . Other religious rooms are used for initiation into secret societies, and still others are used for all nonpublic aspects of the ceremony" (1983:48). Architectural indicators of ceremonial rooms at Walpi included a firepit, loom holes, and large room size. Adams had the added benefit of informant interviews to substantiate the apparent ceremonial use. He noted that religious storage rooms could not be distinguished architecturally from other storage rooms (Adams 1983:49).

Although intensive analysis of room function has not been conducted in the Rio Grande Valley, ceremonial rooms have been identified at archaeological sites. At Pindi, five rooms contained kivalike features, including firepit, ashpit, and ventilator, all oriented in the same direction (although the direction varied in kivas: east, southeast, or south [Stubbs and Stallings 1953:31–32]). These rooms were slightly bigger than other rooms at the site. At Pa'ako, several rooms containing painted wall plaster, altar/deflectors, or wall niches may have had ceremonial functions (Lambert 1954:18–20). At Unshagi, the presence of deflectors was the most diagnostic characteristic of rooms of possible ceremonial use (Reiter 1938:64–70). In room 9 at Te'ewi, "The ventilator, deflector wall, and the unique position of the firepit are suggestive of ceremonial or 'specialized' rooms" (Wendorf 1953:45).

The features at Arroyo Hondo that distinguished ceremonial rooms from living rooms included a combination of firepit/deflector, loom anchor holes, colored plaster wall decoration, and artifacts. These features are more often found in kivas than in living or storage rooms and imply performance of specialized activities.

COMPONENT I

Of the excavated Component I rooms, six rooms (6%) were identified as having possible ceremonial functions (table 6.2). These rooms formed three two-story units, with a ceremonial room in the second story and an apparent ceremonial storage room below. Room 9-7 had a hearth, loom holes, and a painted plaster wall decoration. The room below it was featureless but was assumed to have been used for ceremonial storage by the occupants of the room above. In room 16-33, the second story had a hearth with a deflector painted with black stripes; loom holes; and artifacts, including bone awls, a club head, an axe preform, polished stones, two vessels, a tubular stone pipe, a stone palette with red staining, manos, and polished stone slab fragments. The lower

Figure 6.1. Room 9-10 was identified as a living room. A slab-lined hearth with a clay rim is in the left foreground, and a mealing bin defined by a clay rim is in the corner of the room, right foreground. A second slab-lined hearth was found on the roof. Broken pottery and ground-stone artifacts are visible on the floor. Scale is 40 cm in 5 cm increments. (Photo AH3-RW14-17).

room had the characteristics of a storage room and was presumably used to store paraphernalia associated with the individual or group that used the upper room.

Room 5-11, which had a second-story rooftop hearth and work area, may have been a ceremonial room. It is the second largest (7.5 m^2) of the excavated rooms in roomblock 5/6. The room appears to have been whitewashed over wall plaster, extremely unusual at Arroyo Hondo. In addition, a "kiva" jar, a small jar usually interpreted as being associated with ceremonial activities, was found on the second-story roof near the hearth. Features in the ground-floor room—vents, peg holes, and a socket for a pole extending across the short axis of the room—are features that are associated with a living room converted to storage.

Overall, far fewer rooms could be identified as ceremonial than might be expected for a site as large as Arroyo Hondo. Some cases were difficult to interpret, such as room 11-5, an average-sized room (5.72 m^2) with a single unusual feature, a large niche in the northeast corner that could be used for storage or to conceal an individual or a large object. Small storage areas with hidden wall entries have been reported from some modern pueblos (White 1935), and though the niche in room 11-5 was empty when the room was excavated, it is possible that it may have had special contents. Other features in room 11-5 were consistent with its use as a living room.

COMPONENT II

No rectangular rooms that appeared to be ceremonial or ceremonial storage rooms were identified for Component II. It is possible that ceremonial rooms were not used during Component II because of the small population of Arroyo Hondo at that time. Alternatively, ceremonial rooms may have been more infrequent than in Component I and may not have been located in the sampled roomblocks.

Rooftop Work Areas

Rooftop work areas have not been consistently recorded at prehistoric pueblo sites, although their existence is well-known from ethnographic sources. Photos of historical pueblos frequently show rooftop work areas used for grinding and cooking. Beehive ovens, a feature borrowed from the Spaniards early in the colonial period, were constructed on rooftops, probably replacing the cooking features noted archaeologically.

In most archaeological studies of room function, rooftop work areas have not been considered. In one of the few studies in which they are discussed, Dean (1969) notes several features consistently associated with rooftop work areas, including hearths, metates, and mealing bins (table 6.1). In the Rio Grande Valley, rooftop work areas have not been routinely recorded at excavated sites. At some sites, rooftop hearths and ground-stone artifacts, probably fallen from rooftop proveniences, have been reported, though without designation as a functional group of features (Stubbs and Stallings 1953:41). At Arroyo Hondo, rooftop work areas were postulated from the presence of concentrations of ground-stone tools in roof fall strata and, in most cases, the presence of a rooftop hearth.

COMPONENT I

Twenty-one Component I rooms, 21% of those excavated, had rooftop work areas (table 6.2). Sixteen of these rooms had a rooftop hearth, along with ground-stone artifacts, whereas five had only artifacts. An additional seven Component I rooms had rooftop hearths without other evidence of a work area. Fourteen of the rooftop work areas were over living rooms, three were over ceremonial rooms, and one was over a storage room. Three work areas were over rooms that could have been either living or storage rooms, suggesting that they may have been living rooms.

COMPONENT II

Fourteen of the 53 Component II rooms excavated at Arroyo Hondo (23%) had rooftop work areas, and eleven of these rooms had a rooftop hearth. One other excavated room (9-9) had a rooftop hearth but lacked associated artifacts. Eleven of the work areas were above living rooms and the other three were above rooms that could have been used for either living or storage, suggesting that they were living rooms.

Other Room Functions

COMPONENT I

Room 6-6 was one of the largest rooms recorded, and it had an extensive inventory of ground-stone artifacts on the second-story roof and inside the first-story room (table 6.2). The first-story room may have been used for the storage or manufacture of ground-stone tools.

COMPONENT II

Five Component II rooms could not be assigned a function (table 6.3). Burials were excavated from two of these rooms, 21-4 and 21-5, but no additional portion of the rooms was excavated. These rooms did not provide complete wall lengths, and no features were recorded.

Artifactual Evidence Substantiating Room Function

Artifacts from floor contexts in roomblock 16 were examined to provide supporting evidence for the assignment of room function based on architectural features. The relative frequency of painted service ware and corrugated culinary ware were available for excavated floor proveniences from 15 Component II rooms—eleven living rooms and four storage rooms. A two by two contingency table (table 6.4) plotting the frequency of service ware versus culinary ware in these two groups of proveniences shows that, although culinary wares are most common in both types of rooms, there is a significantly higher concentration of painted ware ceramics in living rooms and a higher than expected proportion of culinary ceramics in storage rooms. This pattern is consistent with the proposed use of living rooms for domestic activities, such as food preparation and serving, and storage rooms for the long-term storage of foodstuffs and other household items. It should be noted, however, that more than 70% of the culinary sherds from storage rooms came from the fill of room 16-13.

Architectural features suggested that the second story of Component I room 16-33 was a ceremonial room. This room had the highest concentration of painted service ware ceramics of the floor proveniences examined in roomblock 16 (n = 101 sherds). The unusually large number of painted bowl fragments found in this context may be related to their specialized use in religious ceremonies. A large concentration of chipped stone debitage (40 flakes compared to an average of 11 flakes per floor for Component I) was also recovered from room 16-33, suggesting that hunting equipment may have been manufactured there. Hill (1970:40–42, 50) reported the manufacture of hunting equipment in ceremonial rooms (kivas) at Broken K Pueblo. Several unusual stone objects also found in room 16-33 may reflect specialized religious activities.

Analysis of Room Size Classes

Room size has frequently been used by Southwestern archaeologists to distinguish room function (Adams 1983; Dean 1969; Hill 1967; Lekson 1987:40–43; Truell 1986: 284–286). Typically, ethnographic models relating room size and function have been derived from studies of the Hopis. For example, at Walpi, Adams (1983:51–53) found that storage rooms were smallest, habitation rooms larger, and ceremonial rooms largest. The general uniformity of room size at Arroyo Hondo suggests that the Hopi model may not be applicable to Rio Grande pueblos. The Arroyo Hondo data also raise questions concerning suggested trends toward increasing variation in room size at larger sites in the northern Rio Grande (Hunter-Anderson 1979b:182).

TABLE 6.4
Distribution of corrugated culinary and painted service wares in living and storage rooms in roomblock 16.

	Painted		Culinary		
	Observed	Expected	Observed	Expected	Total
Living rooms (n = 15)	166	148	337	356	503
Storage rooms (n = 4)	98	117	299	281	397
Total	264		636		900

$\chi^2 = 7.36$
df = 1
$.01 > \text{sig.} > .001$

Room Size and Room Function

The large sample of rooms excavated at Arroyo Hondo provided an opportunity to test room size as an attribute of room function. Excavated rooms were measured along each wall. Floor area calculations were made using the north and east walls of each room, except where these walls were missing and other walls were present. Room height was not available for most excavated rooms. Table 6.5 compares average sizes for rooms of different types in each component. Component II rooms (6.74 m^2) were only very slightly larger than Component I rooms (6.31 m^2), and there was no apparent difference in size between storage and living rooms in either component. Of course, construction of Component I living rooms over Component I storage rooms and construction of Component II rooms over Component I rooms certainly constrained variability in size.

Ceremonial rooms, found only in Component I, seemed to be larger than rooms of other types, with a mean floor area of 7.73 m^2 (n = 3). Ceremonial rooms may also have functioned as living rooms, but they differed significantly from living rooms in size. A one-tail difference of means test was performed to test the hypothesis that Component I ceremonial rooms at Arroyo Hondo were larger than living rooms. The null hypothesis, that living and ceremonial rooms are the same size, was rejected at the .05 level, indicating a small but sig-

TABLE 6.5
Average sizes of rooms with different functions.

	Component I	Component II
Living rooms	6.27 m^2 (n = 39) (SD = 1.04)	6.63 m^2 (n = 23) (SD = 1.15)
Storage rooms	6.28 m^2 (n = 25) (SD = 1.04)	6.71 m^2 (n = 17) (SD = 1.27)
Ceremonial rooms	7.73 m^2 (n = 3) (SD = 1.03)	—
All ground-floor rooms	6.31 m^2 (n = 62) (SD = 1.15)	6.74 m^2 (n = 44) (SD = 1.20)

Note: Includes only rooms for which complete measurements are available. Excludes L/S and LorS rooms.

nificant difference in size between these two room types.

Ceremonial rooms seem to be larger than living rooms, but they were not the only large rooms at the site. Several rooms exceeding 8 m^2 in area, much larger than average, were found at Arroyo Hondo in both Components I and II (tables 6.2, 6.3). Although they did not show other characteristic attributes, it is possible that some of these rooms were used for ceremonial purposes—for example, as residences for group leaders, for storage of ceremonial items, or for meetings. Excavations at Broken K Pueblo in east-central Arizona also revealed large rooms (although considerably larger than any at Arroyo Hondo) without evidence of specialized use, and Hill (1970:38) suggested that they may have functioned somewhat like modern Hopi clan houses.

No ceremonial rooms were identified in Component II, but large rooms were present within most of the roomblocks. One room in each of four roomblocks (8, 9, 15, and 16) and two rooms in roomblock 10 exceeded 8 m^2. Many Component II rooms were heavily eroded, and features characteristic of ceremonial rooms may have been destroyed.

Room Size Compared with Data from Other Sites

Average room size at Arroyo Hondo can be compared with that at several other large sites in the northern Rio Grande for which room size information is available (table 6.6). Average room size at most sites ranges between 5 and 8 m^2, comparable to that at Arroyo Hondo. In the Cochiti area, Hunter-Anderson (1979b:182) has examined room size for small and large sites and found a trend toward decreasing room size at small sites between the Pueblo III and Pueblo IV periods (equivalent to the Coalition and Classic periods). She suggests that this trend reflects a decrease in numbers of people accommodated at small farming locales. She further postulates increasing variation in room sizes at large sites because rooms at these sites would be used for a wider variety of functions.

Hunter-Anderson's data from large sites are limited (five sites ranging in size from thirteen to two hundred rooms; three Pueblo III and two Pueblo IV sites). Based on the two large Pueblo IV sites (one is Pueblo del Encierro), she feels that the postulated trend toward greater variation in room size between these two periods is supported. However, Arroyo Hondo does not fit Hunter-Anderson's postulated pattern. Although it is a large site, rooms are very regular in size in both components, with very low standard deviations from average room size (1.5 m^2). The number of other northern Rio Grande sites dating to the Late Coalition/Early Classic phase showing this same lack of room size variation is unknown.

Residence Units

Analysis of functional sets of rooms yielded a number of potential insights into the size and structure of residence units at Arroyo Hondo, in spite of several interpretive problems. The majority of residence units at Arroyo Hondo in both components appear to have consisted of one or two rooms.

The identification of residence units in prehistoric pueblos depends on locating the architectural boundaries of these units. The two most common methods of identifying residence units are (1) the assignment of room function to enable the identification of "sets" of rooms (Ciolek-Torrello 1978; Dean 1969, 1970; Reid and Whittlesey 1982; Rohn 1965; Sullivan 1974) and (2) the location of wall entries that indicate access between rooms that were presumably used by the same household (Adams 1983:58; Wilcox 1975:144).

At Arroyo Hondo, groups of contiguous rooms were excavated to explore the size and organization of architecturally defined residence units. Excavation of contiguous rooms was carried out in roomblocks 5/6, 11, 16, and 18 (Plan 1). All were occupied during Component I, and only roomblocks 11 and 16 were also used

TABLE 6.6
Average room sizes at selected large sites in the northern Rio Grande.

Site	Room Size as Reported	Room Size (m^2)	Reference
Pa'ako	Average room: L = 9'5" W = 7'3"	6.38 m^2	Lambert 1954:11
Te'ewi	2.0 by 3.1 m	6.2 m^2	Wendorf 1953:37
Pindi	Average room: 6.5' by 9'	5.3 m^2	Stubbs and Stallings 1953:29
Poshu	Largest: 5.76 by 2 m Smallest: 2.15 by 2 m Most rooms: 2–2.5 m wide 3–3.5 m long	6–8.75 m^2	Jeançon 1923:8
Pueblo del Encierro		7.2 m^2	Hunter-Anderson 1979b:179
Arroyo Hondo Component I		6.31 m^2	
Arroyo Hondo Component II		6.74 m^2	

during Component II (Plan 2). Roomblock 16 provided evidence on Component II residence units, but roomblock 11 had too few excavated Component II rooms to use in the analysis. Three other roomblocks (7, 9, and 10) had small groups of contiguous excavated rooms dating to Component II, and these areas also provided information on the size and composition of residence units during the later component. Some of the rooms excavated in 1915 by Nelson are included in the discussion of residence units when wall entries or hearths were recorded. Some unexcavated rooms are also included. These rooms were identified when the site surface was scraped to reveal the extent of the site, though no information other than their location is available.

Both methods of identifying residence units (functional sets of rooms and interconnecting doors) are used in the analysis of room relationships presented below. It was assumed that a residence unit contained at least one living room connected to adjacent rooms by wall entries; upper- and lower-story rooms were assumed to be under the ownership of a single household.

Several problems with the use of interconnecting doors to define residence units were recognized from the start, but it was felt that the attempt might be enlightening. First, evidence of doors no longer exists for second-story rooms, where habitation rooms are often located. Second, it is possible that some rooms used by the same household were not connected by internal doors but were entered through the ceiling. In this situation, no evidence of room relationships exists. Finally, many doors at Arroyo Hondo were blocked by the time of abandonment. Blocked wall entries might represent a number of different situations: changes in the size of residence units owing to the developmental cycle of the domestic group; a change in structure ownership; the use of wall entries as means of access only during the construction of a room, with immediate blocking of the entry when construction was completed (see Mindeleff 1891:182); or change in the size of residence units resulting from basic changes in social organization (for example, a shift from extended to nuclear families).

The following analysis first examines residence units assuming all wall entries were open at one point in time (perhaps at the midpoint in roomblock occupation), giving an indication of the potential maximum residence unit size at Arroyo Hondo. Blocked wall entries are then considered, and residence unit size and organization are reassessed.

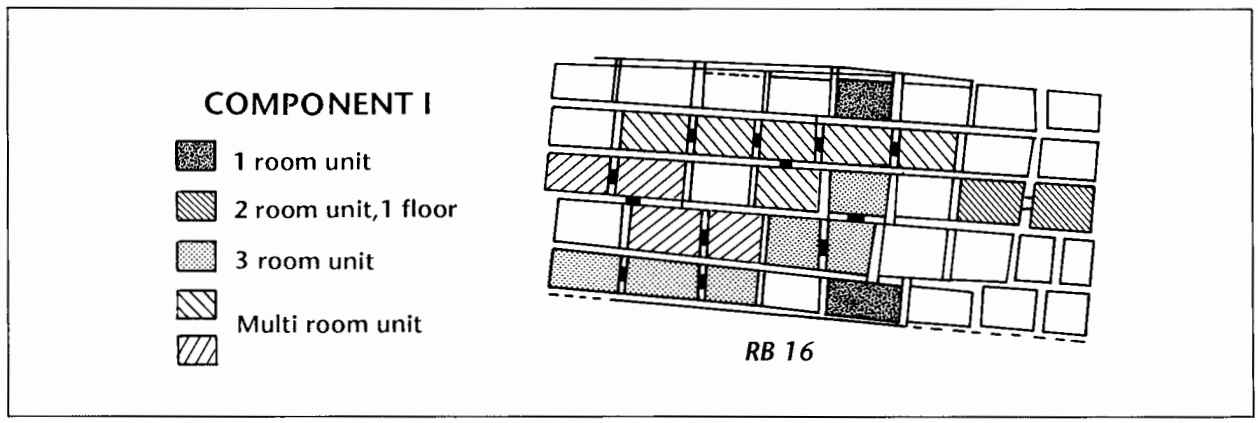


Figure 6.2. Plan view of Component I rooms with connecting doorways in roomblock 16.

Component I

ROOMBLOCK 16

Roomblock 16 had 68 ground-floor and 33 second-story rooms during Component I (Plan 1). The excavated sample included fourteen ground-floor and five second-story Component I rooms, 19% of the total. Approximately equal numbers of living and storage rooms were identified (table 6.2): eight rooms were storage rooms, seven were living rooms, four were of other types or of indeterminate function. Four rooftop work areas were also noted, two on first-story rooftops and two on second-story rooftops.

All but one of the interconnecting doors found in Component I rooms were blocked by the time of abandonment (table 2.4; fig. 6.2). Wall entries connected rooms in the interior of the roomblock but were not found to connect interior rooms with the outer rank of rooms. The outer row of rooms on the north and south sides of the roomblock had no wall entries opening onto either plaza, nor did they have wall entries opening into the interior of the roomblock. Fragments of ladders and hatch copings suggest that rooms on the plazas were entered through the roof. Though interior rooms were connected by wall entries, all exits to the outside were through second-story wall entries or rooftop hatchways. The positions of entryways and hearths indicate that the outer rows of rooms, as well as those in the upper stories, may have been favored as living rooms, with limited access to storage rooms in the interior and lower story of the roomblock.

If all wall entries are presumed to have been open at one point in time, seven residence units could be postulated from the excavated sample of Component I rooms in roomblock 16 (table 6.7; fig. 6.2). This figure includes two isolated habitation rooms (one with a rooftop work area), a two-room unit, two three-room units, a six-room unit, and a nine-room unit. The two-room unit and both three-room units had no identifiable habitation rooms; however, each was connected by a wall entry to an unexcavated room, presumably a habitation room. The six-room unit included a ceremonial room (room 16-33) on the second story with a possible ceremonial storage room below. The nine-room unit was composed of six ground-floor storage rooms connected to three second-story habitation rooms and a rooftop work area. Three storage rooms were not included in any defined residence unit.

If blocked wall entries signify a lack of interaction between rooms, then the excavated portion of roomblock 16 may have consisted of five two-room units (with an upper-story habitation room and lower-story storage room), three single-story living rooms, and three isolated storage rooms. However, the isolated habitation rooms may have been associated with nearby storage rooms, connected only by ceiling entries.

ROOMBLOCK 11

Roomblock 11 was composed of approximately thirty-one ground-floor rooms (Plan 1). Unlike the other Component I roomblocks around plaza C at Arroyo Hondo, there is no evidence that roomblock 11 had two stories. The central block of rooms was of stone masonry, with adobe rooms on either side. Seven rooms were excavated, 23% of the Component I rooms (pitroom 11-6 was not included in this total; see chapter 2). An addi-

tional five rooms had been excavated by Nelson in 1915. Only two of the 23 Component II rooms in roomblock 11 were excavated. These rooms were not contiguous and provided little information about potential room groupings.

Of the seven Component I rooms excavated by Schwartz, three were living rooms, two were storage rooms, one was a living room converted to a storage room, and one was of indeterminate function (table 6.2). Two of the five rooms excavated by Nelson (rooms N-3 and N-4) had hearths, suggesting that they were living rooms, and the other three were presumed to have been storage rooms. One living room, 11-5, had an unusual niche that suggested ceremonial use, although other room features were consistent with use as a living room. Another niche in room 11-4 was the only evidence of living room use in this apparent storage room. No rooftop hearths were recorded on any of the rooms.

One room was significantly larger than the others, suggesting specialized use, although supporting evidence was not found. Room 11-X1 was 7.85 m^2 but had no interior features at all. It was not distinguished as ceremonial in probable function, even though it is the size that would be expected for ceremonial rooms.

Residence units postulated for roomblock 11 consisted of three isolated living rooms (table 6.7; fig. 6.3). These three rooms (11-5, 11-8, 11-9) were single story and lacked wall entries; all were apparently entered through roof entries. Three other rooms (11-X1, 11-3, 11-4) appear to have been individual storage rooms, probably with roof entries. It is possible that pairs of living and storage rooms, or larger units, were used by individual households, even though interconnecting entryways are absent. Rooftop work areas or hearths were not found in roomblock 11.

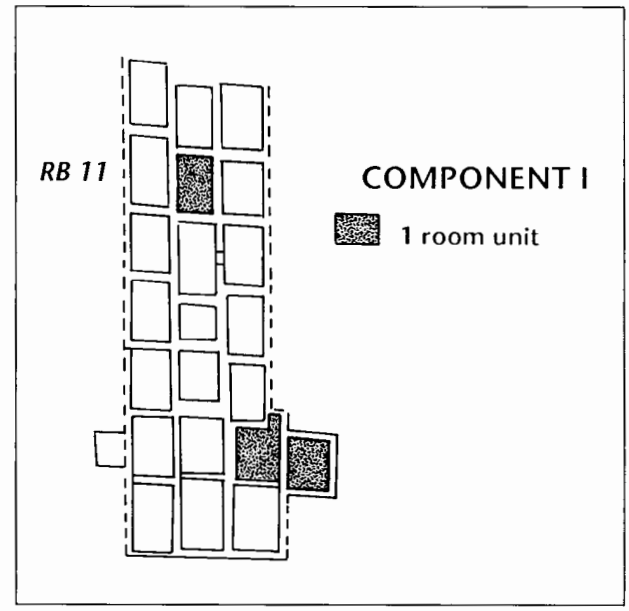


Figure 6.3. Plan view of Component I rooms with connecting doorways in roomblock 11.

ROOMBLOCK 5/6

This analysis includes excavated rooms at the juncture of roomblocks 5 and 6: rooms 5-5, 5-7, 5-8, 5-9, 5-10, 5-11, 5-12, 5-13, 5-14, 6-6, and 6-7 (Plan 1). Roomblocks 5 and 6 were occupied only during Component I; no evidence of Component II occupation was encountered. Roomblock 5/6 had 29 ground-floor rooms and an estimated 17 second-story rooms. Thirteen ground-floor rooms and eight second-story rooms were excavated by Schwartz, 47% of the total. An additional seven rooms were dug by Nelson in 1915.

Roomblock 5/6 had almost equal numbers of living and storage rooms (counting "living or storage rooms with rooftop hearths" as living rooms, and "living rooms converted to storage rooms" as storage rooms; table 6.2). Four rooftop work areas had second-story roof hearths. One second-story and three first-story rooftop hearths did not have associated grinding tools. Room 6-6 had a large collection of ground-stone tools that suggested storage or manufacturing of these artifacts. The ground floor of this room contained a number of manos and groundstone slabs, as did the rooftop work area. A fragment of molded adobe also recovered from the second-story rooftop may have been part of a mealing bin.

Four residence units can be postulated in roomblock 5/6, based on the assumption that all wall entries were open (table 6.7, fig. 6.4): one single-story living room, one two-room group, one four-room unit, and a fourteen-room unit. The two-room unit consisted of two single-story rooms connected by a wall entry (rooms 5-12 and 5-13). Two-story room 6-6 was connected by a wall entry to the adjacent unexcavated room to the west. This group is assumed to have been a two-story unit based on its location in the roomblock, making room 6-6 part of a group of at least four rooms.

All of the other excavated rooms, and at least one adjacent unexcavated room, were connected by wall entries and may have formed a single unit of fourteen or more rooms (table 6.7, fig. 6.4). This multiroom unit includes six two-story rooms and two adjacent storage rooms, although one storage room was unexcavated and was simply presumed to have been used for storage. Four of the two-story units had living rooms on the top story

TABLE 6.7
Residence units identified in Components I and II.

Residence Unit Type	Room(s) Included
Component I	
Roomblocks 5 and 6	
One single-story living room	6-7
Two adjacent single-story rooms	5-12, 5-13
Three or four rooms	6-6, 6-6*, one adjacent unexcavated room (one or two stories)
Fourteen rooms	5-5, 5-5*, 5-7, 5-7*, 5-8, 5-8*, 5-9, 5-9*, 5-10, 5-11, 5-11*, 5-14, 5-14*, one adjacent unexcavated room
Roomblock 11	
One single-story living room	11-5
One single-story living room	11-8
One single-story living room	11-9
Roomblock 16	
One single-story living room	16-26
One single-story living room	16-34
Two single-story rooms	16-8, one adjacent unexcavated room
Three single-story rooms	16-31, 16-32, one adjacent unexcavated room
Three single-story rooms	16-36, two adjacent unexcavated rooms
Six rooms	16-30, 16-30*, 16-33, 16-33*, two adjacent unexcavated rooms
Nine rooms	16-24, 16-24*, 16-27, 16-27*, 16-28, 16-28*, three adjacent unexcavated rooms
Roomblock 18	
Two-story structure	18-14, 18-14*
Two-story structure	18-32, 18-32*
Two single-story rooms	18-15, one adjacent unexcavated room
Three rooms	18-37, 18-38, 18-38*
Nineteen rooms	18-5, 18-5*, 18-6, 18-6*, 18-7, 18-7*, 18-8, 18-8*, 18-9, 18-9*, 18-39, 18-39*, 18-42, 18-42*, 18-49, four adjacent unexcavated rooms
Component I Subtotals	
One single-story living room	6 (32%)
Two single-story rooms	3 (16%)
Two-story structures	2 (11%)
Three rooms	4 (21%)
More than three rooms	4 (21%)
	19 (100%)
Component II	
Roomblock 7	
One single-story living room	7-9
Roomblock 9	
One single-story living room	9-10
One single-story living room	9-11
Three rooms	9-9, 9-12, 9-13

(*continued on next page*)

TABLE 6.7 (continued)

Residence Unit Type	Room(s) Included	
Roomblock 10		
One single-story living room	10-3	
One single-story living room	10-5	
Three rooms	10-4, 10-6, one adjacent unexcavated room	
Roomblock 16		
One single-story living room	16-3	
One single-story living room	16-4	
One single-story living room	16-6	
One single-story living room	16-11	
One single-story living room	16-20	
Two adjacent single-story rooms	16-10, 16-14	
Two adjacent single-story rooms	16-17, 16-19	
Two adjacent single-story rooms	16-21, 16-22	
Three rooms	16-5, 16-13, 16-18	
Component II Subtotals		
One single-story living room		10 (63%)
Two single-story rooms		3 (19%)
Three rooms		3 (19%)
		16 (100%)

Note: Assumes all wall entries are open.
* Second-story room.

and storage rooms below, although in each case the ground-floor room was a living room that had been converted to storage. One of the two-story units was ceremonial room 5-11 with a ceremonial storage room below. The final two-story unit consisted of a storage room on the ground floor and a living room converted to storage room on top. Four of the second-story rooms had rooftop hearths, three associated with rooftop work areas; another rooftop work area did not have a hearth.

Blocked wall entries indicate that smaller residence units were in use. The wall entry between room 6-6 and the neighboring room was sealed, so there may have actually been two two-room residence units here. In the large residence unit, two wall entries were sealed. This large unit may actually have consisted of an eight-room, a five-room, and a one or more room unit.

ROOMBLOCK 18

Roomblock 18 included 52 ground-floor rooms and 26 or more second-story rooms during Component I (Plan 1). There was no Component II occupation in this roomblock. Twenty-four rooms in roomblock 18 were excavated in 1971 and 1972: 14 ground-floor and 10 second-story rooms, approximately 31% of the total number of rooms in the roomblock. Four probable two-story rooms were excavated by Nelson in 1915, although they are not included in the discussion of residence units since none were reported to have had wall entries or hearths.

As in the other roomblocks examined, rooms in roomblock 18 were almost equally divided between living rooms and storage rooms (table 6.2). There were six storage rooms and six living rooms converted to storage and ten living rooms and one living or storage room with a rooftop hearth, indicating a probable habitation function (one room was not assigned a room function). Living rooms were located primarily in the second story whereas storage rooms were on the first story. Only one room (18-37), located in the single-story portion of the roomblock, had a rooftop hearth; it was associated with a rooftop work area. Two other rooftop work areas, defined only by the presence of ground stone, were located above second-story rooms. None of the rooms in roomblock 18 were unusually large or had features associated with ceremonial functions.

Five residence units were postulated for roomblock 18, under the assumption that all wall entries were open (table 6.7, fig. 6.5). Three were two-room units, each with one room that contained either an interior or rooftop hearth. One of these, the two-story unit 18-32, had a wall entry that opened onto plaza G, one of the few

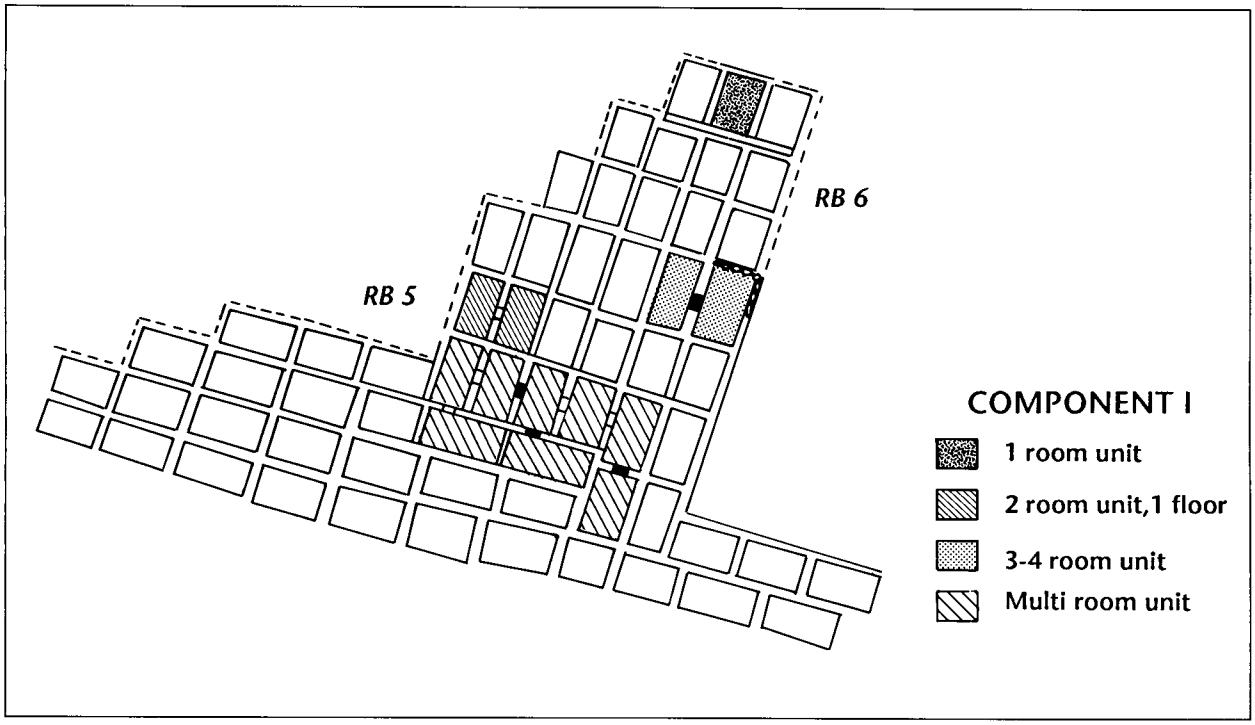


Figure 6.4. Plan view of Component I rooms with connecting doorways in roomblock 5/6.

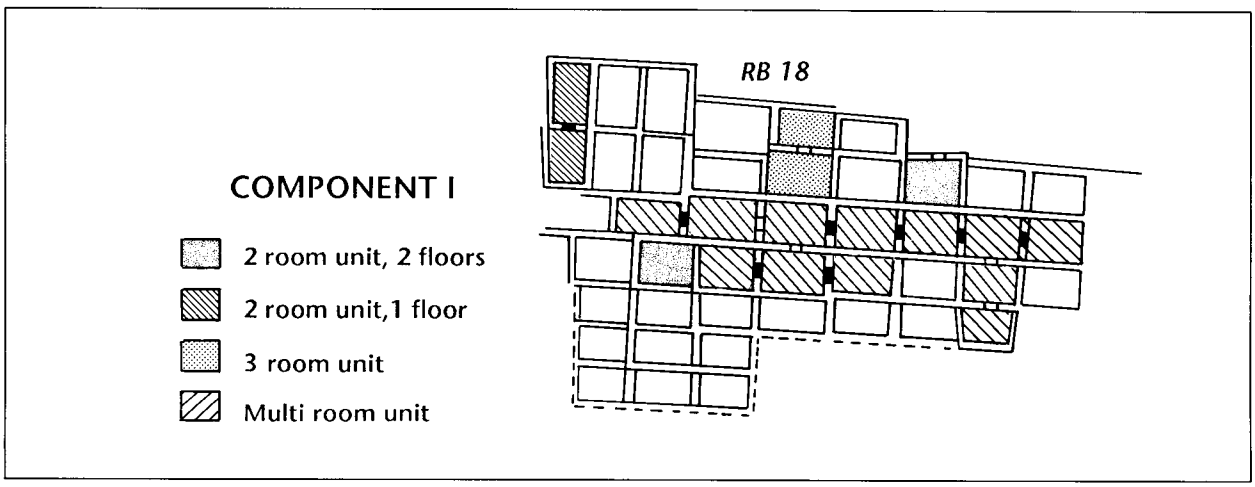


Figure 6.5. Plan view of Component I rooms with connecting doorways in roomblock 18.

wall entries onto a plaza in the Component I occupation. One three-room unit (18-37 and 18-38) included a one-story room with a rooftop work area and a two-story room with a second-story room hearth.

The largest unit, which contained as many as 19 rooms, took up much of the center row of rooms in roomblock 18 (table 6.7; fig. 6.5). This unit may have included seven two-story units, with storage rooms on the ground level and living rooms on the upper floor; one excavated single-story room, and four unexcavated rooms (assumed to be single-story). One of the second-story rooms had a rooftop work area.

Many wall entries had been sealed by the time this portion of the site was abandoned, suggesting a different configuration of residence units. One of the two-room units (room 18-15) consisted of two single rooms, and the large residence unit may have actually consisted of seven smaller units with two to five rooms each.

SUMMARY: COMPONENT I RESIDENCE UNITS

During Component I, the outer rows of rooms, as well as upper stories, were apparently favored as living rooms, with limited access to storage rooms in the interior and the lower story of the roomblock. This arrangement was probably designed to provide living areas with the maximum amount of fresh air and light. Interconnecting doors suggested that residence units varied in size, ranging from single habitation rooms to large units with as many as 16 rooms. When sealed wall entries are considered, however, most residence units seem to have consisted of one or two rooms.

When all wall entries are considered, blocked or unblocked, 19 residence units in four roomblocks were postulated for Component I (table 6.7). More than 32% ($n = 6$) were single living rooms without evidence of accompanying storage rooms. Another 26% ($n = 5$) were two-room units, either a living room above a storage room or an adjacent living and storage room. Not all cases were clear-cut: in one instance, an excavated storage room was connected to an unexcavated room that was presumed to be a living room; in another, both rooms were classified as living or storage rooms because they had rooftop hearths but no interior hearths. As noted above, isolated living and storage rooms may actually have been used by the same family and were entered through the roof.

Four units (21%) consisted of three rooms. Two of these were composed of a two-story dwelling, with storage in the lower story and a living room on the upper story, and with an adjacent single-story room (in both cases unexcavated, but presumably used for storage). Two other three-room units had a single-story living room (in one case, unexcavated) flanked by two storage rooms.

Another four (21%) Component I residence units may have consisted of multiple rooms, ranging from 6 to 19 rooms. These units were composed of several two-story structures, with ground-floor storage rooms and upper-story habitation rooms, and several adjacent single-story rooms. In most cases, these adjacent rooms were unexcavated but were presumed to be storage rooms.

Blocked wall entries make the identification of multiroom units tentative. Most may have actually consisted of several, much smaller units, ranging from one to five rooms. Only one eight-room residence unit had all doors open at the time of abandonment. Multiroom residence units at Arroyo Hondo during Component I seem to have been unusual; one- and two-room units were more common.

Component II

ROOMBLOCK 16

During Component II, roomblock 16 contained 44 single-story rooms (Plan 2). The excavated sample included 22 rooms or 50% of the Component II rooms in this roomblock. Three Component II rooms in roomblock 16, excavated by Nelson in 1915, are included in the analysis of residence units. Of the excavated rooms, eight were storage rooms, twelve were living rooms, and three were of other types or of indeterminate function; five rooftop work areas were identified (table 6.3).

All postulated Component II residence units consisted of one to three single-story rooms (table 6.7; fig. 6.6). They included five single living rooms, three two-room units (including one excavated by Nelson), and one three-room unit. Several isolated storage rooms (one excavated by Nelson) and five rooftop work areas were also recorded. Isolated storage and habitation rooms may have been part of the same residence unit, but they lacked interconnecting wall entries. In the three-room unit one wall entry had been sealed, suggesting that two-room residence units may have been a preferred type. The two-room units consisted of a living room and a storage room. In one case, a two-room unit consisted of two living rooms, but the rear room had sealed hearths, perhaps indicating a shift to storage function.

ROOMBLOCK 9

In roomblock 9, six contiguous single-story rooms (9-6, 9-9, 9-10, 9-11, 9-12, and 9-13) may have formed a three-room residence unit, two single habitation rooms, and an isolated storage room (table 6.7; fig. 6.7). Rooms 9-13, 9-12, and 9-9 were connected by wall entries and formed an unusual residence unit. Rooms 9-12 and 9-13 were living rooms; room 9-9 could have been either a living or a storage room. Room 9-12 was an exterior room with a mealing bin and may have had a wall entry to plaza C. Behind room 9-12, in the interior of the roomblock, was room 9-13, which also contained a mealing bin in the southeast corner, along with ladder seats and a rooftop hearth. Room 9-9, behind room 9-13, and adjacent to plaza F, had an unusual storage or sleeping platform that covered half the room (see chapter 3). The wall entry that connected 9-9 to 9-13 was adjacent to the pole platform in 9-9; the sill was on the course above the platform, quite high off the floor. Access to the wall entry would have had to have been across the pole platform.

Rooms 9-12 and 9-13 contained two of the four interior mealing bins found during Component II. Grinding

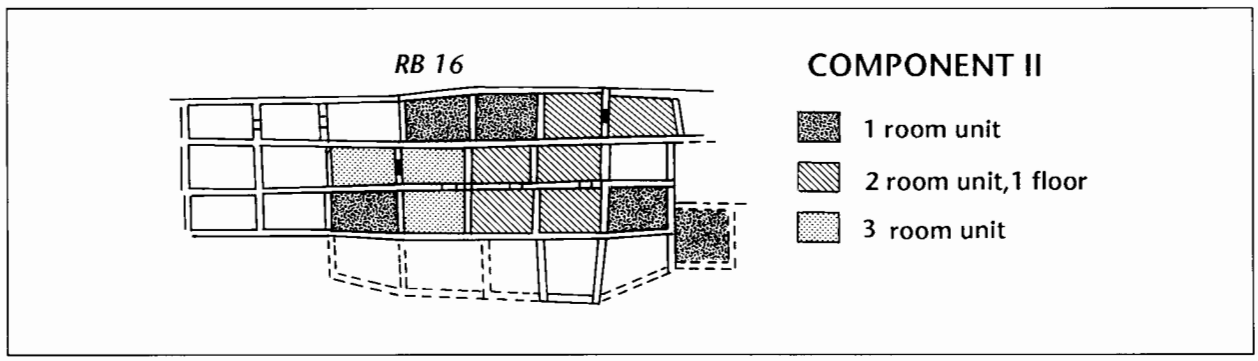


Figure 6.6. Plan view of Component II rooms with connecting doorways in roomblock 16.

may have been the primary function of the interior room (9-13), while the rear room (9-9) functioned for storage. Too little of the door between rooms 9-9 and 9-13 remained to determine if it had been blocked. The door between rooms 9-12 and 9-13 was definitely blocked, possibly making room 9-12 an isolated living room and the other two rooms a two-room unit.

None of the other rooms in roomblock 9 were connected by wall entries although they may have formed residence units entered through the ceiling (fig. 6.7). Rooms 9-10 and 9-11 were both living rooms with rooftop work areas; room 9-6 was a storage room. Room 9-11 had ladder seats worn through the upper floor surface of the room, indicating roof entry, and room 9-6 had a worn patch in one corner, also suggesting a ladder landing area. Room 9-10 had a mealing bin in the northeast corner. This room was filled with burned corn kernels and cobs that had been piled on a rack. The arrangement of sticks and corn covered almost the entire room apart from the ladder landing area (see chapter 3).

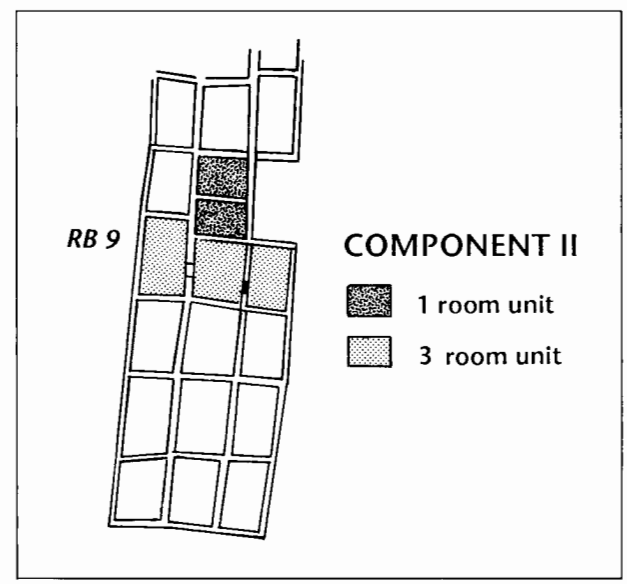


Figure 6.7. Plan view of Component II rooms with connecting doorways in roomblock 9.

ROOMBLOCK 10

In roomblock 10, four contiguous one-story rooms were excavated (10-3, 10-4, 10-5, and 10-6) and possibly formed a three-room residence unit and two single-room residence units (table 6.7; fig. 6.8). Rooms 10-4 and 10-6 faced plaza C and were connected by a wall entry. Both were living rooms. Room 10-6 had ladder seats indicating roof entry, but it was also connected to an unexcavated room (presumably a storage room) by another interconnecting wall entry. Rooms 10-3 and 10-5 were located in the rear of the roomblock, away from the plaza, but may both have been single living rooms. Room 10-3 had an interior hearth and a rooftop work area (without a hearth); room 10-5 had no interior hearth but did have a rooftop work area with a hearth. Ladder seats were found in the southeast corner of room 10-5, indicating ceiling entry. Too little remained of the interconnecting wall entries to determine if they had been blocked.

ROOMBLOCK 7

In roomblock 7, three contiguous one-story rooms (7-6, 7-9, and 7-10) were excavated (table 6.7; fig. 6.9). Room 7-9, facing plaza F, was the only living room; the other two were storage rooms. Although no wall entries connected these rooms, they may have been used by the same family and entered through the ceiling. Room 7-9 may have been an isolated habitation room, or it may have been associated with the adjacent storage rooms, which were entered from hatchways.

SUMMARY: COMPONENT II RESIDENCE UNITS

The 16 residence units identified in Component II were simpler in layout than Component I residence units because all were single-story construction. One-, two-, and three-room units were defined. Although single living rooms were most common (n = 10; 63%), they may not represent a typical residence unit for Component II because lack of interconnecting wall entries does not preclude use of adjacent rooms by a single household. Roomblock 16, with the greatest number of contiguous excavated rooms, had three two-room units and one three-room unit. Blocked wall entries made the three-room unit into a two-room unit (with an isolated room). Of the five single living rooms found in roomblock 16, two had sealed hearths, suggesting that they may not have been active living rooms. Based on roomblock 16, it seems that pairs of rooms may have been the most common residence unit during Component II, probably consisting of a living room and an adjacent storage room. Rooftop work areas were as common in Component II as they had been in Component I. Four interior mealing bins and grinding tools were found in room interiors during Component II, although three of these features were in the same small area of the site; no interior mealing bins were found in rooms during Component I.

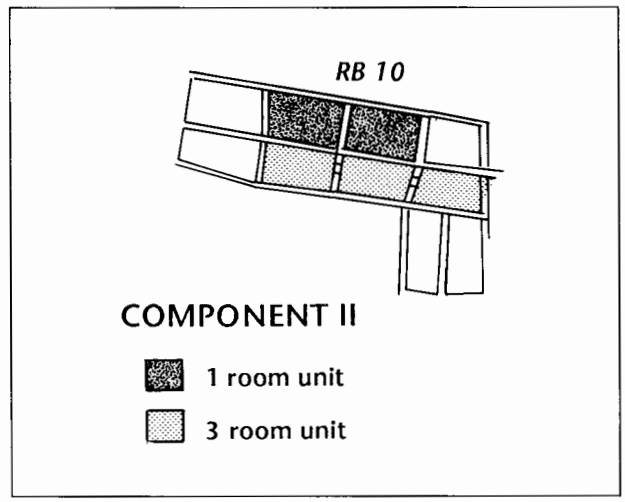


Figure 6.8. Plan view of Component II rooms with connecting doorways in roomblock 10.

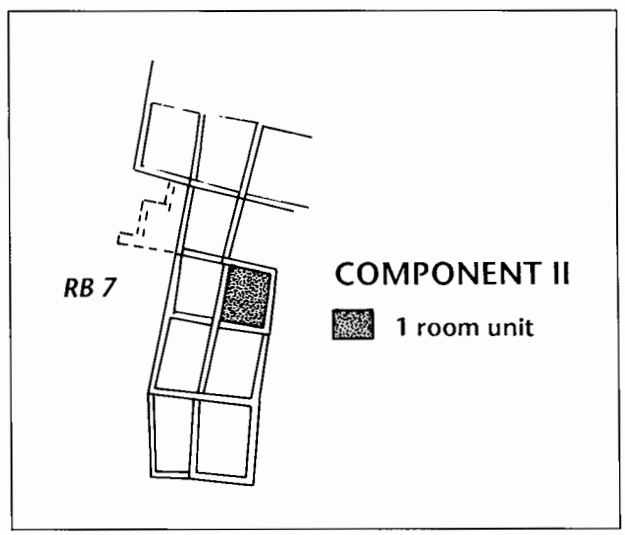


Figure 6.9. Plan view of Component II rooms with connecting doorways in roomblock 7.

Discussion

Several categories of room function were identified at Arroyo Hondo (table 6.8): (1) storage rooms, typically located on the first story and lacking hearths or other features; (2) living rooms, often located in the second story (during Component I) and having a hearth, niches, vents, and other features; and (3) ceremonial rooms, which may have had larger than average dimensions, hearth deflectors, painted wall plaster, and loom anchor holes, as well as features typical of living rooms.

Rooftop work areas identified at Arroyo Hondo usually consisted of a hearth, often slab-lined, and groundstone tools, such as manos and metates. These areas were probably used for cooking, grinding, and toolmaking or other activities. Most kinds of hand work probably took place outdoors, in plazas or on rooftops, where the lighting was best. Rooftop work areas were almost as common in Component I (21% of excavated rooms) as in Component II (28%; table 6.8). Four mealing bins were found in room interiors during the later component, none were found in the earlier component. This distribution might indicate a shift in the locus of grinding activities, although three of the mealing bins were in almost adjacent rooms.

Rooms at Arroyo Hondo were fairly uniform in size, measuring about 6.5 m^2. Rooms at a small sample of other Rio Grande area sites for which dimensions were available seemed to be comparable in size, ranging from 5 to 8 m^2 (table 6.6). The average size of living and storage rooms was similar in both Components I and II. Only the few ceremonial rooms identified in Component I were significantly larger than rooms of other types. A few other large rooms may also have had cere-

TABLE 6.8
Attributes of rooms of different function for each component.

Component I	Number of Excavated Rooms (total = 100)	Second Story	Average Size (m^2)	Room Hearth/ Roof Hearth	Associated Features
Storage rooms (including L/S)	41	1	6.10	2	N,P,Sh,V
Living rooms (including LorS)	48	28	6.34	47	N,V
Ceremonial rooms	6	3	7.73	3	P,Sh,V
Other	1	0	8.80	0	none
Function indeterminate	4	1	—	0	none
Rooftop work areas 5% over storage rooms 76% over living rooms 14% over ceremonial rooms 5% over rooms of indeterminate function	21	15	6.66	21	Gr

Component II	Number of Excavated Rooms (total = 50)	Percent of All Excavated Rooms	Average Size (m^2)	Room Hearth/ Roof Hearth	Associated Features
Storage rooms	17	34	6.71	0	R,Sh,V
Living rooms (including LorS)	28	56	6.75	28	MB,Sh,V
Function indeterminate	5	10	—	0	none
Rooftop work areas, 100% over living rooms	14	—	6.70	14	none

Gr Abundance of ground-stone tools
MB Mealing bin
N Niche
P Peg hole
R Rack
Sh Shelf
V Vent

monial functions, although no features remained to indicate ceremonial use. Hunter-Anderson (1979b) suggests that rooms at large sites in the Cochiti area show greater variation in size during the Pueblo IV period (Classic phase) than in the preceding Pueblo III period (Coalition phase), but this pattern was not evident at Arroyo Hondo. Whereas ethnographic and archaeological data from the Western Pueblo area indicate that pueblo rooms of different functions vary in size, rooms at Arroyo Hondo clearly do not fit this pattern. This finding may indicate a greater degree of cooperative construction at Arroyo Hondo than at other sites (see chapter 8).

Analysis of room groups forming residence units was problematical because the primary evidence for association between rooms was the presence of interconnecting wall entries. Perhaps most critical was a lack of information on interconnecting wall entries for second-story rooms. Lower-story wall entries were often blocked, which could indicate a change through time in residence unit size, or the wall entry itself might merely have been a construction feature. Furthermore, some families may have entered all of their rooms through hatch openings, and no evidence would remain of relationships between rooms.

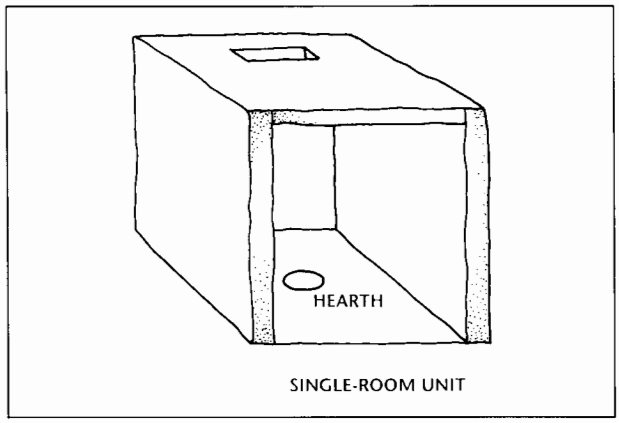


Figure 6.10. Reconstruction of a single-room residence unit. This type of residence unit was typical of both Component I and Component II.

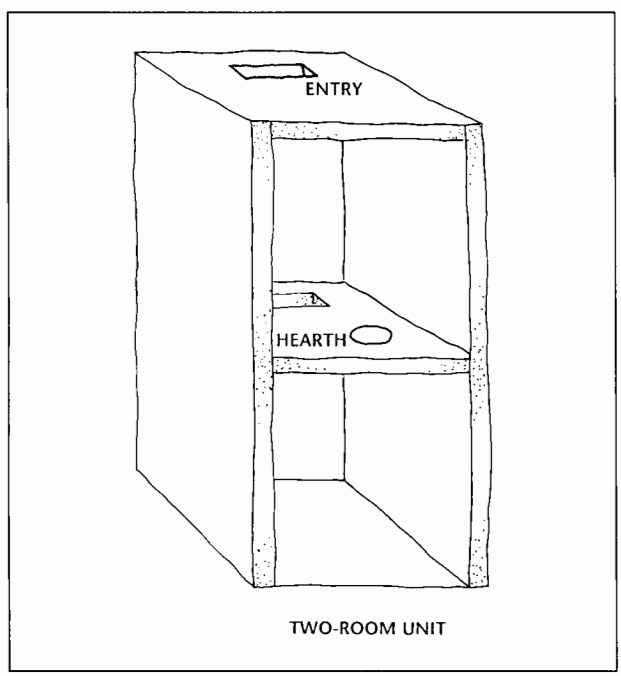


Figure 6.11. Reconstruction of a two-story residence unit, found only in Component I.

Residence units during both time periods may have consisted of one or two rooms: a single living room (fig. 6.10) or a living room and storage room. During Component I, a common pattern appears to have been a two-story structure with a living room in the second story and a storage room below (fig. 6.11). During Component II, the same pattern may have been achieved with a front-to-back orientation, with the living adjacent to the plaza and the storage room behind it (fig. 6.12). A few three-room units were recognized in Component II, but multiroom units were apparent only in Component I.

It is possible that space allocated for storage at Arroyo Hondo during both components was less than is typically assumed for Puebloan groups. Almost half of the residence units consisted of only a single living room and another one-quarter had only one additional storage room. Comparing the total numbers of living and storage rooms for excavated rooms in Components I and II shows the same pattern (table 6.9). If rooms identified as either living rooms or storage rooms are considered living rooms (most had rooftop hearths, probably substituting for room hearths), living rooms converted to storage rooms are considered storage rooms (their most recent function), and ceremonial rooms are considered living rooms (probably an equally important function for these rooms), then the number of living rooms is slightly greater than the number of storage rooms during each component.

Separate storage rooms may not have been a part of every habitation unit at Arroyo Hondo; some storage rooms may have been shared between related families. This pattern contrasts with other sites in the Southwest. For example, at Tsegi phase sites in northeastern Arizona, Dean (1969) found about three storage rooms to each living room. Room size may be a factor, since one storeroom equal in size to a living room (as at Arroyo Hondo) may have been adequate for domestic group requirements and equivalent to two or more tiny storerooms or granaries, like those that were found in Dean's study. Another possibility is that a large surplus was never available at Arroyo Hondo. A study of the carrying capacity of the region surrounding Arroyo Hondo suggested that little surplus would be created for a large population (Wetterstrom 1986:85).

TABLE 6.9

Comparison of frequencies of living and storage rooms in each component.

	Component I	Component II	Total
Living Rooms†	51	28	79
	53.7%	62.2%	56.4%
Storage Rooms‡	44	17	61
	46.3%	37.8%	43.6%
Total	95	45	140

Note: Does not include rooms for which function could not be determined.

†Includes living or storage rooms (LorS) and ceremonial rooms.

‡Includes living rooms converted to storage rooms (L/S) and ceremonial storage rooms.

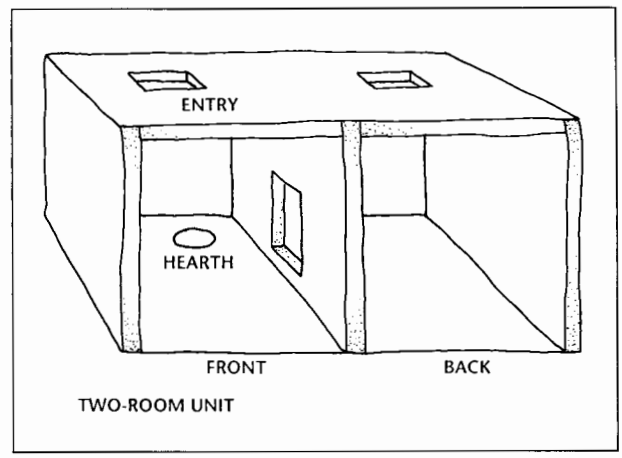


Figure 6.12. Reconstruction of a two-room residence unit, typical of the Component II occupation.

Chapter 7

Chronology and Site Growth

Population aggregation at Arroyo Hondo Pueblo during the early fourteenth century marked the beginning of a trend toward large aggregated settlements in the northern Rio Grande region. The causes of aggregation and the population dynamics involved are not well-understood. An examination of patterns of architectural growth at Arroyo Hondo provides a measure of the extent and pace of aggregation that can help to explain this process. In this chapter, tree-ring dates from both components are examined and the growth of the site during each component is discussed. The rapid construction of the Component I settlement is emphasized.

More than three hundred tree-ring dates from Arroyo Hondo place the occupation of the site firmly within the fourteenth and very early fifteenth centuries. Rapid growth of the settlement during the first half of the fourteenth century is clear from the tree-ring dates found in Component I proveniences. Much of the site may have been built between about 1315 and 1330. The sequence of construction of roomblocks during Component I is determined primarily from room orientation and wall abutments, since few of the rooms can be clearly dated by clusters of tree-ring dates. Some Component I roomblocks show evidence of cooperative construction of groups of rooms, although accretional construction of individual rooms is also apparent. The Component II occupation involved fairly rapid construction of a much smaller number of rooms primarily during the 1370s and 1380s. Arroyo Hondo was apparently abandoned for the last time soon after 1410.

Tree-Ring Dating and Site Chronology

Tree-ring dates provide the best chronological evidence available for Arroyo Hondo (Appendix B). In the following discussion, tree-ring dates are used to define periods of construction at the site and to suggest the date of construction of some rooms. As discussed by Ahlstrom (1985:30–37; see also Robinson, Harrill, and Warren 1973), cutting dates (dates that indicate the exact year the tree was cut and presumably used in construction) are accompanied by the following symbols: B, G, L, c, or r (see Appendix B for definitions). If a date with one of these symbols is accompanied by a "+," it is very close to a cutting date, probably within three years. If one of these symbols is accompanied by a "++," however, the date cannot be considered a true cutting date. A date with the symbol "v" is very close to a cutting date and is treated as such in some cases. Non-cutting dates are those with the symbol "vv."

All dates can be used to determine periods of construction and use of the site. One significant problem with dating the construction of a particular room is determining which pieces of wood had been part of the construction and which had been tossed in as trash fill or used in the room as firewood, etc. (Appendix B). Field notes assisted with these determinations, but detailed notes on tree-ring samples were not always available. In the following discussion, when the source of dated wood is unknown, the dates are considered only tentative indicators of the time of construction and use of a structure. Ceramics were not useful for defining the date of occupation of particular rooms because most types have broad periods of use, some of which even overlap the occupations of the two components (Habicht-Mauche 1993).

Several principles, compiled by Ahlstrom (1985:57–59), are used to suggest construction dates for structures: (1) clusters of cutting dates provide the best evidence of the date a structure was constructed; (2) construction generally occurred soon after procurement of the beams; (3) clusters of non-cutting dates can provide evidence of the construction date; (4) dates that are anomalous with respect to a presumed construction date come from beams that were eroded, reused, stockpiled, or used in repair of a structure; (5) if there is no date cluster, the latest date from a structure indicates that the structure was in use as late or later than this date.

Of the 312 dated tree-ring samples from Arroyo Hondo, 106 were recovered from proveniences that had been assigned to Component I based on stratigraphic criteria (fig. 7.1); 200 were from Component II prove-

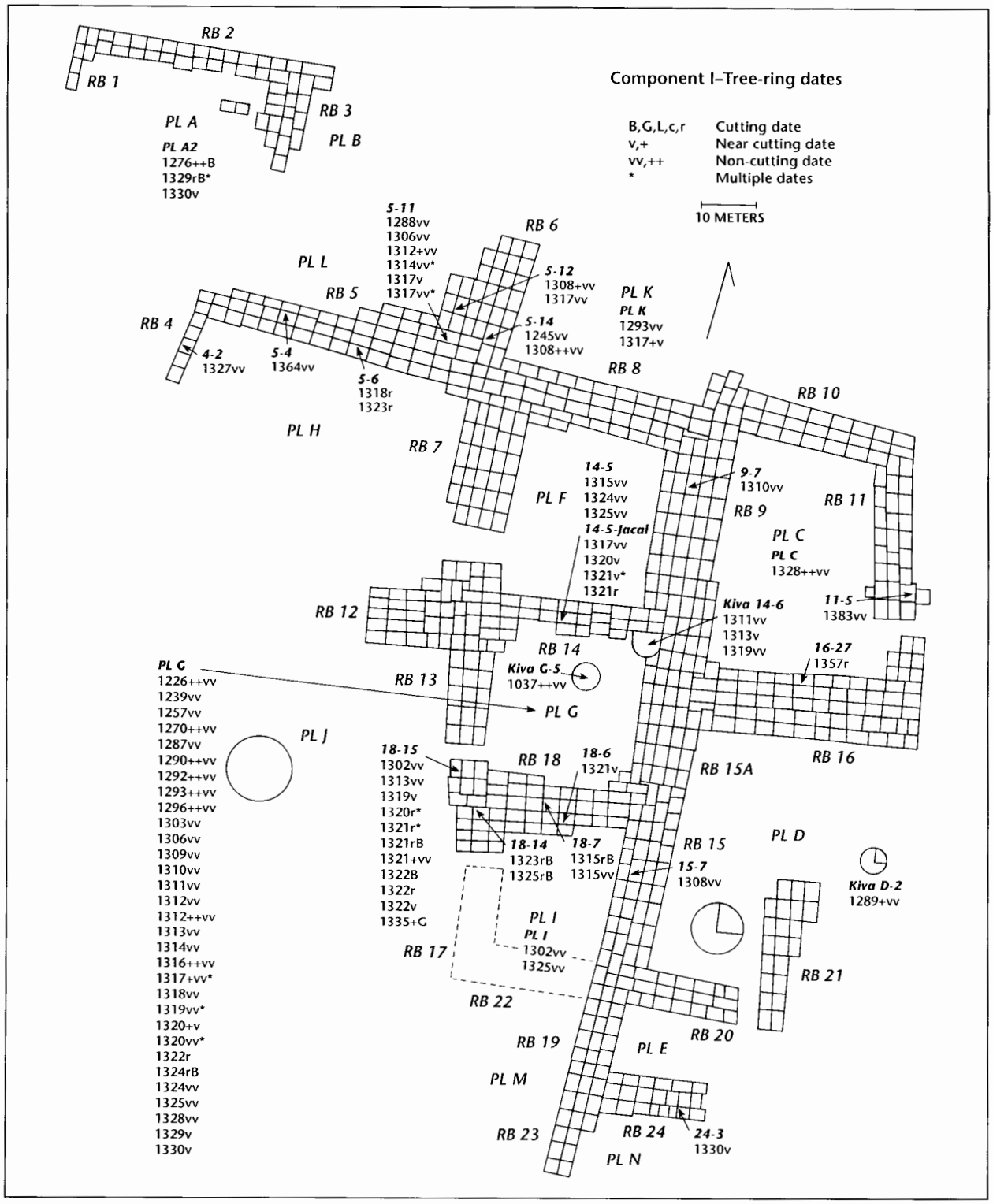


Figure 7.1. Map of site showing the location of tree-ring dates for Component I.

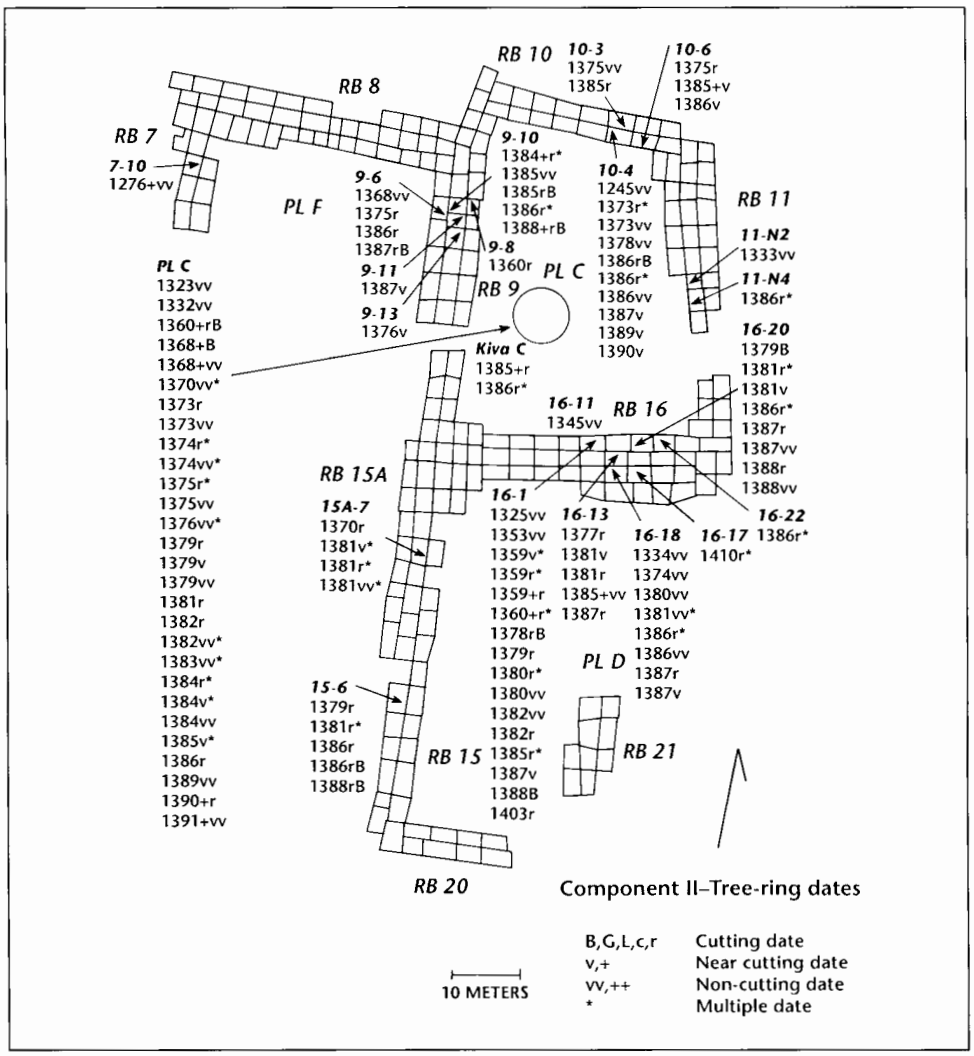


Figure 7.2. Map of site showing the location of tree-ring dates for Component II.

niences (fig. 7.2); and 6 could not be assigned to a component, but the dates indicated they were probably part of the Component II occupation (Appendix B). Almost half of the Component I dates were recovered from plazas, primarily plaza G. The remainder were recovered from 18 rooms (27% of the excavated ground-floor rooms) and two kivas (D-3 and 14-6). Most of the rooms produced only one or two dates, often non-cutting dates, and dates of construction could be suggested for only a few rooms based on clusters of dates. A number of Component I rooms appeared to have no remains of vigas, yet there is little evidence that wood from the earlier component was reused in later structures.

The much larger sample of Component II dates was obtained from 20 rooms (40% of the excavated Component II rooms), kiva C, and plaza C. Plaza C produced almost 25% of the Component II dates, and different rooms produced between 1 and 25 dates. Nine rooms had clusters of cutting dates indicating a date of construction. The large sample of Component II tree-ring dates relative to the small sample from Component I may be largely the result of the fact that Component II structures were built on the remains of the Component I occupation. Component I rooms were buried, their old floor surfaces were leveled for new construction, and wood that might have been part of the older structures may have been cleared away or burned.

Stem-and-leaf diagrams (fig. 7.3) show the distribu-

COMPONENT I

103	7
122	6
123	9
124	5
125	7
127	0,0,6
128	7,8,9
129	0,2,3,3,3,6
130	2,2,3,6,6,8,8,8,9
131	0,0,1,1,2,2,2,3,3,3v,4,4,4,4,5,5,5,6,7,7,7,7,7, 7,7,7v,8,8,8,8, 9,9,9,9,9v
132	0,0,0,0,0v,0,0,0,0,1,1,1v,1v,1v,1v,1v,1,1,1,1, 1,2v,2,2,2,3,3,4,4,4,5,5,5,5,7,8,8,9v,9,9,9
133	0v,0v,0v,5
135	7
136	4

Unmarked — Noncutting date
v — Probable cutting date
Underlined — Cutting date

COMPONENT II

127	6
132	5,3,8
133	2,4
134	5,5
135	3,9v,9v,9,9,9
136	0,0,0,0,0,8,8,8
137	0,0,0,0,1,3,3,3,3,3,3,3,4,4,4,4,4,4,4,4,5,5,5, 5,5,5,6,6,6,6v, 7,8,8,9,9v,9,9,9,9
138	0,0,0,0,0,1,1,1,1,1v,1v,1v,1v,1v,1v,1,1,1, 1,1,1,1,1,1,1,1,1,1,1,1,1,1,1,2,2,2,2,2, 3,3,3,4,4,4,4,4v,4v,4,4,4,4,4,4,4, 5,5,5,5,5v, 5v,5,5,5,5,5,5,6,6,6v,6,6,6,6,6,6,6,6,6,6,6, 6,6,6,6,6,6,6,6,6,6,6,6,6,6,6,6,6,6,6,6,6,6, 6,7,7v,7v,7v,7v, 7,7,7,7,8,8,8,8,8,8,9,9v
139	0,0v,1
140	3
141	0,0,0,0,0,0,0,0,0,0,0,0

Figure 7.3. Stem-and-leaf diagrams of Arroyo Hondo Component I and Component II tree-ring dates. The three digits to the left in each diagram are decades (A.D.) within which tree-ring dates fall. The digits to the right are the last digit in each tree-ring date from that decade. Cutting dates are underlined and "v" dates are indicated. Unmarked dates are non-cutting dates.

tion of tree-ring dates for Components I and II (see Ahlstrom 1985:62–63, 1989:364 for a discussion of the interpretation of these diagrams). The two components are clearly separated in time. Non-cutting dates from Component I proveniences increase in number after A.D. 1300, and the first cutting date occurs in A.D. 1315. A "terminal date cluster" (see Ahlstrom 1985:65) in the 1320s seems to represent the peak in Component I construction. Component I dates become far less frequent after A.D. 1330; only two dates later than 1335 were associated with Component I proveniences. A cutting date of A.D. 1357 from room 16-27 appears to represent a repaired roof and suggests that roomblock 16 was still occupied at that time. In room 5-4, a piece of wood found on the floor that appeared to be structural produced a date of A.D. 1364vv. The specimen may be intrusive from the later occupation, or it may represent a late occupation of roomblock 5.

All Component II dates before 1350 are non-cutting dates (see fig. 7.3). The number of dates and the number of cutting dates increase dramatically after 1370. A terminal date cluster in the 1380s seems to represent a peak in Component II construction. There are few dates after 1390, except a single cluster of cutting dates at 1410 in room 16-17.

Tree-ring dates suggest that Arroyo Hondo was first settled soon after A.D. 1300 and that major construction was under way by 1315. The majority of the Component

TABLE 7.1
Wood samples from each component, by species.

	Douglas Fir	Ponderosa Pine	Pinyon Pine	Juniper	Other	Total
Component I rooms	5 4.0%	73 57.9%	40 31.7%	6 4.8%	2 1.6%	126
Component I plazas*	— 	36 30.5%	72 61.0%	2 1.7%	8 6.8%	118
Component II rooms	27 9.1%	139 46.7%	89 30.0%	3 1.0%	40 13.4%	298
Component II plazas*	10 1.8%	113 20.0%	206 36.4%	216 38.2%	21 3.7%	566

Note: Includes dated and undated species for which component association could be determined.
* Includes samples from kivas.

I pueblo was apparently built during the next 15 years, with construction episodes falling off sharply after 1330. A significant decrease in numbers of dates and an absence of cutting dates between 1330 and the late 1350s suggest a sharp decline in construction at the site (see fig. 7.3). It is possible that the site was abandoned during part of this period, although a small residual population could have made repairs with wood from abandoned structures. Apparently, long periods of time may elapse without procurement of new wood for pueblo repair. For example, at the Hopi pueblo of Walpi, extensive tree-ring sampling recovered no dates for the period between 1730 and 1850, a century during which historical documents indicate the pueblo was constantly occupied (Jeffrey S. Dean, personal communication 1989).

Construction activity, and presumably reoccupation, may have resumed as early as the late 1350s or early 1360s, as indicated by several cutting dates, several "v" dates, and an increase in numbers of non-cutting dates (see fig. 7.3). More than one hundred cutting dates from the 1370s and 1380s indicate a great deal of activity at the site, including construction of kiva C in 1386. The 1380s was the period of greatest construction activity during Component II and was undoubtedly the time when most of the two hundred rooms associated with this occupation were built.

A second significant decline in construction at Arroyo Hondo must have occurred after 1390, since the number of tree-ring dates declines sharply after this date (see fig. 7.3). The cluster of cutting dates in room 16-17 at 1410 suggests construction of at least one room long after most other Component II rooms had been built, and possibly abandoned. There is no evidence of occupation at the site after 1410. Abandonment of most of the site could have occurred prior to 1410, and only a residual occupation may be indicated by the construction of room 16-17. It seems likely that the site was entirely abandoned after about 1420.

Arroyo Hondo may have been used seasonally both during the interval between Components I and II (from about 1335 to 1360) and during the terminal occupation of the site (from about 1400 to 1420). Evidence for continued use of the site during these intervals includes the tree-ring date from roomblock 16, dating to the 1350s, and room 16-17, constructed in 1410.

Selection of Tree Species

Wood for roofs and features, such as ramadas, pens, ladders, hanging poles, pegs, and shelves, seems to have been relatively close at hand for the residents of Arroyo Hondo. Pinyon and juniper surround the site today and were likely to have been equally abundant prehistorically. Spotty stands of ponderosa pine occur in Arroyo Hondo Canyon 500 m east of the ruin (Kelley 1980:11), and Douglas fir can be found in the nearby mountains, about 6 miles distant.

Tree-ring samples (including both dated and undated samples) identified by species indicate that there was a difference in the species of wood found in rooms and on plazas (table 7.1). In both Components I and II, ponderosa pine was the most common species used in rooms, whereas pinyon (Component I) or pinyon and juniper

(Component II) were the most common species used in plazas. Ponderosa pine tends to be larger than pinyon and may have been preferred for structural members used in the construction of rooms. Pinyon and juniper tend to be smaller but would be more readily available. They may have been more frequently selected for ephemeral construction on plazas, such as turkey pens or ramadas. Many of the tree-ring samples from plazas came from trash deposits and may represent firewood.

More samples of Douglas fir were recorded in Component II than in Component I, although many of these samples were recovered from a single provenience (room 16-1), suggesting that this species was not frequently used in construction, even during Component II. Douglas fir produces a large tree, but it was not as readily available as either ponderosa pine or pinyon. More than 95% of the juniper samples were collected from a single level of plaza C. Juniper was apparently not a preferred species in spite of its local availability.

Extensive construction during Component I, and the need for firewood, may have caused a decrease in availability of trees large enough to make vigas by Component II times. As discussed in chapter 3, vigas were smaller in Component II roofs than they had been during Component I, and the roofs of some rooms had no vigas. Comparison of the approximate age of trees cut during each component supports the suggestion that Component I tree cutting may have decreased the availability of large, nearby trees. Subtracting pith dates (the date of the innermost tree ring) from exterior dates (the latest tree ring) for samples with cutting or "v" dates provides an indicator of the age of the tree when cut, and the relative size of the wood produced (table 7.2). Component I samples averaged 75 years old when cut, whereas Component II samples averaged only 34 years old. Component II residents apparently used younger trees, possibly because older, larger trees were no longer available.

Availability of timber was apparently an important factor in selection of wood supplies during both components. Component II residents may have settled for younger, locally available trees to decrease the distance needed to travel to obtain logs. Smaller trees may also have been selected because rooms were planned to be a single story, and smaller roof beams would be adequate for construction. Alternatively, single-story rooms may have been built because no large beams could be found near the site. A further possibility is a decrease in cooperative construction: individual or family tree-cutting might have limited the size of tree that could be procured.

TABLE 7.2
Age of dated tree-ring samples.

	Component I	Component II
Number of samples	26	111
Mean age	74.6 years	34.0 years
Standard deviation	34.3 years	14.4 years

Note: Includes only cutting or "v" dates.

TABLE 7.3
Archaeomagnetic dates.

Provenience	Date	Date Range	Component
9-6	1365 ± 15	1350–1380	2
11-5-5-1	1330 ± 22	1308–1352	1
11-8-3-4	1355 ± 22	1333–1377	1
15-N-3	1300 ± 21		
15-6	1315 ± 12	1303–1327	2
15-6-4	1330 ± 24	1306–1354	2
15a-7-41	1315 ± 25	1290–1340	2
15a-8-6	1310 ± 22	1288–1332	2
16-1-8	1340 ± 37	1303–1377	2
16-17-3	1355 ± 20	1335–1375	2
16-34-4	1345 ± 21	1324–1366	1
16-36-5	1325 ± 13	1312–1338	1
18-7	1325 ± 10	1315–1335	1
20-6-9	1330 ± 35	1295–1365	1
Plaza K-15-1	1315 ± 18		1
Kiva 14-6	1325 ± 34		1

Archaeomagnetic Dating

Archaeomagnetism, the property of the magnetic components (iron) in clay to align to the magnetic pole when burned, can be employed archaeologically to date hearths and other features (Joukowsky 1980:454–455). Archaeomagnetic dates should yield the date of the last burning of a feature and can be useful for determining the approximate date of abandonment of a structure or activity area. In some cases, archaeomagnetic dates, in conjunction with tree-ring dates, can provide an estimate of the use-life of a structure.

Archaeomagnetic samples were collected at Arroyo Hondo during the 1972 and 1974 seasons from hearths in rooms and kivas and from burned walls and floors. The resulting dates have been recently recalibrated using a 1988 revised curve (Thomas C. Windes, personal communication 1991). Sixteen dates were obtained, ranging from A.D. 1300 to 1365 (table 7.3). Archaeomagnetic

dates from Component I proveniences ranged from 1315 to 1355; those from Component II proveniences ranged from 1315 to 1365. Each date had an estimated range of from ±10 to ±37 years.

The archaeomagnetic dates were expected to differentiate the terminal use of hearths and burned surfaces into two groups, those not used after about 1350 and those last used around 1410, but this expectation was not met. Most dates fall within the Component I period, although the estimated range for some of the dates could place them within Component II (see table 7.3). The archaeomagnetic dates do support the dating of the occupation of Arroyo Hondo to sometime during the fourteenth century, but they do not have the fine resolution of tree-ring dates that would permit a determination of the span of occupation of specific areas of the site.

Site Growth

The pueblo of Arroyo Hondo grew from a single roomblock to a network of interconnecting roomblocks and plazas before being at least partially abandoned. The first settlement was built over a short period, less than two decades, during which time there must have been nearly constant construction. Rooms, plazas, and kivas are the principal architectural components at the site. Clusters of rooms or single rooms were added, modifying what had been built before, until the site had expanded to its final dimensions, 24 roomblocks arranged around 13 plazas. The sequence of construction can be traced through architectural and chronological data: room placement and orientation, wall abutment patterns, underlying trash deposits, and tree-ring dates. The expansion process provides information about the general rate of population change at the site and suggests priorities that may have guided construction, such as access to the arroyo and the spring, optimal plaza size, availability of materials, and need for outdoor work space.

The reconstruction of site growth for Component I relies heavily on architectural data, primarily wall abutment patterns found in excavated rooms and the placement and orientation of rooms in unexcavated portions of the site. These patterns are pivotal in reconstructing building sequences and inferring the relative pace of site growth. Component I tree-ring dates, discussed above, clearly show the rapid growth of the site between about 1315 and 1330, but there are too few to determine the detailed sequence in which roomblocks were constructed. Only nine roomblocks produced any tree-ring dates, and only one date was available for most of these (figs. 7.1, 7.2; Appendix B). Component II dates were more abundant and suggested that most Component II rooms were built in the 1380s. Most of the Component II reoccupation was around plazas C, D, and F. Figures 7.4 through 7.7 illustrate the growth of Arroyo Hondo during Component I. These figures are based on architectural patterns and chronological data, when available, and provide a gross sequence for the construction of roomblocks.

Component I

ROOMBLOCKS AROUND PLAZA C: 11, 10, 16, AND 9

Four roomblocks are located around plaza C. Roomblock 11 may have been among the earliest constructed at Arroyo Hondo, and it incorporates the greatest amount of masonry architecture at the site. Roomblocks 11 and 16 are in the corner of the site closest to a spring in the arroyo, which was apparently the pueblo's principal source of water.

Eight Component I rooms were excavated in roomblock 11 (11-1, 11-3, 11-4, 11-5, 11-6, 11-8, 11-9, and 11-X1). Room 11-6, a pit room, appears to be the earliest, as its adobe walls were built on sterile subsoil below the floor of room 11-3 (see chapter 2). The relationship of room 11-6 to the remainder of the site is uncertain. The next stage involved construction of a long set of masonry rooms in the center of the roomblock, including rooms 11-4, 11-9, 11-X1, and Nelson's rooms 2 and 4 (fig. 7.4). The rooms are constructed of two long parallel masonry walls, which seem to have been built as single units. These walls were then subdivided with short crosswalls, creating several rooms in one construction episode, a possible example of cooperative construction.

Later, adobe rooms were added parallel to the masonry roomblock on both sides of the center core of masonry rooms (see fig. 7.5). Those in the excavated sample were added singly, judging by wall abutments, and were built both from north to south and outward. The new adobe rooms consisted of three or more separate wall segments rather than the long common walls that indicate construction of groups of rooms. Wall abutments suggest that two-room units may have been added to the roomblock, as in the case of rooms 11-3 and 11-5 and the unexcavated room adjacent to each of them on the south.

Only two tree-ring dates were obtained from roomblock 11: 1333vv from an unprovenienced sample in Nelson's room 2 and 1383vv from Component II trash deposited in room 11-5 (Appendix B). The break in occupation between Components 1 and 2 was indicated by a meter or more of fill between room floors in pairs of

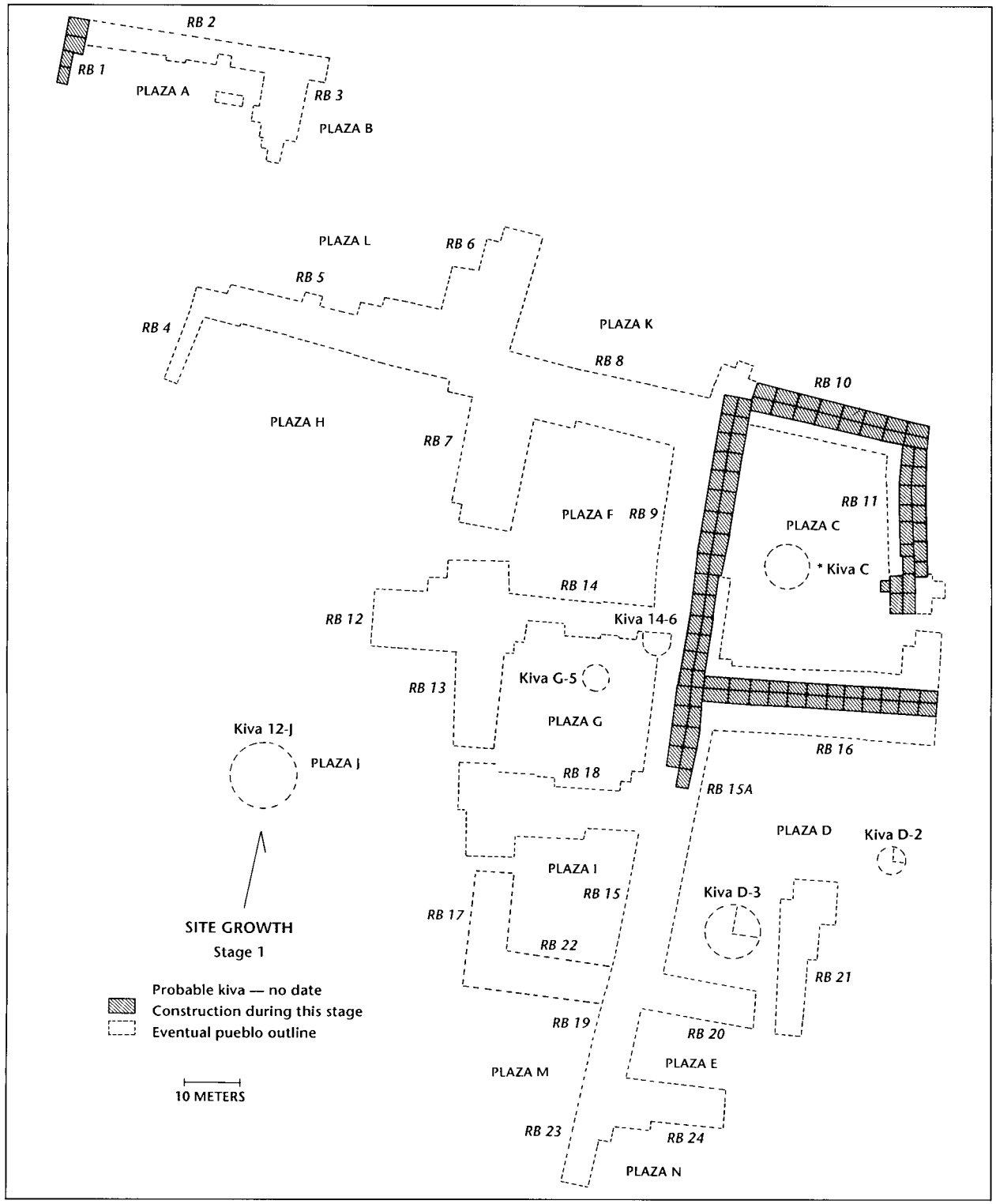


Figure 7.4. Component I site growth, stage 1.

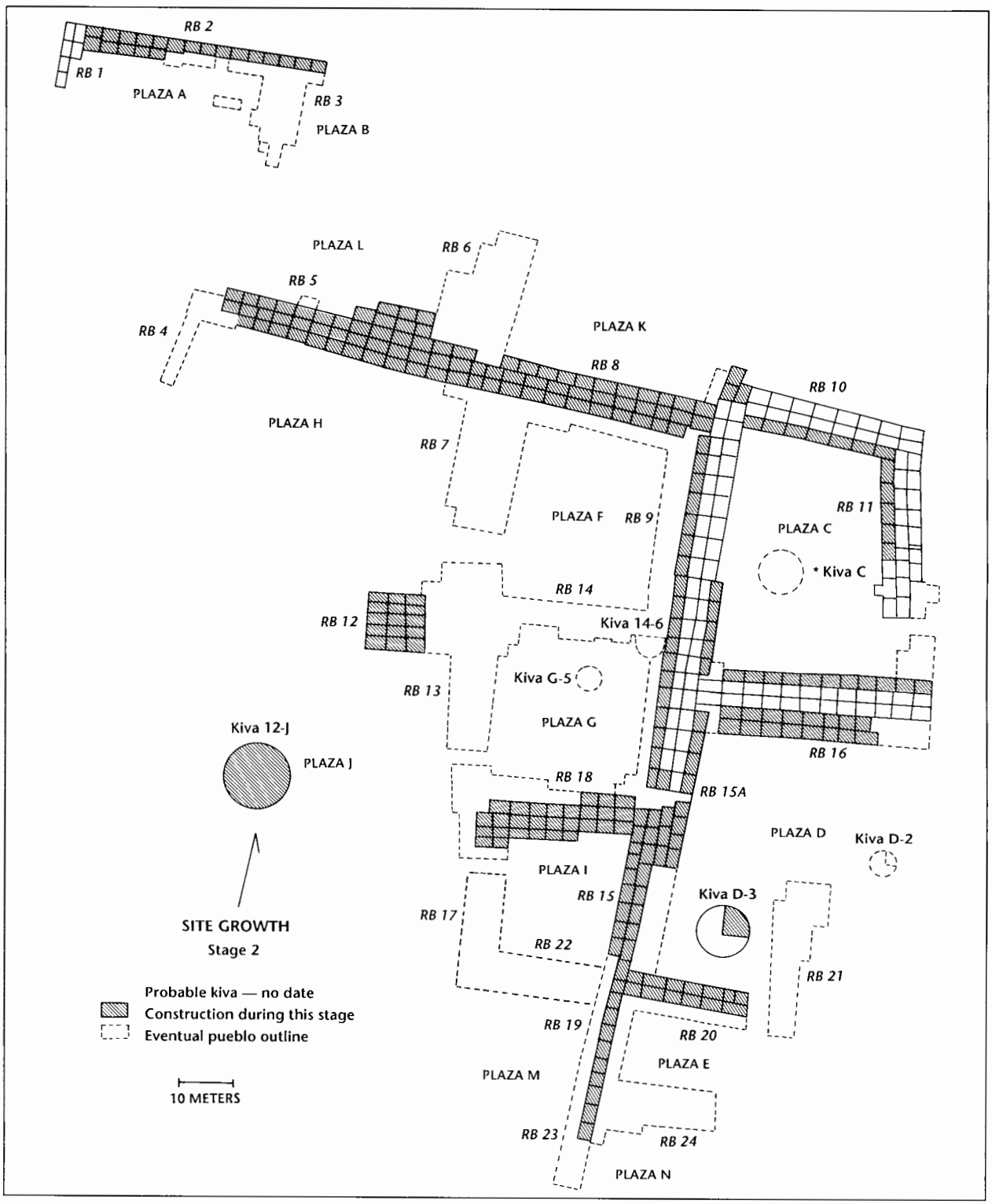


Figure 7.5. Component I site growth, stage 2.

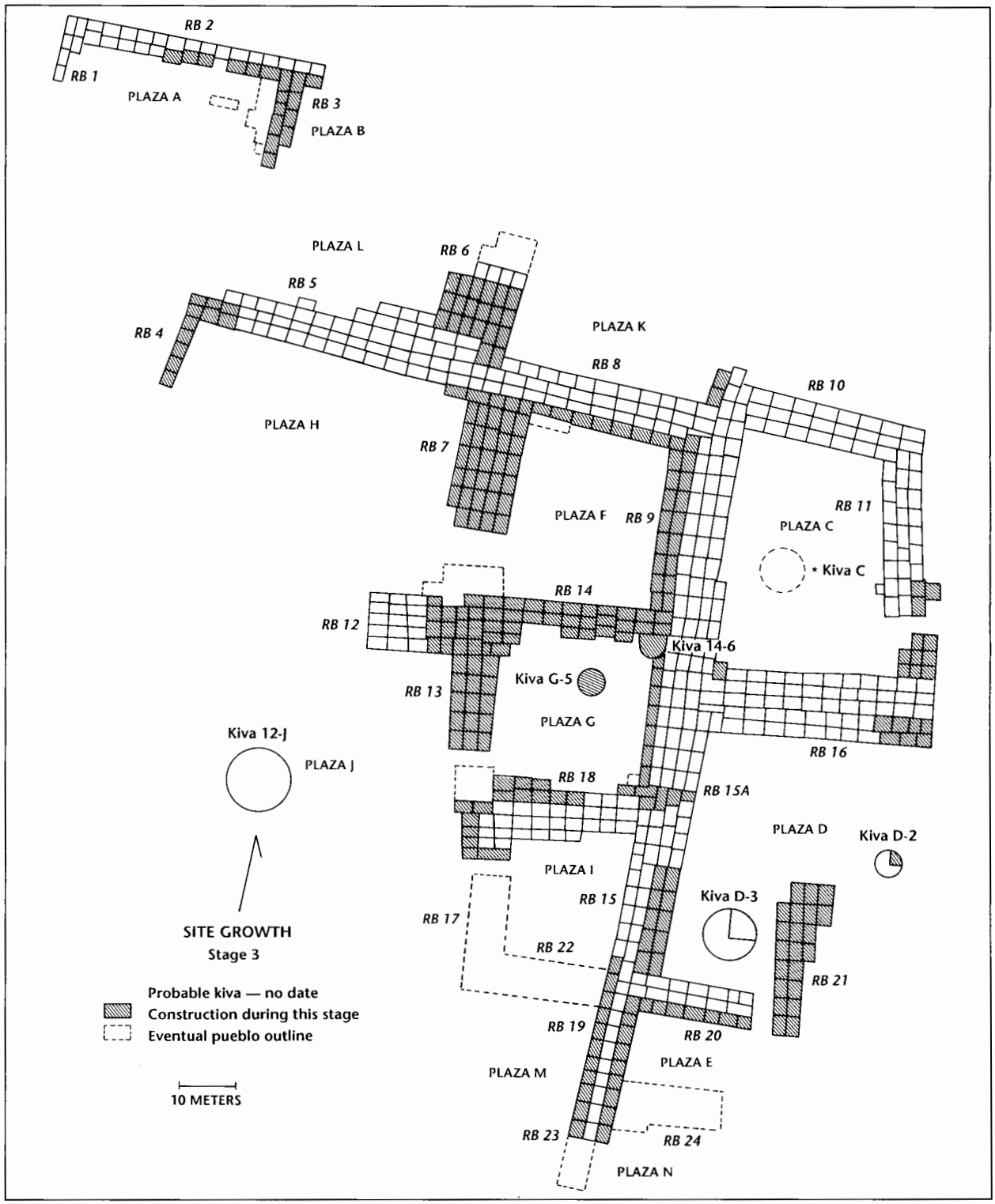


Figure 7.6. Component I site growth, stage 3.

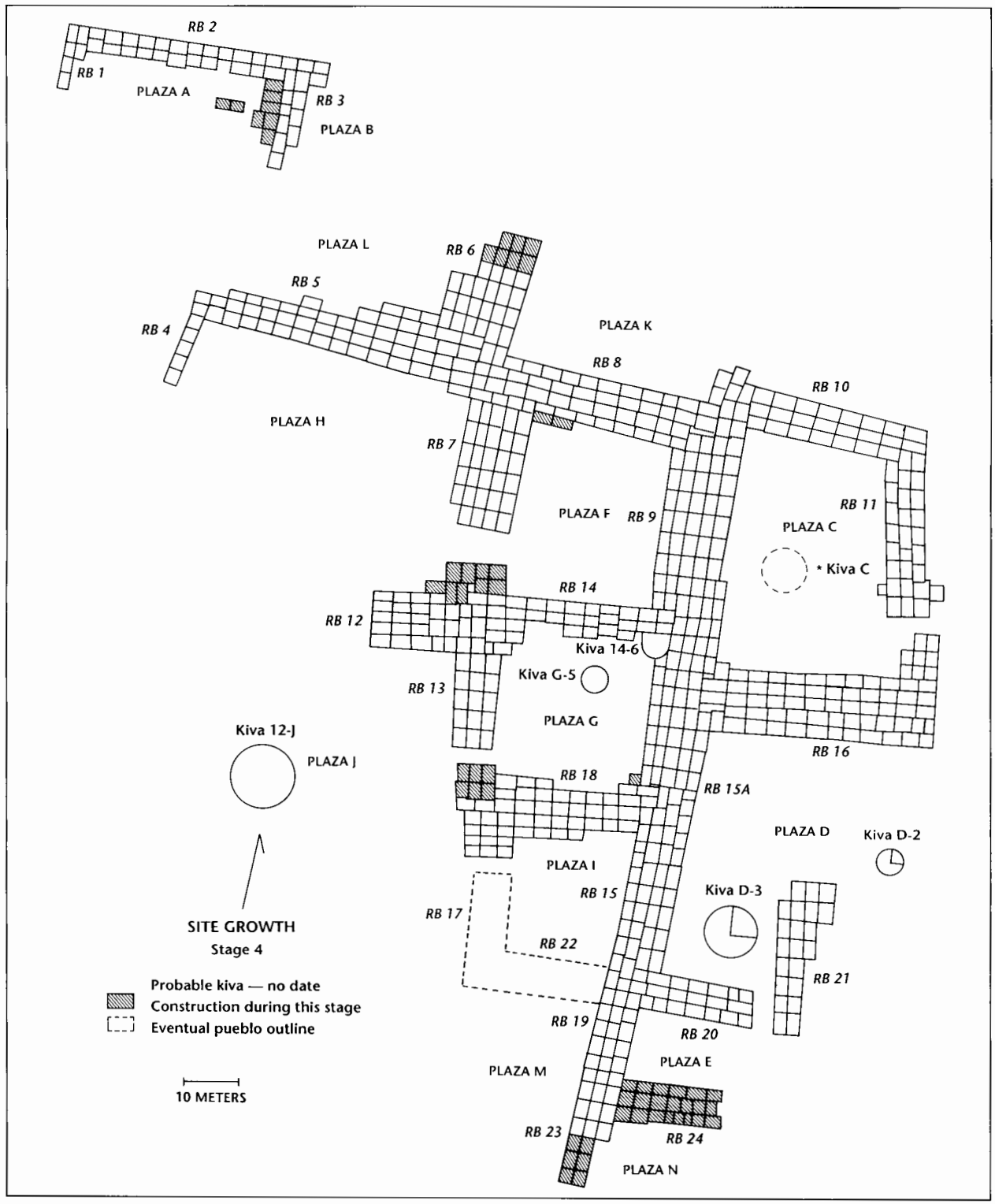


Figure 7.7. Component I site growth, stage 4.

Component I and Component II rooms (rooms 11-7 and 11-9, rooms 11-2 and 11-4).

The single Component I room excavated in roomblock 10 provided little information on the sequence of construction of this roomblock. No tree-ring dates were associated with the room. The room's location at the eastern end of roomblock 10 suggests that the northern two rows of rooms were built after the easternmost two rows of rooms in roomblock 11 (see fig. 7.4). The southern row of roomblock 10 rooms was completed before the western row of roomblock 11 rooms, although both were probably built about the same time (see fig. 7.5).

Roomblock 16 is the largest at Arroyo Hondo and the most extensively excavated. Long parallel walls separated into two rows of rooms by short crosswalls were the earliest construction in this roomblock (see fig. 7.4). The row of rooms facing plaza C seems to have been built in smaller segments, implying that it was constructed later than the center rows. The two southern rows of rooms in the roomblock are aligned somewhat differently from others in the block, and these, too, may have been added after the initial two rows of rooms (see fig. 7.5). Six small unexcavated rooms at the southeast corner of the roomblock appear to be relatively late additions (see fig. 7.6). The portion of roomblock 16 that fills part of the gateway into plaza C consists of rooms oriented north-south rather than east-west, unlike the other rooms in roomblock 16. This change in orientation implies that these rooms were also added after the main section of roomblock 16. On the west end of roomblock 16, rooms built as part of roomblock 15, which is oriented north-south, filled in around the center two rows of roomblock 16 rooms, which suggests that roomblock 16 was completed after roomblocks 9 and 15 were well under construction (see fig. 7.5).

The only tree-ring date from a Component I room in roomblock 16 was from the floor of room 16-27 (Appendix B). The sample produced a cutting date of 1357r. The sample may represent roof repair, since there is evidence that the second story of this roomblock collapsed; alternatively, it may be from firewood used at the end of the occupation of the room. In either case, it does suggest that the room was in use during or after 1357, long after the most intensive period of Component I construction at the site had ended.

Roomblock 9 forms the west side of plaza C, connecting roomblocks 10 and 16. Roomblock 9 was probably the last of the roomblocks surrounding plaza C to be built. Wall abutments at the ends of the roomblock indicate that the two eastern rows of rooms were probably built first, and then other rooms were added until the roomblock was five or six rooms wide (see fig. 7.4). Too few rooms were excavated to determine if the central rows were constructed as a multiroom unit, as in roomblocks 11 and 16. Construction in the roomblock appears to have been started before construction was completed in roomblock 16, and at the same time as the last two rows of roomblock 10. Abutments with adjacent roomblocks indicate that roomblock 9 was probably built as a single unit with roomblocks 15a and 15, forming a very long row of rooms. Before construction was completed on roomblock 9, rooms were added to roomblocks 8, 14, and 16, which impinged on the shape of roomblock 9 (see fig. 7.5). Rooms added at the north end of roomblock 9 suggest that it was intended to extend farther north, though this did not happen.

The long alignment of rooms that includes roomblocks 9, 15a, 15, 19, and 23 is similar in size and in alignment to the east-west row that includes roomblocks 8 and 5. Roomblocks 8 and 5 may have been built toward the end of construction around plaza C, which formed the major axes of the pueblo that were filled in later by other roomblocks.

Only two Component I rooms, 9-7 and 9-5, were excavated in roomblock 9. Room 9-7 yielded a date of 1310vv (Appendix B). Although it is among the earliest dates for the site, it is a non-cutting date that provides little information about when the room was constructed.

EAST-WEST AXIS ROOMBLOCKS: 8, 5, 4, 6, AND 7

Relationships among rooms indicate that the center rows of roomblocks 8 and 5 were constructed before any of the rooms in the shorter, perpendicular roomblocks (4, 6, and 7), although the relative time of construction of these shorter roomblocks cannot be determined from room placement alone (see fig. 7.5). Three rooms at the north end of roomblock 9 seem to have still been under construction when roomblock 8 was being built; two more were added later (fig. 7.6).

A number of tree-ring dates were recovered from Component I rooms in roomblocks 5 and 6 (Appendix B). Three cutting dates from the roof of room 5-6, an outer room that faces plaza H, suggest that this room was built in 1318 and repaired in 1323. Rooms at the juncture of roomblocks 5 and 6 produced a number of tree-ring dates. Most of these rooms were oriented north-south and appeared to be part of roomblock 6 construction, rather than east-west roomblock 5, even though their room numbers indicate association with roomblock 5. Dates from rooms 5-11, 5-12, and 5-14 were all non-cutting dates of unknown structural association; this lack of definite association becomes increasingly frequent after about 1310. One "v" date from room 5-11 suggests construction of this room around 1317. These dates sug-

gest that rooms at the juncture of roomblocks 5 and 6 were being built during the late 1310s.

Room 5-4, located at the west end of roomblock 5, produced a date of 1364vv, which may represent an end point for the Component I occupation of this roomblock and is the latest Component I date at the site (Appendix B). The sample that produced this date is presumed to be structural (a latilla), although there is no firm associational evidence. It is possible that the roof of room 5-4 was repaired in the 1360s and the room was reused at that time. There is no evidence that roomblock 5 was used during Component II.

Roomblock 4 consists of only seven rooms. A date of 1327vv from an apparent latilla fragment in room 4–2 suggests that construction of this roomblock was underway late in Component I (Appendix B). There are no tree-ring dates from roomblock 7, and the placement and orientation of rooms at the juncture of roomblocks 7 and 8 suggest that roomblock 7 was built after roomblock 8 was entirely constructed (see fig. 7.6).

ROOMBLOCKS AROUND PLAZA G: 12, 13, 14, 15a, AND 18

The roomblocks around plaza G were apparently built almost simultaneously. Room placement and orientation suggest that roomblock 14 was built before roomblock 15a was completed. Roomblock 14 was never more than three rooms wide. The western part of roomblock 12 was built before roomblocks 13 and 14, both of which appear to have been built about the same time based on relationships between rooms. The bulk of roomblock 18 seems to have been built before roomblocks 15 and 15a were finished. Roomblock 18 widens as it extends out from roomblock 15, and it becomes T-shaped at the gates into plazas G and I (see fig. 7.7).

Three tree-ring dates from room 14-5 in roomblock 14 were all non-cutting dates from a second-story roof (Appendix B). They suggest construction of this room after 1325 (a jacal structure built beneath this room produced several "v" dates at 1320 and 1321). Four rooms in roomblock 18 produced tree-ring dates, although the exact association of these specimens is unknown. Room 18-15 is the best dated with numerous cutting dates at 1320, 1321, and 1322. Room 18-14 produced two cutting dates at 1323. Room 18-7 had two dates at 1315, one a cutting and the other a non-cutting date. Room 18-6 produced a single "v" date at 1321. The construction of roomblock 18 seems likely to have occurred in the early 1320s. A single non-cutting date of 1335 in room 18-15 may indicate room repair or late use of a firepit.

The large series of dates from plaza G were primarily non-cutting dates, a situation that becomes increasingly frequent after 1310 (Appendix B). Two cutting dates at 1322 and 1324, and two "v" dates at 1329 and 1330, indicate use of the plaza during the period when surrounding roomblocks were built and used.

SOUTH ROOMBLOCKS: 15 AND 17 THROUGH 24

Less excavation was carried out in the roomblocks at the south end of Arroyo Hondo than elsewhere, but room placement and orientation make it possible to suggest a sequence of construction in this area. Though roomblocks 15, 19, and 23 form part of the long north-south axis of the site, the alignment of rooms, particularly at the break between roomblocks 15 and 15a, indicates that these two roomblocks may have been joined after they were well under construction (see fig. 7.6). Roomblock 18 adjoins roomblock 15a with a mixed orientation of rooms, which indicates that the row of roomblock 18 rooms facing plaza G was already built before roomblock 15 was completed (see fig. 7.6). The intersection of roomblock 20 with roomblock 15 also shows that both roomblocks were under construction at the same time (see fig. 7.4). This portion of Component I construction is not well-dated; only a single non-cutting date of 1308vv was obtained from room 15-7 (Appendix B).

Roomblock 19 may have been added to the south side of roomblock 20, after roomblock 20 had been partially built, though it appears that roomblock 19 was built before the row of roomblock 20 rooms facing plaza E (see fig. 7.6). The construction of roomblock 23 cannot be distinguished from that of roomblock 19. Roomblock 23 is only two or three rooms wide and was probably built toward the end of Component I. In adjacent roomblock 24, room 24-3 produced a tree-ring date of 1330v from plank roof material, suggesting that this roomblock was also built toward the end of Component I (see fig. 7.7).

Roomblock 21, a detached roomblock in plaza D, did not produce tree-ring dates, though from its size and position it appears to have been constructed relatively late in Component I times. Roomblocks 17 and 22 were destroyed by modern construction of a stock tank at the site, probably in the 1930s. Testing in plaza I yielded evidence of the gateway between roomblocks 17 and 18 and produced two non-cutting dates: 1302vv and 1325vv (Appendix B). No further testing was undertaken in this area of the site, and the sequence in which these roomblocks were constructed is unknown.

ROOMBLOCKS AROUND PLAZA A: 1, 2 , AND 3

Roomblocks 1, 2, and 3, which surround plaza A on three sides, are not connected with the other roomblocks

at Arroyo Hondo but are located to the northwest. Three cutting dates at 1329rB from a deep firepit in plaza A (feature A-2-H) indicate that this area was a part of the site and was occupied contemporaneously with the Component I occupation of the main roomblocks (Appendix B). Room placement and orientation suggest that roomblock 1 was started first, roomblock 2 second, and roomblock 3 last in this group (see figs. 7.4, 7.5, 7.6). It is possible that the southernmost row of rooms in roomblock 2 was built after one or more rooms in the core of roomblock 3, a pattern typical of the rest of the site.

The rough masonry rooms E and F built in plaza A probably date to the end of Component I. The northeast corner of room E overlies a pit filled with trash, feature A-2-G (see table 4.3), which suggests that the room was constructed after at least some of the features in the primary plaza use surface. In addition, the interior floors of rooms E and F overlay sterile subsoil, which is also under plaza surface A-2.

Roomblocks 1, 2, and 3 and plaza A appear to have been in use toward the end of the Component I occupation. Plaza feature A-2-H also produced a "v" date of 1330, as well as the cutting dates mentioned above (Appendix B). After the last use of the feature there appears to have been construction of additional rooms of roomblock 3 and a short period of use during which plaza surface A-1 formed. Thus, this area of the site was probably not abandoned until at least 1331. There was no Component II reoccupation in this area.

Component II

Only 10 of the original 24 Component I roomblocks were rebuilt during Component II (Plan 2). These roomblocks were located around plazas C, D, and F. The stratigraphic separation of Component I and II rooms by as much as one and one-half meters of overburden in some rooms implies a relatively long period of site abandonment between occupations. As discussed above, however, the end of the Component I occupation and the beginning of the Component II occupation are not clearly established by tree-ring dates. Two late Component I dates (1357r from room 16-27 and 1364 from room 5-4) suggest continued occupation of some Component I rooms through the period when most of the site is thought to have been abandoned (see fig. 7.1; Appendix B). The earliest cutting dates from a Component II room are a series at 1359 in room 16-1 (see fig. 7.2; Appendix B). Room 16-1 also has a number of later dates, however, suggesting that the room was constructed in the mid-1380s. The earlier dates may be from reused or stockpiled beams.

Tree-ring dates were obtained from twenty Component II rooms, but only nine (rooms 9-10, 10-4, 15a-7, 15-6, 16-1, 16-17, 16-18, 16-20, and 16-22) had a sufficient number of dates from structural associations to suggest a construction date for the room (Appendix B). In all but two cases, these rooms had been built during the 1380s. One room (room 16-17) was clearly built in 1410; the other (room 10-4) had a number of cutting dates in 1373, as well as in 1386, and later "v" dates until 1390. Whether it was constructed in the 1370s and repaired in the 1380s and 1390s, or built in the 1380s partially with stockpiled beams, is unknown. Plaza C yielded a larger series of tree-ring dates, with cutting dates beginning in 1373 and with a latest date of 1391. Although some of this wood could have been old or reused, the plaza surface was apparently in use throughout Component II. Kiva C was apparently built in 1386 (Appendix B).

Tree-ring dates indicate rapid construction of many Component II rooms, with construction concentrated in the 1380s. Room placement and orientation, and wall abutments, suggest the sequence of reoccupation of some roomblocks, although construction episodes may have been separated by only a few years. Roomblocks 9 and 15a were apparently built all at once, with roomblock 16 added after roomblock 9 was completed. The northern portion of roomblock 16, which extends into the eastern gate area, also seems on the basis of abutments to have been added after the east-west rows of rooms. Roomblocks 15a, 15, and 20 were probably constructed from north to south.

Excavation in roomblock 11 indicates that the masonry rooms built during Component I were leveled and reused, probably with adobe added to increase wall height above the stone. Room orientation suggests that roomblock 11 was built both during and after the completion of roomblock 10. Roomblock 11 may have been the latest roomblock of those surrounding plaza C to have been reoccupied.

Room orientation indicates that roomblock 8 was added on to roomblock 9 before the west row of roomblock 9 rooms was completed.

Roomblock 7 may have been planned to be as many as six rooms wide, but it was only five rooms long and one or two rooms wide when construction ended. Room placement and orientation provide little information on the construction of roomblocks 15, 20, and 21. Roomblock 20 appears to have been added after roomblock 15 was constructed. Roomblock 21, detached from the other structures, cannot be assessed in relation to other roomblocks at the site, though it seems likely that it was built during the same period as the rest of Component II.

BURNED ROOMS

During Component II, rooms burned in nearly every roomblock (9, 10, 15, 15a, 16, and kiva C-2; Plan 2). One of the burned rooms (room 16-17) yielded numerous tree-ring dates at 1410, indicating that the extensive burning may have occurred after this year. Some of the rooms in roomblock 16 seem to have been abandoned or little used by the time of the fire. Stored corncobs in rooms in roomblock 9, however, and cobs in the process of being kerneled in roomblock 15, indicate that those areas were in active use. None of the burned rooms appeared to have been restored after the fire. Trash was deposited in some burned rooms, and salvageable beams were extracted from others. The pueblo apparently continued to be occupied after the fire, but new rooms were not built to replace the burned ones. Failure to repair burned roomblock sections after the fire may have been the first step in the final abandonment of Arroyo Hondo.

Discussion

Arroyo Hondo Pueblo was initially occupied sometime after A.D. 1300, and it experienced explosive growth between about 1315 and 1330. Twenty-four roomblocks, most of them connected, were built around thirteen plazas. In some cases, long walls were built first and then shorter crosswalls were added to form rooms, a process that suggests that construction was done cooperatively. After about 1335, tree-ring dates show little evidence of construction at the site for several decades. Two dates in mid-century suggest that a few Component I rooms may have remained occupied during this interval. Most Component II construction appears to have occurred in the 1370s and 1380s. A single room, clearly dated to 1410, is the last evidence of construction at the site.

Components I and II differed in overall site size, and somewhat more complex construction techniques were used during Component I. The Component I pueblo had at least five times as many rooms as the Component II site. The construction of two-story rooms during Component I required more attention to roof materials and stability of walls than the single-story rooms built during both components. Trees used as beams during Component II were cut at a younger age than those used in Component I, suggesting that Component II residents may not have had access to older, larger trees necessary to construct sturdy roofs to support two-story structures. Component I residents frequently built groups of rooms at one time, whereas this type of construction was not observed in Component II.

Individual (accretional) and aggregate (multiroom) construction methods were both typical of Component I site architecture. The roomblocks with the best evidence of aggregate construction were 5, 11, 16, and 18. In many roomblocks, however, not enough rooms were excavated to distinguish areas of multiroom construction. Aggregate construction required coordination and planning among builders and may indicate the immigration of large groups rather than individual families. Individual rooms were added to various roomblocks during the same period, however, which suggests that once roomblocks were established, household residents periodically constructed additional rooms.

Wall abutments suggest that Component II rooms were built individually or in pairs. Few multiroom groups were identified during excavation, which suggests that construction was organized by individuals or families. The Component II settlement appears to have been built rapidly, however, and some cooperative construction might be expected. Component II excavations did not uncover extensive areas of contiguous rooms, unlike Component I excavations, and instances of aggregate construction may have occurred in unexcavated portions of the site.

During Component I, roomblocks were apparently built from east to west and from north to south, beginning with roomblocks 11 and 16. The location of a spring in the arroyo (Plan 1) apparently formed the focus for initial construction. Groups of rooms were built out from the earliest roomblocks to create L-shaped structures. Construction could have been underway in many different places in the pueblo at once. As more rooms were added, the site came to consist of interconnected rectangular structures with areas of open plazas. Plaza areas were relatively similar in size and shape. The completely or almost completely enclosed plazas (C, D, F, G, and I) are roughly rectangular, and most range in size from about 550 to 850 m^2. Plaza C, the largest (1260 m^2), was the first Component I plaza in use at the site. The individuals who constructed Arroyo Hondo apparently had specific ideas about the appropriate size and form for plazas, which were used for daily activities and probably for public ceremonies.

The Component II occupation was built upon the earlier one, although only 10 of the 24 roomblocks built during Component I were completely or partially reoccupied. The direction of site growth seems to have been the same during both occupations: the earliest structures were built near the edge of the arroyo, where the spring was located, and from there the site expanded first west and then south. A fire in the early fifteenth century destroyed many Component II rooms and they were not rebuilt. Soon thereafter, by about 1420, Arroyo Hondo was completely abandoned.

Chapter 8

The Social Implications of Arroyo Hondo Architecture

The analysis of architecture at Arroyo Hondo Pueblo presented in the previous chapters has provided detailed information on the technology and timing of site construction, as well as the activities and organization of the prehistoric residents of the site. This chapter summarizes the results of the architectural study through an examination of five interrelated topics that have social implications for the prehistoric settlement: (1) settlement design and technology of construction, (2) domestic activities, (3) ritual activities, (4) population size, and (5) population trends.

Arroyo Hondo was one of the first large, aggregated, plaza-oriented sites in the northern Rio Grande region. Architectural features and methods of construction indicate that the site was part of a local architectural tradition. Regularity in room size and site layout, and certain construction techniques, suggest that building may have been undertaken as a coordinated effort by site residents rather than by individual families. Features within rooms reflect a variety of domestic activities as well as storage, and excavations also revealed extensive use of rooftops and plazas for domestic tasks. Religious activities were apparently centered in kivas, and the plaza-oriented design of the pueblo may be associated with religious developments occurring throughout the Southwest during this period. The presence of both central plazas and a great kiva in Component I may indicate that Arroyo Hondo was in a period of religious transition. Population trends at the site parallel climatic trends, but social factors may also have been significant causes of population aggregation and dispersal.

Settlement Design and Technology of Construction

Arroyo Hondo Pueblo was established on the banks of Arroyo Hondo, adjacent to a perennial spring. The site grew rapidly, and many roomblocks may have been under construction at the same time. A distinct pattern is discernable in the settlement plan. Roomblocks enclose or partially enclose several plaza areas that are generally of uniform size, creating an easily expandable design in which the importance of the plaza as architectural space is obvious. Arroyo Hondo represents an early example of a plaza-oriented pueblo in the northern Rio Grande and was probably the largest in the region at the time. Arroyo Hondo's size during Component I is most similar to northern Rio Grande sites occupied after A.D. 1400.

Adams (1991) has recently traced the development of the enclosed plaza layout in prehistoric Southwestern sites. Plaza-focused sites began to occur in both Chaco Canyon and the Mimbres area during the eleventh century, and by the thirteenth and fourteenth centuries they were found throughout the southern Mogollon area and the Rio Grande region. Component I Arroyo Hondo, with construction beginning in the early 1300s, represents an early occurrence of this site form in the northern Rio Grande. Enclosed plazas were apparently valued as ceremonial space, and Adams (1991:83–84) has associated them with the development of the katsina cult.

Component I structures demonstrate that residents of Arroyo Hondo were familiar with both masonry and adobe construction techniques, although adobe was more readily available and was used exclusively during both components after the earliest construction. During both components, techniques used in building adobe walls and in constructing entries and other room features were similar to those found at other contemporary sites in the northern Rio Grande area. Families who converged on Arroyo Hondo in the early fourteenth century were apparently part of a local architectural tradition. Minor architectural differences are apparent, even between the two components at Arroyo Hondo, but some of these differences may be technologically based. For example, Component I walls were not footed in trenches or on stone, as at some contemporary sites; they were built on the original ground surface. The use of stone footings during Component II was probably due to the

fact that the later rooms were constructed over unstable Component I room fill and wall stubs.

Analysis of room orientation and wall abutments suggests that initial roomblocks were built as a double line of rooms, with additional rows of rooms being added onto either side of the original core. When settlement growth was complete, roomblocks ranged from two to five rooms in width during Component I and two or three rooms wide during Component II (Plans 1 and 2). During both components there is evidence that some of the rapid construction was accomplished cooperatively, with several rooms being built in a single construction episode. Cooperative construction might indicate the immigration of several related families to the site at the same time. Cooperation during construction is also suggested by the very regular, almost modular form of the settlement and by the uniformity of room sizes.

Seventeenth-century construction at Acoma Pueblo may represent a parallel case to that at Arroyo Hondo. During a tree-ring study of Acoma, Robinson (1990) found that the pueblo (which presently has more than seven hundred rooms) was built within less than a decade between 1646 and 1652, and that room size, house plan, and viga placement were very regular, in contrast to most other historical pueblos. He suggests that Acoma may have had stronger political integration than other Pueblo villages, resulting in more architectural uniformity. Robinson (1990:24) also notes that a Spanish priest may have been present at Acoma during the construction period and may have influenced architectural forms. If strong political integration was the cause of architectural regularity at Acoma, regular room size at Arroyo Hondo may also indicate a well-integrated resident population. Crown, Orcutt, and Kohler (1990) suggest that large sites in the Rio Grande were built by populations that had existed as aggregated groups elsewhere; this suggestion is supported by indications that a well-integrated group participated in some of the construction at Arroyo Hondo.

During Component I, second-story rooms were built over the center rooms of many roomblocks, creating terraced structures. Methods of construction of first-story roofs and second-story floors suggests that two-story rooms were not usually built in one construction episode; rather, second-story rooms were added later. Analysis of room functions suggests that first-story habitation rooms were usually converted to storage rooms when a second story was added. No second-story rooms were detected in the Component II occupation. Depletion of local wood supplies during Component I may have restricted the size of roofing material available to Component II residents. Component II vigas were smaller than those used during Component I, and in some cases, Component II builders seem to have used no vigas. Their ability to build second stories may have been restricted by available materials or they may have dispensed with vigas because no second story was planned. The possibility that Component II vigas were removed by surrounding residents after the site was abandoned, or by the departing Component II population, should not be discounted.

Rooms were entered through ceiling hatchways or through doorways. During both components, few doors opened from ground-floor rooms to areas outside the roomblocks, restricting free access to habitation space. Doorways are presumed to have been the most common form of entry for second-story rooms, but second-story walls were so badly reduced that little information remained on methods of entry.

The Location and Organization of Domestic Activities

Living rooms, identified primarily by the presence of hearths, were apparently the location of a number of domestic activities. During Component I, living rooms tended to be on the second story, and during Component II they tended to be plaza-facing rooms. Both locations would provide the room interiors with a maximum of light and ventilation. Hearths inside living rooms may have functioned both for cooking and for heating interior space, and they created light for the performance of other indoor activities. Vents in walls may have provided light and outside air, directed the smoke stream, or served as an easy means of communication between rooms. Some rooms had cists that functioned as pot rests for water or food storage; larger cists may have held other stored goods. Wall niches, shelf holes, post holes, and other features indicated facilities for storing household goods. Rooms without hearths and with few interior features may have been used to store agricultural products and other foodstuffs. Some storage rooms were apparently provided with racks or shelves upon which corn or other products were placed.

Comparison of storage at Arroyo Hondo with evidence from other sites is problematic. Excavations at Te'ewi uncovered 27 rooms, five of which had hearths (Wendorf 1953: figs. 10–14). At Pa'ako, 96 rooms without hearths were excavated, while only 17 rooms with hearths were excavated (Lambert 1954:11–13). Though these data might suggest that people at Arroyo Hondo had more habitation rooms and invested less space in storage than people at other northern Rio Grande sites, that impression may reflect differences in excavation technique. Second-story rooms were not consistently

recognized by excavators working earlier in the century (e.g., see Lambert 1954:13), nor were upper-story hearths. Arroyo Hondo has approximately the same proportion of lower-story hearths as do these other sites.

Within rooms, corn grinding does not appear to have been a common activity—at least stationary facilities for corn grinding were rare in rooms at Arroyo Hondo. No mealing bins were found in Component I rooms, and mealing bins were built into the floors of only four Component II rooms. Oddly, three of the four rooms with mealing bins were located in the same roomblock (roomblock 9), almost adjacent. One Component I room with abundant ground-stone artifacts on the first-story floor and second-story roof may have been the location of specialized grinding activities or possibly the manufacture of ground-stone tools.

There is abundant evidence that many domestic activities were performed outdoors, either on rooftops or in plaza areas. Many rooftop hearths were discovered during site excavations, and cooking on rooftops was probably common. A predominance of slab-lined hearths in rooftop locations suggests that this hearth type may have been preferred for cooking, whereas pit or clay-lined hearths may have been preferred for heating room interiors. Slab-lined hearths would be more recognizable in roof fall strata than other hearth types, however, which may skew observed distributions. Many roofs also contained work areas, identified by the presence of ground-stone tools and other implements; rooftops were apparently the location of corn grinding and tool-making activities, presumably during favorable weather. Rooftop work areas and cooking facilities were probably used by the owners of the rooms below.

Plazas contained abundant features indicative of domestic activities, especially in areas adjacent to room walls. Post holes marked the location of ramadas or portals that provided shaded work areas, and of windbreaks and dividers that compartmentalized work space. Several formalized mealing areas suggest that corn grinding may have been a communal activity performed in plazas. Turkey pens were constructed in plazas during both components and contained abundant turkey dung, eggshells, and even roosts, with food and water vessels. A palisade built across the gateway to plaza G may have created a pen for turkeys that were allowed to run free in the plaza. Firepits and deep ovens were found in two plazas and suggest specialized cooking activities. The deep ovens were found only in plaza A and may have been used seasonally. The innumerable pits and basins found in plazas indicate diverse activities, including food processing (indicated by winnowing basins), adobe borrowing or puddling, and hide tanning. Plazas also functioned as cemeteries, with multiple human interments located along roomblock walls.

The social organization of the domestic groups that inhabited Arroyo Hondo is suggested by architecturally defined residence units. Based on room function and interconnecting doors, residence units were identified in areas where a number of contiguous rooms were excavated. Most residence units appeared to consist of one or two rooms, although some multiroom units were identified in Component I. The size of the average residence unit suggests the nuclear family as the most common domestic group, but difficulty in defining residence units makes this suggestion tentative. Multiroom residence units may indicate groups of larger sizes, but sealed doorways make the interpretation of multiroom residence units ambiguous.

Ritual Activities

A glimpse of ritual life at Arroyo Hondo was provided by the excavation of kivas and ceremonial rooms. The large Component I settlement had five kivas, about one kiva for every two hundred rooms. The single Component II kiva also served as a ritual structure for the residents of approximately two hundred rooms. (Comparing kiva floor area to room floor area also resulted in a similar ratio for both components, about 0.033 m^2 of kiva floor area for each square meter of room floor area.) Analogy with kivas at modern Rio Grande pueblos suggests that the Arroyo Hondo kivas may have been used for meetings, rituals, and as the starting point for public ceremonies by sodalities whose membership was drawn from throughout the settlement. These ritual organizations probably functioned to integrate the groups of people who rapidly converged at Arroyo Hondo during both components. One of the Component I kivas, kiva J, was larger than the others and was located away from the main settlement. It may have held ceremonies or other functions that involved the entire community.

Most of the kivas were round, subterranean, and located in plaza areas surrounded by roomblocks, although kiva 14-6 was above-ground, D-shaped, and built into the corner of a roomblock. Kivas in both components were of similar construction and exhibited similar features, including elaborate firepits with deflectors, complicated ventilator shafts, wall niches of variable sizes and shapes, and numerous floor holes, including loom holes, sipapus, and floor drums. In construction and features, Arroyo Hondo kivas were like those of contemporary sites in the area.

In modern pueblos, some rooms within roomblocks are used for special, ceremonial purposes. At Arroyo

Hondo, rooms that may have functioned in a similar way were identified only in the Component I occupation. The absence of ceremonial rooms in Component II may reflect poor preservation of walls and features during the later occupation, or it may simply be an effect of the sampling strategy.

The ceremonial rooms identified in Component I consisted of three two-story structures with unusual, kiva-like features in the upper story, including loom holes, firepit deflectors, painted plaster, and unusual artifacts. The lower stories of each of these rooms were either bare or contained a few indicators of storage function and were assumed to have been used for ceremonial storage. Although ceremonial rooms were not identified in every Component I roomblock tested, the three examples may be comparable to the rooms used by Pueblo societies for their activities (Lang 1990:55–56). Alternatively, rooms with ceremonial features may imply co-residence of related people, with ceremonial rooms acting as integrating mechanisms for people living in a roomblock or group of roomblocks.

A shrine found near Arroyo Hondo may also have been part of the ceremonial life of the pueblo. The shrine consists of a circular pile of stones surrounding a cleared spot; it may have functioned prehistorically in religious ceremonies.

Recently, Adams (1991) has traced the development of the katsina cult in the prehistoric Southwest, linking it with changes in the style of artifacts and rock art and with architectural changes that become prominent in the fourteenth and fifteenth centuries. Architectural changes involve the replacement of the great kiva with the enclosed plaza as a pan-village ceremonial structure (Adams 1991:108). Adams (1991:103) notes that plaza-oriented pueblos became the norm in the Rio Grande area by about A.D. 1350. Arroyo Hondo was apparently following a plaza-oriented layout by about A.D. 1315, yet it also had a large structure, kiva J, that filled the size characteristics, and possibly the function, of a great kiva. The presence of both a "great kiva" and a plaza-oriented layout at Arroyo Hondo highlights the transitional place that the Component I settlement occupied in the social and religious history of the northern Rio Grande.

Estimating Population

Of critical importance for understanding fourteenth-century events at Arroyo Hondo are accurate estimates of the numbers of people who may have inhabited the site during each component. Architecture provides the best evidence for prehistoric population levels, although estimates are built upon multiple levels of assumptions. Hassan (1978:56) lists six categories of information that are required for accurate estimates of prehistoric population for "multi-chambered houses," an architectural type that includes Southwestern pueblos: (1) number of rooms, (2) number of rooms per household, (3) number of habitation rooms, (4) household size, (5) number of rooms occupied contemporaneously, and (6) duration of occupation. Providing figures for each of these variables at Arroyo Hondo requires both the interpretation of archaeological data and the use of analogy with ethnographic pueblos.

The relatively complete room count available from Arroyo Hondo removes some uncertainty from the process of estimating population. Component I Arroyo Hondo had about one thousand rooms. Analysis of residence units (chapter 6) indicates that most households lived in two rooms, although some residence units may have been larger. Households typically consisted of one living room and one storage room. Based on the excavated sample, there appears to have been a slightly greater number of living rooms than storage rooms. Schlanger (1985:133–136) has reexamined ethnographic accounts of historical Pueblo household size and suggests that Puebloan households averaged between four and six persons; Wetterstrom (1986:43), using similar sources, estimates three to five persons per household.

The number of contemporaneously occupied rooms in prehistoric pueblos is difficult to calculate. Some archaeologists use ethnographic accounts for estimates of contemporaneously occupied rooms, but the figures used (generally about 75% occupation; Hill 1970:75; Longacre 1976; Plog 1974:91) are based on long-lived historical and modern pueblos. These figures may not be applicable to Arroyo Hondo. Dendrochronological data suggest that much of Component I Arroyo Hondo was built in a period of about 15 years, less than a single generation. It seems unlikely that many rooms were abandoned during that period, either because of processes of deterioration or in response to the developmental cycle of the domestic group. The vast majority of the Component I structures (at least 90%) were probably in use by 1330, when construction at the site reached its full extent. How long the population remained at peak levels is difficult to determine (Lang and Harris 1984:16).

With figures for all six of Hassan's variables calculated, population for Arroyo Hondo Pueblo can be estimated. If 90% of the 1000 Component I rooms were occupied when the settlement was at its peak, if residences consisted mainly of two rooms, and if family size was between three and six individuals (taking the full extent of

the possibilities), then population could have ranged between 1300 and 2700 individuals. These figures are considerably higher than population levels documented for most historical pueblos (Simmons 1979a: table 1; Simmons 1979b: table 1), and they are also far higher than the 600 people that Wetterstrom (1986:51) calculates could have been supported by the surrounding environment in good years.

Sources of error in the population estimates must be considered. For Arroyo Hondo, the most critical variable may be the size of residence units. Estimates of residence unit size were based on the identification of functional sets of rooms and interconnecting doors. Problems with the use of these indicators are discussed in chapter 6. There is evidence that residence units larger than two rooms existed at Arroyo Hondo. If many large residence units existed, then the total number of residence units would decrease, proportionately decreasing population estimates. For example, if most residence units consisted of three rooms, population would range between 900 and 1,800 people.

Wetterstrom's (1986) estimates of carrying capacity for the Arroyo Hondo region suggest a much smaller population than that based on architectural estimates (but see Wetterstrom's [1986:42–46] architectural estimates). Population estimates based on carrying capacity involve complex reconstructions of the quantities of resources available to prehistoric populations, and resulting population estimates can be quite unreliable (Hassan 1978:73). However, architectural estimates and carrying capacity estimates for Arroyo Hondo may not be incompatible. It is possible that maximum population at the site overran carrying capacity and that peak population levels may not have been long-lived. Lang and Harris (1984:16, 35) postulate maximum population and initial population decline during the decade between 1330 and 1340. The aggregation of large numbers of people at Arroyo Hondo may have been successful only when environmental conditions were optimum, but not for an extended period of time. The Component II settlement was much smaller, more like other contemporary sites.

The Component II settlement at Arroyo Hondo also seems to have been built quickly, primarily during the 1370s and 1380s, and population may have peaked during the 1390s. Again, the time elapsed between initial construction and maximum population does not seem to be enough to assume that a large portion of the settlement was abandoned when it reached an architectural maximum. Assuming 90% occupancy of the 200 Component II rooms, two rooms per residence units (a more reasonable assumption for Component II), and three to six individuals per family, population may have ranged between 250 and 550 individuals. This number of people could have been supported by the available resources calculated by Wetterstrom (1986).

Population Trends

Chronological data from Arroyo Hondo leave little doubt about the general sequence of events at the site. Rapid construction, beginning at least by A.D. 1315 and continuing until 1330, produced the large Component I settlement. The extensive fill overlying these rooms indicates a lengthy period of partial or complete abandonment during mid-century, followed by the rapid construction of the smaller Component II settlement. Little evidence of new construction or room use after the early decades of the fifteenth century denote a second and final abandonment.

Arroyo Hondo provides a dramatic example of the speed and magnitude of population aggregation in the northern Rio Grande region in the early stages of this trend. Archaeological survey of the region surrounding Arroyo Hondo indicates that a steady increase in population began about A.D. 1000 (Dickson 1979: fig 2). After A.D. 1200, there was rapid rise in site size and site numbers, and most people were concentrated in aggregated pueblos (Crown, Orcutt, and Kohler 1990). That a portion of this increase was the result of movement of people into the region in addition to natural population growth seems likely (Cordell 1989:317; Dickson 1979: fig. 2), although a source for these people has not been suggested. Economic and political pressures associated with emigration into the area may have contributed to the pattern of highly aggregated settlements that continued into the fourteenth, fifteenth, and sixteenth centuries.

Arroyo Hondo was one of only two very large sites in the Santa Fe district that were occupied in the early fourteenth century (the other site, Cieneguilla, is unexcavated, and its date of occupation and size are uncertain). Other sites of this period throughout the Rio Grande region seem to have been much smaller. Crown, Orcutt, and Kohler (1990) suggest that sites in the Santa Fe district may have been settled by groups that had existed as aggregated communities elsewhere. Arroyo Hondo may have played a role in stimulating aggregation in other parts of the northern Rio Grande.

The causes of aggregation, a population trend occurring throughout the Southwest at this time, are currently a topic of intense debate among Southwestern archaeologists. Although an explanation for population aggregation is elusive, correlations between local climate and population trends at Arroyo Hondo are suggestive. Settlement at Arroyo Hondo during both Components I

and II occurred during periods of increased moisture; abandonment during the mid-1300s is correlated with a period of decreased moisture; and the final abandonment of Arroyo Hondo at about A.D. 1420 came during a period of very severe drought (Rose, Dean, and Robinson 1981: figs. 33, 34).

Factors other than climatic variation should be considered in an evaluation of the causes of population aggregation at Arroyo Hondo and of population decline and abandonment. The site was located at the south end of the Sangre de Cristo Mountains in a spot that may have been favorable for movement between the Plains and the Rio Grande Valley; Wendorf and Reed (1955) have suggested that trade with eastern regions was important to the development of Rio Grande Pueblo culture. It seems unlikely, however, that eastern trade would have been the sole motivation for the aggregation of the large Component I population at Arroyo Hondo. Artifacts at the site showed little evidence of trade with Plains groups, although the remains of a few buffalo were recovered (Lang and Harris 1984: table 3).

The protected plan of the site and the small number of exterior entries suggest concern with defense, and aggregation at the site could be interpreted as a defensive measure. Occasional burned areas observed in rooms in Component I and numerous bodies found in kiva G may be indications of raiding. An extensive fire that burned a number of rooms at the pueblo sometime after A.D. 1410 could also have could have been the result of a hostile attack and may have influenced decisions to abandon the site.

Interpueblo trade was probably important in determining the size and composition of the group that occupied Arroyo Hondo. In a study of ceramics from Arroyo Hondo, Habicht-Mauche (1993) found that large quantities of black-on-white pottery were being exchanged among adjacent villages and districts in the northern Rio Grande during the early decades of the fourteenth century. The pottery distribution suggests that the northern Rio Grande region consisted of a number of local political alliances that competed with one another for land and critical resources following an influx of population from the north and west. The similarity of architecture (except for settlement size) among sites contemporary with Arroyo Hondo is an indication of the close connections among populations at these sites. The widespread introduction of glaze-painted pottery, found at Arroyo Hondo only after A.D. 1340, suggests to Habicht-Mauche (1993) the emergence of "complex tribes." According to Habicht-Mauche, tribes are much more stable systems of regional integration than local political alliances, which are supported by formalized reciprocal transactions. Whether aggregated population is a concomitant of local ethnic alliances or complex tribes, or neither, is uncertain.

The influence of changing religious traditions on population trends is interesting to consider but difficult to evaluate. Architectural evidence that Arroyo Hondo may have been at a point of religious transition is provocative. The introduction of the katsina cult into the northern Rio Grande could have been a factor in population aggregation. Furthermore, population decline and site abandonment may have resulted as much from difficulties in assimilating a large group of people into one settlement as they did from the problem of feeding them.

Conclusion

The analysis of architecture at Arroyo Hondo Pueblo has contributed to an understanding of Puebloan architectural traditions in the northern Rio Grande during the earliest stages of a remarkable period of population increase and settlement aggregation that extended to historical times. A settlement as large as Component I Arroyo Hondo must have had a significant impact on the surrounding environment and on other, smaller settlements in the region. The architecture at Arroyo Hondo has provided significant information on the nature and activities of the communities that built the Component I and II occupations, but the causes of population aggregation and dispersal are only beginning to be understood. Future research in the northern Rio Grande must be directed toward several goals. For example, the relationships between sites within regions must be explored so the effects of both social and environmental influences on population trends can be evaluated. Perhaps most critical is a better understanding of how large numbers of people were integrated into settlements of far greater size than any they had previously experienced.

Appendix A

Provenience Notation for Excavations at Arroyo Hondo Pueblo

Arroyo Hondo is site LA 12 in the New Mexico state site-numbering system. To identify excavation units within the site, each roomblock and each room was given a number, following the scheme used by Nelson (n.d.) in 1915. Provenience 12-5-2 can be interpreted as follows: Arroyo Hondo (LA 12), roomblock 5, room 2. To shorten the provenience numbers used in the text, the site number is often omitted, so 5-2 indicates roomblock 5, room 2.

Each room was excavated in phases. In Phase 1, it was divided across its short axis and one-half was excavated in natural levels that were assigned Roman numerals consecutively from top to bottom. When Phase 1 excavation was completed, the stratigraphic section through the center of the room was cleaned and drawn. The observed strata were given arabic numbers for use in excavating the second half of the room. For example, the fifth level of the initial excavation of room 1 in roomblock 16 would be labeled 16-1-V, whereas material from the fifth level of the Phase 2 portion would be labeled 16-1-5. Individual artifacts, samples, or features within each stratigraphic level were numbered consecutively; for example, a bone tool from level V would be labeled 16-1-V-1. The Phase 1 stratigraphic section often contained second-story hearths, floor planks, latillas, roof beams, and rooftop hearths, the study of which allowed the accurate identification of structural components in the fill and clarified the relationships between first- and second-story remains in each room. In excavating the second half of the room, special attention was paid to correlating the Phase 1 and Phase 2 levels.

Beginning in 1973, the levels of each phase were divided in half and artifacts from each quarter of the room were collected separately. The first letter of the cardinal directions was used to identify the quadrant, for example, 16-1-VN.

Plazas and kivas were divided into grids of 2 by 2 or 1 by 1 m. Otherwise, excavation methods were similar to those used in rooms. All excavated material was screened through quarter-inch mesh during the first two seasons, whereas only strata bearing cultural material of particular interest were screened in the later seasons.

Excavation did not stop once the floor of a structure was encountered. When photographs, drawings, and documentation were completed, the floor level was removed and excavation continued until sterile subsoil was reached. This practice led to the discovery of underlying floor levels, burial pits, sealed cists and hearths, earlier rooms, and evidence of previous use, such as plaza surfaces and trash deposits.

Appendix B

Tree-Ring Dates from Arroyo Hondo

Richard W. Lang and Anthony Thibodeau

This appendix presents all the dates obtained through dendrochronology from samples taken during the five years of excavation at Arroyo Hondo. The specimen numbers were assigned at the Laboratory of Tree-Ring Research at the University of Arizona, where all the dating was done. The field numbers, assigned during collection by crew members, reflect the provenience from which the sample was taken. In addition to providing the raw dates, a major focus of this appendix is to show the context in which each sample was recovered, particularly whether it was structural or from an interior feature. In many cases, all that could be be determined was whether the sample was associated with one of the stories of the room, the walls or roof, a specific plaza surface, or simply from general fill. The symbols and explanations listed below were taken from a report written for the School of American Research by the Laboratory of Tree-Ring Research.

Species abbreviations:

df Douglas fir jun juniper pnn pinyon pine pp ponderosa pine

Symbols used with inside date:

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 owing to the difficult nature of the ring series near the center of the specimen, an exact date cannot be assigned. 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. A ring count is involved.

Symbols used with outside date:

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 judgement 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 owing 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 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.

Provenience	Specimen Number	Species	Field Number	Dates Inside—Outside	Component	Associated Feature or Assemblage
Roomblock 4						
Room 2	AHS-112	df	4-2-II-1	1309fp–1327vv	1	latilla
Roomblock 5						
Room 4	AHS-114	pp	5-4-III-6	1337fp–1364vv	1	split latilla?
Room 6	AHS-105	pnn	5-6-II-5	1182p–1318r	1	viga, first-story roof
	AHS-106	pnn	5-6-II-5	1272p–1318r	1	viga, first-story roof
	AHS-104	pp	5-6-II-5	1266p–1323r	1	viga, first-story roof
Room 11	AHS-228	pp	5-11-2N-1	1267fp–1317vv	1	second-story wall fall
	AHS-229	pp	5-11-2N-2	1255fp–1314vv	1	second-story wall fall
	AHS-230	pp	5-11-2N-4	1223–1314vv	1	second-story wall fall
	AHS-231	pnn	5-11-IIIN-1	1230–1317vv	1	latilla, second-story roof
	AHS-232	pp	5-11-IIIN-2	1243–1317v	1	latilla, second-story roof
	AHS-233	pp	5-11-IIIN-3	1224p–1306vv	1	second-story roof
	AHS-234	pp	5-11-IVS-1	1266fp–1288vv	1	latilla, second-story roof
	AHS-235	pnn	5-11-IVS-2	1153+p–1312+vv	1	viga, second-story roof
Room 12	AHS-236	pnn	5-12-2E-3	1230+p–1308+vv	1	latilla, first-story roof
	AHS-237	pnn	5-12-2E-3	1237p–1317vv	1	latilla, first-story roof
Room 14	AHS-238	pnn	5-14-3-1	1196p–1308++vv	1	fill
	AHS-239	pp	5-14-5-2	1196fp–1245vv	1	latilla, second-story floor
Roomblock 7						
Room 10	AHS-240	pp	7-10-IW	1230fp–1276+vv	2	fill
Roomblock 9						
Room 6	AHS-117	pp	9-6-2	1351p–1386r	2	fill
	AHS-118	pp	9-6-2	1356p–1375r	2	fill
	AHS-119	df	9-6-2	1358p–1387rB	2	fill
	AHS-116	pp	9-6-III	1237fp–1368vv	2	fill
Room 7	AHS-121	pp	9-7-7-2	1251fp–1310vv	1	split latilla, first-story roof
Room 8	AHS-123	pnn	9-8-7-1	1315p–1360r	2	viga, floor contact
Room 10	AHS-243	pp	9-10-IIN	1356–1384+r	2	fill
	AHS-245	pnn	9-10-IIN	1346p–1388+rB	2	fill
	AHS-247	pp	9-10-IIN-5	1356p–1384+r	2	latilla, first-story roof
	AHS-248	pp	9-10-IIN-5	1344p–1384+r	2	latilla, first-story roof

APPENDIX B

Provenience	Specimen Number	Species	Field Number	Dates Inside–Outside	Component	Associated Feature or Assemblage
Roomblock 9, Room 10 (continued)						
	AHS-254	pnn	9-10-3N	1332p–1385vv	2	fill
	AHS-252	df	9-10-3N	1332p–1386r	2	fill
	AHS-255	pp	9-10-3N	1365p–1386r	2	fill
	AHS-259	pp	9-10-3N-5	1355p–1385rB	2	latilla, with bark
Room 11	AHS-261	pp	9-11-IIIN-2	1364p–1387v	2	latilla, first-story roof
Room 13	AHS-264	pnn	9-13-3E-2	1317p–1376v	2	latilla, first-story roof
Roomblock 10						
Test pit	AHS-265	pp	10-TP#3	1244fp–1299vv	unknown	
	AHS-266	pnn	10-TP-10	1320p–1374r	unknown	
	AHS-267	pnn	10-TP-10	1329 p–1374r	unknown	
Room 3	AHS-126	pp	10-3-5-6	1346–1385r	2	fill
	AHS-125	pnn	10-3-5-7	1342p–1375vv	2	fill
Room 4	AHS-270	pnn	10-4-3S	1348–1386rB	2	fill
	AHS-271	pnn	10-4-3S	1345p–1386r	2	fill
	AHS-279	pp	10-4-4S	1213fp–1245vv	2	floor contact
	AHS-277	pp	10-4-4S	1322–1373r	2	floor contact
	AHS-280	pp	10-4-4S-1	1326p–1373r	2	viga, floor contact
	AHS-281	pp	10-4-4S-2	1362p–1390v	2	latilla, floor contact
	AHS-283	pp	10-4-4S-4	1360p–1387v	2	latilla, floor contact
	AHS-273	pp	10-4-4N	1342fp–1373vv	2	floor contact
	AHS-274	pp	10-4-4N-1	1344p–1389v	2	latilla, floor contact
	AHS-275	df	10-4-4N-1	1359p–1386vv	2	latilla, floor contact
	AHS-284	pp	10-4-5	1329fp–1378vv	2	hearth, first-story floor
	AHS-285	pnn	10-4-5	1345fp–1373r	2	hearth, first-story floor
	AHS-286	pnn	10-4-5	1335–1373r	2	hearth, first-story floor
	AHS-287	pnn	10-4-6	1346p–1386r	2	burial
	AHS-288	pnn	10-4-6	1350p–1386r	2	burial
Room 6	AHS-293	pp	10-6-2S	1344fp–1375r	2	first-story roof fall
	AHS-294	pnn	10-6-2S	1343p–1386v	2	first-story roof fall
	AHS-298	pnn	10-6-IVS-5	1343–1385+v	2	latilla, floor contact
Roomblock 11						
Room N2	AHS-162	pp	11-N2-1	1271fp–1333vv	2	unknown
Room N4	AHS-152	pp	11-N4-2	1370p–1386r	2	unknown
	AHS-156	pp	11-N4-2	1368p–1386r	2	unknown
	AHS-161	pp	11-N4-2	1358p–1386r	2	unknown
Room 5	AHS-31	pp	11-5-1-1	1358p–1383vv	2	Component II fill
Roomblock 14						
Room 5	AHS-124	pp	14-5-II-4	1305p–1324vv	1	latilla, second-story roof
	AHS-91	pp	14-5-II-8	1250p–1315vv	1	latilla, second-story roof
	AHS-90	pp	14-5-3-4	1293p–1325vv	1	viga, second-story roof
	AHS-83	pnn	14-5-9-1	1264fp–1321v	1	post hole, jacal structure
	AHS-84	pnn	14-5-9-2	1263fp–1321v	1	post hole, jacal structure
	AHS-85	pnn	14-5-9-3	1209fp–1321v	1	post hole, jacal structure
	AHS-86	pnn	14-5-9-4	1265–1320v	1	post hole, jacal structure
	AHS-87	pnn	14-5-9-7	1193p–1317vv	1	post hole, jacal structure
	AHS-88	pnn	14-5-9-8	1264p–1321r	1	post hole, jacal structure

Provenience	Specimen Number	Species	Field Number	Dates Inside–Outside	Component	Associated Feature or Assemblage
Roomblock 15						
Room 6	AHS-133	pp	15-6-1	1365p–1379r	2	first-story roof fall
	AHS-129	pp	15-6-1	1364p–1381r	2	first-story roof fall
	AHS-130	pp	15-6-1	1350p–1381r	2	first-story roof fall
	AHS-131	pp	15-6-1	1362p–1381r	2	first-story roof fall
	AHS-132	pp	15-6-1	1344p–1381r	2	first-story roof fall
	AHS-128	pp	15-6-1	1368p–1386r	2	first-story roof fall
	AHS-127	pnn	15-6-1	1356p–1388rB	2	first-story roof fall
	AHS-136	pp	15-6-1-9	1330p–1381r	2	latilla, first-story roof
	AHS-137	pp	15-6-1-10	1354p–1381r	2	viga, first-story roof
	AHS-138	pp	15-6-1-12	1345p–1381r	2	latilla, first-story roof
	AHS-139	pp	15-6-1-14	1357p–1381r	2	latilla, first-story roof
	AHS-140	pp	15-6-1-20	1354p–1381r	2	first-story roof fall with burned maize
	AHS-135	df	15-6-2	1359p–1386rB	2	floor contact
Room 7	AHS-142	pp	15-7-3-18	1207fp–1308vv	1	latilla, first-story roof
Roomblock 15a						
Room 7	AHS-100	pp	15a-7-2	1355p–1381vv	2	first-story roof
	AHS-101	pp	15a-7-2	1360p–1381r	2	first-story roof
	AHS-102	pp	15a-7-2	1356p–1381v	2	first-story roof
	AHS-92	pp	15a-7-2-1	1352p–1381r	2	latilla, first-story roof
	AHS-94	pp	15a-7-2-3	1349p–1381v	2	latilla, first-story roof
	AHS-95	pp	15a-7-2-4	1251fp–1370r	2	latilla, first-story roof
	AHS-96	pp	15a-7-2-5	1361p–1381v	2	latilla, first-story roof
	AHS-97	pp	15a-7-2-8	1349p–1381r	2	latilla, first-story roof
	AHS-98	pp	15a-7-2-12	1354fp–1381vv	2	viga, first-story roof
Roomblock 16						
Room 0	AHS-177	pnn	16-0-2	1344p–1386r	unknown	
	AHS-178	pp	16-0-2	1336fp–1388vv	unknown	
Room 1	AHS-176	pnn	16-1-1-1	1354p–1388B	2	fill
	AHS-149	df	16-1-4-1	1346p–1380r	2	fill
	AHS-150	df	16-1-4-1	1352p–1387v	2	fill
	AHS-151	pnn	16-1-5-1	1347fp–1385r	2	fill
	AHS-155	pnn	16-1-6-1	1381p–1403r	2	fill
	AHS-175	pp	16-1-7-1	1275fp–1325vv	2	floor contact, first-story roof
	AHS-171	df	16-1-7-1	1308p–1353vv	2	floor contact, first-story roof
	AHS-170	df	16-1-7-1	1320p–1359v	2	floor contact, first-story roof
	AHS-172	df	16-1-7-1	1337p–1359v	2	floor contact, first-story roof
	AHS-165	df	16-1-7-1	1316p–1359+r	2	floor contact, first-story roof
	AHS-154	df	16-1-7-1	1334p–1359r	2	floor contact, first-story roof
	AHS-181	df	16-1-7-1	1332p–1359r	2	floor contact, first-story roof
	AHS-167	df	16-1-7-1	1332p–1360+r	2	floor contact, first-story roof
	AHS-182	df	16-1-7-1	1335p–1360+r	2	floor contact, first-story roof
	AHS-184	df	16-1-7-1	1339p–1360+r	2	floor contact, first-story roof
	AHS-166	pnn	16-1-7-1	1327p–1378rB	2	floor contact, first-story roof
	AHS-168	df	16-1-7-1	1339p–1379r	2	floor contact, first-story roof
	AHS-185	df	16-1-7-1	1358fp–1380vv	2	floor contact, first-story roof
	AHS-183	df	16-1-7-1	1356p–1380r	2	floor contact, first-story roof
	AHS-180	df	16-1-7-1	1353p–1380r	2	floor contact, first-story roof
	AHS-169	df	16-1-7-1	1346–1382vv	2	floor contact, first-story roof
	AHS-186	pnn	16-1-7-1	1342p–1382r	2	floor contact, first-story roof

APPENDIX B

Provenience	Specimen Number	Species	Field Number	Dates Inside–Outside	Component	Associated Feature or Assemblage
Roomblock 16, Room 1 (continued)						
	AHS-179	pnn	16-1-7-1	1365p–1385r	2	floor contact, first-story roof
	AHS-187	pnn	16-1-7-1	1342fp–1385r	2	floor contact, first-story roof
	AHS-153	pnn	16-1-9-1	1362p–1385r	2	subfloor pit
Room 11	AHS-33	pp	16-11-9-2	1302fp–1345vv	2	floor contact, first-story roof
Room 13	AHS-39	df	16-13-2	1359p–1377r	2	first-story roof
	AHS-42	jun	16-13-2	1352p–1381v	2	first-story roof
	AHS-38	pp	16-13-2	1350p–1381r	2	first-story roof
	AHS-37	pp	16-13-2	1345fp–1385+vv	2	first-story roof
	AHS-35	pnn	16-13-2	1328p–1387r	2	first-story roof
Room 17	AHS-16	pnn	16-17-2-8	1378p–1410r	2	first-story roof
	AHS-17	pnn	16-17-2-8	1371p–1410r	2	first-story roof
	AHS-18	pnn	16-17-2-8	1397p–1410r	2	first-story roof
	AHS-19	pnn	16-17-2-8	1345p–1410r	2	first-story roof
	AHS-20	pnn	16-17-2-8	1382p–1410r	2	first-story roof
	AHS-21	pnn	16-17-2-8	1384p–1410r	2	first-story roof
	AHS-13	pnn	16-17-3-6	1374p–1410r	2	fill
	AHS-14	pnn	16-17-3-6	1356p–1410r	2	fill
	AHS-15	pnn	16-17-3-6	1391p–1410r	2	fill
	AHS-9	pnn	16-17-3-7	1357p–1410r	2	floor contact, first-story roof
	AHS-10	pnn	16-17-3-7	1372p–1410r	2	floor contact, first-story roof
	AHS-12	pnn	16-17-3-7	1374p–1410r	2	floor contact, first-story roof
Room 18	AHS-53	pp	16-18-1-2	1357p–1374vv	2	first-story roof fall
	AHS-51	pp	16-18-2-11	1339p–1387v	2	floor contact, first-story roof
	AHS-52	pnn	16-18-2-11	1341p–1387r	2	floor contact, first-story roof
	AHS-49	pnn	16-18-2-11	1333p–1381vv	2	floor contact, first-story roof
	AHS-50	pnn	16-18-2-18	1352p–1380vv	2	fill
	AHS-44	pp	16-18-3-5	1350p–1381vv	2	first-story roof fall
	AHS-45	df	16-18-3-5	1363p–1386vv	2	first-story roof fall
	AHS-43	pnn	16-18-3-5	1356p–1386r	2	first-story roof fall
	AHS-46	pp	16-18-3-5	1357p–1386r	2	first-story roof fall
	AHS-47	pnn	16-18-3-5	1328+p–1386r	2	first-story roof fall
	AHS-48	pnn	16-18-3-5	1367p–1386r	2	first-story roof fall
	AHS-56	pnn	16-18-5-1-4	1279–1334vv	2	fireplace, fuel
Room 20	AHS-79	pp	16-20-3-5	1343p–1381v	2	first-story roof
	AHS-78	pp	16-20-3-5	1354p–1381r	2	first-story roof
	AHS-76	pp	16-20-4-4	1336p–1381r	2	first-story roof fall
	AHS-77	pnn	16-20-4-4	1334p–1386r	2	first-story roof fall
	AHS-66	pp	16-20-4-16	1355p–1379B	2	first-story roof fall
	AHS-60	pp	16-20-4-16	1354p–1381r	2	first-story roof fall
	AHS-57	df	16-20-4-16	1346fp–1381v	2	first-story roof fall
	AHS-63	pp	16-20-4-16	1363p–1381r	2	first-story roof fall
	AHS-65	pp	16-20-4-16	1343p–1381r	2	first-story roof fall
	AHS-68	df	16-20-4-16	1356p–1381r	2	first-story roof fall
	AHS-69	df	16-20-4-16	1360p–1381r	2	first-story roof fall
	AHS-59	pp	16-20-4-16	1356p–1386r	2	first-story roof fall
	AHS-61	pp	16-20-4-16	1372p–1386r	2	first-story roof fall
	AHS-62	pp	16-20-4-16	1373fp–1386r	2	first-story roof fall
	AHS-70	pnn	16-20-4-16	1354p–1386r	2	first-story roof fall
	AHS-71	pnn	16-20-4-16	1357p–1386r	2	first-story roof fall
	AHS-72	pnn	16-20-4-16	1358p–1386r	2	first-story roof fall
	AHS-74	pnn	16-20-4-16	1343p–1386r	2	first-story roof fall

Provenience	Specimen Number	Species	Field Number	Dates Inside–Outside	Component	Associated Feature or Assemblage
	AHS-75	pnn	16-20-4-16	1364p–1386r	2	first-story roof fall
	AHS-64	pp	16-20-4-16	1335p–1387vv	2	first-story roof fall
	AHS-58	pp	16-20-4-16	1354p–1387r	2	first-story roof fall
	AHS-67	pp	16-20-4-16	1295fp–1388vv	2	first-story roof fall
	AHS-73	pnn	16-20-4-16	1354p–1388r	2	first-story roof fall
Room 22	AHS-24	pnn	16-22-2-1	1326p–1386r	2	fill
	AHS-25	pnn	16-22-3-3	1330p–1386r	2	fill
Room 27	AHS-29	pnn	16-27-5-2	1325p–1357r	1	floor contact, first-story roof?
Roomblock 18						
Room 6	AHS-300	pp	18-6-IVS-8	1213fp–1321v	1	viga, first-story floor contact
Room 7	AHS-145	pp	18-7-3-3	1245fp–1315vv	1	first-story roof
	AHS-146	pnn	18-7-3-3	1203p–1315rB	1	first-story roof
	AHS-302	pp	18-14-IIN-21	1262fp–1323rB	1	
Room 14						unknown
	AHS-308	pnn	18-14-IIS + N1	1271p–1325rB	1	unknown
Room 15	AHS-326	pp	18-15-2-6	1271p–1302vv	1	fill
	AHS-327	pp	18-15-2-6	1241p–1313vv	1	fill
	AHS-319	df	18-15-2-6	1289p–1319v	1	fill
	AHS-323	pnn	18-15-2-6	1195p–1320r	1	fill
	AHS-332	pnn	18-15-2-6	1172p–1321 + vv	1	fill
	AHS-322	pnn	18-15-2-6	1192–1321r	1	fill
	AHS-328	pp	18-15-2-6	1268p–1321r	1	fill
	AHS-329	pnn	18-15-2-6	1214p–1321r	1	fill
	AHS-325	df?	18-15-2-6	1298p–1321rB	1	fill
	AHS-317	pnn	18-15-2-6	1214p–1322v	1	fill
	AHS-330	pnn	18-15-2-6	1235p–1322r	1	fill
	AHS-312	pnn	18-15-II-3	1155p–1335 + G	1	fill
	AHS-314	pp	18-15-II-3	1241p–1320r	1	fill
	AHS-315	pp	18-15-II-3	1270p–1320r	1	fill
	AHS-316	pp	18-15-II-3	1290fp–1320r	1	fill
	AHS-334	pnn	18-15-3-3	1198 + p–1322B	1	post hole in floor (stone axe cut beam end)
Roomblock 24						
Room 3	AHS-148	pp	24-3-I-4	1248fp–1330v	1	latilla, second-story roof
Plaza A2	AHS-411	pnn	16-IV-2	1193p–1276 ++ B	1	wood lens, base of feature H
	AHS-410	pnn	16-IV-2	1265p–1329rB	1	wood lens, base of feature H
	AHS-407	pnn	16-IV-2	1279p–1329rB	1	wood lens, base of feature H
	AHS-408	pnn	16-IV-2	1300p–1329rB	1	wood lens, base of feature H
	AHS-409	pnn	16-IV-2	1298p–1330v	1	wood lens, base of feature H
Plaza C	AHS-386	pnn	3B-3-4	1212fp–1328 + vv	1	fill
	AHS-336	pnn	6	1345–1383vv	2	stripping area
	AHS-335	pnn	6	1352p–1385v	2	stripping area
	AHS-338	pnn	7	1332p–1384vv	2	stripping area
	AHS-341	pnn	7	1297p–1360 + rB	2	stripping area
	AHS-337	pp	7	1222fp–1368 + B	2	stripping area

APPENDIX B

Provenience	Specimen Number	Species	Field Number	Dates Inside–Outside	Component	Associated Feature or Assemblage
Plaza C (continued)						
	AHS-343	pp	7	1361fp–1384v	2	stripping area
	AHS-344	df	7	1353fp–1374vv	2	stripping area
	AHS-342	pnn	7	1329p–1375vv	2	stripping area
	AHS-340	pp	7	1354p–1382vv	2	stripping area
	AHS-399	pp	7	1353p–1390 + r	2	stripping area
	AHS-345	pp	A-1	1357p–1384r	2	burned debris/plaza surface 2
	AHS-346	df	A-1	1351p–1375r	2	burned debris/plaza surface 2
	AHS-347	pp	A-2	1339fp–1379vv	2	burned debris/plaza surface 2
	AHS-348	pnn	A-2	1330p–1370vv	2	burned debris/plaza surface 2
	AHS-349	pp	A-3	1354p–1376vv	2	margin of borrow pit
	AHS-368	pp	A-5	1353p–1374r	2	fill from between plaza surfaces 2 and 4
	AHS-350	pnn	A-6	1335p–1384r	2	margin of borrow pit
	AHS-354	df	A-6-1	1325p–1371vv	2	fill of borrow pit
	AHS-355	pp	A-6-1	1331p–1374vv	2	fill of borrow pit
	AHS-356	pp	A-6-1	1360fp–1384v	2	fill of borrow pit
	AHS-353	pnn	A-6-1	1340p–1384r	2	fill of borrow pit
	AHS-352	pnn	A-6-1	1356p–1384r	2	fill of borrow pit
	AHS-351	pnn	A-6-1	1366p–1384r	2	fill of borrow pit
	AHS-360	pp	A-9	1358p–1373r	2	fill of borrow pit
	AHS-358	pp	A-9	1336p–1374r	2	fill of borrow pit
	AHS-359	df	A-9	1353p–1374r	2	fill of borrow pit
	AHS-357	pp	A-9	1334–1376vv	2	fill of borrow pit
	AHS-361	pnn	A-9	1355p–1383vv	2	fill of borrow pit
	AHS-365	df	A-9-1	1353p–1374r	2	fill of borrow pit
	AHS-366	pp	A-9-1	1333p–1368 + vv	2	fill of borrow pit
	AHS-363	pp	A-9-1	1342p–1373vv	2	fill of borrow pit
	AHS-364	pnn	A-9-1	1339–1382vv	2	fill of borrow pit
	AHS-362	pp	A-11, A-9	1348–1389vv	2	fill, plaza surface 4
	AHS-369	pnn	A-11-1	1346p–1386r	2	fill of borrow pit
	AHS-371	pp	A-13	1355p–1391 + vv	2	fill from between plaza surfaces 2 and 4
	AHS-372	pp	A-17-2	1339p–1374vv	2	fill of pit in plaza surface 4
	AHS-373	pp	A-17-2	1336p–1370vv	2	fill of pit in plaza surface 4
	AHS-374	pp	A-20-1	1359p–1384r	2	fill of borrow pit
	AHS-375	pnn	A-20-1	1338p–1382r	2	fill of borrow pit
	AHS-376	pnn	A-20-1	1359p–1384r	2	fill of borrow pit
	AHS-377	pp	A-20-1	1357p–1375r	2	fill of borrow pit
	AHS-378	pp	A-24/27	1228fp–1323vv	2	burned debris/plaza surface 2
	AHS-379	pp	A-24/27	1345p–1379v	2	unknown
	AHS-380	pp	A-27	1333fp–1379r	2	fill from between plaza surfaces 2 and 4
	AHS-381	pp	A-27	1352p–1381r	2	fill from between plaza surfaces 2 and 4
	AHS-383	pnn	A-27	1338p–1385v	2	fill from between plaza surfaces 2 and 4
	AHS-384	pp	A-45-1	1275fp–1332vv	2	mealing bin off roomblock 19
	AHS-385	df	A-45-2	1340fp–1370vv	2	mealing bin off roomblock 19

Provenience	Specimen Number	Species	Field Number	Dates Inside–Outside	Component	Associated Feature or Assemblage
Plaza G						
Feature 1	AHS-188	pp	G-1-3-2	1279p–1321v	1	post from post hole
Feature 2	AHS-190	pnn	G-2-3-11	1224fp–1318vv	1	post hole
	AHS-193	pnn	G-2-3-24a	1230fp–1322r	1	loose wood on east side of turkey pen
	AHS-194	pnn	G-2-3-27-1	1229p–1317+vv	1	burial
	AHS-195	pnn	G-2-3-43a	1235p–1317+vv	1	wall of turkey pen
	AHS-198	pnn	G-2-3-43f	1225p–1306vv	1	wall of turkey pen
	AHS-200	pnn	G-2-3-44b	1269p–1318vv	1	wall of turkey pen, easternmost post
	AHS-201	pnn	G-2-3-44c	1258–1321vv	1	wall of turkey pen, easternmost post
	AHS-202	pnn	G-2-3-44d	1204–1319vv	1	wall of turkey pen, easternmost post
	AHS-203	pnn	G-2-3-45a	1279fp–1319vv	1	post from post hole
	AHS-204	pnn	G-2-3-45b	1231p–1316++vv	1	post from post hole
	AHS-206	pnn	G-2-3-64c	1083+p–1239vv	1	post from post hole, windbreak or pen
	AHS-207	pnn	G-2-3-64e	1167–1270++vv	1	post from post hole, windbreak or pen
	AHS-214	pnn	G-2-3-64h	1149p–1303vv	1	post from post hole, windbreak or pen
	AHS-210	pnn	G-2-3-65a	1056p–1290++vv	1	post from post hole, windbreak or pen
	AHS-211	pnn	G-2-3-65b	1055p–1314vv	1	post from post hole, windbreak or pen
	AHS-205	pnn	G-2-3-65b	1238p–1324vv	1	post from post hole, windbreak or pen
	AHS-213	pnn	G-2-3-65c	1185–1312vv	1	post from post hole, windbreak or pen
	AHS-216	pnn	G-2-3-65e	1175fp–1320+v	1	post from post hole, windbreak or pen
	AHS-217	pnn	G-2-3-65f	1202p–1313vv	1	post from post hole, windbreak or pen
	AHS-218	pnn	G-2-3-65f	1213p–1310vv	1	post from post hole, windbreak or pen
	AHS-219	pnn	G-2-3-65g	1163p–1324rB	1	post from post hole, windbreak or pen
	AHS-220	pnn	G-2-3-65h	1202p–1311vv	1	post from post hole, windbreak or pen
	AHS-222	pnn	G-2-3-71a	1165–1257vv	1	post from post hole, support for shelf
	AHS-223	pp	G-2-3-100	1253fp–1309vv	1	plank associated with milling area
	AHS-387	pnn	G-2-3-117	1240p–1320vv	1	post from post hole
	AHS-388	pnn	G-2-3-120	1129p–1226++vv	1	windbreak or screen
	AHS-390	pnn	G-2-3-124	1272p–1330v	1	post from post hole
	AHS-391	pnn	G-2-3-131	1241p–1293vv	1	post from post hole
	AHS-392	pnn	G-2-3-133	1233p–1329v	1	post from post hole
	AHS-393	pnn	G-2-3-136	1219p–1320vv	1	post from post hole
	AHS-394	pnn	G-2-3-145	1160p–1293++vv	1	post from possible drying rack
	AHS-395	pnn	G-2-3-145	1165fp–1312++vv	1	post from possible drying rack
	AHS-396	pnn	G-2-3-166	1118fp–1270++vv	1	post from drying rack or screen

APPENDIX B

Provenience	Specimen Number	Species	Field Number	Dates Inside–Outside	Component	Associated Feature or Assemblage
Plaza G, Feature 2 (continued)						
	AHS-397	pnn	G-2-3-172	0972+–1292++vv	1	*portal* support or beam ladder
	AHS-400	pp	G-2-4-26	1205–1296++vv	1	post associated with low masonry wall
	AHS-402	pnn	G-2-4-43	1241p–1325vv	1	post associated with low masonry wall
	AHS-403	pnn	G-2-4-45	1277p–1320vv	1	post associated with low masonry wall
	AHS-404	pp	G-2-4-54	1245fp–1287vv	1	post from post hole
Feature 9	AHS-227	pnn	G-9-2W-14	1237fp–1319vv	1	unknown
Feature 36b	AHS-224	pnn	G-36b-2-1	1215fp–1328vv	1	fill
Plaza I	AHS-424	pp	1	1281fp–1325vv	1	unknown
	AHS-425	pp	1	1239fp–1302vv	1	unknown
Plaza K	AHS-418	pnn	1	1243p–1293vv	1	fill, test pit
	AHS-421	pnn	14-IV-2	1224p–1317+v	1	occupation surface
Kiva C	AHS-3	pp	C-2	1348p–1385+r	2	kiva roof
	AHS-1	pp	C-2	1325p–1386r	2	kiva roof
	AHS-2	pp	C-2	1323p–1386r	2	kiva roof
	AHS-4	pp	C-2	1344–1386r	2	kiva roof
	AHS-5	pp	C-2	1371p–1386r	2	kiva roof
	AHS-6	pp	C-2	1372p–1386r	2	kiva roof
	AHS-108	pp	C-2-2-13	1354p–1386r	2	latilla, kiva roof
	AHS-109	pp	C-2-2-14	1371fp–1386r	2	latilla, kiva roof
	AHS-111	pp	C-2-2-15	1373fp–1386r	2	viga, kiva roof
Kiva D-2	AHS-422	pp	3–4	1243fp–1289+vv	1	fill of ventilator shaft
Kiva G-5	AHS-406	pp	G-5-7-39	0955fp–1037++vv	1	kiva wall
Kiva 14-6	AHS-413	pp	6-II-2	1249–1311vv	1	kiva roof
	AHS-416	pnn	6-II-19	1220p–1319vv	1	kiva roof
	AHS-414	pp	6-III-1	1212p–1313v	1	viga, kiva roof

Appendix C

Summary of Architectural Data by Room

Winifred Creamer and Anthony Thibodeau

The architectural information from all excavated rooms and kivas at Arroyo Hondo is presented here in terms of the categories listed below. For each room, only the categories for which information was available are included. Throughout the summary, references to direction are abbreviated by the first letter of the direction—for example, "E wall" for "east wall."

ROOM

Designated by the Laboratory of Anthropology (LA) number for Arroyo Hondo (12) + roomblock number + room number. For most kivas, the LA number is followed by a letter, which indicates the plaza in which the kiva was located, and a feature number.

COMPONENT

First or second occupation.

NUMBER OF STORIES

The number of vertically adjacent rooms above the ground surface. A room with two stories is actually two rooms, but they are both assigned the same room number.

FIRST STORY:

Walls: Length, height, and thickness are given in centimeters for all walls of the room. The abbreviation "inc" (incomplete) is used when measurements are unavailable, as in the case of a heavily eroded or collapsed wall. The abbreviation "unexcav" (unexcavated) is used when the wall was not exposed during excavation.

Doors:

Dimensions (cm): Height of entryway × width. If the sill is the only remnant of the entryway, the measurement is annotated.

Blocked/open: Indicates whether the entryway was sealed.

Height above floor (cm): Height above uppermost floor of first story.

Vents:

Diameter (cm): Width of ventilation hole.

Blocked/open: Indicates whether the vent was sealed.

Height above floor (cm): Height above uppermost floor of first story.

Open to outside: Indicates whether the vent opens to a plaza area or another room.

Floor: Composition, general color, and thickness, when available, of first-story floor. Multiple floors are indicated stratigraphically from latest to earliest.

Hearth: Slab, pit, or clay fireplace in first-story floor.

Dimensions (cm): Longest measurement × shortest measurement × depth.

Ladder seats: Total number by location within room, followed by dimensions.

Post holes: Total number by location within room, followed by dimensions.

Other features: Includes first-story wall and floor features, such as pits, basins, niches, peg holes, burials, and burned areas. Locations and dimensions are given when available.

Roof indicators: Any indication of the construction of the first-story roof; either actual materials, such as wood fragments, or impressions, such as viga molds.

Viga indicators: Remnants of the actual vigas, or impressions.

Latilla type: Any indication of the type of latilla used—plank, pole, split-pole, or some combination.

Matting indicators: Any botanical material used in the construction of the first-story roof, such as grass or twigs.

Rooftop hearth: Indicates a fireplace on the roof of a one-story room.

SECOND STORY:

VENTS: Any evidence of ventilation holes in the second-story room.

HEARTH: Any evidence of a fireplace in the second-story room or on the second-story roof.

OTHER FEATURES: Includes second-story floor and wall features, as well as any rooftop features.

UPPER ROOF INDICATORS: Any indication of the construction of the second-story roof, such as wood fragments or impressions.

COMMENTS:

General comments on the room, such as abutment and footing information, condition of the room, and the year the room was excavated.

COMPONENT I

Room: 12-3-13 Component: I Number of stories: 1

First story:	N	S	E	W
Walls:				
Height (cm):	105	70	85	50
Thickness (cm):	25	25	25	25
Vents:				
Diameter (cm):				22
Blocked/open:				o
Height above floor (cm):				15
Open to outside:				n

Floor: Clay over midden.

Hearth: Clay-lined, in north-central area of room.

Dimensions (cm): 38 × 52 × 20 deep.

Other features: One subfloor, semicircular trough in the SW corner, 7 cm diameter, 6 cm deep.

Comments: Excavated in 1973.

Room: 12-4-2 Component: I Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	174	173	247	245
Height (cm):	34	26	29	30
Thickness (cm):	24	25	22	24
Vents:				
Diameter (cm):			17	
Blocked/open:			o	
Height above floor (cm):			9	
Open to outside:			y	

Floor: Clay, 1–2 cm thick.

Hearth: Pit, in SE corner.

Dimensions (cm): 47 × 50 × 5 deep.

Post holes: Two in NW corner; 5 cm, 6 cm diameter. One in S end of room, 10 cm diameter.

Comments: Excavated in 1972.

Room: 12-5-4 Component: I Number of stories: 2

First story:	N	S	E	W
Walls:				
Length (cm):	324	314	123	120
Height (cm):	85–121	91–110	87–94	110–119
Thickness (cm):	24	24	22	23
Doors:				
Dimensions (cm):		47inc × 36–46		
Blocked/open:		o		
Height above floor (cm):		68		

Floor: Clay with gravel, 5–6 cm.
Ladder seats: One near N wall, 16 cm diameter, 7 cm deep.
Other features: Pit near S wall, 38 × 34 × 24 cm deep.
Latilla type: Split pole and plank.
Matting indicators: Juniper bark.
Second story:
Vents: One vent plug.
Hearth: Slab, in second-story room, 50 × 30 × 8–12 cm deep.
Other features: Hole for hanging stick, 2.5 cm diameter, 5–7 cm deep.
Comments: Excavated in 1972.

Room: 12-5-5 Component: I Number of stories: 2

First story:	N	S	E	W
Walls:				
Length (cm):	332	322	185	193
Height (cm):	178–193	184–186	176–190	189–197
Doors:				
Dimensions (cm):	108 × 51			
Blocked/open:	b			
Height above floor (cm):	75			
Vents:				
Diameter (cm):		10 × 11	13 × 16	
Blocked/open:		o	b	
Height above floor (cm):		147	148	
Open to outside:		y	n	

Floor: Upper: clay, 4–8 cm. Lower: clay, tan sand, thin.
Other features: Peg holes, 4 in N wall, 4 in E wall, 3 in W wall, 4–10 cm deep, 1–3 cm diameter, 37–103 cm above floor.
Roof indicators: Latilla fragments.
Latilla type: Poles, 1–3 cm diameter.
Second story:
Hearth: Slab, in second-story room. Small slabs, on second-story roof.
Other features: Second-story roof had wing wall 9 cm above floor.
Upper roof indicators: Viga fragments, 9 cm diameter. Juniper plank latillas, 10 cm wide, 2 cm thick. Juniper pole latillas, 1 cm diameter. Grass matting.
Comments: Excavated in 1972.

Room: 12-5-6 Component: I Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	355	358	218	210
Height (cm):	110–117	40–60	80–110	unexcav
Thickness (cm):	23–25	23–25	25–28	unexcav

Floor: Clay, 3.5 cm thick.
Hearth: Clay-rimmed pit, sealed when floor was resurfaced.
Dimensions (cm): 64 × 45 × 14 deep
Other features: Niche, N wall, 50 cm above floor, 14 × 13 × 13 cm deep, unsealed.
Roof indicators: Clay roof cap, 4–6 cm thick.
Viga indicators: Viga fragments, pinyon, 10 cm thick.
Latilla type: Planks, 10–15 cm wide, 2–3 cm thick; poles, 5 cm diameter.
Matting indicators: Grass, possible corn husks.
Rooftop hearth: Slab-lined.
Comments: Excavated in 1972. Room burned.

Room: 12-5-7 Component: I Number of stories: 2

First story:	N	S	E	W
Walls:				
Length (cm):	165	170	299	296
Height (cm):	166–168	175–188	168–188	166–175
Thickness (cm):	20	21	20	20
Doors:				
Dimensions (cm):			110 × 42	103 × 41–50
Blocked/open:			o	b
Height above floor (cm):			68	55

Floor: Trash, irregular thickness.
Post holes: One in NW corner, 14–16 cm deep.
Second story:
Hearth: Clay, second-story floor. Slab, rooftop.
Comments: Excavated in 1973.

Room: 12-5-8 Component: I Number of stories: 2

First story:	N	S	E	W
Walls:				
Height (cm):	135–157	168	159–162	131–169
Thickness (cm):	24	24	20	22
Doors:				
Dimensions (cm):	108 × 31–37		111 × 41–47	113 × 38–42
Blocked/open:	o		b	o
Height above floor (cm):	43		52	40

Other features: Plastered niche in E wall doorway, 70 cm above floor, 9 cm high, 16 cm wide. Three burials in roof fall.
Roof indicators: Roof fragments.
Latilla type: Planks.
Matting indicators: Grass, juniper bark.
Second story:
Hearth: Possible clay-lined in second story room.
Comments: Excavated in 1973.

Room: 12-5-9 Component: I Number of stories: 2

First story:	N	S	E	W
Walls:				
Length (cm):	188	183	295	305
Height (cm):	149–159	163–176	163–166	159–176
Thickness (cm):	15	24	20	26
Doors:				
Dimensions (cm):			104 × 45	107 × 41–42
Blocked/open:			o	o
Height above floor (cm):			56	55
Vents:				
Diameter (cm):			17	
Blocked/open:			o	
Height above floor (cm):			137–155	
Open to outside:			n	

Floor: Clay.
Post holes: One near N wall, 1 cm diameter.
Other features: Three peg holes in E wall, one located below vent.
Second story:
Hearth: Slab-lined, rooftop.
Comments: Excavated in 1973.

Room: 12-5-10 Component: I Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	170	181	343	357
Height (cm):	110–133	170–175	133–175	110–170
Thickness (cm):	19	20	20	19
Doors:				
Dimensions (cm):		88 × 41–44	107 × 39–44	
Blocked/open:		o	o	
Height above floor (cm):		87	49	

Floor: Wet clay, 3–5 cm thick.
Post holes: One, no dimensions.
Other features: Shallow pit at base of N wall, 19 cm diameter, 7 cm deep.
Roof indicators: Clay impressions.
Latilla type: Plank impressions in clay.
Comments: Excavated in 1973.

Room: 12-5-11 Component: I Number of stories: 2

First story:	N	S	E	W
Walls:				
Length (cm):	373	379	201	210
Height (cm):	172–176	186–189	176–189	172–186
Thickness (cm):	27	29	24	25
Doors:				
Dimensions (cm):	94 × 39–44			
Blocked/open:	o			
Height above floor (cm):	84			

(*continued on next page*)

Room 12-5-11 (continued)

First story:	N	S	E	W
Vents:				
Blocked/open:			b	b
Height above floor (cm):			166	153–171
Open to outside:			n	n

Floor: Clay.
Other features: Five peg holes.
Second story:
Hearth: Slab-lined, rooftop.
Comments: Excavated in 1973.

Room: 12-5-12 Component: I Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	193	208	310	319
Height (cm):	119–145	141–165	145–165	119–141
Thickness (cm):	25	22	22	23
Doors:				
Dimensions (cm):		105 × 31–37		41inc × 36–43
Blocked/open:		o		o
Height above floor (cm):		47		86

Floor: Clay, irregular surface.
Rooftop hearth: Slab-lined, fragments in fill.
Comments: Excavated in 1973.

Room: 12-5-13 Component: I Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	215	189	309	312
Height (cm):	inc	99–133	133	99
Thickness (cm):	20	21	24	21
Doors:				
Dimensions (cm):			42inc × 40	
Blocked/open:			o	
Height above floor (cm):			84	

Floor: Clay, badly eroded.
Post holes: Irregular post hole outline in floor.
Other features: Three peg holes in S half of E wall near floor.
Rooftop hearth: Slab-lined.
Comments: Excavated in 1973. This room was not completely excavated. Second hearth placed in fill after occupation of room.

Room: 12-5-14 Component: I Number of stories: 2

First story:	N	S	E	W
Walls:				
Length (cm):	212	208	367	366
Height (cm):	59–168	171–177	159–171	168–177

Room 12-5-14 (continued)

First story:	N	S	E	W
Thickness (cm):	22	24	24	29
Doors:				
Dimensions (cm):		99 × 39–44		101 × 43–46
Blocked/open:		b		o
Height above floor (cm):		58		64
Vents:				
Blocked/open:				b o
Height above floor (cm):				at floor 134
Open to outside:				n n

Floor: Clay, irregular.
Post holes: One at base of W wall below sealed vent, 12 × 15 cm.
Other features: Fetus burial in shallow pit at base of E wall, 21 × 27 × 16 cm deep. Peg hole 122 cm above floor, 1 cm diameter.
Comments: Excavated in 1973.

Room: 12-6-6 Component: I Number of stories: 2

First story:	N	S	E	W
Walls:				
Length (cm):	236	222	373	360
Height (cm):	110	100	92	125
Doors:				
Dimensions (cm):				39inc × 41
Blocked/open:				b
Height above floor (cm):				89

Floor: Cracked clay, 3–5 cm thick.
Other features: Disturbed infant burial, 33 × 30 × 139 cm deep in SE corner of room.
Roof indicators: Latilla fragments.
Second story:
Vents: One, blocked.
Hearth: Slab, rooftop.
Other features: Ground stone tools.
Comments: E wall is masonry from NE corner for 200 cm. N wall is entirely masonry. Excavated in 1972.

Room: 12-6-7 Component: I Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	205	198	308	298
Height (cm):	75	98	75	41
Thickness (cm):	27	24	25	25

Floor: Clay, 2 cm thick.
Ladder seats: One, near a worn patch 50 × 60 cm, NW corner, 5–8 cm deep.
Other features: Depression (pot rest), 15 cm diameter, 5 cm deep, in center of floor close to E wall. Sealed crack in E wall. Series of small depressions, two rows of five each, 4 cm diameter, 1 cm deep.
Rooftop hearth: Pit with some slabs, center.
Comments: Excavated in 1974.

Room: 12-7-7 Component: I Number of stories: 2

First story:	N	S	E	W
Walls:				
Length (cm):	216	210	334	336
Height (cm):	96	50	50	inc
Doors:				
Dimensions (cm):		57 × 47		
Blocked/open:		b		
Height above floor (cm):		70		

Floor: Light gray clay.
Other features: Plank shelf 149–154 cm above floor, 14 cm long, 5 cm high. Two peg holes, W wall: 151 cm above floor, 2 cm diameter, 9 cm deep; 9 cm above floor, no other dimensions. Peg hole in S wall, 163 cm above floor, 10 cm deep.
Second story:
Hearth: Slab-lined, second-story floor, with firedogs.
Comments: Excavated in 1972.

Room: 12-8-5 Component: I Number of stories: 2

First story:	N	S	E	W
Walls:				
Length (cm):	388	376	209	207
Height (cm):	180	203	183	121
Doors:				
Dimensions (cm):			93 × 47	81 × 46
Blocked/open:			o	b
Height above floor (cm):			62	60

Floor: Upper: dark gray adobe, wet-laid, 9 cm thick. Lower: gray to tan adobe, 4 cm thick.
Post holes: Two.
Other features: One peg-hole and one unidentified hole.
Roof indicators: Latilla casts.
Latilla type: Plank.
Second story:
Hearth: Adobe rim, second-story floor. Slab, rooftop.
Upper roof indicators: Wood, poor casts of plank and latilla.
Comments: Excavated in 1972.

Room: 12-9-5 Component: I Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	213	211	180	190
Height (cm):	164	130	157	150
Thickness (cm):	24	21	inc	22
Doors:				
Dimensions (cm):	74 × 34			
Blocked/open:	o			
Height above floor (cm):	56			

Comments: Excavated by Nelson in 1915. Re-excavated by SAR in 1972.

Room: 12-9-7 Component: I Number of stories: 2

First story:	N	S	E	W
Walls:				
Length (cm):	220	229	311	290
Height (cm):	198	187	194	229
Doors:				
Dimensions (cm):		37 × 94		
Blocked/open:		b		
Height above floor (cm):		48		
Vents:				
Diameter (cm):				9 × 4.5
Blocked/open:				b
Height above floor (cm):				152

Floor: Fine mud plaster and adobe chunk, 10.5 cm thick.
Other features: Three peg holes. Two shelf pole holes.
Roof indicators: Plank and pole latilla impressions.
Latilla type: Pole/plank.
Second story:
Vents: One.
Hearth: Slab, second-story floor.
Other features: Two loom holes, shelf holes, wall fresco.
Upper roof indicators: Two fireboxes, latilla and plank impressions, blackened adobe.
Comments: Excavated in 1972.

Room: 12-10-3 Component: I Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	396	379	234	234
Height (cm):	15–31	38–65	26–60	18–38
Thickness (cm):	23	24	25	25
Doors:				
Dimensions (cm):				29inc × 31
Blocked/open:				b
Height above floor (cm):				32

Floor: Wet-laid clay, 5 cm thick.
Ladder seats: One beam ladder seat.
Other features: Depression along S wall, 18 cm diameter, 40 cm deep. Burned area on floor.
Rooftop hearth: Slab-lined, center of room, 30 × 40 × 143 cm below datum.
Comments: Excavated in 1972.

Room: 12-11-X1 Component: I Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	223	200	352	365
Height (cm):	164	118	173	131
Thickness (cm):	25	26	27	30

Floor: Paved on N end with flat stones, remainder is gray-black adobe.
Post holes: One, 8 × 8 × 6 cm deep.
Other features: Two shallow pits with restorable pots: 31 cm diameter, 7.5 cm deep; 30 cm diameter, 8 cm deep.
Comments: Excavated in 1970. Masonry floor, all masonry walls.

Room: 12-11-1 Component: I Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	215	218	295	298
Height (cm):	131	106	116	98
Thickness (cm):	20	18	27	18

Floor: Upper: good condition, plastered adobe, gray-black. Lower: poor condition, adobe, gray-black, 13 cm thick.

Other features: One small cist, SW corner, nearly circular, 29 × 28 × 25 cm deep, unplastered, below both floors (predates room?). Fill of cist: loose, sandy loam with charcoal and two sherds.

Comments: Excavated in 1970. E wall is masonry. Addition to existing building in roomblock 11.

Room: 12-11-3 Component: I Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	215	220	298	295
Height (cm):	107	92	144	66
Thickness (cm):	24	24	25	24

Floor: Upper: earth fill, 4 cm thick. Middle: sandy, silt with loose gravel, 3 cm thick. Lower: clay-like, 3 cm thick.

Post holes: One in SE quadrant, 11 cm diameter.

Comments: E wall of the room is masonry, the others are coursed adobe. the eastern portion of room 12-11-6 lies below the floor of this room. Excavated in 1971.

Room: 12-11-3A Component: I

Other features: Burial pit, NW quadrant, 75 × 25–33 × 45 cm deep.

Comments: Not a room, part of a plaza. Excavated in 1972.

Room: 12-11-4 Component: I Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	190	189	264	276
Height (cm):	150	168	166	155
Thickness (cm):	27	24	26	24

Floor: Dirt and clay with plaster at wall abutments. Floor is about 120 cm below room 12-11-2.

Other features: One niche sealed with clay plaster, E wall, 30 × 40 × 25 cm deep. Two circular depressions in SE quadrant, 20 cm above floor (too deep for ladder seats).

Comments: Room 12-11-2 is a remodeling of this room. All walls are masonry with clay mortar. Walls extend about 12 cm below floor. Excavated in 1971.

Room: 12-11-5 Component: I Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	220	260	330	265
Height (cm):	110	96	87	144
Thickness (cm):	23	24	24	30
Vents:				
Diameter (cm):			24	

Room 12-11-5 (continued)
First story:
Blocked/open: o
Height above floor (cm): 0 (at floor)
Open to outside: n
Floor: Wet-laid clay, 4 cm thick.
Hearth: Clay-lined pit in room center.
Dimensions (cm): 43–46 cm diameter, 29 cm deep.
Other features: Niche in N wall, flared shape, had been sealed with two plugs, 16 cm above floor, 15 × 17 × 21 cm deep. Cist along N wall, 19 × 30 × 10–21 cm deep. Cist in SE corner, 27 × 35 × 23 cm deep.
Comments: W wall adobe and masonry. Room is irregular, E wall longer than W wall. N wall curves between these to form niche. Excavated in 1971.

Room: 12-11-6 Component: I Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	103	97	159	unexcav
Height (cm):	54	54	56	unexcav

Floor: Compacted fill, 1 cm thick.
Hearth: Pit.
Dimensions (cm): 45–49 cm diameter, 10 cm deep.
Comments: This room is directly below room 12-11-3. Excavated in 1971.

Room: 12-11-8 Component: I Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	221	219	268	290
Height (cm):	51–102	34–71	26–53	82–102
Thickness (cm):	26	25	27	27
Vents:				
Diameter (cm):				24
Blocked/open:				b
Height above floor (cm):				0 (at floor)
Open to outside:				n

Floor: Upper: wet-laid clay, 4 cm thick. Middle: compacted earth, 3 cm thick. Lower: earth compacted by use.
Hearth: 1) Clay with ash pit, along W wall, sealed. 2) Plastered clay, mid N wall, sealed. 3) Plastered clay, center of room.
Dimensions (cm): 1) 36 × 53 × 14 deep. 2) 35 × 45 × 13 deep. 3) 51 × 54 × 17 deep.
Post holes: One in NE corner, 20 × 22 × 8 cm deep.
Other features: Burial pit along E wall dug through three floors, 56 × 82 × 52 cm deep. Hole beneath pit 29 × 43 × 22 cm deep. Ash pit, 12 × 24 × 4 cm deep, center W wall.
Comments: Excavated in 1971.

Room: 12-11-9 Component: I Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	225	221	295	300
Height (cm):	100	154	195	185
Thickness (cm):	26	26	34	34

(*continued on next page*)

Room 12-11-9 (continued)

Floor: Compacted fill, 3 cm thick.
Hearth: Pit, located in room center.
Dimensions (cm): 74 × 83 × 20 deep.
Other features: Niche, unplugged, in E wall, 83 cm above floor, 13 × 16 × 28 cm deep. Niche, plugged and plastered over with clay, in E wall, 104 cm above floor, 12 × 17 × 22 cm deep.
Comments: Excavated in 1971.

Room: 12-12-4 Component: I Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	322	323	209	225
Height (cm):	38–77	18–64	63–82	18–42
Thickness (cm):	30	24–30	24–25	28–30

Floor: Two floors, no other information.
Other features: Midden area extends 80 cm below wall footings.
Roof indicators: Clay copings from ceiling entry.
Viga indicators: Plank impressions in clay.
Matting indicators: Impressions of grass, twigs, brush in clay.
Rooftop hearth: Slab.
Comments: Excavated in 1972.

Room: 12-13-9 Component: I Number of stories: 2

First story:	N	S	E	W
Walls:				
Length (cm):	210	220	310	337
Height (cm):	143–167	99–110	45–76	110–150
Thickness (cm):	30–35	24–25	inc	22–24
Doors:				
Dimensions (cm):				61 × 42
Blocked/open:				b
Height above floor (cm):				70

Floor: Clay, 5 cm thick.
Post holes: One in SE corner, 11 cm diameter, 13 cm deep.
Viga indicators: One beam fragment, 12 cm diameter.
Latilla type: Plank impressions in clay, 15 cm wide, 5 cm thick.
Matting indicators: Leaves of Gambel's oak, grass and twig impressions.
Second story:
Hearth: Slab, lined with clay, second-story room.
Upper roof indicators: Plank impressions in clay.
Comments: Slab metate and lap anvil in second-story roof fill. Room construction suggests it was a relatively late construction in roomblock 13. Excavated in 1972.

Room: 12-14-5 Component: I Number of stories: 2

First story:	N	S	E	W
Walls:				
Length (cm):	310	289	207	225
Height (cm):	108–117	103–121	114–121	106–116
Thickness (cm):	29	28	25	22

Room 12-14-5 (continued)

First story:	N	S	E	W
Doors:				
Dimensions (cm):		36 × 116	42 × 79	
Blocked/open:		b	b	
Height above floor (cm):		10	—	

Floor: Clay, 5–8 cm thick.

Hearth: NE quadrant of jacal structure, filled with cobbles, unknown type.
Dimensions (cm): 32 cm diameter.

Post holes: Two on either side of S door, 7–25 cm diameter. Three along N wall, 12–15 cm diameter. E-W trench (jacal wall), four posts, 8–20 cm diameter. N-S trench (jacal wall), seven posts, 8–20 cm diameter. Base of jacal walls approximately 16 cm below excavated surface.

Other features: Infant burial (under 6 months) in SE corner, 90 × 50 × 26 cm deep, wrapped in turkey feather robe or blanket. Finger holes in lower E corner, S wall, 2–3 cm deep. Ledge 7 cm deep along W wall.

Latilla type: Pole impressions in clay.

Matting indicators: Brush impressions in clay.

Second story:

Hearth: Clay, rooftop, with firedog.

Comments: S and W walls of jacal room under room 12-14-5. Trash under jacal room in SE corner. Excavated in 1972.

Room: 12-15-7 Component: I Number of stories: 2

First story:	N	S	E	W
Walls:				
Length (cm):	200	197	313	323
Height (cm):	137	126	131	135
Thickness (cm):	21	23	21	21
Doors:				
Dimensions (cm):		49inc × 33		
Blocked/open:		b		
Height above floor (cm):		82		

Floor: Gravelly clay, 2–2.5 cm thick.

Ladder seats: One in worn area N of room center, 7 cm diameter × 3 cm deep.

Other features: Subadult burial, pit: 31 × 66 × 11 cm deep, in SE corner of room.

Viga indicators: Impressions of vigas in clay, 9 cm diameter.

Latilla type: Impressions in clay of planks spaced 2–3 cm apart.

Second story:

Vents: One in SE corner, plug recovered.

Hearth: Slab, W half of second story room. Slab, rooftop, center of W wall.

Other features: Floor: clay covered with fine plaster.

Comments: Wall plaster and fire-blackening on second-story room walls.
Vigas in first story appear to have been removed after abandonment. A woven mat was recovered between layers of roof adobe. Excavated in 1972.

Room: 12–15a-9 Component: I Number of stories: 2

First story:	N	S	E	W
Walls:				
Length (cm):	244	227	293	300
Height (cm):	183	178	183	120
Thickness (cm):	25	28	30	24

(*continued on next page*)

Room 12-15a-9 (continued)

First story:	N	S	E	W
Doors:				
Dimensions (cm):	86 × 35		87 × 46	
Blocked/open:	b		b	
Height above floor (cm):	45		41	
Vents:				
Blocked/open:			b	
Height above floor (cm):			0 (at floor)	
Open to outside:			n	

Floor: Clay, 3–4 cm thick.
Other features: Subfloor cist, 22 × 35 × 20 cm deep, contained some plainware fragments. Pit filled with trash 40 cm deep, under entire room. Blocked hole above the door in N wall.
Viga indicators: Three viga holes and one viga fragment, 9 cm diameter.
Latilla type: Plank.
Second story:
Hearth: Slab, second-story room.
Other features: Ashpit and grinding tools.
Upper roof indicators: Viga fragments, pole and plank latilla, brush fragments.
Comments: Component I occupation below rooms 12-15a-7 and 12-15a-8. Excavated in 1972.

Room: 12-16-8 Component: I Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	94inc	97	181	unexcav
Height (cm):	132–157	129–154	122–126	unexcav
Thickness (cm):	27	24–26	20–24	unexcav
Doors:				
Dimensions (cm):			61 × 37	
Height above floor (cm):			57	

Floor: Gray and dark gray clay.
Roof indicators: Wood fragments.
Comments: Excavated in 1971. West half of room was not excavated.

Room: 12-16-24 Component: I Number of stories: 2

First story:	N	S	E	W
Walls:				
Length (cm):	320	325	188	195
Height (cm):	170–179	217–227	215–233	184–199
Thickness (cm):	26–29	24–29	18–21	18–21
Doors:				
Dimensions (cm):			70 × 36	80 × 37
Blocked/open:			b	b
Height above floor (cm):			66	60

Floor: Gray clay with two fire-blackened areas.
Other features: Three viga holes in S wall, unsealed: 131 cm above floor and 13 cm diameter, 150 cm above floor and 9 cm diameter, and 149 cm above floor and 14 cm diameter. Plaster on walls. N wall partially constructed of turtlebacks. Walls chinked with pot sherds. Shelf 10 cm deep, extended along length of W wall.
Second story:
Hearth: Clay, second-story floor.
Comments: This room is below room 12-16-10. Excavated in 1971.

Room: 12-16-26 Component: I Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	289	291	197	122
Height (cm):	110–175	100–206	175–214	84–171

Floor: Upper: partial reconstruction of floor to cover firepit, dark gray to black. Lower: dark gray.
Hearth: Pit, in NE corner.
Dimensions (cm): 40 × 48, depth not noted.
Other features: Semicircular subfloor pit in SW corner.
Roof indicators: Viga hole in S wall, 141 cm above floor, 14–16 cm diameter.
Comments: Excavated in 1971.

Room: 12-16-27 Component: I Number of stories: 2

First story:	N	S	E	W
Walls:				
Length (cm):	324	327	195	193
Height (cm):	166	177–193	179–205	171–184
Doors:				
Dimensions (cm):			47 × 27–28	
Blocked/open:			b	
Height above floor (cm):			90	

Floor: Light gray clay.
Other features: Five burned patches in center and W side of room; 27 × 18 cm, 12 × 18 cm, 16 × 23 cm, 29 × 32 cm, 12 cm diameter. Middle courses of N wall constructed of adobe chunks mortared in place.
Roof indicators: Viga holes and roofing materials.
Viga indicators: Viga holes: 152 cm above floor, 20 cm diameter; 155 cm above floor, 12 cm diameter, sealed.
Latilla type: Possibly split pole, indicated by juniper bark impressions in roof clay.
Matting indicators: Impressions of grass, corn or reed leaves, reed stalks or sticks, possibly cattail, in roof clay.
Second story:
Hearth: Clay rim, second-story room. Slab, rooftop.
Comments: This room lies below room 12-16-5. Excavated in 1971.

Room: 12-16-28 Component: I Number of stories: 2

First story:	N	S	E	W
Walls:				
Length (cm):	280	286	197	200
Height (cm):	191–195	208–223	190–197	195–200
Doors:				
Dimensions (cm):		65 × 40	64 × 32–36	83 × 35
Blocked/open:		b	b	b
Height above floor (cm):		83	64	62

Floor: Buff clay.
Other features: Plaster on lowest course of N wall. Hole for hanging pole, 148 cm above floor, 3 cm diameter.
Roof indicators: Viga holes.
Viga indicators: Viga holes: 184 cm above floor, 13 cm diameter; 176 cm above floor, 16 cm diameter.
Matting indicators: Stick impressions in roof clay.
Second story:
Hearth: Slab/clay, second-story floor.
Comments: Door in S wall had split wood lintel, door in E wall had wood lintel, door in W wall had no lintel. Excavated in 1971.

Room: 12-16-29 Component: I Number of stories: 1

First story:

Post holes: Row of three, NW to SE in W end: 12 cm diameter, 13 cm deep; 27 cm diameter, 26 cm deep; 12–15 cm diameter, 11 cm deep.

Other features: Depression in NW corner, 70–84 cm × 122–140 cm × 9 cm deep. Depression in NE corner, 23–26 cm × 50–132 cm × 13–21 cm deep. Adult burial along S wall, flexed. Subadult burial in NE corner, flexed.

Comments: This room is below room 12-16-1 but is not an actual room. Outside of roomblock 16 during Component I. Subfloor stratigraphy and features of 12-16-1 (like burials). Excavated in 1971.

Room: 12-16-30 Component: I Number of stories: 2

First story:	N	S	E	W
Walls:				
Length (cm):	308	300	204	200
Height (cm):	165–183	164–184	79–87	164–165
Thickness (cm):	29	22	21	inc
Doors:				
Dimensions (cm):		over 70 × 37–40		79 × 31–40
Blocked/open:		b		b
Height above floor (cm):		48		56
Vents:				
Diameter (cm):		18		
Blocked/open:		b		
Height above floor (cm):		98		
Open to outside:		n		

Floor: Dark gray packed sand.

Other features: Patches of plaster 4 cm thick on N, S, and E walls.

Roof indicators: Viga holes, wood fragments.

Viga indicators: Viga holes: S wall, 149 cm above floor, 11 cm diameter; N wall, 148 cm above floor, 13–16 cm diameter.

Matting indicators: Impressions of grass, corn, or reed leaves, sticks or reed stalks and possibly cornstalks.

Second story:

Hearth: Clay, with firedogs, second-story room.

Comments: This room is below room 12-16-6. Door in S wall had no lintel, door in W wall had wood-slat lintel. Excavated in 1971.

Room: 12-16-31 Component: I Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	278	267	210	212
Height (cm):	218–221	212–227	218–227	220–221
Thickness (cm):	17–20	9–22	16–20	15–20
Doors:				
Dimensions (cm):		87 × 37		
Blocked/open:		b		
Height above floor (cm):		67		

Floor: Dark gray to black clay.

Other features: Subadult burial in NE corner, no grave goods, pit: 22 × 64 × 27 cm deep. Black area along S wall. Latilla holes in S wall: 153 cm above floor, 4 cm diameter; 152 cm above floor, 4 cm diameter. Latilla

Room 12-16-31 (continued)

holes in N wall: 141 cm above floor, 5 cm diameter; 140 cm above floor, 6–7 cm diameter; 141 cm above floor, 6 cm diameter.

Roof indicators: Latilla holes.

Comments: Excavated in 1971.

Room: 12-16-32 Component: I Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	243	231	301	295
Height (cm):	151–166	146–171	168–178	125–165
Thickness (cm):	10–20	19–20	20–22	17–20
Doors:				
Dimensions (cm):	78 × 37			61 × 41
Blocked/open:	b			b
Height above floor (cm):	76			65
Vents:				
Diameter (cm):	13–18	17–19		
Blocked/open:	b	b		
Height above floor (cm):	146	133		

Floor: Upper: light gray clay, 3–7 cm thick. Lower: gray-black.

Other features: Latilla hole, 152 cm above floor, 3 cm diameter.

Roof indicators: Latilla hole.

Viga indicators: Impressions in clay.

Matting indicators: Grass impressions.

Comments: Door in N wall had no lintel. Excavated in 1971.

Room: 12-16-33 Component: I Number of stories: 2

First story:	N		S	E	W
Walls:					
Length (cm):	360		359	246	250
Height (cm):	165–202		131–151	151–165	131–135
Thickness (cm):	22		27	inc	inc
Doors:					
Dimensions (cm):				30inc × 45	
Blocked/open:				b	
Height above floor (cm):				80	
Vents:					
Diameter (cm):	18	13–15			
Blocked/open:	b	b			
Height above floor (cm):	106	142			
Open to outside:	n	n			

Floor: Upper: packed tan-grayish tan sand, 3–6 cm thick. Lower: grayish tan clay, 2 cm thick.

Other features: All walls were plastered with tan clay, 2–10 cm thick.

Roof indicators: Viga hole.

Viga indicators: Viga hole in N wall, 160 cm above lower floor, 11 cm diameter.

Latilla type: Pole impressions, 7 cm diameter.

Matting indicators: Impressions of reed, cattail, cornstalk, and leaves.

Second story:

Vent: Plug only, probably in S wall, open to outside.

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Room 12-16-33 (continued)

Hearth: Clay with high rim, second-story room, W half. Slab, rooftop.

Other features: Gray clay floor, white plaster walls.

Upper roof indicators: Hatch cover, 33 × 37 cm.

Comments: Second-story room probably a ceremonial room. Clay deflector painted with black lines. Artifacts in room include bone awls, club head, axe preform, polished stones, two vessels, tubular pipe, palette with red ochre stains, manos, polished stone slab fragments. Room burned. Excavated in 1971.

Room: 12-16-34 Component: I Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	346	356	175	175
Height (cm):	130–152	77–103	77–130	98–145
Thickness (cm):	12–26	18–29	16–21	20–24
Vents:				
Diameter (cm):	15–17			
Blocked/open:	o			
Height above floor (cm):	119			
Open to outside:	n			

Floor: Tan clay.

Hearth: Pit, near S wall.

Dimensions (cm): 47 × 56 × 18 cm deep.

Post holes: One in SE corner, 16–17 cm diameter, 14 cm deep. One along S wall, 15–17 cm diameter, 23 cm deep.

Rooftop hearth: Slab.

Comments: Excavated in 1971.

Room: 12-16-35 Component: I Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	311	315	197	179
Height (cm):	5–23	163–185	104–174	104–163
Thickness (cm):	18	inc	24	22

Floor: Dark gray clay.

Other features: Burned area in SW quadrant, 10 cm diameter.

Roof indicators: Clay impressions of ceiling entry.

Comments: S wall partially constructed of adobe chunks mortared together. E and W walls have stone footers above first course at approximately 31 cm above floor. Excavated in 1971.

Room: 12-16-36 Component: I Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	366	370	204	216
Height (cm):	117–127	103–116	114–142	54–60
Thickness (cm):	27	22	24	25
Doors:				
Dimensions (cm):			47inc × 38–44	48inc × 53
Blocked/open:			b	b
Height above floor (cm):			52	45

Room 12-16-36 (continued)

Vents: Plug only recovered.
Floor: Upper: light gray clay, 3 cm thick. Lower: gray buff–medium gray brown packed sand, 2.05 cm thick.
Hearth: Clay, near center of N wall.
Dimensions (cm): 45 cm diameter, 14 cm deep. Circular clay rim, 8 cm high.
Ladder seats: Two W of hearth, NW corner, 3 cm diameter, 3–4 cm deep.
Post holes: One in W end, 15 cm diameter, 4 cm deep. One in NE corner, 12 cm diameter, 7 cm deep.
Other features: Depression in E wall, 62 cm above floor, 7 cm diameter, 3 cm deep. Shallow subrectangular pit in SE corner, 55 × 80 cm, 8–10 cm deep. Subfloor trash pit in NW corner, 109 × 116 × 4 cm deep. Pit near SE corner, 7 cm diameter, 8 cm deep. Pit against E wall near SE corner, 8 cm diameter, 5 cm deep. Adult male burial, flexed, associated with textile fragments and red ochre-stained slab, body paint; pit was 120 cm × 49–54 cm, 48 cm deep. Disturbed burial, pit was 130 cm × 40–53 cm, 16 cm deep.
Roof indicators: Clay impressions of latillas and matting.
Latilla type: Split pole impressions, planking impressions.
Matting indicators: Grass impressions.
Rooftop hearth: Slab.
Comments: Clay impressions suggest roof was repaired with new layer of latillas, grass, and clay. Room burned and later restored. Excavated in 1971.

Room: 12-16-37 Component: I Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	272	280	221	219
Height (cm):	86–100	193–205	163–182	122–195
Thickness (cm):	22	27	21	27

Floor: Gray to dark gray clay, very thin.
Other features: S wall appears to have collapsed on two individuals. Burial in N central area, no pit, no grave goods. Burial near S wall, no pit, no grave goods.
Roof indicators: Clay impressions.
Comments: Excavated in 1971.

Room: 12-16-38 Component: I Number of stories: 1

First story:
Floor: Clay, light gray.
Post holes: Row of seven posts, 6–20 cm diameter, along W wall, part of jacal structure. Two of the posts were set in a trench, 25 cm × 3 cm, and three of the posts were set in a trench, 25 cm × 4 cm.
Comments: This jacal room is below room 12-16-38 (Component II).

Room: 12-18-5 Component: I Number of stories: 2

First story:	N	S	E	W
Walls:				
Length (cm):	280	280	185	190
Height (cm):	150–155	105–126	135–140	inc
Thickness (cm):	25	25	25	25
Doors:				
Dimensions (cm):		64 × 40	80 × 33–40	90 × 40
Blocked/open:		o	b	b
Height above floor (cm):		70	50	90

Other features: Midden contiguous with midden under room 12-18-7; 25 cm thick at W wall, thinning to 8 cm

(*continued on next page*)

Room 12-18-5 (continued)

thick at E wall. Circular hole through N wall: 15 cm diameter, 120 cm above floor. Four rows of twelve finger impressions each on N wall, 80 cm above floor.

Second story:

Hearth: Slab and clay, second-story floor. Slab and clay, rooftop.

Comments: Excavated in 1972 and 1973.

Room: 12-18-6 Component: I Number of stories: 2

First story:	N	S	E	W
Walls:				
Length (cm):	242	252	258	254
Height (cm):	110–140	110–125	87–107	133–140
Thickness (cm):	23	23	23	23
Doors:				
Dimensions (cm):	60inc × 43	36inc × 34		
Blocked/open:	o	o		
Height above floor (cm):	80	86		

Other features: Subadult burial: unplastered pit, 67 × 50 × 50 cm deep. Infant burial: plastered pit, 50 × 30 × 50 cm deep. Infant burial: bell-shaped pit; top, 29–36 cm diameter; bottom, 42–56 cm diameter; 41 cm deep.

Roof indicators: Abundant plank-impressed adobe.

Viga indicators: Several wood specimens.

Matting indicators: Grass-impressed adobe.

Comments: Excavated in 1972 and 1973.

Room: 12-18-7 Component: I Number of stories: 2

First story:	N	S	E	W
Walls:				
Length (cm):	266	251	185	185
Height (cm):	182	171	170	179
Thickness (cm):	25	25	24	23
Doors:				
Dimensions (cm):			90 × 35	90 × 40
Blocked/open:			b	b
Height above floor (cm):			83	90

Floor: Clay, 5 cm thick.

Hearth: Circular pit, center of room.

Dimensions (cm): 30–36 cm diameter, 15 cm deep.

Other features: Trash-filled borrow pit below floor in NW corner. Ash-filled depression, 20 cm diameter, 2–3 cm deep. Burned maize kernels, cobs, squash rinds and seeds on floor. Post-burning access holes in N and S walls, later plugged; N wall: 125 cm high, 69–104 cm wide, 15 cm above floor; S wall: 81 cm high, 56 cm wide, 17 cm above floor. Footprint in NW area of room.

Viga indicators: Wood fragments, 10 cm diameter.

Latilla type: Plank latillas covered with clay, indicates first and second stories built at the same time.

Second story:

Hearth: Circular slab, S central rooftop, 60 cm diameter, with firedog and *comal.*

Upper roof indicators: Viga fragments, 10 cm diameter; plank impressions; pole impressions, 5 cm diameter; twig and brush impressions, including juniper; clay covering, 5–10 cm thick.

Comments: Room burned and later rebuilt. Second-story floor/first-story roof burned. Room excavated in 1972 and 1973.

Room: 12-18-8 Component: I Number of stories: 2

First story:	N	S	E	W
Walls:				
Length (cm):	275	280	190	190
Height (cm):	160	160	170	180
Thickness (cm):	23–25	23–25	23–25	23–25
Doors:				
Dimensions (cm):			90 × 40	80 × 38
Blocked/open:			b	b
Height above floor (cm):			90	90

Floor: Upper: clay, 3–8 cm. Lower: clay, 3–8 cm.

Other features: Four burials, one in each corner. SE corner: floored over, subadult. NE corner: floored over, subadult. SW corner: pit outline visible, 95 × 45 × 30 cm deep, young adult female. NW corner: pit outline visible, 86 × 60 × 50 cm deep, infant with necklace of juniper seed heishi. Ash-filled basin in NW corner beneath both floor and wall, 100 cm diameter.

Latilla type: Planks.

Second story:

Hearth: Slab, N central second-story room.

Other features: Second-story floor of clay with ash plaster, 4–5 cm thick.

Comments: Second-story room contained four clusters of vessels. Excavated in 1972 and 1973.

Room: 12-18-9 Component: I Number of stories: 2

First story:	N	S	E	W
Walls:				
Length (cm):	262	264	190	190
Height (cm):	160–170	155–161	155	162–165
Thickness (cm):	25	25	20	20
Doors:				
Dimensions (cm):		80 × 40–73	84 × 35	82 × 38
Blocked/open:		o	b	o
Height above floor (cm):		78	65	68

Ladder seats: Two shallow depressions in N central area.

Other features: Shallow post mold depression in S central area. Depression in E central area appears to be from a removed stone.

Viga indicators: Viga impressions in clay.

Second story:

Hearth: Slab, second-story room.

Comments: Excavated in 1973.

Room: 12-18-14 Component: I Number of stories: 2

First story:	N	S	E	W
Walls:				
Length (cm):	323	290	230	235
Height (cm):	140–170	150–180	177	150–155
Thickness (cm):	26	23	25	25
Vents:				
Diameter (cm):	35 × 16			
Height above floor (cm):	3			

(*continued on next page*)

Room 12-18-14 (continued)

Other features: Niche in S wall, 115 cm above floor, 10 × 14 cm. Ash-filled basin, 70 cm diameter, 15 cm deep, below floor and W wall in W central area of room. Filled hole in N wall, 63 × 40 × 10 cm above floor. Filled hole in S wall, 43 × 53 × 15 cm above floor.

Second story:

Hearth: Slab and mortar, second-story room, burned fragments.

Comments: Room burned. Excavated in 1973.

Room: 12-18-15 Component: I Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	224	210	278	287
Height (cm):	90–102	100–137	117–138	65–70
Thickness (cm):	24	28	26	25
Doors:				
Dimensions (cm):		94 × 38		
Blocked/open:		b		
Height above floor (cm):		38		
Vents:				
Diameter (cm):		18–20		15
Blocked/open:		b		o
Height above floor (cm):		8		19
Open to outside:		n		y

Hearth: Slab, S central area.

Dimensions (cm): 60 × 40 × 15 deep.

Post holes: One; center of room, 13 cm diameter, 55 cm deep.

Other features: Irregular oval pit near vent in W wall, near SW corner, 50 × 32 × 19 cm deep. Hole in N wall at NE corner, 47–55 cm diameter. Multiple burial of three juveniles and one adolescent in fill.

Roof indicators: Burned adobe with viga molds.

Viga indicators: Viga molds and plank impressions at right angles.

Latilla type: Plank.

Matting indicators: Grass and reed impressions in clay.

Comments: Room was burned and reoccupied before finally being abandoned. Floor leveled with trash prior to building. There was a 5 cm thick layer of burned ponderosa pine bark over the trash that was used to level the floor. Excavated in 1973.

Room: 12-18-32 Component: I Number of stories: 2

First story:	N	S	E	W
Walls:				
Length (cm):	255	235	290	255
Height (cm):	120–135	150–173	105–150	140–155
Thickness (cm):	25–27	25	28	25
Doors:				
Dimensions (cm):	25inc × 38			
Blocked/open:	o			
Height above floor (cm):	100			

Other features: Midden area, possibly a filled in borrow pit; 440 × 400 × 50 cm deep. Pit on S/SE side of midden area, 65 × 95 × 40 cm deep, possible puddling basin.

Viga indicators: Viga impressions in clay.

Latilla type: Plank impressions in clay.

Room 12-18-32 (continued)

Matting indicators: Grass impressions in clay.

Second story:

Hearth: Clay, N central area of second-story room.

Other features: Possible roof entry.

Upper roof indicators: Second-story roof visible in excavated strata. Viga molds in wall adobe, juniper plank latillas, grass impressions in adobe.

Comments: Excavated in 1973.

Room: 12-18-37 Component: I Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	260	255	198	160
Height (cm):	90	130	110	125
Thickness (cm):	22	26	20	23
Doors:				
Dimensions (cm):		55 × 47		
Blocked/open:		o		
Height above floor (cm):		79		

Floor: One floor, no material or dimensions given.

Other features: Subfloor borrow pit.

Roof indicators: Impressed adobe.

Latilla type: Plank.

Rooftop hearth: Slab.

Comments: Excavated in 1973.

Room: 12-18-38 Component: I Number of stories: 2

First story:	N	S	E	W
Walls:				
Length (cm):	275	260	265	240
Height (cm):	126–141	153–165	137–147	148–163
Thickness (cm):	26	26	22	22
Doors:				
Dimensions (cm):	55 × 47			
Blocked/open:	o			
Height above floor (cm):	79			

Roof indicators: Ceiling entry.

Latilla type: Plank.

Matting indicators: Twig and leaf impressions.

Second story:

Hearth: Rectangular slab, second-story floor.

Upper roof indicators: Possible viga molds in what appeared to be capping clay for second-story roof. Plank latilla impressions, twig and leaf impressions.

Comments: Excavated in 1973.

Room: 12-18-39 Component: I Number of stories: 2

First story:	N	S	E	W
Walls:				
Length (cm):	250	252	255	230

(*continued on next page*)

Room 12-18-39 (continued)

First story:	N	S	E	W
Height (cm):	145–152	140–142	142–147	143–151
Thickness (cm):	25	20	20	20
Doors:				
Dimensions (cm):	80 × 73*		73 × 32	73 × 35
Blocked/open:	o		b	b
Height above floor (cm):	78		71	80

*T-shaped stem, 40 × 23 cm (included in overall dimensions).

Floor: Clay.

Ladder seats: Two, along W wall, near SW corner, no dimensions.

Other features: Infant burial, SE corner of room, wrapped in a blanket, pit: 50 × 45 × 35 cm deep, sealed with flat stones and mortar, no grave goods. Vent pit under S wall, 65 × 50 × 45 cm deep. Subfloor appears to be a midden layer 0–10 cm thick.

Roof indicators: Possible ceiling entry.

Latilla type: Pole impressions in clay.

Matting indicators: Grass and leaf impressions in clay.

Second story:

Hearth: Slab with firedogs, second story floor.

Comments: Excavated in 1973.

Room: 12-18-42 Component: I Number of stories: 2

First story:	N	S	E	W
Walls:				
Length (cm):	257	255	189	187
Height (cm):	173	155–175	162–168	172–177
Thickness (cm):	24	24	22	24
Doors:				
Dimensions (cm):			84 × 38	77 × 40
Blocked/open:			o	b
Height above floor (cm):			71	79
Vents:	vent plug			

Other features: Hole through S wall, 150 cm above floor, 12–16 cm diameter. Midden fill layer, 300 × 300 × 30 cm deep.

Latilla type: Plank impressions in clay.

Matting indicators: Grass and reed impressions in clay, twig and leaf impressions of mountain mahogany.

Second story:

Hearth: Shallow pit with firedogs, second-story floor.

Other features: Sealed entry in E wall.

Comments: Excavated in 1973.

Room: 12-18-48 Component: I Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	265	240	225	215
Height (cm):	60	25	inc	inc

Ladder seats: Two in N corner, under 10 cm diameter.

Post holes: One in center of room, 10 cm diameter.

Other features: Two depressions.

Comments: Highly eroded room. Room was burned and may have been rebuilt. Excavated in 1973.

Room: 12-18-49 Component: I Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	247	220	195	205
Height (cm):	125	65	82	90
Thickness (cm):	25	20	25	20
Doors:				
Dimensions (cm):	35inc × 33			
Blocked/open:	o			
Height above floor (cm):	53			

Other features: Fire-blackening associated with pre-room plaza levels in NE corner. Puddling basin in E central area, 65 × 80 × 20 cm deep. Puddling basin in NW corner. Borrow pit was under room and later filled with trash, before room was built.

Matting indicators: Grass impressions in clay.

Comments: This room was built over three surfaces of Plaza G. A section of masonry wall was built in the plaza area of the room. Excavated in 1973.

Room: 12-19-1 Component: I Number of stories: 2

First story:	N	S	E	W
Walls:				
Length (cm):	194	204	358	362
Height (cm):	125	135	132	135
Thickness (cm):	23	24	23	25
Doors:				
Dimensions (cm):	71inc × 32		110 × 45	
Blocked/open:	b		b	
Height above floor (cm):	48		106	

Floor: Clay, 3–5 cm thick.

Other features: Peg hole, 10 cm deep, 2.5 cm diameter, in wall fall. Subfloor cist, burial converted from storage pit, adult male, pit was 74 × 69 × 122 cm deep. Niche in first or second story, in wall fall, 15 cm diameter, 12 cm deep. Burned patch in center of floor, 40 cm diameter, surface only. Burned area along S wall. Two burned areas along W wall.

Roof indicators: Fragments of prepared floor surface, impressed roof capping.

Latilla type: Plank and pole impressions in clay; poles were 3–5 cm diameter, planks were 10–20 cm wide.

Matting indicators: Twig impressions in clay.

Second story:

Other features: Door in E wall of second-story room.

Upper roof indicators: Plank latilla impressions in clay.

Comments: Excavated in 1972.

Room: 12-20-6 Component: I Number of stories: 2

First story:	N	S	E	W
Walls:				
Length (cm):	340	330	200	200
Height (cm):	135	139	139	128
Thickness (cm):	26	24	24	19
Doors:				
Dimensions (cm):		inc × 42		83 × 37
Blocked/open:		o		b

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Room 12-20-6 (continued)

First story:	N	S	E	W
Height above floor (cm):		50		83
Vents:				
Diameter (cm):		31–41		
Blocked/open:		b		
Height above floor (cm):		0		
Open to outside:		n		

Floor: Upper: gray-buff, 2.2–8 cm thick. Lower: light gray-buff, 4 cm average.
Hearth: Clay, subrectangular, associated with both floors, unplastered and unsealed (sealed later). Archaeomagnetic samples.
Dimensions (cm): 55 × 42 × 10 deep.
Ladder seats: Three in SE corner, 6 cm diameter.
Other features: Cache of stones, 20 cm diameter, 29 cm deep, SW quadrant. Vent plug, possibly from S wall, 18 cm diameter. Burial in NE corner. Ash pit against S wall, unplastered, unsealed, associated with lower floor, contained four culinary sherds and a sliver of long bone from a large bird, 31 × 16 × 8 cm deep. Burned area in NE corner, surface of lower floor, 10 × 8 cm.
Latilla type: Plank, average 12 cm wide.
Matting indicators: Grass, pinyon twigs.
Second story:
Vents: One.
Hearth: Clay, second-story floor. Slab, rooftop.
Upper roof indicators: Fragment of possible smoke hole, 30 cm diameter.
Comments: Excavated in 1972.

Room: 12-21-6 Component: I Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	215	225	323	316
Height (cm):	45–71	40–61	32–57	73–86
Thickness (cm):	22	22	25	27

Floor: Clay, 2–3 cm thick. Floor was later replastered with clay 5 cm thick.
Other features: Bell-shaped storage pit, 40 cm diameter at top, 150 cm diameter at bottom, 45 cm deep. Two burned areas in center of room, 14 and 23 cm diameters, both on surface only.
Latilla type: Pole and plank impressions.
Rooftop hearth: Clay.
Comments: Excavated in 1972.

Room: 12-23-4 Component: I Number of stories: 2

First story:	N	S	E	W
Walls:				
Length (cm):	198	193	245	247
Height (cm):	98	107	105	112
Thickness (cm):	23	23	25	24
Doors:				
Dimensions (cm):		45 × 57		
Blocked/open:		b		
Height above floor (cm):		50		

Floor: Upper: plastic mud with light ash stain, 7 cm thick. Lower: laminated, aboriginal ground surface, 2 cm thick.

Room 12-23-4 (continued)

Other features: Circular pit, 45 cm diameter, 30 cm deep. Midden layer below the floors, 5–10 cm thick.
Roof indicators: Impressed adobe.
Viga indicators: Pole impressions in clay, 10 cm diameter.
Latilla type: Plank impressions in clay.
Matting indicators: Twig and grass impressions in clay.

Second story:

Hearth: Slab-lined, second-story floor.
Other features: Schist slab—entry/smoke hole cover?
Upper roof indicators: Plank latilla impressions in clay.

Comments: Excavated in 1972.

Room: 12-24-3 Component: I Number of stories: 2

First story:	N	S	E	W
Walls:				
Length (cm):	320	320	250	245
Height (cm):	107	72	106	103
Thickness (cm):	26	25	23	25

Floor: Plastic clay, 8 cm thick.
Ladder seats: One in central area, 14 cm diameter, 25 cm deep.
Other features: Oval basin along center of S wall, clay-lined, 84 × 46 × 30 cm deep. Concentration of unmodified rocks along center of S wall, averaging 14 × 22 cm. Trash-filled pit in NW corner, 60–80 cm diameter.
Roof indicators: Wide plank-impressed roof adobe.
Viga indicators: Viga impressions in clay, 10–15 cm diameter.
Latilla type: Plank fragments, 10–15 cm wide, 2–3 cm thick.

Second story:

Hearth: Slab and clay (vertical granite block and adobe lip), second-story floor. Slab, rooftop.
Upper roof indicators: Pole and plank impressions in clay, pole specimens.

Comments: Excavated in 1972.

COMPONENT II

Room: 12-7-6 Component: II Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	225	222	336	335
Height (cm):	49	55	50	55

Floor: Clay, 2–4 cm thick.

Comments: Bell-puddled over a Component I wall stub. Excavated in 1972.

Room: 12-7-8 Component: II Number of stories: 1

First story:	N	S	E	W
Walls:				
Height (cm):	27	inc	41	5
Thickness (cm):	24	21	24	20

Comments: Component I walls underlay the S and W portions of this room. E quadrant of room and a trench along the W wall were excavated in 1973.

Room: 12-7-9 Component: II Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	245	250	300	330
Height (cm):	12–20	1–2	0–4	19–30
Thickness (cm):	24	20	21	23

Floor: Clay plaster over dry clay, 1.5–9 cm thick.
Hearth: Slab-lined with clay rim along center E wall.
Dimensions (cm): 51 × 45 × 10 deep.
Other features: Artifacts sealed in S end of pit under hearth, 36 × 29 × 10 cm deep. Oval basin in SE corner, plastered interior, 56 × 48 × 8 cm deep.
Comments: Cobble and slab footings in N and E walls. Roof fall included mano fragments and fragments of culinary jars and a glaze-on-red bowl. This room was constructed prior to adjacent and southernmost rooms of roomblock 7. Excavated in 1973.

Room: 12-7-10 Component: II Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	207	221	325	341
Height (cm):	24–27	0 or below	7–49	27–33
Thickness (cm):	22	21	20	21

Floor: Clay plaster, 2 cm thick.
Other features: Basin-shaped pit in SE corner, clay plaster-lined interior, 39 × 33 × 9 cm deep.
Comments: Cobble footings along S end of W wall. N, E, and W walls were built over Component I walls. Excavated in 1973.

Room: 12-8-4 Component: II Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	348	340	214	218
Vents:				
Diameter (cm):		20		
Blocked/open:		o		
Height above floor (cm):		13		
Open to outside:		n		

Floor: Dark gray adobe, 4 cm thick.
Other features: Shelf or plank hole.
Roof indicators: Small amounts of burned wood and adobe chunk.
Comments: Cobble footings. N and E walls built parallel to earlier walls. Excavated in 1972.

Room: 12-8-6 Component: II Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	329	305	268	264
Height (cm):	inc	18–37	37–87	43–60
Thickness (cm):	inc	23	18	23
Doors:				
Dimensions (cm):		20inc × 33–38		

Room 12-8-6 (continued)

First story:	N	S	E	W
Blocked/open:		o		
Height above floor (cm):		15		
Vents:				
Diameter (cm):	19–20			
Blocked/open:	o			
Height above floor (cm):	0			
Open to outside:	n			

Floor: Clay over compacted adobe from Component I, 6 cm thick.
Hearth: Slab-lined with clay rim in S center, contained two glaze-on-red sherds.
Dimensions (cm): 62 × 38 × 13 deep.
Other features: Bin in SE corner raised 2 cm above floor, located E of hearth in front of door. Vent trough, circular, in N wall flush with vent hole, opposite S doorway. Subrectangular ashpit, W of hearth, W wall and floor partially formed by shaped slabs, 14.5 × 30 × 14 cm deep, sealed with adobe, 5 cm thick.
Viga indicators: Pole fragments oriented N-S, 114 cm long, 5 cm diameter.
Latilla type: Split pole fragments oriented E-W, 28–112 cm long.
Comments: Walls appear to be built over Component I walls. No trenching at base of wall for foundation stones. Excavated in 1973.

Room: 12-9-6 Component: II Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	225	225	310	295
Height (cm):	92	73	92	56
Thickness (cm):	15	17	21	21

Floor: Plaster and adobe, burned black to brown-orange.
Other features: Stick and branch rack, maize cobs.
Roof indicators: Burned wood and adobe chunk.
Latilla type: Round, splitwood, planks.
Matting indicators: Fragment of yucca matting.
Comments: Probably storage facility for shucked, unhulled maize.
Footings: S and W walls, new courses over Component I wall stubs. E wall, rubble footing. N wall, bell-puddled over slabs and cobbles. Room burned. Excavated in 1972.

Room: 12-9-8 Component: II Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	216	230	315	310
Height (cm):	82	92	87	82
Thickness (cm):	29	21	37	27
Doors:				
Dimensions (cm):	50			
Blocked/open:	b			
Height above floor (cm):	55			
Vents:				
Diameter (cm):			20.5	
Blocked/open:			b	
Height above floor (cm):			0	
Open to outside:			n	

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Room 12-9-8 (continued)

Floor: Upper: trampled sand (use surface). Lower: adobe and plaster, 10 cm thick.
Other features: Adobe-rimmed basin.
Roof indicators: Burned log fragments.
Viga indicators: Burned log fragments.
Comments: Reused as open-air work area when room was destroyed by fire. No trenching for foundations, but appears to be Component I walls. Room burned. Excavated in 1972.

Room: 12-9-9 Component: II Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	230	215	378	380
Height (cm):	41–79	40–63	63–80	38–55
Thickness (cm):	21–32	23	22–38	22

Doors: Sill only, in fill, slab measured 40 × 20 cm. Position indicates the door was in the E wall.

Vents:				
Diameter (cm):			29 × 23	
Blocked/open:			b	
Height above floor (cm):			22	
Open to outside:			n	

Floor: Clay, gray-buff, 7.5 cm thick.
Post holes: One along middle of W wall with rotted wood, 1.5 cm diameter, 5 cm thick. Three along W wall, 5–8 cm diameter, 5–8 cm deep.
Other features: Two burned areas in SE corner, 24 cm diameter, 12 × 19 cm. Pit along center E wall, 45 × 43 × 29 cm deep. Pole holes: eleven in N wall, nine with rotted wood, 31–47 cm above floor, 4.5–7 cm diameter; ten in S wall, nine with wood fragments, 31.5–36 cm above floor, 5–7.5 cm diameter.
Rooftop hearth: Slab and clay, SW corner.
Comments: Eight slab and cobble footing stones along base of E wall, placed vertically, with the bases below floor level, 3–8 cm thick, 8–24 cm long. Five slabs were 23–44 cm long. N wall slab footings covered with 4–11 cm adobe. Portion of E wall is a refurbished Component I wall. The pole holes in N and S walls appear to have formed a rack. Doorway in E wall probably predated construction of room 9–11, and opened into plaza C. Excavated in 1973.

Room: 12-9-10 Component: II Number of stories: 1

First story:	N	S	E		W
Walls:					
Length (cm):	270	270	210		208
Height (cm):	57–92	45–76	45–57		71–78
Thickness (cm):	21	20	21		21
Vents:					
Diameter (cm):			20.5	20–25	
Blocked/open:			b	b	
Height above floor (cm):			19	5	
Open to outside:			n	y	

Floor: Upper: clay, well-plastered, 1.5–3 cm thick. Lower: clay, more worn, 3 cm thick.
Hearth: Slab-lined with clay rim, SW corner away from wall.
Dimensions (cm): 52 × 36 × 13 deep.
Post holes: One in SW corner, 10 cm diameter, 4 cm deep; one in NW area, 10 cm diameter, 5 cm deep.
Other features: Large rectangular bin in NE corner, N and E walls used as walls of bin, W and S walls were a single course of adobe, 11 cm thick, 87 × 49–54 cm.

Room 12-9-10 (continued)

Roof indicators: Latilla and matting fragments.
Latilla type: Planks, 5.5 cm wide, 1.5 cm thick; poles, 3–7 cm diameter; split poles, 4–4.5 cm diameter.
Matting indicators: Willow or cottonwood branches. Bundle of grasslike material with yucca cordage, 20 cm long.
Rooftop hearth: Slab.

Comments: Along the E wall, two floors were constructed after the sealed vent. No information on footings. Room burned. Excavated in 1973.

Room: 12-9-11 Component: II Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	215	275	175	177
Height (cm):	53–84	40–70	40–55	56–73
Thickness (cm):	21	23	22	20
Vents:				
Diameter (cm):			11 × 15	18 × 14
Blocked/open:			o	b
Height above floor (cm):			24	15
Open to outside:			y	n

Floor: Upper: gravelly clay, orange-tan, 3 cm thick. Lower: smooth clay, black, cracks caulked with mud.
Hearth: Slab-lined with clay rim, against S wall sealed flush with upper floor.
Dimensions (cm): 55 × 38 × 9.5 deep.
Ladder seats: One in NW area, worn to lower floor, 8 cm diameter, 2 cm deep.
Post holes: One in lower floor sealed by upper floor, NE area, 4.5 cm diameter, 4.5 cm deep.
Other features: Basin along S wall, 66 × 61 × 2 cm deep, interior plastered twice. Pit beneath lower basin floor, 51 × 20 cm. Second hole dug beneath E end of pit, 12 cm diameter (possible post hole).
Roof indicators: Wood fragments.
Latilla type: Three poles; 7, 7, and 3.5 cm diameters.
Rooftop hearth: Slab.

Comments: The interior S and W walls were plastered with clay their full height. N wall plastered to 50 cm above floor. No plaster found on E wall. Earlier wall N-S across E side of room formed a ridge 23 cm wide. Small patches of red and yellow paint or clay on the plaster near center of N wall. No abutment information. Room burned. Excavated in 1973.

Room: 12-9-12 Component: II Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	234	223	315	321
Height (cm):	0–54	21–41	0–30	41–42
Thickness (cm):	25	29	18	19
Doors:				
Blocked/open:				b
Height above floor (cm):				6
Vents:				
Diameter (cm):				9
Blocked/open:				b
Height above floor (cm):				11
Open to outside:				n

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Room 12-9-12 (continued)

Floor: Clay, buff most areas, burned black in some.

Hearth: Slab-lined with clay rim, against center of E wall. Layer of ash, 2 cm thick, and slabs below this hearth representing earlier form.

Dimensions (cm): 59 × 34 × 15–20. Earlier form: 71 × 52.

Post holes: One along N wall, 7 cm diameter, 9 cm deep. One in center of room, 7 cm diameter, 10 cm deep.

Other features: Clay basin in SE corner, 80 cm diameter, 6 cm deep.

Floor sloped up from E to W to form a rim above floor surface, where manos and metates were placed.

Rooftop hearth: Slab.

Comments: Slab footing stones in W and S walls. Room burned. Excavated in 1973.

Room: 12-9-13 Component: II Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	252	232	300	300
Height (cm):	62–80	53–71	53–62	71–89
Thickness (cm):	22	16	22	59
Doors:				
Dimensions (cm):			23–29inc × 32	
Blocked/open:			b	
Height above floor (cm):			16	

Floor: Wet clay over dry, burned, gray-buff, 2 cm thick. Floor curves up to meet wall plaster.

Hearth: Slab-lined with clay rim and firedog sockets, sealed, in E central area.

Dimensions (cm): 46 × 40 × 13 deep.

Ladder seats: One in NE area, 11 cm diameter, 1 cm deep.

Post holes: One near center of S wall, 6 cm diameter, 14 cm deep.

Other features: Bin in SE corner, 102 × 61–67 cm, floor of room was 0.4 cm below floor of bin. Clay ridge, 3–9.5 cm above bin floor, 16–18 cm wide. Depression, 1.5 cm deep, 14 cm wide inside bin. Hole in E wall, 50 cm above floor, 6.5 cm diameter, 7 cm deep. Hole in W wall, 32 cm above floor, 6.5 cm diameter, 8 cm deep.

Latilla type: Poles oriented N-S, 5 and 9 cm diameters.

Rooftop hearth: Slab.

Comments: W wall built against Component I wall stub, andesite slabs in wall. Holes in E and W walls contain decayed wood; may have been hanging pole or shelf support holes. Room partially burned. Excavated in 1973.

Room: 12-10-3 Component: II Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	369	358	247	247
Height (cm):	22–49	114–148	51–80	42–54
Thickness (cm):	25	24	25	25

Floor: Upper: dark, sandy clay, 5 cm thick. Lower: clay, 3 cm thick.

Hearth: Pit.

Dimensions (cm): 66 × 76 × 10 deep.

Other features: Basin, 82 × 129 × 31 cm deep.

Roof indicators: Probable rooftop work area.

Comments: Room burned. Excavated in 1973.

Room: 12-10-4 Component: II Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	400	410	186	210
Height (cm):	28–65	18–66	54–66	18–36
Thickness (cm):	21	23	17–20	20
Doors:			sill only	
Height above floor (cm):			91	

Floor: Wet-laid adobe, 3 cm thick.
Hearth: Slab-lined, center of S wall, sealed.
Dimensions (cm): 35 × 58.5 × 18 deep.
Other features: Oval cist, deep beneath central hearth slab, contained awl, 22 × 27 × 12 cm deep. Two plaster-lined pits in NE quadrant: 11 cm diameter, 6 cm deep; 6 cm diameter, 1.5 cm deep. Burial, pit in SW corner, 63 cm N-S × 36 cm E-W.
Roof indicators: Six burned poles in fill, 1–6 cm diameter.
Latilla type: Two wood planks with bark, 2–3 cm thick. Small-diameter sticks and branches, 0.2-1.5 cm diameter.
Comments: N wall was a plastered Component I wall, resurfaced and replastered for Component II use. W wall had cobble footings. Component I N-S wall bisects E half of room, forming a ridge that is higher than room floor at center and S end. Room burned. Excavated in 1973.

Room: 12-10-5 Component: II Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	370	360	224	232
Height (cm):	5–21	50–72	22–62	6–58
Thickness (cm):	28	17	20	23
Vents:				
Diameter (cm):		11–14 × 40		
Blocked/open:		b		
Height above floor (cm):		1		
Open to outside:		n		

Floor: Wet-laid clay.
Ladder seats: One along S wall, SE area, 11–12 cm diameter, 4 cm deep.
Post holes: Three: NE area, 9 cm diameter, 13.5 cm deep; center of room, 8–10 cm diameter; central W area, 10.5–11 cm diameter.
Other features: Ceiling entry, SE area. Worn area, 100 cm diameter, with ladder butt depression (see above).
Latilla type: One pole oriented SW-NE, 4 cm diameter. One split pole, 4 cm diameter.
Rooftop hearth: Slab (slabs and cobbles with ash in fill).
Comments: Slab footings for N, S, and W walls. Excavated in 1973.

Room: 12-10-6 Component: II Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	360	360	200	200
Height (cm):	66–84	67–76	73–82	60–67
Thickness (cm):	20	20	22	20
Doors:			sill only	
Dimensions (cm):			35–37	

(*continued on next page*)

Room 12-10-6 (continued)

First story:	N	S	E	W
Height above floor (cm):			82	
Vents:				
Diameter (cm):	11 × 28	19–22		
Blocked/open:	b	o		
Height above floor (cm):	13	26		
Open to outside:	n	y		

Floor: Wet-laid clay, 1.5–2 cm thick.
Hearth: Slab, center of S wall, plastered. Later sealed.
Dimensions (cm): 55 × 37 × 10 deep.
Ladder seats: One, E of hearth, 19 cm diameter, 4 cm deep.
Post holes: One in NW corner, 10–11 cm diameter, 4 cm deep.
Other features: Rectangular subfloor cist in NW area, 26 × 30 × 4–16 cm deep.
Viga indicators: Two poles oriented E-W, 8 cm diameter. Five poles, 3–4.5 cm diameter.
Latilla type: Four planks, 5.5–12 cm wide.
Comments: N and S walls appear to be built over Component I walls. Subfloor walls run N-S. Excavated in 1973.

Room: 12-11-2 Component: II Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	190	189	264	276
Height (cm):	58	48	60	55
Thickness (cm):	24–27	24–26	23–26	24–28

Floor: Plastered with clay, 2–4 cm thick.
Other features: Rock and adobe plug projects from E wall, 13 cm.
Comments: The walls of this room are masonry with clay mortar. This room is a remodeling of 12-11-4. Large slabs with clay and small stones were used to fill the abutment with N wall, then plastered. Excavated in 1973.

Room: 12-11-7 Component: II Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	228	218	289	303
Height (cm):	0–34	43–71	98–115	72–100
Thickness (cm):	26	30	34	35

Floor: Earth fill, 3 cm thick.
Rooftop hearth: Slab-lined.
Comments: All walls are masonry. This room is a remodeling of room 12-11-9. Excavated in 1971.

Room: 12-15-6 Component: II Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	238	227	370	370
Height (cm):	0	25	24	8
Thickness (cm):	30	23	25	26

Floor: Clay, 21 cm thick.
Hearth: Slab, rectangular, along center of E wall.
Dimensions (cm): 30 × 70 × 12 deep.

Room 12-15-6 (continued)

Other features: Wall plaster, patches 2 cm thick. Basin, SE corner, filled with maize kernels and cobs, 94 × 99 × 28 cm deep. Pit, filled with maize kernels, 17 × 16 × 7 cm deep.
Viga indicators: Ponderosa pine fragments, 11–13 cm diameter.
Latilla type: Pole fragments, 5–6 cm diameter.
Matting indicators: Grass, sticks 2–5 cm diameter, laid in bunches under clay.
Rooftop hearth: Slab.
Other features: Clay layer on roof, 19 cm thick.

Comments: N wall built against old Component I wall. E, W, S walls built over Component I walls. Cobble footings in N wall. Corner stones on top of first course at ends of N wall. Room burned. Excavated in 1972.

Room: 12-15a-7 Component: II Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	inc	243	283	225
Height (cm):	inc	25	22	19
Thickness (cm):	inc	22	20	22

Floor: Clay.
Hearth: Clay, along center of E wall, archaeomagnetic sample taken.
Dimensions (cm): 32 × 57 × 15 deep.
Other features: Ashpit in front of hearth, 15 cm diameter. Plugged cist in S wall, 30 × 45 × 10 cm deep. Oval subfloor cist, 25 × 40 × 10 cm deep. Milling area on roof consisted of three slab metates, one or two manos.
Viga indicators: One fragment of wood.
Latilla type: Pole and plank fragments, juniper.
Matting indicators: Sticks and brush fragments with chunks of clay cap.

Comments: Superimposed over earlier Component II room 12-15a-8, and partially superimposed over Component I room 12-15a-9. No data on foundations. Room was burned. Excavated in 1972.

Room: 12-15a-8 Component: II Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	243	230	290	260
Height (cm):	40	59	51	57
Thickness (cm):	29	34–39	34–40	20–35
Vents:				
Diameter (cm):				30
Blocked/open:				b
Height above floor (cm):				0
Open to outside:				n

Floor: Upper: clay, 2–3 cm thick. Mid/Upper: clay, 3 cm thick. Mid/Lower: sand, 5 cm thick. Lower: sand, 44–51 cm thick.
Hearth: Clay, along center of E wall.
Dimensions (cm): 52 × 65 × 21 deep.
Ladder seats: Two, central area, 10 cm diameter, 9–14 cm deep.
Other features: Twenty-two small pits in E-W rows, 2–4 cm diameter, 1–4 cm deep (loom holes?). Subfloor pit, NW corner, 25 cm diameter, 3 cm deep. Subfloor pit, NW corner, 30 cm diameter, 12 cm deep.

Comments: Same room as room 12-15a-7, but earlier occupation within Component II. Partially superimposed over Component I room 12-15a-9. Cobble footings. Excavated in 1972.

Room: 12-16-1 Component: II Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	379	362	171	175
Height (cm):	32	118	124	27
Thickness (cm):	24	20	20	18

Floor: Mottled brown clay, 9–15 cm thick.
Hearth: Pit, center of N wall, sealed.
Dimensions (cm): 44 × 56 × 13 deep.
Comments: Only a portion of this room was excavated. Excavated in 1970 and 1971.

Room: 12-16-2 Component: II Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	inc	115	inc	229
Height (cm):	inc	35	inc	35
Thickness (cm):	inc	21–23	inc	21–23

Floor: Clay, 2 cm thick.
Comments: Erosion of N and E walls, no features in remaining SW corner. Component I wall used as footing. W wall built against a Component I wall. Excavated in 1972.

Room: 12-16-3 Component: II Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	128	inc	inc	215
Height (cm):	34	3	inc	0–34
Thickness (cm):	20–23	26	inc	20–24

Floor: Gray adobe plaster.
Hearth: Slab, along S wall, open.
Post holes: One, along N wall, 8 cm diameter, 1 cm deep. One, in older wall that ran E-W across center of room, 11–12 cm diameter, 4 cm deep.
Other features: Ashpit, W of hearth, 20 × 24 × 3–5 cm deep. Circular pit near NW corner, 21 cm diameter, 8 cm deep. Semicircular pit, 12 × 18 × 17 cm deep.
Comments: No abutment information. Room was burned. Excavated in 1971.

Room: 12-16-4 Component: II Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	298	286	190	217
Height (cm):	18–23	24–26	18–24	18–30
Thickness (cm):	21–28	18–24	19–24	14–20

Floor: Clay.
Hearth: Slab, against S wall, sealed.
Dimensions (cm): 44 × 38 × 14 deep.
Other features: One burned area in NE corner.
Roof indicators: Fire-reddened adobe, fragments of carbonized wood.
Comments: Slab footings. S wall built against earlier wall. Roof burned. Excavated in 1971.

Room: 12-16-5 Component: II Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	320	322	197	190
Height (cm):	40–47	47–70	57–70	40–47
Thickness (cm):	27–30	21–25	22	21
Doors:				
Dimensions (cm):			41inc × 27	
Blocked/open:			b	
Height above floor (cm):			41	
Vents:				
Diameter (cm):	20	16		
Blocked/open:	b	b		
Height above floor (cm):	0	42		
Open to outside:	n	n		

Floor: Clay.
Ladder seats: Two: 10 × 7 × 9 cm deep; 13 cm diameter × 2.5 cm deep.
Other features: Three burned areas: NW corner, 20 × 27 cm; against E wall, 17 × 38 × 46 cm up wall; along S wall, 36 cm diameter, 9.5 cm up wall.
Viga indicators: Burned wood fragments.
Latilla type: Burned wood fragments, 6.6–7 cm diameter.
Rooftop hearth: Slab, with work area.
Comments: Possible use of turtlebacks in construction. No abutment information. Roof burned. Excavated in 1971.

Room: 12-16-6 Component: II Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	310	310	195	187
Height (cm):	25–45	25–56	56	25–27
Thickness (cm):	21	20	16	15
Vents:				
Diameter (cm):	20			
Blocked/open:	b			
Height above floor (cm):	3			
Open to outside:	n			

Floor: Upper: tan clay, 5 cm thick. Lower: gray clay.
Hearth: Slab, center of S wall, sealed with clay.
Dimensions (cm): 56 × 32 × 11 deep.
Roof indicators: Burned wood fragments.
Rooftop hearth: Slab, with work area.
Comments: No abutment information. Excavated in 1971.

Room: 12-16-7 Component: II Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	310inc	none	251	none
Thickness (cm):	21	none	inc	none

Comments: Not actually a room, but a use area and trash dump over the trash-filled Component I rooms, 12-16-33 and 12-16-36. Excavated in 1971.

Room: 12-16-9 Component: II Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	280	292	182	174
Height (cm):	9–18	18–21	15	3–21

Floor: Gray clay.
Roof indicators: Burned roof fragments, with carbon and burned clay.
Comments: No footing information. Room was partially burned. Excavated in 1971.

Room: 12-16-10 Component: II Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	355	341	210	200
Height (cm):	0–32	34–53	36–57	0–21
Thickness (cm):	0–23	17–26	12–23	17–21

Floor: Gray clay.
Comments: No footing information. N wall built against an earlier wall. Room was badly eroded. Excavated in 1971.

Room: 12-16-11 Component: II Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	287	283	209	190
Height (cm):	19–30	119–125	67–120	19–73
Thickness (cm):	26	26	20	26

Vents: plug only
Floor: Gray-brown clay.
Hearth: Clay, center of N wall, sealed.
Dimensions (cm): 42 × 53 × 17 deep.
Viga indicators: Burned wood oriented E-W and NE-SW, 7 cm diameter.
Latilla type: Burned alder limbs and branches, 2–5 cm diameter.
Rooftop hearth: Slab, with firedogs.
Comments: After abandonment, room was used as trash dump. No footing information. Room was burned; carbonized beans, corn kernels, and cobs were recovered from the floor. Excavated in 1971.

Room: 12-16-12 Component: II Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	277	none	151	148
Height (cm):	23–34	none	0–33	0–32
Thickness (cm):	17–22	none	22–27	20–22

Floor: Gray to black clay mixed with trash, compacted by use.
Comments: Probable use surface, outside of room block. Excavated in 1971.

Room: 12-16-13 Component: II Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	305	304	195	193
Height (cm):	19–29	43–65	28–44	20–43
Thickness (cm):	26	24	21	23
Doors:				
Dimensions (cm):		11inc × 43		
Blocked/open:		o		
Height above floor (cm):		40		

Floor: Brown-gray packed clay, 2–9 cm thick.
Latilla type: Burned pole fragments, 4–5 cm diameter.
Matting indicators: Burned twigs and sticks.
Comments: No footing information. Room was burned. Excavated in 1971.

Room: 12-16-14 Component: II Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	308	310	227	220
Height (cm):	14–29	34–40	27–39	36–38
Thickness (cm):	17–20	21–24	16–20	15–20
Doors:				
Dimensions (cm):	inc			
Height above floor (cm):	inc			

Floor: Gray to black clay.
Hearth: Slab, middle of S wall.
Dimensions (cm): 62 × 40 × 4–8 deep.
Roof indicators: Ash above floor.
Comments: Slabs were used inside the adobe walls as reinforcement. Room was burned after abandonment. Excavated in 1971.

Room: 12-16-15 Component: II Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	310	315	240	228
Height (cm):	38–45	0–9	0–46	6–48
Thickness (cm):	14–22	11–26	19–21	17–26

Floor: Gray to dark gray clay. Irregular, only extends over part of surface.
Comments: No footing information. Excavated in 1971.

Room: 12-16-16 Component: II Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	245	240	229	240
Height (cm):	31–44	inc	7–32	inc
Thickness (cm):	14–20	inc	18–25	12–20

Floor: Light gray clay. This may not be an intentional feature, but clay compacted by use.
Comments: No footing information. Excavated in 1971.

Room: 12-16-17 Component: II Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	316	323	217	205
Height (cm):	24–66	52–69	74–78	50–64
Thickness (cm):	16–27	16–29	16–19	16–19
Doors:				
Dimensions (cm):	47inc × 36			
Blocked/open:	o			
Height above floor (cm):	20			

Floor: Upper: dark gray to black clay, NW corner is red. Lower: black clay, separated from upper floor by ash layer, except near hearth where it merges with upper floor.
Hearth: Slab, against S wall.
Dimensions (cm): 40 × 55 × 10 deep.
Other features: Plaster on all walls.
Latilla type: Pole, 3–4 cm diameter.
Matting indicators: Grass, 4–7 cm thick, both carbonized and unburned.
Comments: No footing information. Room was burned. Excavated in 1971.

Room: 12-16-18 Component: II Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	317	314	208	207
Height (cm):	28–38	16–38	39–56	16–28
Thickness (cm):	21	24	18	17
Doors:				
Dimensions (cm):	11inc × 43			
Blocked/open:	o			
Height above floor (cm):	26			
Vents:				
Diameter (cm):		13 × 14		
Blocked/open:		b		
Height above floor (cm):		17		
Open to outside:		n		

Floor: Dark gray clay.
Hearth: Upper: slab, center of S wall. Lower: slab, center of S wall. Both hearths sealed and superimposed.
Dimensions (cm): Upper: 22 × 39 × 21 deep. Lower: 35 × 52 × 8 deep.
Other features: Plaster on all walls.
Viga indicators: Burned log fragments, 7–11 cm diameter.
Latilla type: Pole fragments, 4 cm diameter.
Matting indicators: Burned grass at floor contact, 1 cm thick.
Rooftop hearth: Slab, with firedogs, manos, and four culinary vessels.
Comments: No footing information. Room was burned. Excavated in 1971.

Room: 12-16-19 Component: II Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	285	285	198	195
Height (cm):	30–31	54–58	30–43	30–40

Room 12-16-19 (continued)

First story:	N	S	E	W
Thickness (cm):	25	25	20	20
Doors:				
Dimensions (cm):		inc × 34		
Blocked/open:		o		
Height above floor (cm):		22		
Vents:				
Diameter (cm):	12	17 × 20		
Blocked/open:	b	b		
Height above floor (cm):	10	21		
Open to outside:	n	n		

Floor: Upper: brown-gray clay. Middle: gray-buff clay, 2–4 cm thick. Lower: dark gray clay, 6–10 cm thick.
Hearth: Upper: clay, SW corner, sealed by upper floor. Lower: pit, NW corner, sealed by middle floor, one slab in W wall.
Dimensions (cm): Upper: 67 × 59 × 8 deep. Lower: 43 × 53 × 8 deep.
Latilla type: Poles oriented E-W, 3–4 cm diameter.
Matting indicators: Sticks, 1–2 cm diameter. Twigs, 0.5 cm and smaller. Patches of burned grass.
Comments: No footing information. Roof was burned after room was abandoned. Excavated in 1971.

Room: 12-16-20 Component: II Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	282	285	198	209
Height (cm):	15–28	108–124	22–108	49–124
Thickness (cm):	22	27	21	27

Floor: Gray clay.
Hearth: Clay, NW corner, sealed.
Dimensions (cm): 46 × 52 × 15 deep.
Other features: Plaster on all walls.
Roof indicators: Burned chunks of wood up to 200 cm long, 8–14 cm diameter.
Viga indicators: Viga hole in N wall, 13 cm diameter, 110 cm above floor.
Latilla type: Carbonized juniper poles and split poles, 2.5–7 cm diameter.
Matting indicators: Patches of burned twigs, sticks, and small branches.
Rooftop hearth: Slab.
Comments: No footing information. Roof burned. Excavated in 1971.

Room: 12-16-21 Component: II Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	340	352	169	217
Height (cm):	71–81	89–136	65–83	78–120
Thickness (cm):	20–23	18–19	18–20	18–23
Doors:				
Dimensions (cm):				65inc × 41–46
Blocked/open:				b
Height above floor (cm):				51

Floor: Gray to black clay.
Hearth: Two: clay, along S wall; pit, against N wall.
Dimensions (cm): 37 × 60, depth not noted; 60 diameter × 9 deep.
Comments: Slab footings. Excavated in 1971.

Room: 12-16-22 Component: II Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	318	292	212	220
Height (cm):	36–84	74–121	87–123	11–75
Thickness (cm):	14–20	0–22	19–25	0–20

Floor: Gray to black clay.
Other features: Plaster on E wall.
Comments: No footings visible. Excavated in 1971.

Room: 12-16-23 Component: II Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	405	445	242	251
Height (cm):	20	inc	inc	inc
Thickness (cm):	18	21	20	20
Vents:				
Diameter (cm):	13 × 14 inc			
Blocked/open:	b			
Height above floor (cm):	17			
Open to outside:	n			

Comments: No footing information. Excavated in 1971.

Room: 12-16-25 Component: II Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	305	304	195	193
Height (cm):	41–54	68–79	54–79	41–68
Thickness (cm):	26	24	21	23

Floor: Gray clay.
Hearth: Slab, center of S wall, sealed with clay and stone.
Dimensions (cm): 40 × 50 × 17–24 deep.
Viga indicators: Three viga holes: 20 cm above floor, 16 cm diameter, partially plugged; flush with floor, 16 cm diameter, plugged; 18 cm above floor, 17 cm diameter, not plugged.
Matting indicators: Adobe with grass and stick impressions.
Comments: This room is below room 12-16-13. No footing information. Excavated in 1971.

Room: 12-16-38 Component: II Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	185	215	282	280
Height (cm):	inc	inc	21	20
Thickness (cm):	inc	20	inc	inc

Floor: Light gray clay.
Other features: Burial in N half of room, young adult male; pit was 68 × 95 × 172 cm deep. Trash-filled pit against W wall, 30 × 60 cm. Burned area, 16 × 26 cm.
Comments: Walls include some masonry. Slab and cobble footings. Excavated in 1972.

Room: 12-20-4 Component: II Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	305	inc	40inc	inc
Height (cm):	inc	inc	inc	inc
Thickness (cm):	26	inc	26	inc

Floor: Clay, 7.5 cm thick.

Comments: This was a remnant of a room that overlapped room 12-20-N3. Slab and cobble footings. Excavated in 1972.

Room: 12-20-5 Component: II Number of stories: unknown

First story:	N	S	E	W
Walls:				
Length (cm):	inc	305	215	inc
Height (cm):	inc	21inc	12inc	inc
Thickness (cm):	inc	27	26	inc

Floor: Wet-laid adobe, buff, covers only one-quarter of the room, 9 cm thick.

Comments: Badly eroded. Cobble and Component I wall footings. Excavated in 1972.

Room: 12-21-3 Component: II Number of stories: 1

First story:	N	S	E	W
Walls:				
Length (cm):	192inc	235	320	325
Height (cm):	inc	13–14	inc	13–36
Thickness (cm):	18	20	22	23
Vents:				
Diameter (cm):	30 × 40			
Blocked/open:	o			
Height above floor (cm):	0 (extends under N wall)			
Open to outside:	n			

Floor: Upper: dark brown clay, 4 cm thick. Lower: sand, 2 cm thick.

Other features: Burial in SW corner, pit was 58 × 27 × 8 cm deep. Pit in SE corner, 15 cm diameter, 10 cm deep. Burial in SE corner, pit was 53 × 30 × 45 cm deep.

Comments: Cobble and Component I wall footings. Excavated in 1972.

Room: 12-21-4 Component: II Number of stories: 1

First story:

Other features: Burial along N wall, with corrugated culinary jar, pit was 42 × 28 × 24 cm deep.

Comments: No footing information. Only the burial was excavated in this room. Excavated in 1972.

Room: 12-21-5 Component: II Number of stories: 1

First story:

Other features: Burial along E wall, with slate pendant, pit was 40 × 35 × 10 cm deep.

Comments: No footing information. Only the burial was excavated from this room. Originally excavated as part of plaza D, this room was discovered after excavation of the burial. Excavated in 1972.

APPENDIX C

KIVAS

Room: 12-14-6 (kiva) Component: I Number of stories: 1

First story:	N	S	E	W
Walls: D-shaped.				
Length (cm):	575	—	—	—
Height (cm):	185	—	—	—
Thickness (cm):	30	45–50	35	45–50

Floor: Dry clay, 5–9 cm thick.
Ventilator: Vent tunnel had two sections; molded arch through the wall, and stone slabs through the cribbed area, which served as a windscreen in plaza G. The actual vent opening outside the cribbed, beehive-shaped structure was also lined with slabs. The entire ventilator complex was horizontal. The exterior windscreen was 80 × 65 × 45 cm high. No other dimensions available.
Hearth: Adobe-lined pit in S central area.
Dimensions (cm): 55 × 40 × 52–62 deep.
Deflector: Adobe puddled around a single row of posts, 10 cm diameter.
Ladder seats: Two adjacent to deflector, 10 cm diameter, 35 cm deep.
Post holes: Four, center of room along E-W axis, 18–35 cm diameter, 7–17 cm deep.
Other features: Six loom anchor molds, oriented N-S, W of hearth. Possible sipapu in line with the hearth and ventilator. Small, bottle-shaped hole in S wall near floor, 6 cm diameter at mouth, 15 cm at back, 20 cm deep, contained beads, polished stone, wood, and turquoise. Five niches: NE corner, 13 cm diameter, 48 cm deep; E wall, 11 cm diameter, 19 cm deep; E wall, 55 × 32 cm, 67 cm deep; S wall, 19 × 11 cm, 17 cm deep; SE corner, 18 cm diameter, 24 cm deep. Two shallow toe holds in E wall, 14 × 8 × 5 cm deep, 9 × 7 × 7 cm deep. Culinary jar below floor near S wall, filled with sand.
Comments: This above-ground, D-shaped kiva faces plaza G. A subfloor pit was lined and filled with slabs. Small-diameter holes on one side of the ventilator indicate bottle-shaped niches, possibly of ceremonial use. A tunnel connected a cist with the ash pit. E-SE wall was painted, N wall was painted with yellow (limonite) and red (hematite). This kiva was completely excavated in 1974.

Room: 12-C-2 (kiva) Component: II Number of stories: Semisubterranean.

First story:
Walls: Circular
Length (cm): 750 diameter.
Height (cm): 180 average.
Thickness (cm): 10 at base.
Ventilator: Vent tunnel: 37 × 30–40 cm diameter at mouth, 154 cm long with slabs. Vent shaft: 90 cm high.
Hearth: Rectangular box of stone slabs with clay floor.
Dimensions (cm): 60 × 40 × 39 deep.
Deflector: Five posts in rim of ashpit, set 8–10 cm apart, 7–12 cm diameter.
Ladder seats: Fragments of ladder stringers held down with slabs.
Post holes: Four in corners and one in center, 23–42 cm diameter.
Other features: Six loom loop holes 25 cm apart aligned between ventilator and hearth. Ashpit was rectangular and clay, lined with small stones set in one corner, separated from hearth by a clay ridge. Sipapu was W of hearth, in line with hearth and ventilator, a hole covered with a slab, Wiyo Black-on-white kiva jar inside.
Viga indicators: Posts, 12–18 cm diameter.
Latilla type: Pole latillas, 5–8 cm diameter.
Matting indicators: Layer of sticks, twigs, grass, and juniper bark, 4–5 cm thick, with clay cap 8–20 cm thick.

Kiva 12-C-2 (continued)

Comments: This kiva was 100–150 cm below the plaza surface. Entry through room via ladder across hearth. Walls of adobe blocks, stone slabs, and wet adobe. Blocks were 10 × 20 × 15 cm to 20 × 60 × 20 cm. Slabs were set on end around base of wall. Lower portions of walls and floor were plastered. Cache of lithics in floor of vent at tunnel/shaft intersection. Kiva was burned. This kiva was completely excavated in 1972.

Room: 12-D-2 (kiva) Component: I Number of stories: Subterranean.

First story:

Walls: Asymmetrical circle.
Length (cm): 417 × 462 diameter (projected).
Height (cm): 123 maximum, 97 average.
Thickness (cm): 21–26

Floor: Upper: gravel/adobe flecked with carbon, 6 cm thick. Middle: gray-brown fine-textured clay, 1–5 cm thick. Lower: fine gray adobe in two layers, 1–5 cm and 1–2 cm thick.

Post holes: Three posts within the wall of the excavated portion, vertical, 8–14.5 cm diameter, set 5–6 cm behind wall face, approximately 88 cm apart.

Other features: Two burials in kiva fill, one subadult, one adult. Pit, near E wall, 25 cm diameter, 13 cm deep, location similar to pits holding culinary jars in kivas 12-14-6 and 12-G-5.

Comments: Kiva was circular, located on the periphery of plaza D; E of roomblock 21 and W of arroyo. Two layers of white plaster on walls. In NW excavated area was a zigzag design in red paint on plaster, 27 cm above floor. NE corner only was excavated in 1974.

Room: 12-D-3 (kiva) Component: I Number of stories: Subterranean.

First story:

Walls: General oval shape.
Length (cm): 920 average diameter.
Height (cm): 40–58 inc, 280 estimated maximum.
Thickness (cm): 5–29, varies greatly in different areas.

Floor: Upper: gravel and orange adobe covered by lens of fine gray adobe, 5.3 cm thick. Lower: same material as upper floor, but 4.2 cm thick.

Ventilator: Vent tunnel: 26 × 61 cm at mouth, 41 × 87 cm maximum interior of tunnel, 160 cm inc long.

Hearth: Originally open pit, slab-rimmed and plastered later.
Dimensions (cm): 47 × 40 × 61 deep.

Deflector: Seven vertical posts, 4 cm diameter, 45 cm high at center, covered with gray micaceous adobe.

Ladder seats: Landing slab 17 cm E of deflector, 40 × 25 cm.

Post holes: Irregularly spaced posts set in wall; seven, round, 6–7 cm diameter; four, planks, 9 × 4.5 cm, with juniper bark impressions in the wall adobe.

Other features: One primary and four secondary burials. Cist with moveable slab cover filled with ash, 46 × 26 × 45 cm.

Rooftop hearth: Slab and adobe rim, rooftop, firedogs found N of roof entry.

Comments: Located in SW corner of plaza D; E of roomblock 15, W of roomblock 21, N of roomblock 20. Built of gravelly and soot-blackened adobe. Seven layers of wall plaster, outermost was white with red and yellow paint. One-quarter excavated in 1974.

Room: 12-G-5 (kiva) Component: I Number of stories: Subterranean.

First story:
Walls: Circular.
Length (cm): 470 diameter.
Height (cm): 180 (maximum of support posts set in wall).
Thickness (cm): 12–20.
Floor: Wet-laid adobe over loose gravel, 6 cm thick, with 1–2 cm of surface plaster on the top.
Ventilator: Vent tunnel: 42 × 58 cm at mouth, 198 cm long. Vent shaft: 40 cm diameter, 185 cm high.
Hearth: Clay-lined pit with adobe collar.
Dimensions (cm): 52 × 44 × 51 deep.
Deflector: Eight posts with adobe, 73 × 28 × 38 cm high, posts were 4 cm diameter.
Ladder seats: Worn area directly S of deflector.
Post holes: One, W of ladder landing, 10 cm diameter, 7 cm deep.
Other features: Eight burials in this kiva. Sipapu, N of hearth, 10 cm diameter, 34 cm deep, filled with sand and sealed with plaster. Cist, at floor, 3 cm diameter, interior plastered. Small culinary jar located in W wall behind cist, contained several stone balls, concretions, and flakes. T-shaped plank covered subfloor hole, 79 cm deep. Four niches: N wall, 16 cm diameter, 30 cm deep; E wall, 21 × 13 cm diameter, 27 cm deep; W wall, 15 cm diameter, 25 cm deep; SW wall, 11 cm diameter, 21 cm deep.
Comments: Located in the NE quadrant of plaza G. The NE corner of the wall was supported by a lacework of branches and bark covered by adobe (no poles). Sulphurous ash found in firepit. Supports sunk in gravel may have been unstable, contributing to the collapse of the structure on individuals found inside. Excavated in 1974.

Room: 12-J (kiva) Component: I Number of stories: Semisubterranean.

First story:
Walls: Circular
Length (cm): 1040–1060 diameter.
Height (cm): 100.
Floor: Compacted soil, buff-white, 2–9 cm thick.
Hearth: Pit, E of center.
Dimensions (cm): 100 cm diameter, 25 cm deep.
Other features: Eighty-five holes in floor, including 7 probable post holes, 20 possible cists, and 8 possible loom holes.
Comments: Located on the W-SW side of the site, near roomblocks 8 and 13. Excavated in 1971.

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