PICURIS PUEBLO THROUGH TIME:

EIGHT CENTURIES OF CHANGE AT A NORTHERN RIO GRANDE PUEBLO

Edited by

Michael A. Adler
Herbert W. Dick

William P. Clements Center for Southwest Studies
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DEDICATION

For the People of Picuris Pueblo

who have allowed others the chance to appreciate
the long history of their unique home,
the Hidden Valley of the Picuries

and for

Herbert W. Dick
And
Daniel Wolfman,

two archaeologists who, through their work,
shed light on much of ancient Picuris

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CONTENTS

ILLUSTRATIONS AND FIGURES

TABLES AND APPENDICES

TABLES

APPENDICES

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Preface

I met Dr. Herbert Dick in 1991 during my first field season directing the Southern Methodist University archaeology field-school at the Fort Burgwin Research Center outside Taos, New Mexico. Along with my field-school students and supervisors, I was in the midst of my first public open house at Pot Creek Pueblo, a large ancestral pueblo village that had been the focus of intermittent field-school excavations for nearly 30 years. Every person on the field crew was busy, intent on making sure no one stumbled into an excavation pit or leaned too heavily on the 700-year-old adobe walls we had cleared that season. Herb Dick strode onto the site with the ease of one accustomed to the frenetic activity of an archaeological excavation, introduced himself with his no-nonsense style, and proceeded to listen intently to my rookie interpretations of northern Rio Grande prehistory. After patiently nodding for several minutes, Herb proceeded to tell everyone present not only about Pot Creek Pueblo but also about its contemporaneous sister village that lay under the modern structures of Picuris Pueblo. His knowledge of the area held everyone's attention. It was clear that I had a great deal to learn about the prehistory of the region and about the history of research in the Taos area.

During that first year of work at Pot Creek Pueblo I was still familiarizing myself with the literature, local chronologies, and material culture of the northern Rio Grande. Before beginning work in the Taos region, I had heard, from a few archaeologists familiar with the area, snippets of information about the archaeological work that Dick and others had accomplished at Picuris. The amount of material on Picuris was sparse, giving the work at Picuris Pueblo the aura of a well-kept secret. By all accounts, Picuris seemed to fit the profile of so many promising sites in the Southwest: extensively excavated but sorely underpublished. As I spoke with Herb about the site, he knew where my polite questions about this little-published site were headed. Herb began to list the manuscripts completed and those still in progress, all of which he planned to publish following his exhaustive study of the ceramics from the site.

These Picuris manuscripts were not "ghost manuscripts," those mentally written reports that many archaeologists have committed to memory but have never put to paper. Following the excavations and analysis of site materials in the 1960s, Herb had ensured that reports on the excavations were written and manuscripts were completed by the scholars he involved in the project. After the Pot Creek Pueblo open house, Herb took the field-school crew on a tour of "his" room at Fort Burgwin, a padlocked corner room filled with over 200 boxes of excavated materials from Picuris, dozens of maps, and piles of file folders. The room was a treasure trove of carefully organized data recovered during the several years of excavation undertaken at Picuris Pueblo.

Herb Dick did not like having the site characterized as a well-kept secret. He had completed an earlier description of the work at Picuris (Dick 1965b), and had worked intermittently on compiling the final report for nearly 30 years. Though mindful of the time that had already passed without a published report of the site, he was rightfully proud of what he had accomplished during many nights and weekends at Fort Burgwin and at Adams State College in Alamosa, Colorado, where he had taught before he retired and moved to the Taos area in 1988.

During the two years after my first encounter with Herb Dick, he continued working toward his goal of completing the ceramic analysis and compiling the Picuris volume. His work on the volume continued even after he was diagnosed with inoperable cancer in 1993. Just before his death that same year, I had one last chance to talk to Herb Dick at Pot Creek Pueblo. Herb was tired and angry, frustrated that his work at Picuris would not be completed. We did not

discuss the inevitable; we talked of adobe walls and his interpretation of prehistoric architecture. As before, I listened and learned.

I never asked Herb Dick's permission to complete the Picuris manuscript. In fact, it's probably a safe bet that Herb wouldn't have wanted me, or anyone else for that matter, to synthesize the massive archaeological undertakings at Picuris, the place he fondly (and justifiably) referred to as the "longest continually occupied settlement in North America." I respect Herb's individualistic tendencies, but the wealth of history and prehistory that Herb and others brought to light remained unpublished in 1993 when he passed away. After Herb's death I approached both Martha Dick, Herb's widow, and Daniel Wolfman, Herb's right-hand man on the Picuris excavations, about the possibility of my editing and compiling the volume. All three of us agreed that no one could complete Herb's ongoing analysis of the Picuris ceramics without many more years of work, but Martha and Dan agreed to help collect the necessary information, photos, and manuscripts in their possession to allow the compilation of a volume in Herb's honor. Tragically, Dan Wolfman passed away unexpectedly on November 25, 1994 after helping lay the groundwork for this volume. This volume is dedicated to both Herbert Dick and Daniel Wolfman, two wonderful scholars who never got to see the fruits of their many years of labor.

Over the past three years I've attempted to "reexcavate" Picuris Pueblo through a careful study of records, photos, correspondence and data compilations. This work has depended largely on materials compiled from Herb Dick's personal archives and manuscripts. I have edited and updated the writing completed by Dick, Wolfman, and others over the years. With Martha Dick's permission, I have made the late Dr. Dick the coeditor of this volume. This work has been aided immeasurably by many people associated with the project, including Martha Dick, Curtis Schaafsma, and Richard Mermejo, all of whom dug out their own records and reminiscences to help interpret what was found during the years of work at Picuris. Finally, this volume is also dedicated to the people of Picuris Pueblo, including those people who worked on the excavations and others who have allowed the continued use of documents and artifacts from Picuris, all of whom have helped in putting some order into the process.

The compilation required a substantial amount of rewriting and editing. Except for the chapters written by Richard Mermejo, Steve Conway, Helen Crotty, and myself, the volume relies heavily on writings of Dick and others completed before 1967. Archaeology has remade itself during the three intervening decades. In editing the early manuscripts, I have tried to keep intact the original data and ideas as they were presented in the 1960s, but have also augmented these perspectives with new data, interpretations, and citations. I have taken an "accretional," rather than "revisionist," approach that not only builds on these earlier perspectives but also presents alternative explanations and interpretations. The other authors who contributed original manuscripts have also respected the integrity of the earlier writings while adding their own perspectives to our overall understanding of Picuris' past.

This process of revision, accretion, and reformation is fitting and appropriate for Picuris Pueblo, a settlement that has continually remade itself socially and materially over the past millennium of occupation. The adobe structures at Picuris are an amalgam of mud from old, razed structures, new sediments, ash, straw, and pottery sherds from long-broken vessels. This volume is a similar amalgamation of ideas and perceptions that span chronological time, technological advancements, and intellectual generations, all of which have wrought great change within the discipline of archaeology. The layers of excavation recorded by Dick and others have become the layers of interpretation that compose what we know of Picuris today.

Melting adobe walls and tricky stratigraphy do not leave clear pictures or understandings of past human activities, so Picuris' past can be only partially understood through the archaeological lens. I hope that the chapters in this volume do justice to what Herbert Dick, Dan Wolfman, and others understood, and wished to teach us, about this unique place.

Michael Adler
Southern Methodist University

Acknowledgments

This volume has a long and varied history, and as with any project, exists because of many wonderful, helpful people. Beginning in the first half of the 1960s, Herb Dick asked several scholars to contribute chapters to a volume entitled "Introduction to Picuris Prehistory." Dick put together a draft version with several chapters partially completed (Dick, Wolfman, Schaafsma and Wolfman, n.d.), but held off completing the volume until his retirement allowed the time to complete his primary focus, the analysis of the Picuris ceramic assemblage. His patience was not rewarded, however, and Herbert Dick was diagnosed with inoperable cancer that took his life before he could complete the volume.

It is Herbert Dick's fortitude and long labor that produced much of the foundation of this volume, for which we all owe Herb a great deal of thanks. I offer my gratitude to Mrs. Martha Dick, Herb's wife, who donated his materials, manuscripts, photos, and records to the Fort Burgwin Research Center. Without her assistance, this volume would not have been completed. My thanks also to Dan Wolfman who, before his untimely death in 1994, helped restart the process that resulted in this volume. Curtis Schaafsma provided valuable insights into the overall organization of the Picuris research project.

The authors of the various chapters have been gracious and patient over the years of work that went into this volume. My thanks to each for their scholarship and friendship. Teddy Diggs expertly undertook the unenviable task of copy editing the volume, expertly smoothing and melding the textual wrinkles that result when a volume takes thirty-five years to produce. My very special thanks to Deborah Kelley who masterfully interpreted, drew, and redrew the very important kiva murals that appear in chapter 9.

The people of Picuris Pueblo provided the opportunity for Herbert Dick to undertake research inside their community. Their patience and assistance throughout the excavations, analysis, and compilation of this volume are a testament to trust and collaboration. My thanks to Richard Mermejo, Gerald Nailor, Carl Tsossie, Jonette Sam, and the many people who helped support this endeavor through the past several years.

Several individuals deserve thanks for providing information and comments on parts of this text. Linda Cordell and David Hurst Thomas served as outside reviewers of the manuscript, and both provided insightful comments and suggestions that have greatly enhanced this publication. Steward Peckham read and commented on portions of chapter 4. Ron Wetherington reviewed portions of the manuscript describing ceramic and architectural data from the site. Jeff Boyer provided information and maps locating archaeological sites in the Picuris area.

On the Texas side of the border, several individuals also provided invaluable assistance and financial support. Dr. James Jones, then Dean of Dedman College (SMU), funded the initial compilation and rewrite of the volume through the Fund for Faculty Excellence. Thank you for believing in this project. Continued support (and great patience) on the part of Dr. David Weber, Director of the Clements Center for Southwest Studies (SMU), and Jane Elder, Assistant Director of the Southwest Center, enabled this volume to make it into print.

Finally, Paul Margetson and the Hotel Santa Fe provided financial support for the subvention of this volume. The Hotel Santa Fe is a joint venture of the Picuris Pueblo and the private sector, and is the only Native American-owned off-reservation hotel in the country. The Hotel Santa Fe provides much-needed economic opportunities for Pueblo tribal members, and has generously provided funds to preserve this part of the history of Picuris Pueblo. As part of my thanks to the

Hotel, a short description of this wonderful institution is provided here.

For its majority owners, the people of the Picuris Pueblo, the Hotel Santa Fe represents extraordinary opportunities for employment and economic development. The hotel's art and gift shop displays a wide range of crafts, including jewelry, beadwork, weavings, sculpture and paintings or drawings, and generates crucially important income for Picuris artisans and serves as an important showcase for their work.

Constructed in the style of Northern New Mexico pueblos, the earth-tone structure is built in the shape of a cross. Carved over the hotel entrance are the words "Mah-waan, mah-waan" or "welcome" in Tiwa. Surrounding gardens are filled with tall native trees and colorful flowers, as well as powerful works of art by Native American sculptors, making Hotel Santa Fe an island of tranquility within blocks of the busy Santa Fe Plaza.

Inside the lodge-style lobby, the focus of which is a traditional kiva fireplace, Native American flute music plays softly. The interior is decorated with New Mexican furnishings, pottery, paintings and an impressive sculpture by the patriarch of Native-American art, Allan Houser, giving the first-time visitor a sense of entering another culture and another time. The Corn Dance Cafe, a first-class restaurant situated within the open-plan lobby, is the only Santa Fe restaurant to serve authentic Native American fare, reinforcing the unique Native-American experience that is Hotel Santa Fe and serving as a perfect introduction to the foods and customs of pueblo peoples.

Guests at the hotel are invited to participate in study programs, including a 60-mile journey to Picuris Pueblo where they explore ruins and kivas and learn, from experienced guides, about the culture and history of the Picuris people. This unique cooperative venture has served to unite disparate cultures by introducing guests to the Picuris way of life while, at the same time, providing Picuris Pueblo tribal members unequalled opportunity to compete in today's economic marketplace.

Chapter One : Introduction

Herbert Dick and Michael Adler

Picuris Pueblo

Picuris Pueblo (San Lorenzo), one of the oldest, continually occupied settlements in North America, is a northern Tiwa speaking community located 15 air miles south of Taos, New Mexico. Both the modern and the precontact portions of Picuris Pueblo are located just across the Rio Pueblo from the present community of Peñasco, New Mexico (Figure 1.1). Introductions to the history and prehistory of Picuris are available in various manuscripts and monographs (Dick 1965b, n.d.; Dick et al. n.d.; Schroeder 1974). This chapter introduces Picuris, its history, and excavations at the pueblo, drawing in part from unpublished sources by Herbert Dick, Daniel Wolfman, and others who worked long years on this project.

Picuris' Place in the Pueblo World

The origin of the name Picuris has been variously assigned. Hodge, Hammond and Rey (1945:279) linked it to the Keresan name for the pueblo, whereas John Bourke believed the term to be from the Picuries' own tongue (Bloom 1936:276). Bandelier (1890:1:123) reported the northern Tiwa called this place *Ualana* or *Pingultha* (also *Pinuelta* or *Piwweltha*). Harrington (1916:193) attributed the name to the early Spanish term used for the place, though this begs the question as to where the Spanish term originated.

Whatever the etymology of the place-name, the people of Picuris call themselves and their ancestors who settled this ancient place "*pe'ewi*," literally translated from northern Tiwa as "the mountain people" (Richard Mermejo, pers. comm., 1995). There is no single history of the *pe'ewi,* since the history of Picuris can be told, and is being told, in different languages. There are the stories of Picuris still told by the people themselves to their children of Picuris, tales recounted in the home, in school, and in the dim light of the kiva. This is largely an unwritten history of vibrant ancestors, of times of exodus when the ancestors left the Pueblo, of lessons learned from kinspeople long buried in the deep past of thousands of stories. This history still lives, but not alone. Over thirty years ago the people of Picuris opened their community to a new language of history, one spoken by archaeologists who talked of data, chronological dates, ceramic types, and soil types. This is the history from the outsider's perspective. Richard Mermejo, a Picuris man who helped Herb Dick excavate at the pueblo, sums up these different histories concisely in Chapter 2, stating that to really understand the Native American perspective, "you have to be [a Native American], live with them, speak their language, and be born into the culture."

This volume speaks, for the most part, in the language of the archaeologist and ethnographer, from the outside looking in. The result is a different history, complementing and contradicting the history told within the pueblo by the descendants of the first *pe'ewi*. There is no single, correct history, only an accumulation of voices telling stories in different languages. Like an archaeological site, any

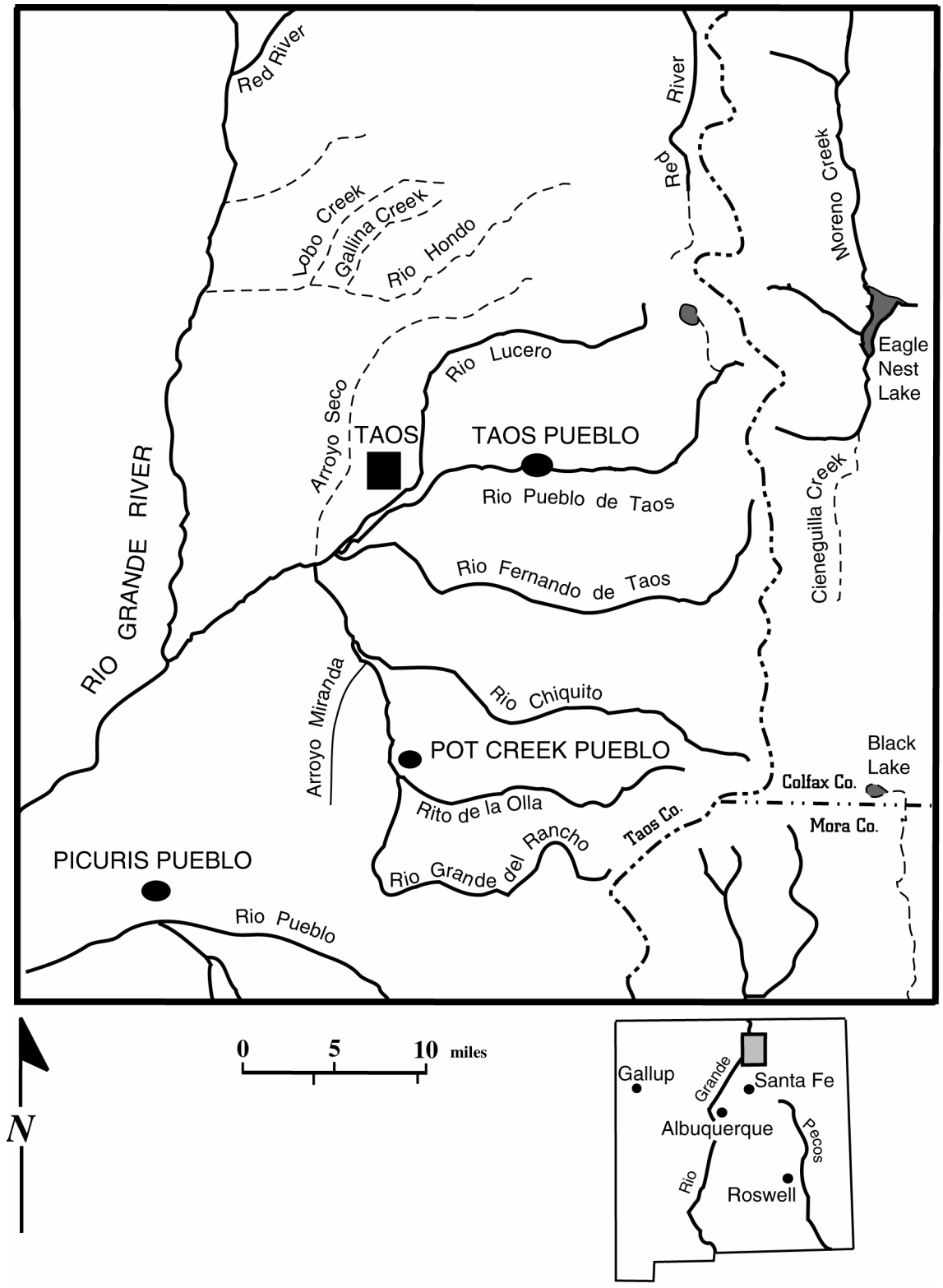

Figure 1.1 Picuris Pueblo and Other Important Archaeological Sites and Settlements

historical accumulation is necessarily incomplete due to many winnowing forces. Time, decomposition, disagreement, and migration are all factors that remove clues, stories, and artifacts from our present understanding. Histories are not meant to be complete. History is the accumulation of an incomplete background against which the foreground of the present day is compared, creating a contrast that allows us to see and understand some of the many changes that occur over time. Any such ongoing comparison between changing foregrounds and backgrounds will have contradiction and incompleteness as inherent qualities. This volume provides more threads and patches to the background against which the Picuris foreground is, we hope, better understood.

Picuris has always been somewhat of a contradiction in the Pueblo world in that it has long been considered both a part of and apart from the Pueblo world. As one part of the Pueblo world, Picuris manifests the cultural and material hallmarks of Pueblo identity. Tiwa, a branch of the Tanoan language family, is found in dialect form at other pueblos in the Rio Grande region, including Taos, Isleta, and Sandia Pueblos. Like their Pueblo namesakes elsewhere in the Southwest, the people of Picuris have long occupied architectural complexes of multistory buildings, agglomerations of apartment-like complexes surrounding large plaza spaces. The early Spanish explorers called these villages "pueblos" for this very reason; these places were reminiscent of the clustered villages they had left behind in the Old World. Pueblo ceremonial life has been centered for centuries on these plazas and the kivas (ceremonial rooms) they surround, not just at Picuris but across the Pueblo world. Like the other Pueblos, the village-dwellers at Picuris have relied for centuries on the staple agricultural products of the Pueblo Southwest: corn, squash, and beans.

Like all other large communities in the Pueblo world, though, Picuris manifests unique aspects that set this place apart from historic Pueblo counterparts located to the west and south. Geographically, Picuris and Taos are on the edge, teetering on the margins of the Plains as the northeasternmost outposts of the Pueblo Southwest. Both pueblos are located in the foothills of the Rockies; Picuris at 7,300 feet (2225 m) elevation and Taos a bit lower at 7,100 feet (2164 m), upland environs that had been largely abandoned by the 16th century as Pueblo populations moved to the riverine lowlands along the tributaries of the Rio Grande.

Geographical isolation has been invoked as a primary reason for the cultural differences between the pueblos of Picuris and Taos and the other parts of the Pueblo realm (Wendorf 1954; Wendorf and Reed 1955; Wetherington 1968; Boyer et al. 1994). Life on the northeastern frontier, for example, may have isolated the northern Tiwa from the uniquely Puebloan *Katsina* (*Kachina*) religious belief system noticeably absent from most of the public ceremonial life of the Picuris and Taos peoples. The distinctive micaceous pottery made at Picuris and Taos Pueblos during the historic period is reminiscent of Plains-related Apachean pottery and is probably one of the many influences resulting from centuries of contact between northeastern Pueblos and Plains groups (see Spielmann 1991).

The contrasts and convergences that at once make Picuris so distinctive

yet so Puebloan form the foundation of this volume. These differences are played out in social organization, material remains, ideology, and other aspects of Picuris culture. As with any archaeological project, the description and interpretation of material remains are given the most attention in this volume: the architectural features, ceramics, and subfloor caches discovered during excavations (chapters 3–5) are described from local and regional perspectives. The analysis of faunal remains recovered during the extensive excavations at Picuris (chapter 7) complements information already published on the avian fauna from the pueblo (Emslie 1981) and will interest those studying the dynamic foodways of Pueblo populations through time and across space in the Southwest.

This volume is not limited to the archaeological descriptions of architecture, pottery, and subsistence. Richard Mermejo reflects on the benefits and problems deriving from the archaeological investigation of his birthplace (chapter 2). Donald Brown's summary of the recent history of the pueblo (chapter 3) provides insights on social organization and subsistence during the late 19th century. Helen Crotty takes a pan-Southwestern perspective in her chapter on the iconography of Picuris kiva murals (chapter 9). The large number of bone whistles and flutes found at Picuris inspired Steve Conway's study of the flute's role in Pueblo music, symbolism, and mythology (chapter 6). Finally, Richard Woodbury describes the agricultural features recorded outside Picuris Pueblo (chapter 8), yet another example of the wide range of multidisciplinary research conducted at Picuris during the 1960s.

Postcontact History of Picuris Pueblo

The postcontact history of Picuris is summarized by Schroeder (1974) in a concise and well-documented study, the high points of which reinforce the history of Picuris on the edge of the Pueblo realm. Though debates surround whether Coronado's *entrada* through the Southwest in 1539–41 reached Taos Pueblo (Schroeder 1962), there is no indication that Coronado's group traveled to Picuris. Over the next half-century, only two *entradas* ventured north from Mexico via the Rio Grande, both terminating among the Keres pueblos to the south (but see Hammond and Rey 1929). It was not until 1591 that Castaño de Sosa's expedition brought the first Europeans to Picuris, an event that Schroeder describes as a cold reception "both in climate and in human relations,"

> While among the Tewas near present-day Española, Castaño de Sosa was told of a pueblo farther north and decided to visit these people. He went up the Rio Grande to about present-day Velarde and then turned northeast. On entering the mountains, he encountered snow a yard deep, his horses barely able to make headway through it. After much difficulty he reached the Rio Pueblo valley in the mountains, and in it, on January 13, 1591, he came to the tallest pueblo recorded by any Spaniard. There stood Picuris...seven to nine stories high according to

> his estimates. No one came out to greet Castaño's party except one Indian who was passing from one houseblock to another. (Schroeder 1974:1)

Most of what we know of Picuris over the next two centuries is derived almost exclusively from church records. As with the rest of the postcontact Pueblo world, missionaries were sent to Picuris to build churches and convert the natives to Christianity. Father Francisco de Zamora was assigned to Picuris, Taos, and neighboring Apachean groups in 1598, beginning nearly four centuries of European influence at Picuris. The first mission was established at Picuris in 1621 by Fray Martín de Arvide and was only mildly successful at converting the people whom Fray Alonso de Benavides described as being "the most indomitable and treacherous people in the whole kingdom" (Hodge, Hammond, and Rey 1945:70, 279).

The rebellious reputation of the Picuries played a major part in the single largest Pueblo uprising in the history of the Southwest, the Pueblo Revolt of 1680. Embittered by poor treatment, religious persecution and the economic hardships of the *encomienda* system, Picuris, Taos, and other Pueblo communities rose up across the Southwest against the Spanish on August 10, significantly the saint's day for San Lorenzo, after which Picuris was named. At least five Spaniards were killed at Picuris, and the church was plundered along with Spanish houses and fields. Of the 3,000 indigenous people reported to live at Picuris at the time, several hundred men joined forces with Taos warriors and, along with Tewa reinforcements and Apache allies, added significant manpower to the postrevolt siege of Santa Fe. The addition of these fierce warriors from the northern mountains tipped the scale of power at the seige, and by August 21 nearly 2,000 Spanish survivors had fled Santa Fe, traveling south along the Rio Grande to El Paso del Norte.

The Pueblo reconquest of their ancestral homeland lasted only a dozen years. In 1692, Picuris joined several other pueblos in surrendering their independence to the Spanish government. Five days after their leader, Don Luis, pledged Picuris' allegiance to the crown, a 300-man contingent of Picuris warriors joined Diego de Vargas in a campaign to subjugate Pecos Pueblo and reassert Spanish control of the northeastern frontier of the Pueblo world (Schroeder 1974:5).

Strong ties between Picuris Pueblo and Plains groups are best exemplified by the events at the end of the 17th century, when unrest among the northern Pueblos was rekindled in 1696. Though they attempted to remain neutral in the rebellion that occurred in June of that year, Picuris was drawn into the conflict. Fearing retribution from the Spanish and from their neighbors in Taos Pueblo, the people of Picuris abandoned their pueblo in October 1696. Eighty-four women and children were captured as they fled eastward onto the plains. Those who escaped from Picuris fled to Cuartelejo, the same village (in present-day west-central Kansas) that had sheltered refugees from Taos Pueblo following conflicts with the Spanish in the 1640s and 1650s. The exodus to the plains lasted until 1706, when Juan de Ulibarrí went to Cuartelejo and brought the remaining Picuris refugees back to their northern New Mexico home. This

short hiatus in occupation is important. In two separate instances, the Pueblo peoples sought refuge not with other Pueblo people but with Plains groups to the north and east, exemplifying the strong ties between Plains and Pueblo peoples.

The 18th and 19th centuries saw a decline in the population of Picuris and the continued acculturation of the resident population. New churches were built, and significant efforts were put into proselytizing the Picuries. Though the efforts were effective in converting many in the dwindling community to Christianity, archaeological excavation at Picuris also documents the continued construction and use of kivas for native religious activities (chapter 4). Schroeder (1974:12–17) details the changes in the native land base and the continued incursions by outside settlers onto the hunting and farming lands around Picuris. By the late 19th century, the settlement of Picuris as described by John Bourke (see chapter 3) was much diminished relative to the massive settlement first described by Castaño de Sosa. By 1890 most of the settlement was a tumble of fallen structures, providing stark pictorial subjects for the earliest photographs of Picuris (Figures 1.2, 4.3–4.5).

Justifications for Excavations at Picuris

The crumbling adobe *castillos* of old Picuris were a testament to the former enormity of the settlement and the depth of human occupation at the site, facts that were not lost on Dr. Herbert Dick. Herb and Martha Dick visited Picuris in the late 1950s on a side trip from the Fort Burgwin Research Center. Fort Burgwin, a private research center, was begun in the 1950s through the efforts of Dr. Fred Wendorf, then curator of archaeology at the Museum of New Mexico in Santa Fe, and was supported financially by Ralph Rounds. Situated on lands owned by Rounds' Wichita Lumber Company, the facility was a reconstructed Civil War-era cantonment, or small fort, that served as the headquarters for an archaeological field-school program. The primary foci of the research center had been on the excavation of the cantonment and the investigation of Pot Creek Pueblo, one of the largest ancestral Pueblo ruins in the northern Rio Grande region.

Excavations at Pot Creek Pueblo began in 1957 and after three years of research had generated significant questions surrounding the prehistoric occupation of the Taos region. Archaeologists at Fort Burgwin believed that Pot Creek was occupied between A.D. 900–1225, but they lacked comparative data from contemporaneous settlements. The only places in the Taos area with comparable archaeological deposits were Taos Pueblo and Picuris. Both communities held to traditional religious systems and distrusted outsiders, with Taos being the most traditional and insular in its dealings with non-Native Americans. Herb Dick was well aware of the research potential and limitations at Picuris; in 1960 he began to discuss with Picuris elders and political leaders the possibility of conducting excavations at Picuris. With the backing of the Fort Burgwin Research Center, Dick proposed a multidisciplinary research program to assist the reconstruction of Picuris history through archaeological

Figure 1.2: Early Photograph of the Castillo, Picuris Pueblo (Vroman 1903, neg. 9940983, used with permission of the Smithsonian Institution)

investigation. His plan was approved by the Picuris Council, and excavations funded by the Fort Burgwin Research Center began at Picuris in 1961 (Dick n.d.:2).

The Picuris project was explicitly multidisciplinary in scope, and Dick recruited a range of scholars to complement his own areas of expertise. Not simply interested in the "bones and stones," he asked Donald Nelson Brown to recover, through ethnographic fieldwork, as much information as possible on the settlement's social organization. George Trager, an expert on northern Plains and Pueblo linguistics, tackled the problem of when the Tiwa language may have diverged from the surrounding language families. John Krenetsky undertook a study of plant use and biotic communities in the region, while Thomas Harlan studied tree-ring patterns to develop a dendrochronological master chart for the region. Lyndon Hargrave, the foremost expert on southwestern avian remains, devoted his efforts to an understanding of the plentiful bird bones recovered at the site. Dick enlisted Art Harris' expertise in faunal analysis to study the nonavian remains. Albert Schroeder was responsible for a thorough study of the documented history of Picuris. James Schoenwetter was asked to refine the local paleoclimatic record through pollen analysis, and Richard and Nathalie Woodbury contracted to study prehistoric agricultural systems through a survey of local field features. Dick not only directed excavations but also was in charge of the ceramic analysis. Daniel Wolfman and Curtis Schaafsma worked as field supervisors during excavations and as lab supervisors during the winter. Mariann Wolfman directed the artifact laboratory in 1962 and 1964–65.

Dick's research justifications were explicit from the start, and five major lines of inquiry drove the early research. First, only a few excavations

had been completed in the area before 1960 (Jeançon 1929; Blumenschien 1956, 1958), requiring a more explicit culture-historical framework for the region, particularly for sites that predated and succeeded the occupation at Pot Creek Pueblo.

Second, the long occupation and deep deposits at the site were well suited to the development of a paleoclimatic record for the past millennium in the Taos region. Dick targeted the recovery and analysis of pollen, tree-ring, faunal, and floral remains for this portion of the research.

In keeping with Dick's interest in the historic Spanish occupation of northern New Mexico, the third major research focus at Picuris was the relatively unbroken record of postcontact culture change and acculturation. The adoption of European subsistence and technology including domesticated animals, cereal agriculture, ceramics, architecture, and metalworking could be documented by the multidisciplinary team assembled at Picuris.

The fourth research topic driving the Picuris research was the development of a refined ceramic chronology to help date the occupation of the settlement. He was particularly interested in dating the early historic pottery types that, until then, had received precious little attention in the archaeological work in northern New Mexico. Dick amassed a large ceramic type collection from across the Southwest to aid in this endeavor, and he began his own study of ceramic paste and temper variability in concert with the typological research (Martha Dick, pers. comm., 1995).

Finally, the Picuris project hoped to examine the changing physical characteristics of the human population as revealed by skeletal remains recovered at the site. This aim was developed before the major restrictions imposed by the Native American Graves Protection and Repatriation Act (NAGPRA) of 1990, which limits the excavation and analysis of Native American remains. Herb Dick expressed his interest in working with human remains to the people of Picuris and was allowed to excavate ancestral Picuris burials during the course of his work at Picuris. Most of the human remains excavated at Picuris were repatriated to the pueblo in conjunction with the opening of the Picuris museum in 1971. Several isolated fragments of human bone that had been mixed into the faunal remains collection were returned to Picuris by Arthur Harris in 1997. A single table describing burial location and orientation was included in Dick's excavation report (Dick 1965b: table 3).

Excavation Picuris Pueblo, 1961–1965

The excavation program undertaken at Picuris was one of the most ambitious ever attempted at an occupied pueblo. But as Herb Dick would later point out in a talk he gave to the SMU archaeology field school, the project was purposely limited in its first year, allowing the people of Picuris to "warm up" to the archaeological intrusion (Herb Dick, pers. communication, 1991). His approach was deliberate and respectful, and ultimately, it earned him the respect of the Picuries. Even today, over three decades after his excavations at Picuris, his coworkers from Picuris still refer to him as "Dr. Dick."

The small-scale test excavations in 1961 exposed eight surface rooms on the west side of the upper plaza and completed an 11-foot-deep stratigraphic test pit (Test Pit A) approximately 35

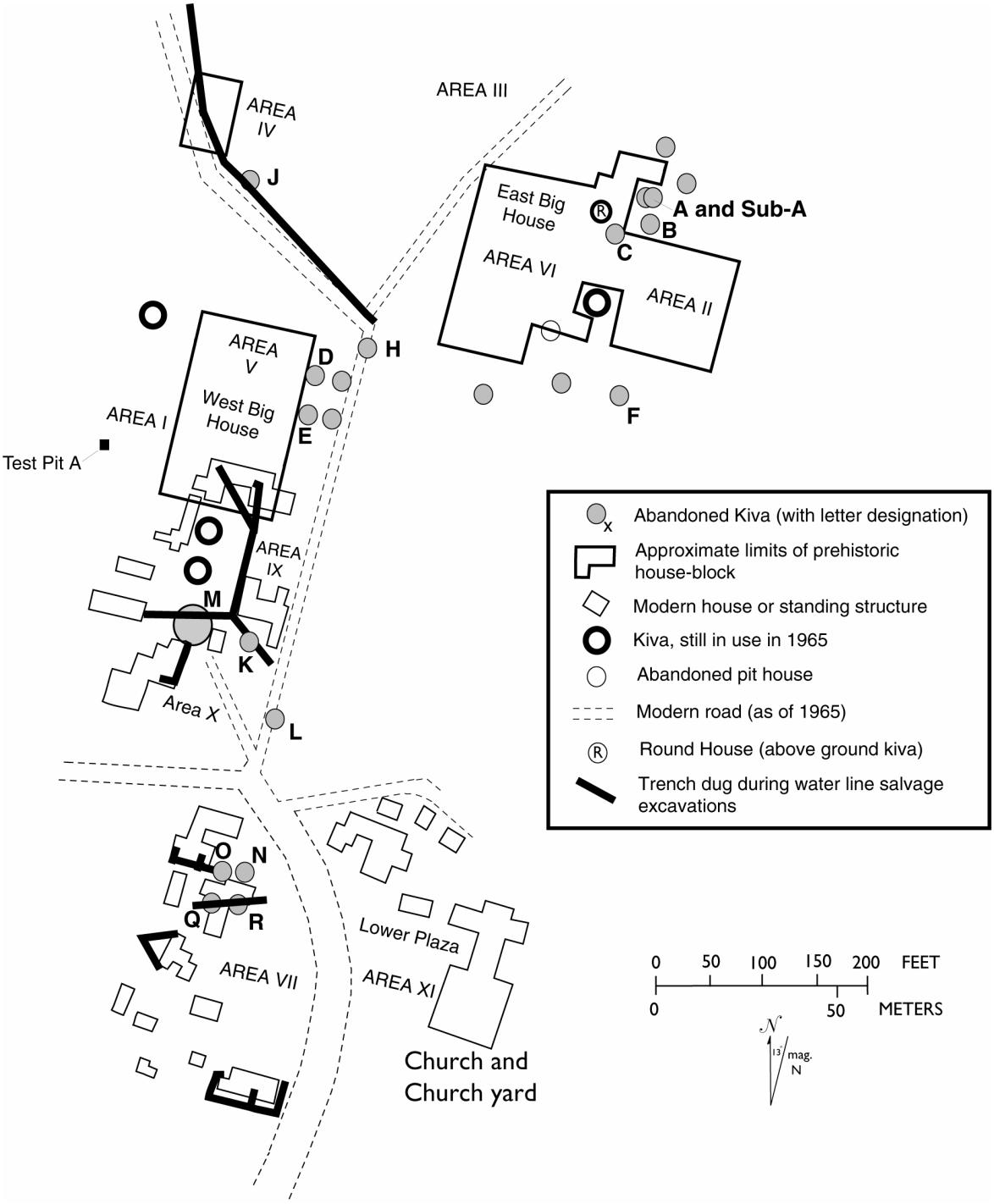

Figure 1.3: Map of Picuris, Showing Excavation Areas (Roman Numerals) and Structures Standing in 1965

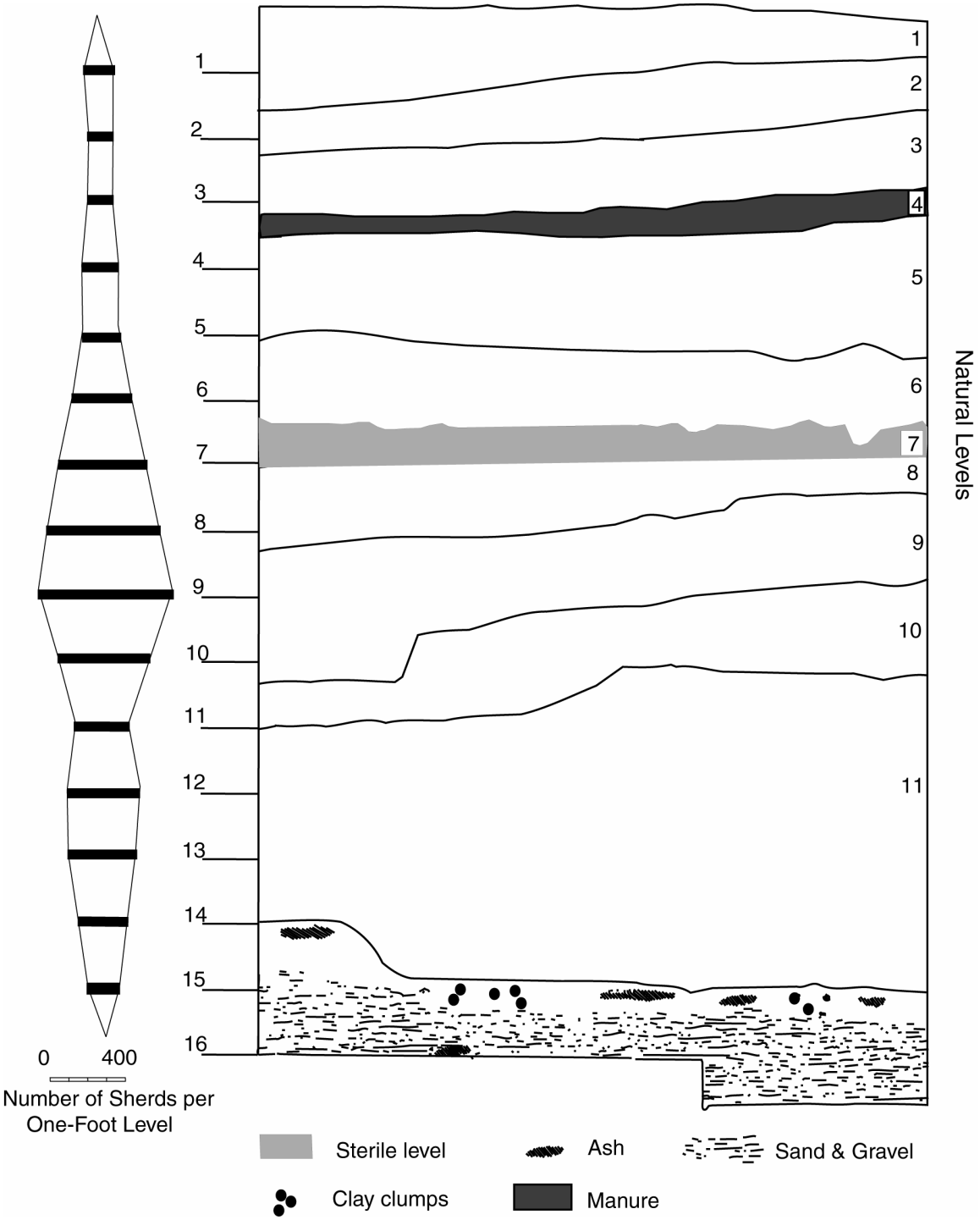

Figure 1.4: Stratigraphy and Ceramic Counts, Test Pit A, Picuris Pueblo

feet (10.6 m) to the west of the surface rooms (Figures 1.3 and 1.4). The architectural features provided important contrasts with similar-sized features excavated during the previous three years at Pot Creek Pueblo. Though rooms at both sites were constructed of coursed adobe using a centerpost construction technique unique to the Taos area, the storage pits that commonly surround the center posts at Picuris were much deeper than the earlier (ceramically-dated) examples of the same features at Pot Creek Pueblo. Stratigraphic Test Pit A, begun as a 10-x-10 ft (3-x-3 m) unit and later scaled down in size, also contained surprises. The sheer depth of cultural deposits (over 11 ft [3.3 m]) exposed in Test Pit A and the amount of datable ceramic material recovered were a great encouragement to Dick and his workers. The 1961 tests, though small in scope, showed the unparalleled potential of the site for answering the research questions posed at the outset of the excavations.

Herb Dick parlayed this great research potential into three years of grant support from the National Science Foundation. Still based out of Fort Burgwin but bolstered by expanded research funds, the Picuris project tackled a much larger excavation program in 1962. The primary labor for the excavations still came from the men and women of Picuris. Dan and Marianne Wolfman were hired to assist in the fieldwork and lab analysis.

Excavations continued in Area I for the first few weeks of the 1962 field season. After a passageway area was located to the north of Area I, this area was closed. Dick concentrated his efforts in Area II (Figure 1.3), the site of a former multiple-story adobe structure he named the "East Big House." Dick, Wolfman, and the field crew excavated all or parts of 60 ground-floor rooms in the East Big House, four kivas (A, Sub-A, B, and C, all of which had painted, plastered walls), and two stratigraphic test pits east and south of the East Big House. This represented the single largest sample of adobe surface rooms excavated to date in the Taos region, outstripping even the prodigious excavation sample collected by Fort Burgwin staff at Pot Creek Pueblo. All of this work was completed between late June and the first week of October 1962.

National Science Foundation support continued in 1963. Excavations during this third research season expanded prior soundings and also moved to several new areas of the "old pueblo." Work was continued on the East Big House in Area VI, south of the rooms excavated in 1962. Dick also began investigations in a set of rooms that became known as the West Big House (Area V). Two additional kivas were excavated; the first (Kiva D, the "Cochiti Witch Kiva" described in chapter 4) was fully excavated, and the second (Kiva E) was only partially excavated. Six additional stratigraphic test pits were spread across Area III between the East and West Big Houses. Chronological control of room-block construction periods was pursued through the excavation of subfloor contexts below the surface rooms in the East Big House (Area VI). Finally, the only Valdez phase (A.D. 1000–1200) pit structure believed to predate the primary occupation at Picuris was excavated in the southern part of Area VI during the 1963 field season.

The 1964 field season proved to be the most productive of the years at Picuris. Research began anew in Area VI with subfloor auger testing, the

objective being the discovery of additional early pit structures. Parallel test trenches were dug on the slope south of the East Big House, with the same goal. Both areas contained significant amounts of Santa Fe Black-on-white pottery, the diagnostic decorated ware of the 12th and 13th centuries, but no structures dating to this period were uncovered. Most of the rooms in the East Big House were outlined, and the lack of earlier surface structures was attributed to the demolition of these structures before the construction of the East Big House. One kiva containing large amounts of Tewa Polychrome, a historic ware, was partially excavated, and a set of historic-period livestock corrals was delineated on the north side of the East Big House.

Midway through the 1964 field season, word came from the Bureau of Indian Affairs that the long-awaited approval for the installation of water and sewer lines at the Pueblo had been granted. Realizing the extent of the ground disturbance that would result from the trenching, Dick turned the trenching to the benefit of the archaeological research. He requested and received funds from the National Park Service to excavate the pipeline trenches by hand wherever they impacted cultural deposits. From July through the end of September, over 1,610 feet (490.7 m) of trenches were excavated with mechanical equipment and shovels. This salvage work has been summarized by Dick (1965b) and is only touched on here. The water line entered the pueblo from the north. Workers dug the trenches in segments five feet long, one foot deep, and between two and four feet wide, depending on the depth of the trench. Of the 1,610 feet of trench line, 655 feet (199.6 m) were dug by hand, varying in depth from the minimum of 4.5 feet (1.4 m) to 18.5 feet (5.6 m) where one trench was taken down to the floor of a kiva. The water line crossed nine kivas, two of which were trenched to the floor but not completely excavated.

The main sewer line, service sewer, and water lines to individual houses were dug across the upper plaza by hand, with workers often having to tunnel under the floors of modern houses. This trenching added another 630 feet (192 m) to the project. An additional 300 feet (91.4 m) of service-line trenches were excavated to supply homes in the lower plaza with water and sewers.

The trenching program added substantially to our understanding of Picuris Pueblo. First, it required excavations in areas that the Picuris Council had deemed off-limits to Dick's earlier research excavations, including plazas and areas in the currently occupied portions of the Pueblo. Second, it afforded long exposures of stratigraphy that could be investigated and mapped, an impossibility given the test-pit type of testing allowed before the water-line work. Third, deep trenching exposed parts of nine subterranean kivas, structures so deeply buried by midden deposits or water-lain sediments that they probably would never have been found with conventional test-pit excavations.

Quantifying Picuris: Postexcavation Analysis and Interpretation

Archaeological excavation is a destructive, meaningless exercise if it is not followed by careful analyses of the materials recovered. Herb Dick and his colleagues ensured that such a fate would not befall their years of work at

Picuris, and countless hours were invested in the description, quantification, and analysis of the Picuris materials following the 1964 season. Only a portion of the subsequent analysis was funded by outside sources (the National Park Service and the National Science Foundation); the rest was completed by Dick and others, with great cost in terms of time and personal expense.

After each day's excavations, artifacts were taken to Fort Burgwin, a 30-minute drive north of Picuris, where they were cleaned and bagged by provenience. Artifacts were subsequently categorized into various classes, including material type, tool type, style, and chronological placement. Due to the huge quantities of materials recovered, Dick instituted the use of side-punch Y9 Unisort cards to aid with record-keeping. This early form of the computer punch card was a "poor man's IBM" (Dick 1958), utilizing holes in the side of the card for the sorting procedure. Each of the 91 holes on the margin of the card was assigned a value. When that value was present on the artifact, a notch was punched over the hole. When a long needle was inserted into that hole though a stack of Unisort cards and the stack was shaken, those cards with a notched hole fell out of the stack. Though certainly archaic in comparison with the computer technology so pervasive in our world today, the Y9 cards ably met the goal of mastering large sets. The data compiled from the Picuris artifact analyses were transferred to the Y9 cards in the mid-1960s and are still accessible in 10 linear feet of cards stored at Fort Burgwin. These punch-card data are presently being transferred to a more accessible computerized format.

The single largest and most comprehensive summary of artifactual data was compiled by Daniel and Mariann Wolfman in 1965–66 with financial support from the National Park Service. This artifact synthesis and Dan Wolfman's interpretations of the trends in artifact frequencies have been included in chapter 10 along with commentary (by Adler) that raises questions about the interpretation. In his original interpretations, Wolfman argued that trends in lithic tool type manufacture and use through time correlated with significant changes in climatic conditions in the Taos region. Though interesting from a culture-historical point of view, these correlations clearly require more explicit arguments explaining the causes of the trends observed.

The Picuris artifact collection, data cards, documents, photographs, and related materials were kept at Fort Burgwin until 1971, when much of the collection was returned to Picuris Pueblo. This early example of cultural repatriation was spurred by the construction of a museum and visitor's center at Picuris, and many of the unbroken artifacts recovered from the excavations at the pueblo were placed on exhibit, where they can still be viewed today. A significant portion of the collection was boxed and stored at Picuris in a reconstructed kiva, a structure that has subsequently collapsed, returning many artifacts to the ground. A smaller but still sizable part of the collection was loaned indefinitely to Herb Dick by the Picuris Council to allow the continued analysis of ceramics and other Picuris materials. These collections are available for study. Requests to perform analyses on the Picuris collection must first be approved

by both the Picuris Council and Fort Burgwin Research Center.

Why Study This Place?

Why should we be so interested in Picuris? Given the range of fascinating places, cultural variations, and unique historical events that crowd the American Southwest, this is a fair question. The many years of work by Herb Dick's multidisciplinary team have afforded a number of answers.

Certainly one of the most fascinating of Picuris' claims to fame is its very deep history as a Pueblo settlement. Peppered throughout the unpublished manuscripts and reports generated by Dick and others is Picuris' status as one of the oldest continuously-occupied settlements in North America, if not the oldest. Several Native American communities in the American Southwest, including Acoma, Picuris, Taos, and the Hopi Pueblos, consistently contend for the title of the oldest continually occupied settlement in North America, a title that attracts many people curious to experience these places of antiquity. Although the exact founding date for each of these tenacious settlements is not clearly established, ceramic and architectural evidence at Picuris indicates that at least by the 12th century A.D., a significant settlement was in place at the pueblo.

The aggregation at Picuris was certainly not unique for this time period; village aggregation was all the rage during the 12th and 13th centuries across much of the American Southwest. The southwestern landscape, previously dotted with thousands of small homesteads and only rare larger villages, was transformed by this watershed in regional settlement strategy. Picuris is unique in its resilience over time, however, since only a few of the places founded during the aggregation phase that began eight centuries ago are still occupied today.

Though the title of "oldest continually occupied settlement" will continue to be shared by various pueblos, none of these other living communities can claim as extensive an excavated record as Picuris Pueblo. As mentioned above, over 1,660 feet of trenches were excavated in addition to parts or all of 113 surface rooms. Twenty-two kivas, each abandoned and filled with sediments at some point in the past, were located during excavations, many of which were partially or fully excavated (see chapter 4). Excavations of this scale have been undertaken at abandoned Pueblo sites, and of those excavated in the Rio Grande region, most were dug fifty or more years ago, before the use of more precise methods of artifact recovery.

Another reason for studying Picuris rests with its long tradition of kiva construction and use. The kiva is central to Pueblo ritual life, and detailed study of kiva use, size, layout and number can tell a great deal about the organization of ancestral Pueblo religious life (Adler 1993a, 1993c). Importantly, several kivas excavated at Picuris still show the remains of painted murals, evidence of sacred iconography important to past Pueblo belief systems. The kivas of Picuris set this place apart from nearly all other excavated sites in the Southwest. A few scattered sites, including Awatovi (Smith 1952b), Kuaua (Dutton 1963), and Pottery Mound (Hibben 1975), contain painted murals on kiva walls. When excavations began at Picuris, the farthest north that kiva mural paintings had been found was at Kuaua, just north and east of

Albuquerque. Several examples were uncovered at Picuris and are discussed in detail by Helen Crotty in this volume (chapter 9). Kiva painting continues to be practiced in the kivas still in use at Picuris (H. Dick, field notes, 1961). In keeping with the claims of great antiquity for Picuris, stratigraphic evidence found outside one of the kivas still in use in the northern plaza indicates that the structure was built before the 13th century. If the ceramically derived information is accurate, this kiva would be the oldest continuously used structure recorded in the Western Hemisphere (Dick 1965b:6).

These are a few of the myriad reasons that Picuris continues to interest those on the "outside" as well as those who presently occupy this ancient place. Centuries of human life have been played out on this spot, allowing an unparalleled view into those aspects of Pueblo life that have changed as well as those that have remained more constant. The basic human fascination with cultural origins and change crosscuts the fact that there are, and will continue to be, different histories of Picuris Pueblo. This book presents a few select vignettes of Picuris' past, accounts shared with the hope of broadening our appreciation of change, continuity, and the deep history played out by the *pe'ewi* of Picuris Pueblo.

Chapter Two : Picuris from the Inside

Richard Mermejo

Editor's note: These comments were contributed by Richard Mermejo after several discussions I had with him about the excavations at Picuris. As a younger man, Richard had worked with Herb Dick, Dan Wolfman, and fellow tribal members in the excavations at Picuris. Richard's comments are in large part a response to questions I asked him about the role that archaeology has played, for better and for worse, at Picuris. Richard tape-recorded his comments to my questions and these tapes were subsequently transcribed at Southern Methodist University.

I'm a tribal member from Picuris Pueblo. I have lived in this area the majority of my life. I've been affiliated with archaeologists for over thirty years. I have several questions that I would like to answer for Mike Adler. The first one is about whether archaeologists have done a good job of recording the history of Picuris. The Anasazi[1] didn't leave written records. The Picuris Indians have known and practiced the way of the Anasazi. Their way of life is still being used today. I think to a certain extent, their way and some of the way they lived may have been forgotten, or we didn't want to participate in them. Sometimes we don't use them simply because a priest or a head clan leader, or a kiva leader may have passed on and did not leave written records or somebody to follow his kiva leadership.

The second question asks whether archaeologists have been insensitive to the rights of Native Americans. In every ethnic group there is a good and a bad guy. Respect depends on the archaeologist you are working with. I think at Picuris my late father had the situation in control by telling the archaeologist where to excavate or where to stay away from. It is important to have an elder, someone from the pueblo; not any native from any other place; control or conduct the excavation.

The question has been asked whether archaeology has taught the people of Picuris things that were not already generally known about the history of the settlement. Sometimes people forget, or maybe a cacique passed on and didn't leave anything for us to follow.[2] Dr. [Herb] Dick used to get into great details about some of the artifacts, and we used to wonder how white man learned or knows about the Anasazi. We have learned from the archaeologists, but we knew a lot already.

You ask whether archaeology has had a beneficial impact on the economy of the community and if it has enhanced community pride in its heritage. We've been striving to get tourism and visitors to the excavations that Dr. Dick did. The artifacts are on display at our museum. But we are sitting in a rural area, away from the main highway, and a lot of the tourists to the area bypass us and end up either in Chimayo or Taos. What we are doing is trying to control the visitors by implementing interpretation trails and first-person living museum tours. We're looking into those areas now. As for pride, the Picuris, especially the younger group,

would rather go into the kiva and practice the Indian ways than practice Christianity. Getting to know and getting to understand more about our culture and the way ancestors lived from day to day has kept more of the younger people involved in our community.

You ask what archaeologists should do to better understand the life of ancestral Native Americans. The most important thing is not to disturb burial areas and funerary objects. No matter whether an archaeologist goes to school for years and years and years, the only way you're going to understand a Native American is you have to be one, live with them, speak their language, and be born into the culture.

You ask whether Native Americans should get more involved in archaeological research and education in the Southwest. That is difficult; some pueblos are very strict, for example, Taos Pueblo. For Picuris, the younger generation wants to know about their heritage because the truth about Native Americans is not being taught in public schools. Indians are very shy. They will not tell you what you want to hear. Being affiliated with archaeologists for this many years, I found it to be very informative, and by working with them I have a better understanding of where my people, my ancestors, the Anasazi, came from. They have a lot of theories about the Anasazi. The one that I don't understand the most is when archaeologists say that the Anasazi mysteriously disappeared. Well, they didn't disappear, they just moved for several reasons. Maybe drought, maybe population explosion, or natural resources ran out at a rapid pace. So they just moved closer to the Rio Grande. We know at Picuris for sure that our ancestral homeland is Pot Creek [Pueblo]. And we have evidence we used to mingle with the Towa at Pecos. That's my thinking.

Endnotes

1 Editor's note: Although some modern Pueblo groups such as the Hopi and Zuni have objected to the use of the term "Anasazi" to identify ancestral Pueblo peoples, individuals such as Richard Mermejo continue to use the term, due to personal preference and comfort with the term.

2 Editor's note: The cacique is the recognized traditional leader of the pueblo and is generally the highest-ranking ritual leader in a moiety or community (also see Brown, chapter 3 in this volume).

Chapter Three : Picuris Pueblo in 1890: A Reconstruction of Picuris Social Structure and Subsistence Activities

Donald Nelson Brown

The pueblo of Picuris is located on the Rio Pueblo about 17 miles south of Taos, New Mexico. The language spoken within the community is a dialect of the Tiwa language and is closely related to the other Tiwa dialects spoken at Taos, Sandia, and Isleta Pueblos. The Picuris language is more distantly related to the Tewa language, the Jemez language, and the Kiowa language. All residents of Picuris also speak either Spanish or English, with a few being fluent in all three languages.

A Picuris origin tradition tells of a large village at the bottom of a lake in the mountains north of Alamosa, Colorado. From this lake the Picuris Indians first emerged into this world by means of a long ladder. They wandered south to 0jo Caliente and Santa Fe, then north to Mora, and finally found the site of their present village on the banks of the Rio Pueblo. "They had roamed from place to place, and finally they found this place that was very suitable for them to live; plenty of water, plenty of hunting grounds. They had been moving here and there, you know, in those days, and finally they settled here for good."

Another tradition tells of the old village and of a split within the village.

> One time there were a lot of people living here; a big village. They used to live about five or six stories high. Those people used to do a lot of hunting, and they used to do a lot of farming. Still it shows high on the hills where they used to have their lands. It shows they used to farm there as there are some rows of rocks where they used to plant their corn, pumpkins, and beans. They didn't use to irrigate in those days because there was always rain. They used to raise their crops by rain most of the time.
>
> In those days there used to be tribes, maybe Plains Indians or some other tribes, that used to come around and attack the village. That's why in those ruins they never had big windows like today. They used to have a little hole through the wall that they could peek out and see if there was danger out there. And the same time, in the night, they used to have watchmen to look around at night; that's the time they used to come around and attack them. They used to take care of the ones that were sleeping. So if anything comes up, they can let the rest of them know that they are attacked.
>
> And then during those years after there was a big tribe here, there was a time that they had to divide the tribe up in order to have more game and more farming places, so some of the tribe moved to Pot Creek where there are some ruins. And some went east and some south. But those that went east had to turn back in later years on account of not finding enough water where they were. On the Plains not much farming could be done because the rain and the weather

> had been drying up in those days already. So they came back, but later they had a split again and they went north this time. I think those might be the Taos Indians. And those that went west in the later years must be the Isleta people.

The present population of Picuris varies from a high of about 115 in the summer to about 95 in the winter. In the summer of 1964 there were 22 households and a resident population of 95.[1] On weekends and holidays the population would increase to 110 when families living in Santa Fe, Albuquerque, and other cities would return to the pueblo. For the last century the population has been relatively stable (Figure 3.1). During the century since 1864, when the population was 122, the reported population high was 130 in 1950 and the low was 96 in 1900.

Since the early decades of the 20th century, many significant changes have taken place at Picuris. The basic economy has shifted from subsistence farming and hunting to wage-earning and welfare. The political organization has shifted from a council of ceremonial elders, which appointed the civil officers, to a community council composed of all adult men, which annually elects the civil officers. The ceremonial societies no longer exist except in the memories of the oldest residents, and the larger kinship units that were associated with ceremonial activities are only vaguely reflected in the annual feast-day celebration. In spite of these changes, the people of Picuris have been able to maintain an identity independent from that of their Spanish-American neighbors and a culture separate from the dominant Anglo-American culture (see Siegel 1959).

This chapter consists of four sections. The first section is a model of Picuris social structure reconstructed for the period of 1890, the period immediately preceding the changes mentioned above. The second section presents material on Picuris subsistence activities for the same period. The third section, a personal description of Picuris Pueblo, depicts life as a boy at the pueblo in 1880–90.[2]. The fourth section presents co, using comparative material from the Tewa Pueblos and Taos.

Picuris Social Structure, 1890

The total population of Picuris Pueblo in 1890 was 108, of which 62 were males and 46 were females (see Table 3.1).[3] This population was divided into a number of social units, forming the Picuris social structure, which included three systems: kinship system; ceremonial system; and political system.

Kinship System

The Household

The household, consisting of a married couple and their unmarried children, is the basic kinship unit. Rarely does the household include either married children or grandparents. Within the household there is a division of activities based on gender. The husband is responsible for providing food, through both farming and hunting. The wife maintains the house, prepares the food, and cares for the children. There are occasions when the family works as a unit, such as harvesting, group fishing, and collecting wild plants away from the village. Property, including land, houses, and personal property, may be inherited by children of either sex from either parent. When a son marries, a section of land is given to him for farming, and a new house is usually constructed for the newly married couple. Married daughters may also be given land to farm, especially if a daughter's husband is from outside the village. At the death of a

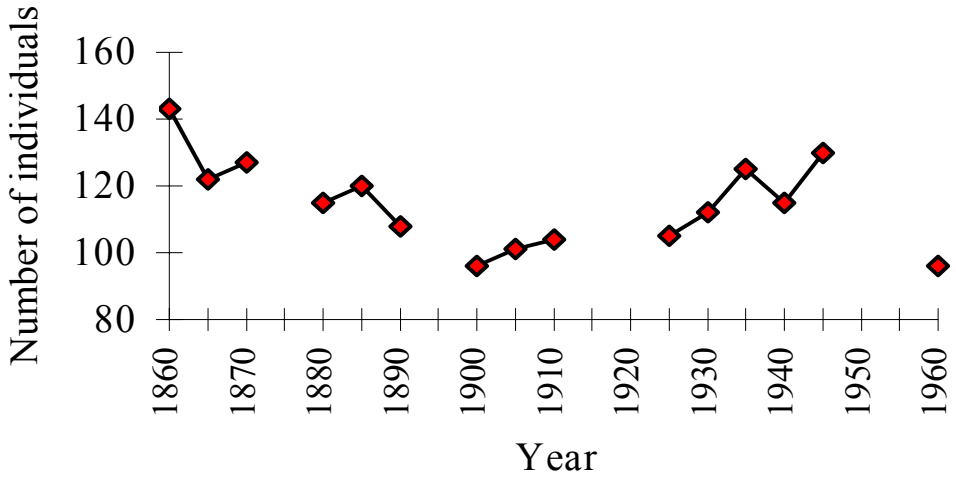

Figure 3.1: Population Levels at Picuris Pueblo, 1860-1960

spouse, the surviving spouse continues to occupy the house even after all the children are married and have established new households.

Marriages are monogamous, and divorce or separation is rare. The choice of marriage partners follows the teaching of the Catholic Church, which forbids marriage of cousins. Although the majority of marriages are within the pueblo, some marriages involve members of other Indian groups, especially the Jicarilla Apache and the San Juan Pueblo. In 1881,several San Juan women were married into Picuris (Bloom 1936:278).

Kinship terminology also reflects the importance of the nuclear family. The greatest differentiation of terminology is found among the primary relatives who form the nuclear family, which can be equated with the Picuris household. Distinctions based on generation, sex, and relative age result in the following categories (see Trager 1943): father, mother, older brother, older sister, younger sibling (either sex), son, and daughter. Among the secondary relatives, no distinction is made between maternal and paternal relatives. Distinctions are made only on the basis of generation and sex, resulting in the following categories: grandfather, grandmother, uncle, and aunt. Grandchildren, regardless of sex, are referred to by a single term. Cousins, nephews, and nieces are all referred to by a single term, which may be translated as "close relatives." Specific relatives can be designated by the use of compound terms that trace the relationship to the speaker, such as the maternal aunt who may be referred to as "my mother's sister" or the paternal uncle who

may be referred to as "my father's brother." Personal names rather than kinship terms are commonly used for relatives outside the nuclear family (Parsons 1939a:210 and Trager 1943:566).

The Bilateral Extended Family

There is a tendency toward virilocality, in which the newly married couple establishes a residence near the husband's parents' house. The couple may move into a vacant house owned by the husband's parents, may build onto the parents' house (using one common wall, the houses have separate outside entrances and rarely have a linking door between them), or may build a new house if there is available land. Rarely, if ever, does a newly married couple establish permanent residence within the parents' house.

The home of the wife's parents is frequently visited, and the grandchildren are often cared for by the maternal grandparents when both parents are busy. Descent is reckoned bilaterally, and property can be inherited from either paternal or maternal relatives. Bilateral cooperation is expected in such projects as building houses, providing food for feast days, and harvesting large crops.

Bilateral Descent Groups

The named bilateral descent groups are frequently referred to by informants as "clans." These units, however, lack any sense of social cohesion or residential unity, both necessary criteria for clans (Murdock 1949:68), and they are, apparently, bilateral. These descent groups function only within a ceremonial context and are similar to what Dozier has described for the Tewa:

> The Tewa have "clan names" which former investigators have thought to be kinship units like those of the Keresan and Hopi clans. Actually, however, these "clan names" do not designate social units of any kind, but are ceremonial terms thought variously to be inherited from one's father or mother. The terms also appear useful in establishing friendly relations in occasional visits to Keresan, Zuni, and Hopi villages, but otherwise they have no structural or functional representation among the Tewa. (Dozier 1960:148)

The Picuris descent groups appear to be more structured than those of the Tewa. An individual may associate himself with the descent group of either his father or his mother, with the choice frequently influenced by the comparative prestige of the two groups. In 1881 Bourke collected a list of eight descent groups: Water, Eagle, Rainbow, Coyote, Earth, Grass that has a white flower, Day, and Sun (Bloom 1936:276).

Dual Organization

The entire population of Picuris is divided into two large units: a Northside group and a Southside group. Although these units may have had a residential basis originally, such a basis is now lost. Both men and women belong to these units, with the women retaining their original membership even after marriage. Although Picuris informants suggest a patrilineal basis for these units, it is possible for a man to change his group affiliation if he wants to do so. Affiliation in either of these groups in no way determines possible marriage choices. One can marry either within or outside of one's own group.

Two kivas are associated with the dual organization groups. Sky Kiva, located in front of the roundhouse north of the present village (Figure 3.2), is the Southside kiva. Cloud Kiva, located in the upper plaza area, is the Northside kiva. Each dual organization group is led by a headman, usually referred to as the cacique. These headmen are responsible for the performance of various activities within their respective

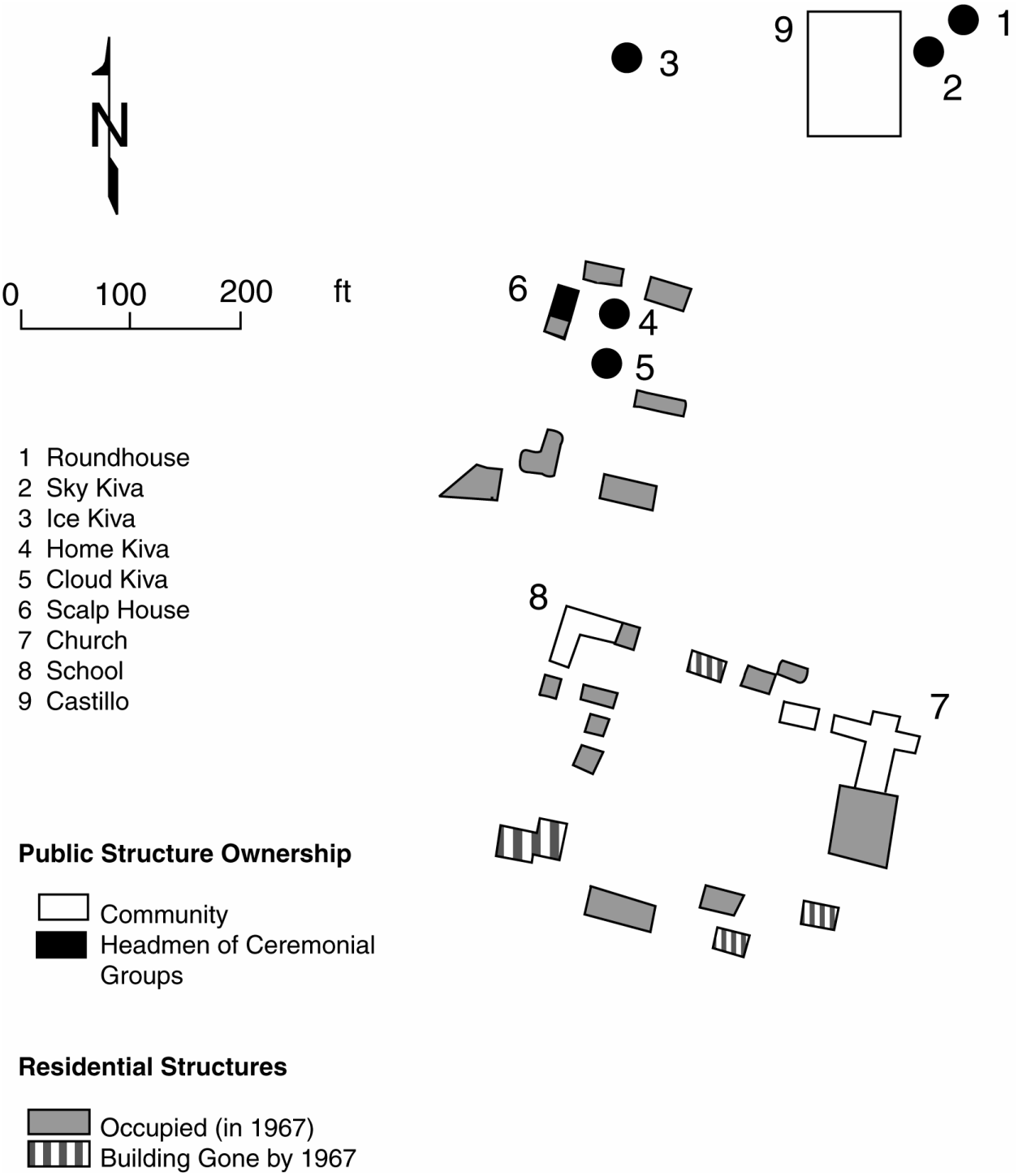

Figure 3.2 : Structure Ownership, Picuris Pueblo, 1965

groups, as well as for the maintenance of the two dual organization kivas. These headmen are older men who have been specifically trained for the position, and apparently descent is not involved in the choice of headman. The role of these headmen as council members will be discussed below. One of the primary activities of the two dual organization groups is community footracing, both relay and long-distance racing. The annual relay race on San Lorenzo Day, August 10, is run by the dual organization groups (for a brief, illustrated description of this race in 1917, see Pancoast 1918). This race generates a strong sense of competition between the two groups, and practice running takes place for several weeks before August 10 on special practice racetracks belonging to each of the groups. The race is "for raising crops, having good fortune of everything, good luck, good hunting, good of everything." Before the race, each headman talks to his runners: "Now we are going to fight each other, almost like in a war. It's for the good luck of the Pueblo, for both sides." The long-distance races from Santa Barbara Lake to Picuris, a distance of about seven miles, take place in the spring and summer months and are also competitions between the dual organization groups, although the ceremonies of which they are a part are directed by the ceremonial societies. Shinny, played in the spring with a hide-covered ball and wood sticks, also provides competition between the dual organization groups (Parsons 1939a:221).

Ceremonial System

Ceremonial Societies

There are four ceremonial societies concerned with seasonal activities and one clown society at Picuris. The membership of the four seasonal societies is drawn from the entire male population. Whereas an individual is supposedly born into (but can change affiliation from) a dual organization group, membership in a ceremonial society is gained through election by the society membership. One of my informants explained:

> You were elected. You were chosen by the society. That's why I served the Spring ceremonial society. I was small and I was put there to serve. You have to go, whether you like it or not. You had to go because it was strict. It wasn't just kidding. One of the society members would tell you that were supposed to be there to serve. You were told to go to the river first, take a bath, and then go up there to serve. That was Indian religion. That I remember. Then you have to go up there. Dress up in Indian clothes with a blanket. And then they let you know whether you have to serve all your life, as long as you are living, serve it any way it has to be served.

Women are also associated with these ceremonial societies, not as active members but as auxiliary members. They are notified by the society to take food to the members when a ceremony is in progress. Other women may volunteer their help, according to a Picuris informant: “They were put there to serve by the society. So they were serving. And some of them used to give themselves, volunteer, to whichever

society they wanted to serve. It was not forced on them. Just whichever they wanted to serve. Some were put on because the group was getting small, so they could pick up the doings."

The Spring People, whose name may be translated as "Terraced Cloud," are responsible for the annual spring picnic and the first of the three summer footraces from Santa Barbara Lake. The picnic is held in the middle of May, "when it's getting green," for five consecutive days. The activities are held at a different location each day away from the pueblo: the first day to the east, the second to the north, the third to the west, the fourth to the south, and the fifth to the southeast. These picnics include the singing of "picnic songs," rabbit drives, and feasting. On the fifth day of the ceremony everyone, including the elderly people and the children, gathers at the base of the long-distance racetrack where the ceremonial leaders, the Principals, speak. "They all stand and tell the people not to do wrong, to do right." In the afternoon everyone returns to the pueblo where the men, standing around Cloud Kiva, sing the picnic songs again.

In June, the first of three summer rain ceremonials is held, sponsored by the Spring People. Included in the ceremonial is the running of a long-distance race from Santa Barbara Lake to Picuris. Anyone, including women, may run in the race, which is run as a competition between the dual organization groups. The ceremonial is "to call the rain." The roundhouse is used for this ceremonial.

Another society, the Summer People, maintains the roundhouse as its kiva and sponsors the second summer rain ceremonial, in August. Unlike the other Picuris kivas, the roundhouse is built above ground of adobe bricks and contains a Spanish-style fireplace. "It was built up lately, I guess, because it is built of adobe; maybe their old kiva caved in." Like the first summer rain ceremonial, the second includes a race from Santa Barbara Lake and is also "to call the rain."

The Fall People society sponsors the third and final summer rain ceremonial, in September and is responsible for the Mountain Dance in late September. The third rain ceremonial includes the long-distance race, but this ceremonial is "for the maturing of the crops." The roundhouse is again used.

The Mountain Dance, a two-day ceremonial held in the mountains after the crops are harvested, is also under the direction of the Fall People society. Special songs and dances are performed, and feasting occurs. On the evening of the third day a circle dance is held at the pueblo.

The Winter People society maintains the Ice Kiva and performs special winter ceremonies, such as the singing of "cold songs" for weather control. Ceremonies for hunting and for game animal increase are also associated with the Winter People. The dancers portraying buffalo in the Buffalo Dance go directly to the Ice Kiva when they enter the pueblo for the first time.

Each of the four seasonal societies is led by a headman, who is referred to as the Old Man of the society. These four men are trained from their youth in the ritual and responsibilities of the societies. Descent is not involved in choosing these leaders, since the membership of the societies is drawn from the entire male population and does not follow kinship lines. Each society's

Old Man is also a member of the council.

The Picuris Clown Society, the Water Clowns, is not associated with any of the four seasonal societies or with either dual organization group. The six to eight male members are drawn from the entire male population, regardless of society membership or dual organization affiliation. When they meet for ceremonial activities, they use the Home Kiva. The only public performance by the clowns is the pole climb on San Lorenzo Day. The pole, cut in May and permitted to dry until August, is raised in the lower plaza near the church. On August 10 a sheep and other food items are placed at the top of the pole. The clowns, striped in black-and-white paint and wearing hide caps with hide horns, tour the pueblo, often frightening the children. When they find the pole in the plaza, they "make a show for the people to laugh." They shoot at the sheep with broom-straw bows and arrows while making many remarks about their hunting ability. Finally, one of the clowns begins to climb the pole and with the help of the other clowns reaches the top and loosens the food. The clowns come out for this performance only when invited by the Principals. The headman of the Clown Society is also a member of the council.

Hunt Chief

Parsons (1939a:208, 216) mentions a Hunt Chief at Picuris, although none of my informants mentioned this office. His duties are probably similar to those of the Taos Hunt Chief, "who had 'made the talk,' i.e., prayed before the hunt began, asking the deer not to be afraid to give themselves to the hunters" (Parsons 1936:19). The Taos Hunt Chief is also head of the Day or Sun People, one of the Taos kiva societies. At Picuris, the Hunt Chief may be Winter Old Man, the head of the Winter People, since the latter is responsible for the hunting and animal-increase ceremonies.

Scalp Man

The Scalp Man is in charge of maintaining the scalp house, in which the scalps are stored. He is also in charge of the Scalp Dance, which is performed when warriors return with a scalp. The Scalp Man was described by one Picuris informant as follows: "He was in charge of scalps. He was supposed to be a warrior, a big chief of warriors. He was supposed to be a brave man. He ran those Scalp Dances." In 1910 the scalps could be seen hanging in the scalp house: "Another interesting feature observed at Picuris was the hanging of scalps to a rafter in an upper chamber of a house, the eastern side of which was open in order to expose the scalps to view" (Stevenson 1910:15).

Apparently there is no warrior society or scalp-takers society at Picuris. Under the Scalp Man, the returning warriors may have formed a temporary warrior society similar to the Taos warrior society (Parsons 1936:21).

Political System

The Council

The council, composed of the ceremonial leaders, is the heart of Picuris Pueblo. It is the unit that holds the Pueblo together, for all other units are responsible to the council. The dual organization units are represented by the headmen of these groups. Each of the ceremonial society leaders is a council member, as are the Hunt Chief and the Scalp Man. Older elderly men who are active in ceremonial life also are council members.

The Picuris Council meets in Home Kiva, which is considered to belong to the entire pueblo rather than to a ceremonial society. Apparently all council members are of equal status at all times. Unlike the Tewa Summer and Winter moiety headmen, who each direct the village for part of the year (Ortiz 1965:390), the Picuris dual organization headmen are equal and active at all times. Since the Picuris dual organizations are structured along a directional rather than a seasonal basis, the seasonal alternation of leadership does not fit Picuris custom.

The Picuris Council acts as a judicial, legislative, and executive body all in one. Both civil and ceremonial offenses are brought before the council. Decisions are based on tradition, with the welfare of the entire pueblo being the primary concern. The council also forms policy for the pueblo and appoints the civil officers who are responsible for carrying out this policy. The appointment of the civil officers was described by a Picuris informant as follows:

> Right after Christmas the Old Men would get into the kiva and decide. They would get together and decide. The Old Men had a council. The young generation had no say. The Old Men were strict in those days. On New Year's Day they would have a short dance, like Feather Dance, because sometimes it takes time for an election.
>
> On January 6th, Santa Rey or All Kings' Day, they would deliver the canes, and all power was turned to the new officers for one year. Some officers were able to continue. They would just be sworn in by the Old Men. There is a lot of respect for the canes to this day.

The Governor and His Helpers

One group of civil officers appointed annually by the council is the governor and his helpers, offices originally imposed by the Spanish on all the Rio Grande Pueblos in the early 17th century. Dozier has discussed the role of these officers within the pueblos, and his comments may be applied to Picuris:

> The importance of the civil organization cannot be denied among contemporary Pueblos, but this set of officers has not displaced the native sociopolitical organization in any of the present-day villages. The officers of the civil government are recognized in all of the pueblos today as an imposed set, but useful in meeting with outsiders and masking the identity and activities of the native officers. The latter are the *de facto* group of sociopolitical and ceremonial leaders in virtually all of the pueblos." (Dozier 1961:139)

As symbols of his office, the governor receives two canes, one Spanish and the other an Abraham Lincoln cane. The Abraham Lincoln canes were distributed to leaders in each of the pueblos during Lincoln's term in office and have been kept as significant symbols of leadership since that time. The governor keeps these canes in his home and carries them during public performances of his duties. His primary

duties are to carry out the policies of the council and to represent the council in dealings with outside polities. The lieutenant governor is his direct assistant. The sheriff (*alwasi* from Spanish *alguacil*) is responsible for maintaining law and order within the pueblo and also assists in directing community work. The fiscal (*mesatasawine*, from the Spanish *misa*) and his assistant are responsible for maintaining the church building and "teaching the little children how to pray." Several women may be appointed to help the fiscal with the maintenance of the saints within the church.

The governor and his helpers are recognized as a Spanish overlay rather than as a traditional unit within Picuris. The terms used and the recognition of the symbolic canes as being of outside origin also indicate the Spanish influence.

The War Captain and His Assistants

The war captain and three assistants are also appointed annually by the council. These officers also receive canes to symbolize their authority. Like the governor and his helpers, the war captain and his assistants are a Spanish-introduced group. Positions similar to these, however, probably existed in Picuris before the arrival of the Spanish. The traditional disciplinarians were simply given the introduced titles. In Picuris mythology, the war captain leads the men on the warpath. One such myth concerns a war captain who is mortally wounded in an encounter with Plains Indians because he broke his cane in disbelief of the traditional way of life.

The war captain notifies individuals who have been requested to dance in the community ceremonial dances. He also shouts council announcements from his rooftop. Permission must be obtained from the war captain before any nonceremonial dances can be performed. The war captain and his assistants are also responsible for maintaining the community-owned pasturelands.

Ditch Foreman

The ditch foreman (*akissawin*, from the Spanish *acequia*) and possibly an assistant are appointed annually by the council to maintain the irrigation canals and direct the cleaning of these canals. Every household that has irrigated farmland must provide labor to help maintain the ditch system. The ditch foreman watches over this irrigation system, asking the council to call for help whenever the ditches are in need of repair. Picuris informants insist that irrigation agriculture was introduced by the Spanish and that in pre-Spanish times only rainwater farming was practiced on the terraced hillsides. The Spanish origin of the term used to refer to the ditch foreman tends to strengthen these statements.

Summary

This model of Picuris social structure for 1890 divides the units into three interrelated systems. These three systems, which may be separated for analysis, form one large system revolving around a central core unit, the Picuris Council. The largest kinship units and the ceremonial units are represented on the council, and the council appoints the individuals who occupy positions in the civil government. The three systems are also interrelated in activities, since the larger kinship units function only within a ceremonial context and the political units also have ceremonial functions. The ceremonial units crosscut all kinship and political units, drawing their

membership from the entire population. Although each of the ceremonial societies is responsible for performing specific ceremonies, these ceremonies are for the benefit of the entire pueblo and frequently require the participation of the entire population. Of the five Picuris kivas, two are associated with the dual organization groups, two with the ceremonial societies, and one with the council.

Kinship units emphasize bilateral principles rather than lineage principles. The one approach to a lineage principle, in Picuris thought, is membership in the dual organization groups. Individuals ordinarily become members of their father's group, but this affiliation can be changed. Membership into the ceremonial units is through selection by the various societies. The Spanish introduced civil government offices are filled through appointment by the Council. The Council is composed of all the ceremonial leaders, with the two dual organization heads being of equal importance throughout the year.

Picuris Subsistence Activities, 1890

The Picuris subsistence economy was probably never based on a single activity because of the location of the pueblo. In 1890 the major activities of farming and hunting were supplemented by raising livestock, gathering wild plants, fishing, trading, and performing wage work.

Farming

Farming at Picuris is a precarious livelihood. The altitude of about 7300 feet (2225 m) limits the plants that can be grown and shortens the growing season for those plants that will grow. These environmental factors were noted in 1776 by Father Dominguez: "Frijoles and chile do not yield a crop in the Picuris lands because of the cold. Maize usually freezes, but not consistently. There is a very pretty harvest of everything else" (Adams and Chavez 1956:98).

Stories about traditional farming techniques indicate the organization of farming activities:

> Before we had any horses or cultivators or any plows, they used to plant their corn with a hoe which was made out of wood or bone. Bone was the earliest. They dig a hole and put the grain, whatever they are going to plant, there and cover it up. And in the same way they have to hoe the weeds out from their fields. They used a hoe made from either hard wood or some kind of stone. They knew more or less just when to plant their corn. But to harvest their corn there was somebody like a cacique that used to give orders so everybody would gather up their crops, their corn, at the same time. But you can cut hay anytime. That's just a grain that's been brought just recently, and the corn has been with us from way back. That's sort of the way of gathering your crop at certain time, so everybody will start on that day. And they give you so many days, maybe a week, or maybe two, maybe a little bit more. It all depends on the weather, too. But they never turn the stock loose until everybody bring their corn in. The same way in the springtime. As soon

> as one or two start planting their grain, why they give order to take all stock out from the field. Then everybody have to take their stock out from the field.

Such stories demonstrate the importance of ceremonial leaders in farming. Ceremonies were held in the spring when the irrigation ditches were opened, and other ceremonies were held to call the rain and to help the crops to mature. Harvest of the corn had to wait until directions were called out from the council. Then the crop had to be harvested in a specific length of time. Crops introduced by the Spanish were outside of these ceremonial controls and could be planted or harvested at the discretion of the individual farmers.

Harvested corn was prepared in several ways. Green corn was ground into a dough and then cooked on a flat stone, making a thin, paper-like bread. Other corn was allowed to sprout before grinding and then was made into a sweet-tasting bread. Cornmeal was also made into pudding. Corn grinding provided an opportunity for social gathering. Several girls or women would gather at one of the special grinding rooms to grind to the accompaniment of men singing the grinding songs.

As mentioned above, Picuris informants state that irrigation agriculture was introduced by the Spanish: "They didn't used to use no plow. They used to just work with sticks. It's on the hills, you see those little rows of stones. They used to live by rain—by rain, rain gods, their belief. Of course now we don't believe any more. *Asolwahune*, rain gods. They used to have ceremonial calling the rain."

In addition to the farming ceremonies held by the ceremonial societies, individuals also performed rites in their fields before planting. "They used to put feathers in the field when planting. Put it in the middle of the field. Just say a few words for good luck, "I wish for good luck for my crops to come this year." Just like prayer.

In 1881 "the rude wooden plow" and the "creaking wooden carretas" for transporting crops were observed at Picuris (Bloom 1936:278). In 1891 the cultivated land amounted to 555 acres of corn, wheat, barley, peas, oats, and beans (Donaldson 1893:118). In 1900 only 103 acres were reported as under cultivation yielding the following crops: 412 bushels of wheat, 408 bushels of corn, 10 bushels of beans, and 23 bushels of peas. No crops of melons or hay were reported in 1900 (Annual Report 1900:293).

Hunting

Hunting, especially deer hunting, was the main subsistence activity during the winter months. Rabbit drives were held during the annual spring ceremonial picnics, and birds and other small animals were trapped or hunted throughout the year. Deer hunting was primarily an individual enterprise, although the meat might be shared throughout the pueblo. When a hunter killed a deer, he dropped cornmeal on the animal and then stroked it while asking the other deer "not to run away from us, be friendly." The bones of the deer were deposited at several shrines, along with feathers.

Until the last decades of the 19th century, buffalo hunting was an important subsistence activity. Unlike deer hunting, buffalo hunting was a

large-scale community activity, as indicated in the following description by an elderly Picuris informant:

> From here they went out to hunt buffalo. They used to go out and hunt buffalo from Picuris Pueblo. They used to go out in old wagons which were pulled by oxen. They used to go out in the plains back east where there were some lakes because they knew the buffalo would be coming for water.
>
> Early in the morning the herds of buffalo used to come there. And they used to go out at that time as soon as they saw the buffalo herd coming in, and they started killing the buffalo. The buffalo were plentiful in those days, and they had to circle around them so that they could kill all that they wanted. Everybody that was there during the hunting, every one of them, had a job to do. Some were only killing the buffalo on horseback. And there were some that were just doing the dressing of the buffalo, carving them up and having them ready to send home. As soon as the buffalo were killed and dressed, they used to take the meat to where the camp was. There were some people there also drying up the meat in the hot sun because it was quite a ways for them to come to bring the meat to the village. The buffalo were so big and fat they had to make big pieces of meat to dry up. They had to make string out of buffalo hide to put the meat up. It took a lot of line to dry the meat because they didn't kill just one or two. They had to kill all those that they could get. This used to take quite a while. The next day they went back again to find some more herds, and started killing them, and started all over the way they did the first day. It probably took about three months' time. And they had to make the best choice of the herds. The fattest one, that's the one they had to kill. And then there were times when the herd was getting kind of small and they had to move to another new area where there were buffaloes and start hunting again. And when they were about to move back home, they had a big circle and all the hunters were in that circle, and they started to sing their buffalo-hunting song.
>
> There was a time when they used to have kind of a hard time because some other tribes, Plains Indians, used to live around there close and they used to come around in the evenings and try to steal their horses, whatever they have. And sometimes they used to go on warpath with tribes. But the reason the Plains Indians used to come around after they found that the tribe from

> this village was out hunting was because they were also out there hunting. And the way it seems is that each tribe was trying to get the best buffalo hunting. And one tribe thought maybe the other tribe might be killing all the buffalo. And that's why they had to go on the warpath.
>
> After they came back from hunting, they used to come right straight to the kiva [Home Kiva]. And when they got to the kiva, they unloaded their meat and they stood around the kiva singing their hunting songs again. And the people knew that the hunters were back, so everybody used to go over there and meet them and greet them. And after the greeting was all over, all the hunters used to divide the meat up to the tribe. And then they used to have a big feast, a big time, and they were very thankful. And the ladies used to cook a big feast for the hunters, and everybody enjoyed the feast.

Apparently the last major buffalo hunt was held about a century ago. In June 1852 a Picuris Indian was found hunting buffalo on the plains (Abel 1916:219), and the oldest residents of Picuris today recall their fathers and brothers hunting the buffalo about 1870. The kiva used for the distribution of the buffalo meat was the Home Kiva, associated with the council.

Ceremonies involved with hunting included the various animal dances for animal increase, especially the Buffalo Dance and the Deer Dance. Rites related to deer hunting are mentioned above. Small animal figurines of clay were modeled by men in their homes and then placed at a shrine near the roundhouse "so they could increase abundant, so they won't be forgotten." In 1910 this shrine was described as follows: “There is a shrine on the mound of the 'old castle.' On it a fetish of clay representing an animal, a piece of an old tube pipe, and four small stones, one of them a piece of obsidian, were to be seen” (Harrington 1916:194).

Livestock

The Spanish-introduced domestic animals were owned by individuals. Pastureland was communally owned, although each family with livestock maintained its own corral near the pueblo. After the harvest, animals were permitted to graze in the fields. Today an area referred to as "pig town," east of the church, is the location of several pigsties. This pattern of locating all the pigsties in one area probably goes back to the period of 1890.

An elderly Picuris informant recalled the livestock at Picuris during his youth as follows: "They used to have lot of stock. Even over here they used to have burros, horses, cows. There were no goats here. They didn't used to like goats."

In 1881 the livestock was enumerated as follows: "They are not well provided with animals: Nepomuceno declared that they had, all told, only five horses, twenty burros, and about 50 head of cows, bulls, etc." (Bloom 1936:278).

Bourke also described the corrals and sties as they existed in 1881: “Their houses are all of adobe, but the stables for burros and ponies are of log and the

pens for the pigs of 'jacal.' The necessity of pig pens is not immediately apparent. Their hogs are first carefully chained and then fastened to a stake which enables them to enjoy the gratification of lying all day in the mud and basking in the sunlight, while it deprives them of the sweeter joy—dear to every hog's heart—of rooting up and destroying the fields his master has so carefully planted" (Bloom 1938:280).

In 1900 the domestic animals of Picuris were listed as 60 cattle, 42 horses, 40 burros, 14 hogs, and 40 fowls. No mules or goats were included (Annual Report 1900:294).

Wild Plants

Many varieties of wild plants were collected, especially from the mountains surrounding Picuris, and used for food, food seasonings, home medicines, ceremonial smoking, brooms, and hair washing. Collecting plants near the pueblo was a woman's activity; collecting away from the pueblo in the mountains was a family activity. Plants needed for ceremonies were collected by men.

Plants used for food included mushrooms, wild onions, wild celery, chokecherry, gooseberry, wild strawberry, and several leafy greens. A plant used for making tea might be used fresh or dried. Several plants were dried and stored for seasoning meats and fish. At least two plants were used in ceremonial smoking. Tall grass growing in the higher elevations was used for making brooms and hair brushes. Yucca root was pounded and mixed with water for hair washing. The inventory of plants available for home medicines includes remedies for fever, sores, cuts, and various internal problems. Another plant was applied over broken bones: when ground and mixed with water, it would harden into a solid cast.

The inner bark of evergreen trees provided another source of food, as described by a Picuris informant: "The Indians used to eat the inner peel of those trees. It was nice and juicy. It was sweet and tasted good, the flavor of pine. Sometimes we would put it in water and squeeze it and make a drink the flavor of pine. Now we got lots of Kool-Aid."

Fishing

Several fishing techniques were developed at Picuris to catch the fish in the mountain streams and rivers. When the water was very low, it was possible to simply reach under the large boulders and grab the fish by hand. A Picuris informant described another technique, used for fishing through the ice that formed during the winter months: "We used to catch fish even in the wintertime. We would make a rope—like from the horse-tail, braid it. And then put it on a stick. It wouldn't take long. And just break the ice. And where there's a deep hole you could see the fish in there. All you got to do is put that loop in and work it until you get to the middle of the body of the fish, and then jerk them out."

Fishing with homemade metal fishhooks was described by another Picuris informant: "My father used to make those fishhooks out of wire, those bale wires. They was nice ones. He make them small then. Grind them on stone and bend them the best way he could with a rock like that. They were good, too. He used to make them before they were selling fishhooks. And he used to use worms, grasshoppers, like that, as bait. I remember that now."

A fourth fishing technique was called "fish-netting." Several families, usually related, would gather beside the river and construct a framework of

willow tied with strips of bark. Such willow frameworks might be 30 feet long and 4 to 5 feet in height. Two men would walk slowly with the framework through the deep water and then would turn the framework toward the bank. Men, women, and children who were waiting on the bank would then jump into the water and catch the fish by hand. Sometimes the women and girls would use their aprons in catching the fish. Such an event was described by a Picuris informant: "People used to get together, relatives, during the summertime for fish-netting. It was nice enjoyment. Of course, it was just for supporting the family, supporting the children, but it was fun at the same time. Whoever didn't get any fish, we used to share with them, so everybody would have them—share, coming back home." Dry clothing was taken along to change into after being in the water, for frequently a picnic followed. No ceremonies were associated with fishing.

After the fish were brought back to the pueblo, they were cleaned and cooked by wrapping them in a corn husk along with plant seasonings and cornmeal and then placing them under charcoal in the fireplace. Fish cooked in this manner was referred to as a "fish bundle."

Trading

Micaceous culinary pottery and wild mountain plants used for ceremonials provided the basics of trade for Picuris. Pottery made by Picuris women was widely traded and sold throughout the northern Rio Grande pueblos and the Spanish-American villages. One elderly Picuris informant mentioned the trading of pottery during the last decades of the 19th century: "The ladies used to make pottery for sale. The Spanish used to buy the pottery. . . . They used to bring things—flour, whatever they could."

This same informant also mentioned trading ceremonial plants: "They used to take mountain tobacco down to the southern pueblos from here. Maybe now there's plenty, because we don't use it anymore."

Deer meat was also traded, as mentioned in reference to Fort Burgwin: "It was a long time ago from now. My father used to be out hunting all the time. And they did their trading. He used to take deer meat to Fort Burgwin, give it around. Used to bring little eats from over there, like flour. He used to get plenty—like sugar, salt, grocery-like."

Wage Work

In the late 19th century, wage work was of relatively little importance to the Picuris economy. Young boys might herd goats for Spanish-American neighbors, or young men might work for wages occasionally, as described by a Picuris woman: "In the old days we didn't need much money. I remember my husband working in town for 50 cents a day. All the men around here worked for that. We grew our own food—corn, beans, melons. We also got some rabbits and deer. We didn't need much money. Those were good days. Today you need money for everything."

In the early 1900s the situation was beginning to change at Picuris, partially due to the influence of the first day school established at Picuris in 1897 (Annual Report 1899:247). By 1910 the following occupations were listed for Picuris men: farm laborers, 11; farmers, 5; laborers (saw and planing mills), 6; stock herders, drovers, and feeders, 6 (Indian Populations 1915:277).

Summary

In 1890 Picuris subsistence activities centered on farming and hunting. Both activities were supported by community ceremonies and individual rituals. Collecting wild plants and fishing helped to supplement the two primary activities, but apparently no ceremonies or rituals were associated with either of these activities. Livestock, trade, and wage work also contributed to the Picuris economy but were relatively minor activities and largely the result of outside influences.

Recollections of a Picuris Boyhood, ca. 1880-1890

To provide a more complete picture of Picuris life before 1900, the following description is included. It consists of comments made by a Picuris man born in 1872; he lived his entire life at Picuris, serving as the headman of a ceremonial society and as a councilman. The comments were tape-recorded in 1965. They were originally recorded in the Picuris language and were then translated into English by another Picuris man who was present at the recording session.

> Long time ago it was starvation days. I used to herd goats for the Mascareñas family in Dixon. I used to pass it nice there. Well, maybe I was going to be married to a Mexican girl around there. Then my father went down after me. He didn't let me stay any more. He brought me up to Picuris.
>
> I used to live over here. Those houses are old. There was a top building (a second story). That's where my father used to live, and my mother, my two older brothers and two younger brothers, and my three sisters.
>
> It was hard time. They used to make us little shirts of old dresses. The ladies used to make pottery for sale. The Spanish used to buy the pottery. They used to really buy them. At that time there were no utensils. That's why they used to kill the cattle and bring the hides to make us shoes. Oh, you fellows didn't suffer like us when you were small. It used to be hungry at that time.
>
> We used to be hunters. Yes, I'm saying we didn't used to be out of meat them days. They used to be hunters, the men. Wild animals were plentiful over here, right around this mountain. And now we are without meat. They used to have lot of stock. Even over here they used to have burros, horses, cows. There were no goats here. They didn't used to like goats.
>
> When they went off to a feast, they used to look around. If they find where a pig was killed, they would say, “Over here it's not good. Let's not go in. There's bear hair [from butchering] over here.” So they used to go to another place. Whenever they stopped, if they find pig hair, they didn't go in. And now we like them; we like

them very much after they are fat.

After the ladies went around selling pottery, they used to bring lard, goat grease, sheep grease, no store lard like today. It was hard them days when we were young.

I didn't used to like ditch-cleaning time. After we were so full from eating, they used to make us run. We used to hide. They would whip us when we were not doing right. Some of the boys used to get sick because they were so full. They used to make us run either way—from the east side when we were cleaning the ditch, or the west side. After we were so full we used to be running.

There were lots of eats. We used to eat everything. And now we don't pick the chokecherries, not even wild celery. Now we don't even bring in any onions any more. Maybe the canyon is full of them now, so many years we don't even pick them. We don't even make use of them.

When we were small and the days of the feast were coming, we used to be around where they were baking—wishing they would give us something. We used to go around asking where they used to kill cows or a deer. It was suffering time, that time.

The Spanish used to come before the feast day, and some of them didn't leave until evening. They used to stay, make themselves at home. But they used to eat feast. That time lots of Spanish used to come in wagons with horses, some on horseback and some on wagons—those that have animals. And now the Spanish don't even come around. They already know our dances, and they got enough of them. And we used to have clowns. It's forgotten already, the water clowns.

We used to be dancing at Christmastime around the houses, and they used to feed us. They didn't dance much Matachina. When they did, they used to look for pants around the Spanish—shoes and pants. At Christmas they danced the Deer Dance.

We used to be cutting wheat by this time, and be the tramping places. They used to shut up the wheat and go to Taos. They would leave their wheat and go. They could just leave their wheat. Nobody would bother it.

They used to go buffalo hunting a long time ago. I don't know what place they went the last time. They used to kill them to the east, around Mora. The Spanish didn't used to hunt much, and now the Spanish

are hunters. It was plentiful then. My father, my brother, and other men went buffalo hunting.

We used to kill deer around here close to this mountain. That's where we used to hunt—rabbits, squirrels, striped squirrels. It was plentiful.

They used to go out to Taos at San Lorenzo time. We didn't used to go to feasts at other places so much. They used to sell pottery. Mexicans used to want pottery. They used to bring things—flour, whatever they could. They used to take mountain tobacco down to the southern pueblos from here. Maybe now there's plenty, because we don't use it anymore.

They used to go to the Jicarilla Apache. The Apache had Indian clothing—moccasins and leggings and belts. Now they don't live in the mountains. Now they don't roam around any more. They used to pass the winter around here sometimes. They were friends to each other, the Jicarilla and the people from here.

Conclusions

The reconstruction of Picuris social structure presented above should be considered as a provisional model based on limited data, much of it was collected 75 years after the period represented by the model. This model, however, differs from the description presented by Parsons (1939a), who used data collected in 1925. It is Parsons' description that provides the Picuris material for such comparative studies of Pueblo social structure as Eggan (1950), Hawley (1950), and Dozier (1961). Eggan briefly presents the material as follows: "Picuris, the other northern Tiwa village, is decadent and has similar social institutions (with Taos). Parsons noted a dual division of north-side and south-side people, but with patrilineal affiliation; a dual organization of the six kivas for racing but not for dancing; a dual chieftaincy associated, apparently, with the solstice intervals. Kinship is bilateral and on the Taos model, though personal names have largely replaced kinship terms" (1950:306).

The kinship units of the model agree with Parsons' description, with the addition of the named descent groups, and the political units agree with Parsons' description of the civil government. Parsons, however, does not mention the important Picuris Council. The greatest disagreement appears with the ceremonial units and the dual organization groups. Parsons links all kivas with the moieties: Cloud, Ice, and Canyon (Home) Kivas with the Northside; Sky Kiva with the Southside. The roundhouse, used jointly, is considered separate from the kivas. Only briefly does Parsons mention Picuris societies, and there appears to be confusion with the named descent groups: "Inferably there are kiva societies at Picuris as at Taos, but I learned even less about them than I learned about Taos kiva societies. Of Water people, Fallen Leaf said there were three or four members, but their names he withheld. He volunteered that there were Rainbow people, a group I have not heard of at Taos" (Parsons

1939a:216). The model instead suggests that Picuris kivas are associated with three types of units: Cloud and Sky Kivas with the dual organization groups; Ice Kiva and the roundhouse with ceremonial societies; and Home Kiva with the Picuris Council.

The earlier description of the roundhouse has also lead to misunderstandings. Hawley (1950:287; 1964:50) identifies the roundhouse as a "big kiva," which she defines as follows: "They are community buildings customarily used for affairs open to the village as a whole, rather than for restricted groups one finds using small kivas or rooms" (1950:287). The model indicates that Home Kiva, rather than the roundhouse, fits this definition of a "big kiva."

To place the Picuris model within the context of the northern Rio Grande Pueblos, comparisons with Taos and Tewa units must be made. Bilateral kinship systems are common throughout the area (Parsons 1936:28; Dozier 1960:156). The extended family appears to be of more importance among the Tewa (Dozier 1960:156) than at either Taos (Parsons 1936:52) or Picuris. Named descent groups can be identified among both the Tewa and the Picuris (Dozier 1960:147) and possibly can be inferred from the lists of "clans" collected by several fieldworkers at Taos (see Parsons 1936:38). It is interesting to note the similarity between the names collected by Bourke at Picuris (Bloom 1936:276) and those listed by Parsons for Tewa "clans" (Parsons 1929:86–88). Of the eight names listed by Bourke, only "Rainbow" and "Day" do not also occur among the Tewa. Although Eggan does not consider these units to be kinship units (Eggan 1950:305), the named descent groups fit what Davenport has referred to as "nonunilinear descent groups" or "septs" (Davenport 1959).

Dual organization groups occur among the Tewa, Taos, and Picuries, but the concept by which the division is made differs. The basic Tewa division is between Summer People and Winter People, with the two groups seasonally alternating governmental and ceremonial activities (Dozier 1960:153). Ortiz (1965) describes a second division at San Juan–Northside and Southside– which crosscuts the Summer-Winter division and which functions "during rain races and an associated rain dance at the summer solstice and during ceremonial shinny games in February" (Ortiz 1965:393). The Taos division is based on kiva affiliation with three kivas in each group. Parsons presents a Northside-Southside division based on the location of the kivas in relation to the river that divides the pueblo (Parsons 1936:74). Lasswell (1935) and Fenton (1957) indicate the division to be based on criteria other than just location. The Northside group, or the "Male People," consists of two kivas from the north side of the pueblo and one from the south side, whereas the Southside, or "the Female People," includes two kivas from the south side and one from the north side. Membership within the dual organization groups is based on patrilineal descent among both the Tewa and the Picuries, although individuals may change this affiliation (Dozier 1960:152). Since membership in the Taos kivas is through dedication by the parents (Parsons 1936:45), membership in the dual organization groups does not follow patrilineal descent. Parsons, however, mentions "a tendency for a man to give his son to his own kiva or to one of the kivas on his side, i.e., in his

own kiva cluster" (Parsons 1936:45). Ceremonial footracing is associated with dual organization groups among the Tewa (Ortiz 1965:393), the Taos (Parsons 1936:96), and the Picuries.

The Picuris Summer and Winter ceremonial societies can be compared with the Tewa moiety associations, the ceremonial societies within each of the Tewa dual organization groups (Dozier 1960:152–153). The sponsorship of seasonal ceremonial activities is a common feature, yet membership in the Tewa units is drawn from dual organization membership whereas the Picuris societies crosscut the dual organization affiliations. This comparison suggests the possibility that the Picuries applied their pattern of ceremonial societies to borrowed Tewa units, resulting in crosscutting units with a seasonal base.

Clown societies appear among the Tewa (Dozier 1960:156), the Taos (Parsons 1936:76), and the Picuries, yet their activities differ. The Tewa clowns are associated with the Katsina cult and various communal dances. They are also important in maintaining traditional mores by ridiculing deviant behavior. The Taos clowns, the Black Eyes, perform on the annual Taos feast day and also appear with the Deer Dancers, when the clowns have the power to cure. The Picuris clowns come out only on the annual feast day, and the idea that clowns would cure is to the Picuries.

Several basic Tewa units are absent from Picuris. The Katsina cult, of which all Tewa males automatically become members, and the masked dancers associated with the cult (Dozier 1960:154–155) are entirely foreign to Picuris. Two "Katsina-like" aspects of Picuris culture are the long-distance races "to bring the rain" and the origin tradition that mentions an ancestral village at the bottom of a lake. Curing societies are also missing. Individuals with special knowledge and resources were called on for help and assistance, but such individuals formed no curing society, with specific rituals for curing and exorcism, such as are found among the Tewa (Dozier 1960:155). Very likely in 1890, as today, anyone from Picuris needing the attention of a medicine society traveled to San Juan or another Tewa pueblo that had the needed society. The lack of a permanent Picuris society associated with war is similar to the situation at Taos (Parsons 1936:21) but contrasts with the situation among the Tewa. The Tewa men's and women's war societies played a major role in communal relay and conditioning races as well as in war (Dozier 1960:155–156). At Picuris, such activities are associated with the dual organization groups. The Tewa women's war society was the custodian of scalps, but at Picuris, the Scalp Man acted as custodian. The Tewa hunt society, missing from Picuris, sponsors various animal dances and communal rabbit dances (Dozier 1960:155). At Picuris, the Buffalo Dance was associated with the Winter Society, and the communal rabbit hunts were sponsored by the Spring Society. The nature of the missing ceremonial societies indicates a basic difference in concepts between Tewa and Picuris societies. Whereas the Tewa societies are associated with various activities—curing, warfare, and hunting—the Picuris societies are associated with the four seasons. Curing, warfare, and hunting were associated with individuals rather than societies at Picuris.

The Spanish-introduced civil government units are common to the

Tewa, Taos, and Picuries (Aberle 1948:91). The manner of their appointment, however, varies. The two headmen of the Tewa dual organization groups alternate in appointing the civil officers (Dozier 1960:154), while the Taos Council annually elects the civil officers (Fenton 1957:317–318). Among all three groups, a religious hierarchy is the dominant political force, as represented by the Taos Council and the Picuris Council. The Tewa dual organization groups seasonally alternate control of the pueblo (Dozier 1960:153).

No mention has been made in the model of Picuris social structure of the Spanish-introduced *compadrazgo* system, by which kinship is extended through the godmother and godfather relationships. Although this system does exist at Picuris, it apparently has little influence. It was only through direct questioning that any information was obtained on this topic. The terms *kumale* and *kumpale* from the Spanish *comadre* and *compadre*, are used at Picuris, but in a more generalized form that includes close friends as well as the parent-godparent or godparent-godchild relationship (Trager 1943:565).

This brief comparison of Picuris units with Tewa and Taos units indicates that although similar units occur within the three groups, the arrangement and the composition of these units tend to be dissimilar. Many of these differences can be traced to varying economies and histories. Dozier suggests that the strong dual organization groups of the Tewa may be related to the development of irrigation along the Rio Grande (Dozier 1960:150–151). The appearance of the Katsina cult among the Tewa may be related to more intensive contact with the Keresan Pueblos to the south and also to the greater importance of farming as a subsistence activity among the Tewa than among either the Taos or the Picuries, since the Katsina are associated with rainfall. Another important factor that tends to bring about differences is the size of the population. The relatively small population of Picuris could not maintain an elaborate structure of social units. The election of members into the ceremonial societies may have been one adjustment in the attempt to maintain the necessary membership in spite of the small population. It appears to have been a struggle for Picuris to maintain the "traditional" structure until the beginning of the 20th century when the structure finally fractured, resulting in a radically different form.

The subsistence activities of Picuris Pueblo in 1890 were probably very similar to such activities at Taos (Parsons 1936:18–19) and in the many small Spanish-American communities located in the mountains of northern New Mexico. Picuris appears to have been a community exploiting the total range of environmental possibilities in order to survive in its location. Special mention should be made of the role of buffalo hunting at Picuris. Terminating as a major subsistence activity sometime after 1850, buffalo hunting had been of fundamental importance to the Picuris economy. As indicated in the story presented above and in other similar stories, in the early spring a large proportion of the Picuris population journeyed onto the plains of eastern New Mexico for extended periods of time to hunt the buffalo. Much of the meat obtained was dried and, at the end of the summer, brought back to the pueblo, where it was distributed among the entire population. Farm products were similarly distributed after the harvest. If such a general redistribution of food

products did take place at Picuris, this would indicate a higher level of sociocultural integration than is usually considered for the Rio Grande Pueblos. A dual economy based on both farming and buffalo hunting could have supplied the energy necessary for maintaining a large population, such as is indicated in the late prehistoric period at Picuris, in an environment that permits only a precarious livelihood from farming. Perhaps a basic factor in the rapid decline of the Picuris population in the early historic period was the cutting off of the buffalo as a source of energy, with the arrival of various hostile plains groups, such as the Comanche, into the Picuris hunting grounds in the early historic period.

Endnotes

Author's Note: The original manuscript of this chapter was completed in 1966 while I was at the University of Arizona. The manuscript has remained largely intact with few additions. I conducted the field research that forms the basis of this paper in the summers of 1964 and 1965. Funds were provided by the Fort Burgwin Research Center (1964, 1965), The Comins Fund of the Department of Anthropology, University of Arizona (1964), and the National Science Foundation through a Summer Fellowship for Graduate Teaching Assistants (1965). I am indebted to Dr. Edward P. Dozier for his many helpful comments on a preliminary version of this paper.

[1] Editor's note: Picuris Pueblo official tribal roll lists 340 individuals in 1999 (Picuris Tribal Office, pers. comm.).

[2] Editor's note: The original manuscript by Brown had two additional descriptions of the pueblo, the first made by John Bourke in 1888 (from Bloom 1936:275–281) and the second by Thomas Donaldson (1893:118–119). Since both were previously published, neither has been included here.

[3] A portion of this section was read at the Tenth Annual Meeting of the Arizona Academy of Science, April 1966.

Chapter Four : Prehistoric and Early Historic Architecture and Ceramics at Picuris

Herbert Dick, Daniel Wolfman, Curtis Schaafsma, and Michael Adler

From the point of view of developing orderly temporal phases, it is unfortunate that ceramic, architectural, and artifactual, changes do not occur simultaneously in human cultures. Temporal phases at Picuris (Figure 4.1) are based primarily on ceramics[1]. The architectural changes in prehistoric and historic sites in Taos County (and at Picuris in particular) correlate grossly with certain stylistic and technological changes in ceramic assemblages, but there is, of course, some disjunction between these classes of change.

The phase designations in Figure 4.1 were defined by Dick in earlier publications (1965b; Dick et al. n.d.) and have been kept intact here largely for historical reasons. The use of phases to parse up the temporal continuum of culture change is still an accepted archaeological method. However, any phase-based scheme is simply a tool, a means to an end, that end being the explanation of culture change. As was, and still remains, the tradition, Herb Dick defined temporal phases at Picuris based on dated ceramic types. His naming of phases breaks from tradition only in that he utilized non-local names, rather than local place-names, to designate some of these ceramically defined periods (e.g., Tewa, San Lazaro, Santa Fe, Cuartelejo phases). [1] The utility of temporal phase frameworks rests with their expediency; a phase name is simply shorthand for defining a certain chunk of time. Equally as useful is the use of absolute chronological dates to discuss time. The utility of a phase system decreases, however, when researchers attempt to equate the many and varied characteristics of culture change with the changes in the artifact styles that form the basis for the phase system. Change in material culture does not occur at a constant rate within or across material classes through time or space, so any phase scheme will necessarily privilege one material class over another. In this case, changes in ceramic style and form are the defining criteria for Dick's phase system. Changes in architecture, lithic style, food procurement, or any other materially evident part of Picuris culture do not co-occur with the changes in ceramic style and form. The lack of written records describing change within precontact Picuris forces archaeologists to develop and utilize classificatory tools such as the Picuris phase system. The recovery and analysis of tree-ring dates at Picuris, along with the acceptance of dates for tree-ring-dated extralocal types, allowed Dick to assign date ranges for each of his phases.

Time is the best judge of any classification of material change, and over the past 30 years, Dick's Picuris phase system has been commented on and used only sparingly (Wetherington 1968). The lack of use is due to a number of reasons, primary among them being the dearth of Picuris-related publications explaining and applying the system. A second reason was the decreasing focus on the development of phase-based systems over the past thirty years, part of the overall trend away from culture-historical studies in American archaeology. The New Archaeology of the 1960s certainly had an effect on the studies undertaken at Picuris, most notably in the multidisciplinary approach to Picuris' past. But the New Archaeology's critique of

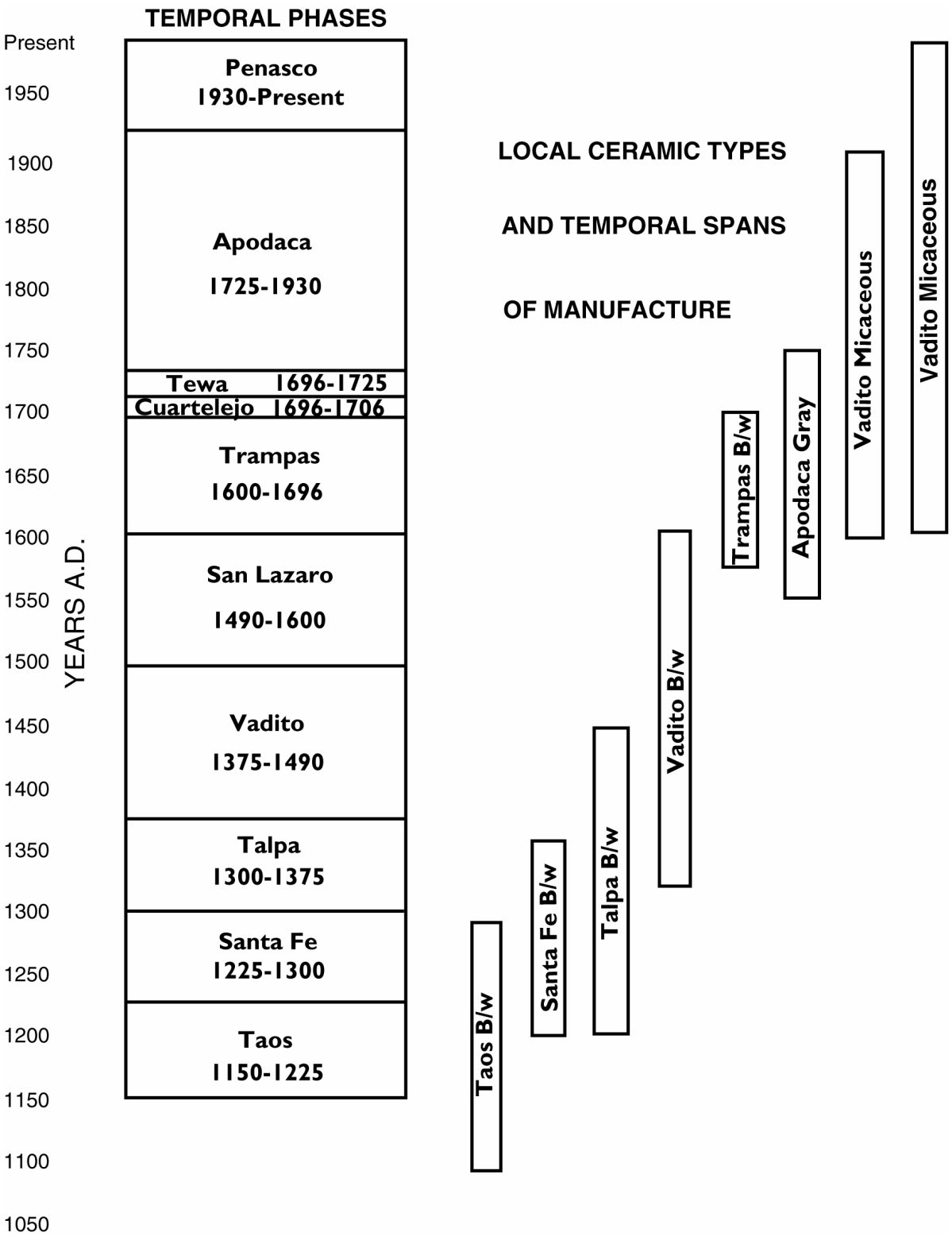

Figure 4.1: Temporal Phases and Local Ceramic Dating at Picuris Pueblo (after Dick 1965b)

culture-historical frameworks and of "normative" characterizations of past cultural systems has made the development of phase-based culture histories a somewhat passé endeavor. Nonetheless, we depend on cultural chronologies in order to talk about culture change, and limited though the Picuris chronology may be, it is preserved here in its original form so that it might be utilized, expanded on, or if deemed useless by the practitioners of northern Rio Grande archaeology, abandoned altogether.

To facilitate discussion of changes that were taking place in the northern Rio Grande, and at Picuris in particular, we delineate four "modes" of prehispanic architecture and village layout. Ordered from earliest to latest, the modes are the pit structure, small pueblo, large early pueblo, and large late pueblo configurations. These modes are in specialized ways peculiar to the Taos area but also parallel in a general way architectural developments taking place in the rest of the northern Rio Grande region (see Adler 1993c; Boyer et al. 1994; Crown 1990; Wendorf 1954; Wendorf and Reed 1955; Wetherington 1968; Woosley 1986) as well as the larger ancestral Pueblo world (Adler 1996). These four architectural modes are followed by a fifth, Spanish-influenced stage of individual family dwellings made of adobe bricks. The relationships between Pueblo architecture, social organization, and community structure are discussed elsewhere in this volume in more detail (chapter 10). The specific details of Picuris architectural change are discussed in the following section.

These general modes treat alterations in the construction and use of domestic architecture as primary defining criteria that are central to our understanding of changes in settlement size and organization through time. The most obvious changes in Taos area architecture include the great labor investment in surface architecture through time and the related deemphasis on the use of subterranean structures as primary living space through time. The use of surface and the use of subterranean architectural features were not mutually exclusive, however. Subterranean structures continued as an important part of the architectural repertoire at Picuris throughout the late prehistoric and historic periods. Today these structures serve as the ceremonial kivas central to the religious life of the Picuris and other Pueblo peoples. The transition in pit structure use, from domestic to ceremonial, is discussed in more detail below and later in the volume (chapter 10).

Pit Structure Architecture, Valdez phase, A.D. 1050/1100–1200)

Archaeological inventories in the Taos area (Blumenschein 1956, 1958; Herold 1968; Woosley 1986) have revealed numerous Valdez phase settlements, most of which contain evidence of one or more pit structures. The most common habitation site recorded in Taos-area archaeological surveys contains one to four pit structures dating between about 1050 and 1200.[2] One large Valdez phase settlement has been reported that possibly falls outside the general pattern. The El Pueblito site (LA12741), near Arroyo Hondo, contains up to 9 adobe roomblocks, 14 small depressions, and 2 larger depressions. Surface ceramics are Valdez phase, and a single radiocarbon sample from a salvage excavation at the site dates to A.D. 1120 ± 120 (calibrated). Besides this one possible early aggregated settlement, Taos-area settlement patterns show a predominance of small, dispersed household settlements prior to A.D. 1200.

The origin of the deep, sheer-walled pit structure with an eastern-oriented ventilator shaft remains uncertain. Early interpretations look to the Red Mesa Valley (Gladwin 1945) and the Navajo Dam area (Dick 1965b), where subterranean domestic structures of similar construction have been investigated. Others look to the middle Rio Grande region as a source for the Valdez phase occupation in the Taos area (Boyer et al., 1994). Reed (1948) asserts that the Tiwa-speaking peoples of Taos and Picuris are the descendants of the original occupants of the Rio Grande region, meaning that any debates about the "origins" of the Taos-region architectural complexes are moot. A more important question to ask, then, is how the architectural forms in the area relate to changes in subsistence, social organization, and mobility.

The subterranean domestic structures of the Valdez phase are often associated with small surface structures of coursed adobe, or *jacal*. Excavated pit structures of this phase range in shape from rectangular with rounded corners to circular. All are deep (2-3 m [ca. 6-10 ft]) and, with one exception (Brody 1965), lack benches.

Adler (1993c) and Boyer and others (1994) have recently summarized architectural characteristics of Valdez phase pit structures in the northern Rio Grande region. Boyer's research in particular highlights the variation present within the sample of architectural features from the Taos area. In an earlier discussion of Taos-area architecture, Dick and others (n.d.) noted differences in pit structure construction between the areas north and the areas south of Taos; in particular they noted the smaller size of the southern pit structures relative to those north of Taos. They proposed that differences in size and construction may have been temporal, with the pit structures in the southern part of the area constructed slightly later.

Boyer's (1994:392) more recent review of more than 30 Taos-area pit structures reveals significant differences between two clusters of Valdez phase pit structures, one located north of the town of Taos, and the other to the south. Boyer proposes that the differences are not temporal and may be related to differences in community membership and settlement use. In the northern cluster of pit houses (n=18), a majority had natural-soil walls, with only two subterranean structures lined with coursed-adobe walls. Pit structures in the southern cluster all had coursed-adobe walls in those cases where walls were described by the excavators. Though he does not apply statistical tests to the areal differences, Boyer points out other differences as well. Northern pit structures are predominantly rectangular and are associated with small surface structures made of coursed adobe. Pit structures in the southern cluster tend to be circular, with a larger number of surface structures constructed of *jacal*. Internal and external features also differ in type and frequency between the two areas, as does the frequency of remodeling and the modes of structure abandonment. Boyer (1994:424) suggests these differences may be due to the presence of "two different Anasazi populations" in the area.

Despite the differences in architectural details, it is likely that the dispersed households occupying pit structures between A.D. 1050–1200 were relatively mobile, moving their residences every generation or so, while pursuing a subsistence regime that integrated both agricultural and foraging strategies. Evidence of these settlement and subsistence strategies is discussed in more detail by Boyer and others (1994).

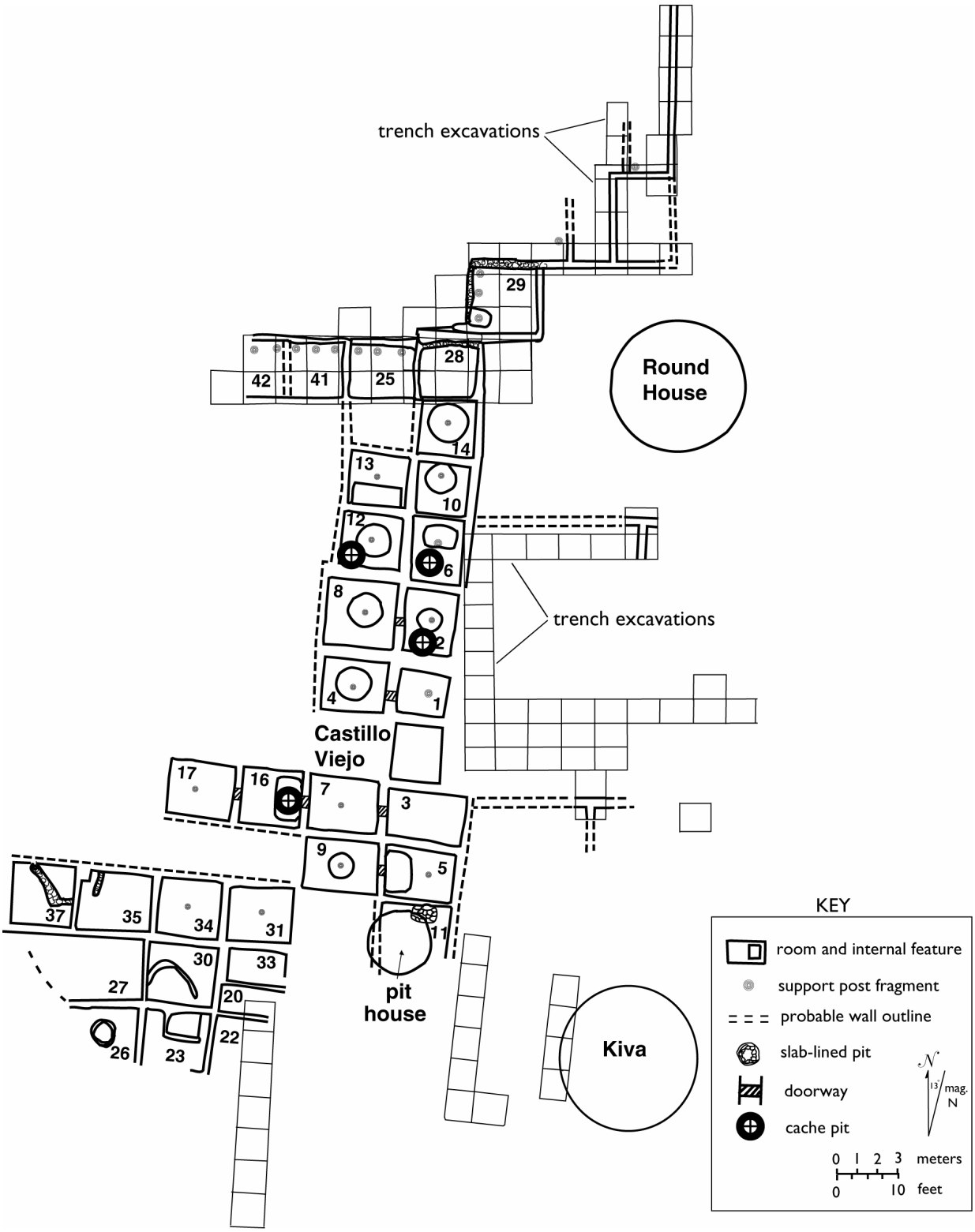

Figure 4.2. Area VI, Picuris Pueblo. Note Subfloor Caches in Rooms 2, 6, 12, and 16

Early pit-structure occupation at Picuris is represented by a single small structure excavated in Area VI (Figure 4.2). The Valdez phase pit structure was discovered in a subfloor test pit under one of the rooms of the main structure and was excavated in 30 cm (1 ft) levels. Like the majority of the Valdez phase pit structures in the southern cluster (Boyer 1994:400), the Picuris pit structure is roughly circular and is on the small side, with a diameter of 3m (9.9 ft). The wall is made of coursed adobe covered with a thin layer of white plaster. The maximum height of the wall is 1.8 m (6.1 ft), and no bench was present. The horizontal vent shaft opening on the east wall is 50 cm (1.7 ft) high, 25 cm (0.825 ft) wide, and 1m (3.3 ft) long. A lip on the opening of the horizontal vent shaft is 10 cm (0.35 ft) high. A lintel of split juniper was found above the opening. No cross pieces, such as were found in the horizontal vent shafts of the kivas, supported the roof of the horizontal vent shaft in the pit structure. The vertical vent shaft has a diameter of 26 cm (0.86 ft).

The floor of the pit structure was made of adobe and had no postholes. A ridge 3 cm (0.1 ft) high runs in front of the horizontal vent shaft and was probably used as a damper sill. A rectangular slab damper, 38 x 23 cm (1.25 x 0.75 ft), was found lying against the south wall of the horizontal vent shaft.

The centrally located hearth has a diameter of 45 cm (1.5 ft) and a depth of 26 cm (0.86 ft). An ashpit, 52 cm (1.7 ft) in diameter and 21 cm (0.7 ft) deep, was found east of the hearth. Below the ashpit is a cylindrical hole, 18 cm (0.6 ft) in diameter and 26 cm (0.86 ft) deep. Both the ashpit and the cylindrical hole were filled with ash. A channel—10 cm (0.3 ft) wide, 8 cm (0.25 ft) deep, and 18 cm (0.6 ft) long—runs between the hearth and the ashpit. The channel is covered with a rock that may have also served as a deflector. The east end of the channel abuts a second rock.

This is likely one of many such structures at Picuris. Numerous unexcavated pit structures from this time period are located on a ridge approximately one-half mile south of the modern pueblo. Midden deposits exceeding 75 cm in depth (2.5 ft) and containing only Taos Black-on-white ceramics with no other decorated types were excavated in the upper plaza of the modern pueblo (Area IX), indicating a significant Valdez phase occupation at the site.

Unit Pueblo Architecture, Pot Creek phase, A.D. 1200–1250

No comprehensive archaeological surveys have been undertaken in the Picuris area, so the nearest sites contributing information about this period are located in the Rancho del Rio Grande valley 10 miles to the north. Previous summaries of architectural change in the Taos area uniformly agree that late-12th- and early-13th-century occupations consisted largely of small adobe pueblos dispersed across the landscape (Blumenschein 1958:110; Boyer et al. 1994; Crown 1990; Herold 1968; Woosley 1986). Many of the sites located by these researchers contain Taos Black-on-white as the only decorated ware on the surface, although some also contain Santa Fe Black-on-white sherds in their assemblages Wendorf and Reed (1955:138–144) assign these small unit pueblo sites to the Rio Grande Developmental period, with a few extending into the Pindi Stage of the Rio Grande Coalition period.

Several small pueblo sites dating to this time period have been excavated in the Taos area, including Sagebrush Pueblo (Morenon n.d.), TA-25 (Blumenschein 1956:55–56), TA-26 (Vickery 1969), Llano

(Jeançon 1929), and TA-47 (Green 1976). Tree-ring dates of A.D. l227+ have been obtained from Jeançon's site (Robinson and Warren 1971; Smiley, Stubbs, and Bannister 1953:38) and of A.D. 1234 from TA-25 (Robinson and Warren 1971). These sites are composed of multiple, contiguous surface rooms constructed of coursed adobe and a plaza area that often contains one or more subterranean structures.

The small pueblos of the Pot Creek phase generally lack the distinctive central basin features found in almost every room in the later large pueblos of the following phases. Rooms at Llano contained low adobe ridges around the center post (Jeançon 1929:plate 3b), but there are no indications of the deeper center post basins found at Pot Creek Pueblo and Picuris. Dick (1965b) suggested that the lack of these specialized central basin features may be in part due to the fact that the small pueblos of this stage were single-storied as contrasted with the multistoried dwellings of the following stages.

Before we can say much more about the settlements of this period, however, we require a larger sample of more fully excavated settlements. The fact remains that our sample of architectural remains from this period is not sufficiently large to allow a survey of architectural variability such as those compiled for the Valdez phase. As originally defined by Wetherington (1968), the Pot Creek phase spans only 50 years. If the sort of small pueblo architecture generally associated with this phase was as short-lived an architectural mode as the phase itself, we should not expect a large sample of such settlements. It is likely, though, given recent survey evidence (Woosley 1986), that the reliance on dispersed pueblo residential sites has a greater time depth than is currently assigned. Suites of surface rooms are present on many of the Valdez phase sites recorded by local inventories. These architectural complexes are difficult to identify, though, given that they are composed of single-story adobe structures that are difficult to delineate after several hundred years of collapse and erosion.

Architecture dating to the late 12th and early 13th centuries has not been found at Picuris, but this is likely the result of long-term landscape modification at the site. It is possible that some or all of the Taos Black-on-white trash in Area IX comes from such a dwelling, but no walls or features were found in the excavations that could be assigned to this period. Given the penchant for site occupants to recycle adobe from collapsed structures and reuse the material to build more recent buildings, the lack of evidence for early surface structures is not surprising.

Large Multistoried Pueblos, Talpa Phase, A.D. 1250-1325

The post-1250 occupation of the Taos area is represented by a plethora of data recovered from a very small number of sites. Though these data compose a significant body of data for architectural contexts dating between A.D. 1250–1325, the fact that these data are derived primarily from only two sites, Pot Creek Pueblo and Picuris Pueblo, should alert researchers to the possibility of sampling error with respect to architectural diversity on a regional basis.

Settlement strategy during the late 13th and early 14th centuries was focused on population aggregation. The large settlement at Pot Creek Pueblo is the best example of the early form of aggregated settlement in the region. Wetherington's (1968) monograph on the settlement remains the primary description of the architectural features at the site, but subsequent excavations at the site have augmented what we know about the settlement (Adler 1993b, 1995a; Crown 1991; Crown and Kohler

1994).

Early Talpa phase rooms at Pot Creek Pueblo and Picuris generally contain shallow central post basins, certainly much shallower than those constructed between about A.D. 1400–1800. A single central support post, the base of which is placed into the earth in the middle of the central basin, is found in almost every room postdating the beginning of the 13th century. Open plaza areas containing both large and small kivas are also common during this period. Multiple-story structures are common at the site.

Wetherington (1968) has discussed the central post construction at Pot Creek Pueblo, highlighting this relatively rare architectural characteristic in the Southwest. Central post construction utilizes a single, vertical post to support a primary viga that spans either the width or the length of the room. In some cases the remains of walls stood high enough at Picuris to show that additional vigas spanned the room from wall to wall on either side of the main, paralleling the post-supported viga (Dick 1965b). The central base of the central support post was generally buried from 50 to 100 cm (1.7 to 3.3 ft) into the ground, resting on a flat stone to prevent the post from sinking into the ground.

Wetherington (1968) suggests that multistory construction may not have been well-suited to this type of center-post construction, ultimately leading to the abandonment of the technique at Picuris (and Taos Pueblo as well) by the 19th century. If this is so, it does not explain why this technique was utilized for over six centuries or why its use spanned the time between the introduction of multistory architecture in the late 13th century and the shift to single-story residences at Picuris during the 19th century. The resilience of the technique attests to its effectiveness in supporting multistory structures. Wetherington is correct to point out that the structural integrity of a multistory building is compromised as central posts subside or rot. However, the ample evidence of multiple construction episodes at both Picuris and Pot Creek Pueblos suggests that structures may not have been built to last centuries but were probably rebuilt every generation or two. Crown (1991) has argued that structures were repaired or refurbished about every 19 years at Pot Creek Pueblo. These observations are consistent with the common knowledge of all adobe-dwelling peoples; adobe structures require constant maintenance and care, including replastering of building exteriors, refurbishing roofs, and stabilizing relatively flexible walls. The likelihood that structures were constantly under repair and reconstruction has important implications at Picuris, since the use of adobe would result in the construction of a larger number of architectural features over time than would a more weather-resistant construction technology such as masonry.

Examples of Talpa phase structures are rare at Picuris because of the long-term occupation of the settlement and the continuous modification of architectural features. This contrasts with Pot Creek Pueblo where the primary occupation lasted only about 60 years (A.D. 1265–1325), culminating with the complete abandonment of the settlement. At Picuris, two complete rooms and portions of three other rooms dating to the Talpa phase were excavated. These rooms were covered by a series of post-1350 rooms in the north portion of the upper plaza of the modern pueblo (Figure 4.3). These rooms all had central posts and shallow basins. Parts of two floors associated with ceramic assemblages dominated by Talpa Black-on-white were excavated in the south portion of the upper plaza.

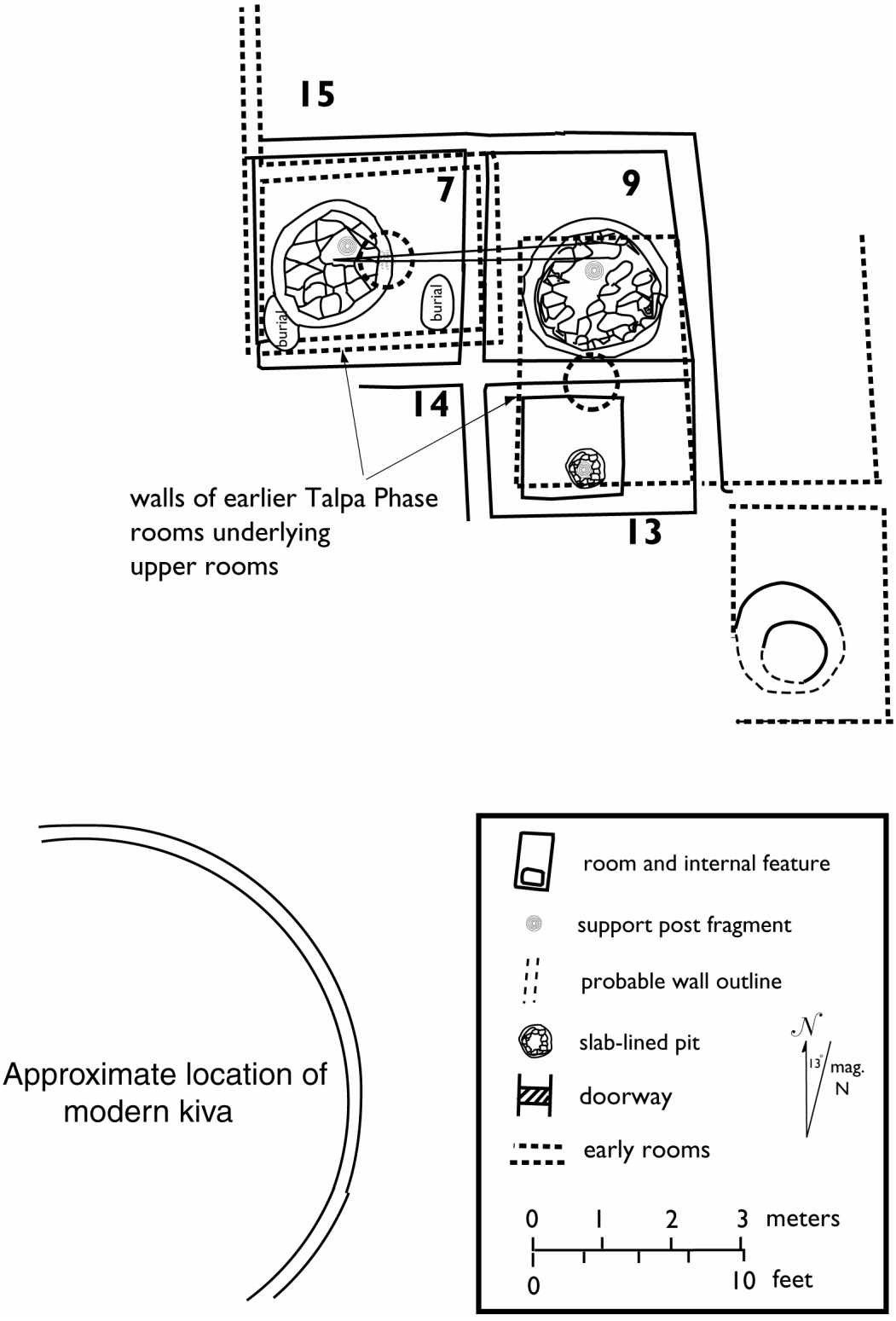

Figure 4.3 : Early Rooms Underlying Later Rooms, Area IX, Picuris Pueblo

Because great amounts of trash from the Talpa phase have been excavated at Picuris, it is clear that the excavated sample underrepresents the extensive Talpa phase occupation at Picuris. The south slope of Area VI revealed nearly two meters of refuse containing Santa Fe and Talpa Black-on-white pottery. Extensive testing under the post-Talpa phase floors found at the top of the slope failed to reveal any earlier surface rooms. The trash under the later rooms postdates the Santa Fe phase, indicating that Talpa phase rooms were not remodeled to make later rooms. It appears as if the Talpa phase rooms in Area VI were completely removed down to the floor level and below before the construction of later room-blocks. In addition, one large kiva. (Kiva M, see Figure 4.13) and at least three small kivas were built during this stage.

Late Large Multistoried Pueblos, Post-Talpa Phase, A.D. 1325 to Present

Excavations have revealed this type of structure only at Taos Pueblo (Ellis and Brody 1964) and Picuris Pueblo, with only a very small area potentially dating to this period at Taos Pueblo. Ellis and Brody (1964:324-325) report 10 additional Taos County archaeological sites that date to the A.D. 1300–1600 time period and that may belong to this architectural stage. At this point in regional research, however, Picuris remains the only context for extensive archaeological investigation of occupation dating between A.D. 1350–1850 in the Taos area.

During this time period, probable multistory structures of the pre-1350 period were torn down at Picuris, and larger room-blocks were built over the floors and wall stubs of the destroyed room-blocks. Many small kivas were constructed. Construction of the large room-blocks at Picuris commenced in about A.D. 1350. These structures served as the primary domestic dwellings until the middle of the 18th century and perhaps later in a limited fashion. A considerable portion of the prehistoric architecture built between the 15th and 18th centuries remained standing until the early part of the 20th century (Figures 4.4-4.5). After these structures ceased to be used as domestic spaces, some of the more intact structures were used as animal pens. A portion of one of these structures is still standing (Castillo Viejo), with portions of the ceiling support system still intact (Figure 4.6).

It was the mass of multistory architecture built between the mid-14th and the late 16th centuries that De Sosa reports as reaching nine stories in height (Schroeder 1963:1). It is more likely that the structures were no more than five to six stories high. Later, Dominguez described Picuris as containing four massive blocks of multistory rooms (Adams and Chavez 1956). At least three of these room-blocks were excavated, and we can speculate about the location of the fourth.

Two of the house-blocks were truly massive. The East Big House (Area VI, see Figure 4.2, and Area II, see Figure 4.7) contained approximately 170 ground-floor rooms, 59 of which were excavated. The West Big House (Areas I, V, and IX) had 150 to 170 ground-floor rooms of which 34 were completely excavated and 4 were partially excavated. The smaller north room-block (Area IV) had about 30 ground-floor rooms, of which 8 were completely excavated and 8 more were partially excavated. A fourth house-block may have been located along the south side of the upper plaza of the modern pueblo, an area that is today covered by modern houses. Another possibility is that Dominguez considered the West Big House to be two separate structures, since the West Big House is cut by a passageway 3 m (10 ft) wide. Numerous kivas date to this stage. In

Figure 4.4 Multi-story Coursed Adobe Architecture (left) and Round House at Picuris, 1903 (photo by A.C. Vroman, neg. 2076, used with permission of Smithsonian Institution).

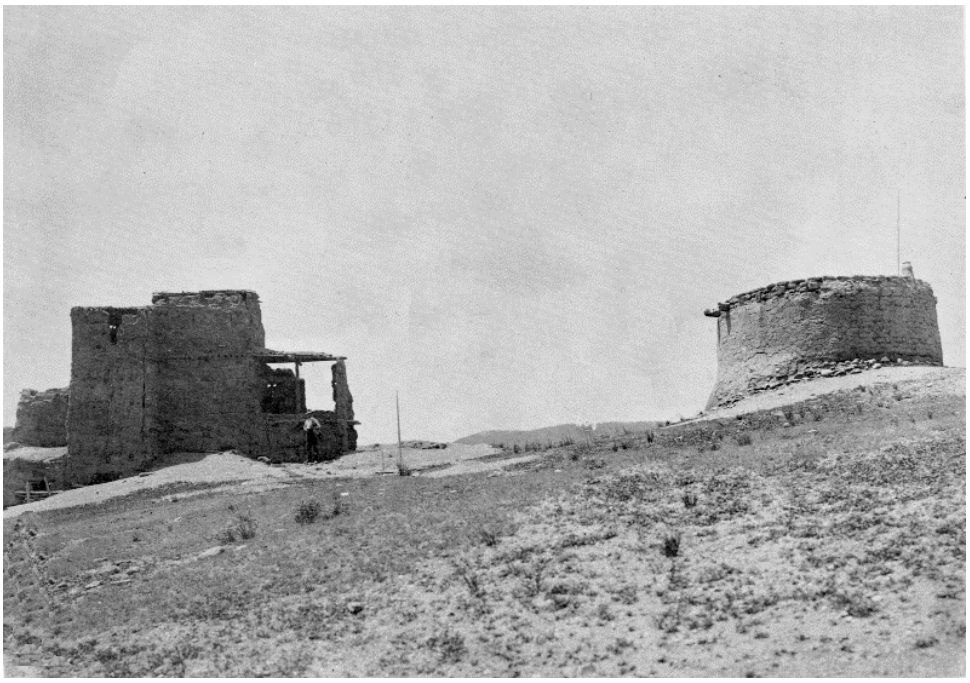

Figure 4.5: Multi-story Coursed Adobe Architecture, Picuris, 1903 (by A.C. Vroman, neg. 2074, used with permission of Smithsonian Institution).

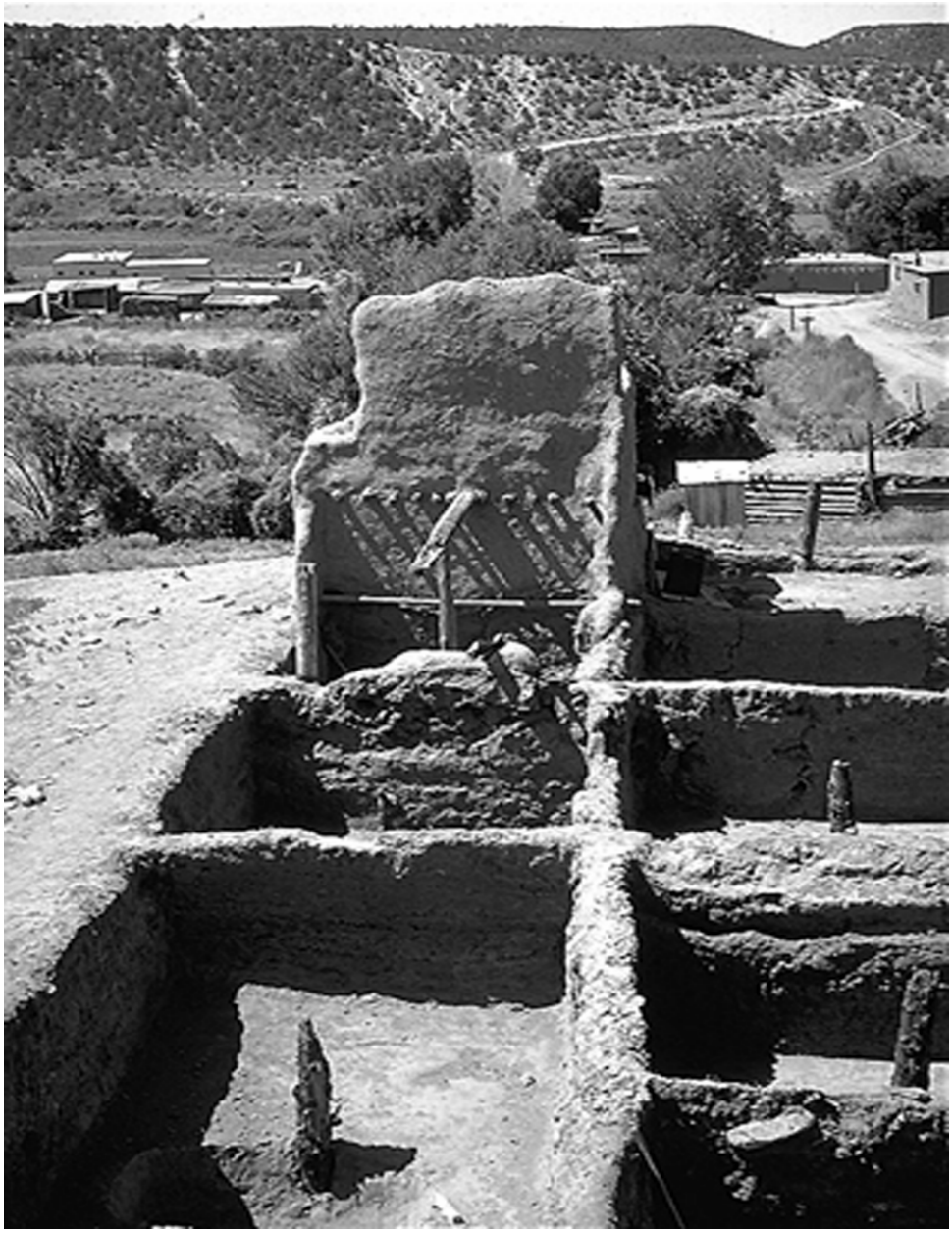

Figure 4.6: Standing Architecture at Picuris, 1961. Note Central Post Support in Standing Structure and Remains of Central Posts in Excavated Rooms (foreground).

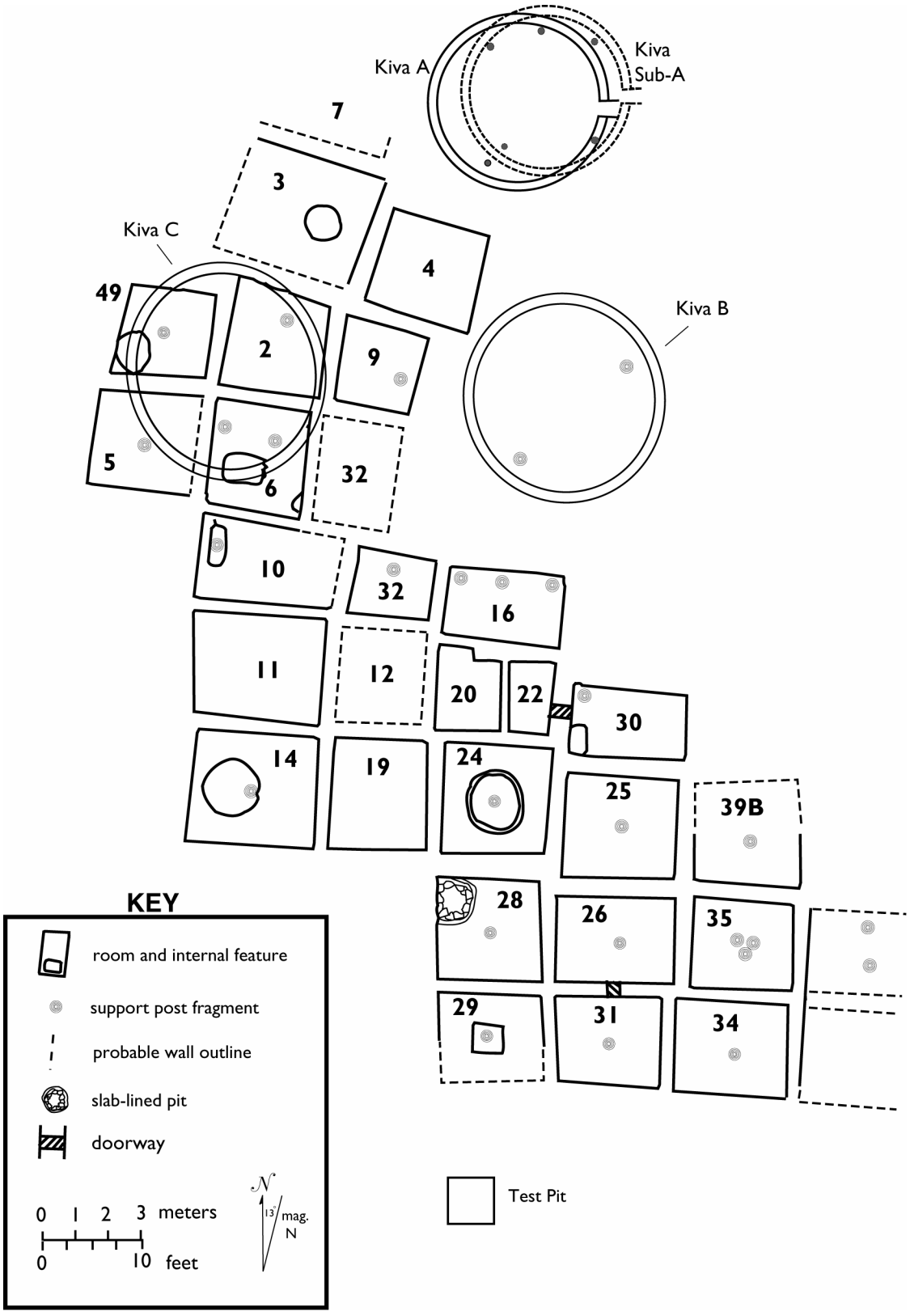

Figure 4.7: Map of Excavated Rooms, East Big House (Area II)

addition to the big kiva (Kiva M), at least 21 other kivas appear to have been constructed or in use between A.D. 1350 and A.D. 1900, many of them painted with unique wall murals (see chapter 9 in this volume).

Size and Shape of Surface Rooms

Surface rooms are rectangular to square. Differences in wall proportions were noted, but generally the rooms tend toward a mean dimension of 3.3 m (10.8 ft) on a side, with the extremes ranging between 2 m (6.6 ft) and 4.26 m (14.1 ft). In shape and dimensions they are similar to Pindi where "the rooms were roughly rectangular and average 6.5 by 9 ft" (Stubbs and Stallings 1953:29), and to the other coursed adobe pueblos that have been excavated in the northern Rio Grande region (Creamer 1993; Shapiro 1996).

The rooms of the West Big House are generally square, with an occasional room slightly longer in the north-south dimension than the east-west. The rooms from the Castillo Viejo north (Figure 4.6) in the East Big House are generally square, but about half of the rooms south of the Castillo Viejo are about 50 percent longer in their east-west dimension than in their north-south.

In the north house block (Area IV), the north-south dimension ranges from 50 percent to 100 percent longer than the east-west dimension. In addition, several rooms in the east half of the East Big House (Area II) were somewhat longer east-west than north-south.

Room size varies within and across the excavated room-blocks at Picuris, but the general pattern is one of relatively standard sized rooms containing between 8 and 9.6 m^2 of floor area (Table 4.1). The room-blocks with the largest (Area II) and smallest (Area VI) floor area still exhibit relatively similar amounts of room size variation as measured by the coefficient of variation statistic.

The room size average (8.9 m^2) for the entire site is nearly one square meter below the average for Pot Creek Pueblo, occupied primarily between A.D. 1270–1325. Given that only two rooms at Picuris can confidently be dated to this same time span, the room size data indicate a decrease in the size of rooms in the surface rooms in the largest villages occupied in the 13th-18th centuries. There may be several reasons for this decrease in room size.

The first possibility is that increasing specialization in room function may have resulted in less floor space required per room. This explanation assumes that there is a correlation between the space required for an activity and the number of activities that can be simultaneously undertaken in a room. There are no data available at Picuris that can be used to test these assumptions, since the ground floor rooms excavated were used predominantly as storage areas and since no upper-story contexts were preserved due to the melting and collapse of the multistory structures.

A second and not necessarily mutually exclusive explanation is that decreasing room size through time was a structural adjustment to the construction of increasing numbers of stories in the later room-blocks. As described above, one of the unique characteristics of Taos-area surface architecture is the nearly ubiquitous use of central support posts. The use of a central support post allows greater room size because the primary vigas can span a wider distance with the added central support. Evidence from Picuris also shows that upper stories were supported by central posts that were placed directly on top of the lower support posts. This support system is effective granted both that the size of the roof being supported does not exceed the load capacities of the walls and the central support post and that the number of floors being stacked up does not become too great.

Table 4.1: Room Size Comparisons, Picuris Pueblo

Area	Room Count[a]	Avg. floor area (m^2)	Floor Area, Standard Deviation (m^2)	Floor Area Coefficient of Variation.
All of Site	68	8.9	1.4	15.7
Area II	20	9.6	1.6	16.7
Area IV	8	8.2	1.1	13.4
Area V	23	8.9	1.4	15.7
Area VI	13	8.0	1.0	13.7
Area IX	4	9.5	0.4	4.2

[a] Room count includes only entire rooms for which wall measurements could be taken. The floor area is calculated by averaging the length of parallel walls and then multiplying the averaged wall measurements.

Table 4.2: Comparison of Average Ground-Floor Room Size in Northern Rio Grande Pueblo Sites

Site	Room Size (m^2)	Reference
Pa'ako	6.38	Lambert 1954:11
Te'ewi	6.2	Wendorf 1953:37
Pindi	5.3	Stubbs and Stallings 1953:29
Poshu	6–8.75	Jeançon 1923:8
Pueblo del Encierro	7.2	Hunter-Anderson 1979
Arroyo Hondo Component I	6.31	Creamer 1993:122
Arroyo Hondo Component II	6.74	Creamer 1993:122
Picuris	8.9	Dick 1965b; this volume
Pot Creek	9.9	Adler 1995

Table 4.3: Architectural Data on Subterranean Structures, Picuris Pueblo

Pit Structure	Shape	N-S Dim.	E-W Dim.	Floor Area (m^2)	Estim. Use Date	Sipapu	Human Burials	Support Posts	Foot Drums	Depth (m)	Niches	Deflector Present?	Comments
Kiva A	subcirc	5.2	6	26.4	1550	0	1	4	3	?	?	yes	
Kiva sub-A	subcirc	5.0	5.2	20.4	1400?	0	see kiva A	4	3	?	?	?	
Kiva B	subcirc	5.6	5.6	24.7	1350?	1	0	0	3	?	2	yes	
Kiva C	subcirc	6	5.6	26.4	post-1300	0	1	4	1	2.2	2	yes	Possible stone altar, SE of hearth; const. date unsure, post-1300
Kiva E	circular	5.8	5.7	26	1350	0	0	4	3	?	3	no	
Kiva H	circular	5.6	5.6	24.6	1500	?	?	?	?	2.5	?	no	Trenched only; dendro. dates on latillas are 1450–1480 vv dates
Kiva K	subcirc	6.6	6.6	34.9	post-1300	?	?	?	?	2.4	2	no	Has subsid. ventil.; 2 subfloor channels
Kiva L	circular	6.1	6.1	29.2	post-1300	?	0	?	2	2	?	no	Trenched through middle of structure
Kiva M	subcirc	13	13	133.3	1425	?	?	6	3	2.6	?	no	Area 9 dates 1200-1350, dendros 1405, 1411vv; 40 prayer plume holes
Kiva N	subcirc	5.4	?	23.6	1330	?	?	?	?	?	?	?	3 vv dendro dates (1297, 1303, 1330)
Kiva O	?	?	?	0	?	?	?	?	?	?	?	?	Trench through structure 12.5 ft long, not center
Kiva P	?	?	?	?	?	?	?	?	?	?	?	?	Tested in 1971, field notes not available
*Valdez Phase Pit Structure	subcirc	3	3	7	Valdez Phase	0	0	?	0	?	0	?	Partially tested

As an example, let us assume that the weight of a roof—including the vigas, adobe, and closing materials—equals 200 kg/m^2. The weight of the roof increases significantly for every 10 cm the floor is expanded in each direction. This ultimately puts a limit on the size of the roofed area in a single-story structure. When buildings are multistory, the stress on the central post system also increases exponentially. One solution to the increasing structural stresses created by adding upper stories is to decrease the size of the roofed space. The loss in floor space per room, then, is compensated by increasing the number of rooms that can be stacked one upon the other.

One of the trade-offs, though, with smaller rooms, is the loss of storage and living space per room. One solution to this at Picuris was to increase the overall size of the central post basins in the lower-story rooms. With an increase in capacity of the larger, deeper storage pits, less space was needed for food storage in the upper stories.

Picuris Room Size in Regional Perspective

In her recent summary of the architecture of Arroyo Hondo, Creamer (1993:122) summarizes room size variation in large sites occupied between A.D. 1300–1500 in the northern Rio Grande. A comparison of the Picuris Pueblo and the Pot Creek Pueblo room size data with her summary (Table 4.2) shows a significant difference between these northernmost pueblos and the roughly contemporaneous Pueblo villages to the south.

Wall Construction

Portions of the post-1350 house-block were still standing in several parts of Picuris in 1900–1935 when various photographers visited the site. Some of these structures were still three stories high (Figure 4.5). Since these rooms are similar in style and age to most of those excavated, little guesswork as to the construction technique of walls and roofs remains. Wetherington (1968:19–46) bases much of his reconstruction of Pot Creek Pueblo on observable characteristics of standing architecture in the old portion of Picuris. Similarly, Stubbs and Stallings (1953:28) examined Picuris to gain insight into the nearly identical Pindi architecture, stating: "This fast crumbling building at Picuris gives with almost photographic exactness a picture of Pindi rooms as determined by excavation evidence. If all such problems of prehistoric life were as faithfully preserved there would be very few false assumptions which can now only be tested by the gradual accumulation of small bits of evidence."

Both Picuris and Pindi were built of coursed adobe. For an excellent detailed summary of this building technique duplicated so clearly at Picuris, see Stubbs and Stallings' report (1953:25-28) and Wetherington's (1968) description of Pot Creek Pueblo.

Picuris surface architecture construction is relatively straightforward. After the building site had been leveled (at times, filling was necessary), wall foundation trenches were dug below the proposed floor level to depths of 15–60 cm (0.5–2 ft). Foundations of wet adobe were set into the trenches, much as concrete would be poured into a trench foundation. Occasionally cobbles were incorporated into the foundation for additional strength. This foundation layer formed the first course and usually ran the length of a wall.

After the first course had dried, the second course was built up out of handfuls of adobe. The mass was patted into shape until a course 30–60 cm (1–2 ft) high, and extending the length of the wall, had been built up. Walls were generally constructed 25–40 cm (0.8–1.3 ft) thick. As soon as one course had dried, another was added

until the desired height had been achieved. Because the multistory structures have collapsed into the lower floor rooms, walls of the ground-story rooms are preserved. In rare instances, these walls are sufficiently intact at a height that preserves viga holes. These holes tend to at 2–3 m (7–10 ft) above the floor.

The resulting walls looked like those in Figures 4.4–4.5 when completed. All the rooms excavated, as well as the wall remains in the fill, show this type of wall construction was used throughout the known site.

A review of early Picuris photos and the evidence from the excavations show examples of all the wall features noted by Stubbs and Stallings (1953:29–31) and Wetherington (1968:19–25), including hatchways, vents, shelves, and doorways. As noted by Stubbs and Stallings (1953:29), there is a general lack of plaster adhering to the remaining walls in the excavated Picuris rooms. They (1953:29) state, "The lack [of plaster] was due to non-existence rather than erosion." The occasional occurrence of plaster on wall fragments in the rubble lead us to believe that, at Picuris, the general practice was to plaster the upstairs living rooms while leaving the ground-floor storage rooms unplastered.

It is remarkable that walls often less than a foot wide were used to support a multistoried building. An interesting feature of Picuris walls is that they are almost uniformly made of trash-bearing adobe quarried from some nearby area. The resulting gray adobe contrasts markedly with the yellow native clay of the area. This, of course, serves to help confuse archaeological contexts, since many early potsherds show up in the collapsed walls. The practice is still in vogue at Picuris, since the modern inhabitants still reuse adobe quarried from the large room-block ruins. Numerous times during the excavations, workers were asked to deliver a dump truck of backdirt to a household looking for material to plaster a house or to make new adobe bricks for construction. This modern recycling exemplifies why early surface architecture is rare at the site.

Floors

Floors were uniformly made at Picuris. After the walls were in place and the floor area was leveled, layers of tan adobe plaster were spread in a solid mat extending from wall to wall, averaging 5–15 cm (0.2–0.5 ft) thick. Occasionally a second or third layer of equal thickness was added, probably in association with a remodeling or reconstruction of the room. The floors are flat, and little tendency is seen for the edges to slope up near the walls. In contrast to the wall plaster, the floor plaster rarely contains either artifacts or charcoal. In one instance (Room 2, Area IV), the floor is so hard and flat that one suspects something besides water was added to the mixture for strength. Jeançon suggests that grease was added to the floors at Poshuouinge (1923:14), but this has not been substantiated at this or any other site in the northern Rio Grande.

Floor Furnishings

Floor features are limited to subfloor cists and postholes. Subfloor cists are typical features of almost all ground-floor rooms at Picuris. In addition to the cists, centrally placed roof-support posts are found in nearly all rooms. Occasionally rooms have been found lacking the cists, but the norm is to have a subfloor cist with a central post, usually placed in the cist. In the later multistory buildings, there were only two concentrations of rooms without center post pits. In the north room-block (Area IV) all eight completely excavated rooms lacked the storage pit. During later salvage operations in this room-block in 1965, eight more rooms were partially excavated, two

of which had storage pits. The other concentration of similar rooms was in the southwest portion of the East Big House.

Two patterns of central cist construction are documented at Picuris, one constructed early and the other later in the occupation sequence. The early floor cists are wide, shallow basins, about 1 m (3.3 ft) in diameter and 20–30 cm (0.7–1 ft) deep, with a lip around the perimeter. They are little more than prepared basins in the floor, since no special plaster lining was used. The floor plaster simply continues down and through these shallow depressions. These early features most likely served as storage basins, with this conclusion based on the assumptions that they precede similar, deeper features that show prehistoric evidence as storage facilities. Only two unequivocal examples of these shallow basins were found at Picuris, due to the small number of pre-1350 A.D. surface rooms at the site, but many shallow basins have been excavated at Pot Creek (Crown 1991; Wetherington 1968). The later storage cists, on the other hand, are 45–110 cm (1.5–3.6 ft) deep and up to 2 m (6.6 ft) wide. Their sides are straight, slope in, or are slightly undercut. Occasionally they are slab lined. They were always made by lining an excavation hole with a thick (ca. 10 cm [0.3 ft]) layer of plaster. Excavators from Picuris frequently mentioned that these features were used for storage when the structures were still inhabited.

In almost every room, centrally placed roof-support posts were set in slab-lined, slab-bottomed postholes. The early photographs (Figures 4.4–4.5) reveal that central roof supports were also placed in the upper rooms. Several of the postholes still contained rotted posts standing 1-2 m (3.3–6.6 ft) high. The postholes are deep (ca. 30–50 cm [1–1.7 ft]) and average 20 cm (0.7 ft) in diameter. Stone slabs were wedged down between the post and the side of the hole to stabilize the post. One or more slabs stacked under the post helped prevent the post from sinking into the soil. It should be noted that the posts were almost always centrally located within the rooms, even though this might mean a striking eccentricity with relation to the subfloor pit in which they were placed.

Hearths

The complete lack of hearths or other special room furnishings in any of the excavated ground-floor rooms at Picuris is noteworthy and is one of the major architectural differences between Picuris and the other coursed-adobe pueblos in the region. It is unknown to what extent the standing architecture photographed by Vroman and others may have contained floor features; photographers did not record room interiors in any of the crumbling buildings at the site. Hearths were constructed in first-story rooms at Arroyo Hondo but were more commonly built on the floors of the second-story rooms (Creamer 1993:30). Similarly, hearths were built in both first- and second-story contexts at Pot Creek Pueblo (Adler 1995).

Roofs

As is the case with the walls, Picuris still has examples of later rooms standing with roofs intact. In 1965, Dick and others working at the site could still directly examine the roofs. When the materials recovered from the excavations were combined with the direct examination of surviving examples, it became possible to present an accurate reconstruction of the typical roof built at Picuris for a period of nearly 500 years. In general, the roof construction described below refers to the post-1350 A.D. structures, but it is probably applicable in its main features to Talpa phase roofs as well. For the present, the post-1350 A.D. roof style will be extended, on limited evidence, to the early rooms, but

future researchers in the area should look for hard evidence of early forms of roof construction.

Variations are to be expected in a pueblo occupied over several hundred years and consisting of hundreds of rooms. Nevertheless, our excavations, the surviving architectural remnants, and the early photographs all indicate that a specific roof type was constructed at Picuris. In construction, the builders began by setting a large roof-support post in a deep posthole in the center of the room. These posts are generally about 20 cm (0.7 ft) in diameter and 3 m (10 ft) or more in length, with 30–50 cm (1–1.7 ft) of the post set below the floor level. When these posts were removed for dendrochronological purposes, most were found to be juniper (*Juniperus scapulorum)*.

Although it is not clear from the excavations, observations inside the Castillo Viejo, the last roofed remnant of the East Big House, revealed that three main vigas spanned the width of rooms. Two of them were spaced about 1 foot (30 cm) from the parallel wall and were supported by the walls on which they rested. The third viga spanned the middle of the room and was in part held up by the central, upright roof-support post. This is the type of main roof-support system found in the one remaining room. It should be noted that the same type of roof was used in every room, regardless of whether it was a ground-floor storage room, or a third-floor living room. The use of a central upright post supporting a central viga in northern Rio Grande Pueblo architecture seems to be a trait peculiar to Picuris, Pot Creek, and perhaps Taos Pueblo.

Secondary vigas, which also spanned the width of the room, were laid at right angles to the main vigas. The secondary vigas tend to be about half the diameter of the main vigas. Between 5 and 20 of them were used per roof (note the ends of them projecting through the walls in Figure 4.5). Pieces of the secondary vigas are common in the wall rubble filling the rooms. Occasionally a second layer of room-spanning minor vigas was added, as can be seen in the top-story roof in Figure 4.5.

All the latillas found in the rubble and observable in the old ruin were made of split juniper. They were always laid at right angles to the secondary vigas. The use of split juniper for latillas was common throughout the Rio Grande area during the late prehistoric and early historic times. Many roofs that used this material and that date to the Pueblo Revolt and postrevolt periods (ca. 1680–1740) are still standing in the Gobernador-Largo area of New Mexico.

Twigs and pine needles formed a finishing layer over the latillas before a layer of adobe was added to cap off the roof. The adobe layer must have varied considerably, but many houses at Taos Pueblo have layers 30–50 cm (1–1.7 ft) thick. If the roof was to serve as the floor of an upper room (which was the case in nearly every instance for the ground-floor rooms in the large room-blocks), it received an additional coat of hard adobe. A few pieces of fallen upper-floor plaster (generally about 5 cm [0.2 ft] thick) bear impressions of pine needles, indicating that the pine needles were laid under the floor plaster and over the main roofing adobe.

Room Fill

In general, the abandoned rooms at Picuris were filled with large chunks of adobe rubble from the collapsed upper walls and roofs. Sometimes these pieces had melted into a uniform mass, but in other places the separate wall and roof pieces were still distinct. No pieces of upper-story hearths, doorways, or other architectural features were noted in the room fill. This contrasts with the common recovery of upper-story

hearth fragments at Pindi (Stubbs and Stallings 1953:29), Pot Creek Pueblo (Adler 1994; Wetherington 1968), and Arroyo Hondo (Creamer 1993).

A few rooms appear to have been used as trash dumps. Unfortunately these rooms were not completely excavated. A common practice in the days after the main house began to collapse was to wall up an abandoned room with new bricks or sticks to fashion a stable for goats, sheep, or cattle. Many old men remember using such stables (see chapter 3). The lower left-hand room in Figure 4.5 is a stable in use in 1900. When this particular room was excavated in the early 1960s, a thick layer of manure was found on the floor.

Subterranean Architecture at Picuris

During the excavations at Picuris, 15 small kivas and 1 big kiva were partially or fully excavated, and 7 more small kivas were located but left unexcavated (Figure 1.3). Of the excavated kivas, 5 small kivas (A-E) were completely excavated. Half of a sixth (Kiva F) and one-fourth of a seventh (Kiva G) were also investigated. In the course of the salvage excavations associated with sewer- and water-line trenching (1964–65), 8 small kivas and 1 big kiva were encountered. Of the 8 small kivas, 3 (Kivas H, J, and K) were trenched to their floors in one-foot levels in sections 1.6 m (5 ft) long by 1.2 m (4 ft) wide, 3 (Kivas L, N, and O) were exposed by the contractor's backhoe and examined in profile, and 2 (Kivas Q and R) were located inside a modern house and could not be further explored. All the features observed in the kivas trenched during the course of the salvage operations fell within the range of variation observed in the completely excavated kivas. The big kiva (Kiva M) located in the upper plaza of the modern pueblo was trenched to the floor in the same manner as the other 3 small kivas and was explored outside the line of the sewer trench as much as time allowed. The corpus of architectural data and feature measurements for the fully and partially excavated kivas at Picuris is summarized in Table 4.4. The characteristics of these features are discussed below.

Kiva Wall Construction

With the exception of part of Kiva A, all kiva walls were made of coursed adobe. The coursed-adobe walls were built in a circular hole dug somewhat larger than the planned kiva. The walls were constructed of single courses stacked one on the other, with a gap between the coursed walls and the excavated pit wall. After wall construction the area between the back of the coursed wall and the wall of the pit was filled with backdirt from the pit. The west portion of the wall of Kiva A, which had three painted layers of plaster, was made of coursed adobe, but the rest of the Kiva A wall consisted of a layer of pine bark held in place against the pit wall by juniper poles covered with adobe. This portion of the wall had no plaster. The other kivas all had one layer of painted plaster with the exception of Kiva D, which had an unpainted layer of plaster on the wall over a painted layer.

At the time of excavation, the kiva walls ranged between 1.6–2.0 m (5.3–6.6 ft) high. The only stabilization to the adobe walls observed during excavation was a series of upright poles incorporated into the coursed-adobe walls of Kivas E and F. The poles continue through several courses of adobe and serve as internal strengthening frameworks for the walls, much the same as metal rebar is used to strengthen cement walls in modern structures. A similar technique using poles was used to stabilize the walls of Kiva 5 at Pot Creek Pueblo (Adler 1994).

Kiva Roof Construction

Roof construction can be seen on the photo of the Kiva E roof (Figure 4.8), which was found almost completely intact. The wooden frame of the kiva roof was made of primary vigas laid on top of the main support posts. Secondary vigas and latillas were then laid on top in opposing directions. After the wooden frame of the roof was laid down, the frame was covered with a thick cover of pine needles, over which was placed a layer of adobe, then dirt. The bottoms of the main vigas in Kiva E were about 2.3 m (7.6 ft) above the floor of the kiva.

Kiva Ventilator Shafts

All five fully excavated kivas had ventilators on the east side. The horizontal vent shafts of Kivas B (Figure 9.3) and C (Figure 9.4) had floor ridges across the opening, whereas the other three kiva ventilators did not. The rectangular openings of the horizontal vent shafts were 50–90 cm (1.7–3 ft) high and 35–50 cm (1.2–1.7 ft) wide. The vent shafts in Kivas A and sub-A were not excavated due to their poor condition. The horizontal shafts in the other kivas were 2.5–2.8 m (8–9 ft) long and their roofs had from five to seven thin vigas. In all cases observed, the horizontal shaft was built as a roofed trench rather than as a tunnel. The vertical shafts were 35–45 cm (1.1–1.5 ft) in diameter

Subsidiary Ventilators

Subsidiary ventilators were found in the west wall of all the fully excavated kivas. Kiva D had two additional subsidiary ventilators, one in the north wall and one in the south wall. The subsidiary ventilators are located 28–50 cm (0.9-1.7 ft) above the floors of the kivas. The subsidiary ventilators in Kiva A and sub-A had rectangular horizontal shafts (Figure 9.2), whereas the horizontal shafts in the other kivas were oval.

Similar ventilators have been found in kivas at Pecos (Kidder 1958:146–148, 153) and in a pit structure at TA-18 near Taos (Green 1976:14). Large ventilators on both the east and the west sides of kivas have been reported at Taos Pueblo (Parsons 1936:18) and possibly at the Llano site (Jeançon 1929:15). It is impossible to tell from the report whether the west ventilator at the Llano site was full-size or was of the smaller subsidiary type such as that at Pot Creek Pueblo (Adler 1995a). Several Picuris Indians have said that their modern kivas contain subsidiary ventilators. A niche in the west wall of the painted kiva at Kuaua (Dutton 1963:131) was called a wall sipapu. No mention is made of a vertical shaft attached to this niche, but such a feature may have been missed during excavation.

Wall Niches

Wall niches were found in Kivas B and D. Both kivas had niches in the northwest and the southwest portions of their walls, located 30-65 cm (1–2 ft) above the floor. The niches were elliptical in shape and ranged from 8–12 cm (3–5 in) wide and 8-15 cm (3–6 in) high. The niches extended between 13–18 cm (5–7 in) into the wall.

Shelves and Wall Posts

All kivas with ventilator shafts exposed had a shelf above the ventilator opening, with the possible exception of Kiva sub-A. The shelves were indicated by either four or five holes in the wall at the same level. In the 1960s the Picuris community reconstructed Kiva C for exhibit purposes. Photos of the structure, which has since collapsed, show a shelf with five posts placed into the wall.[3] The reconstruction of Kiva C was done according to the plan of the modern kivas in Picuris. The reconstructed shelf is 3 m (10 ft) long and 40 cm (1.3 ft) wide. In addition, Kivas sub-A and D had shelves in

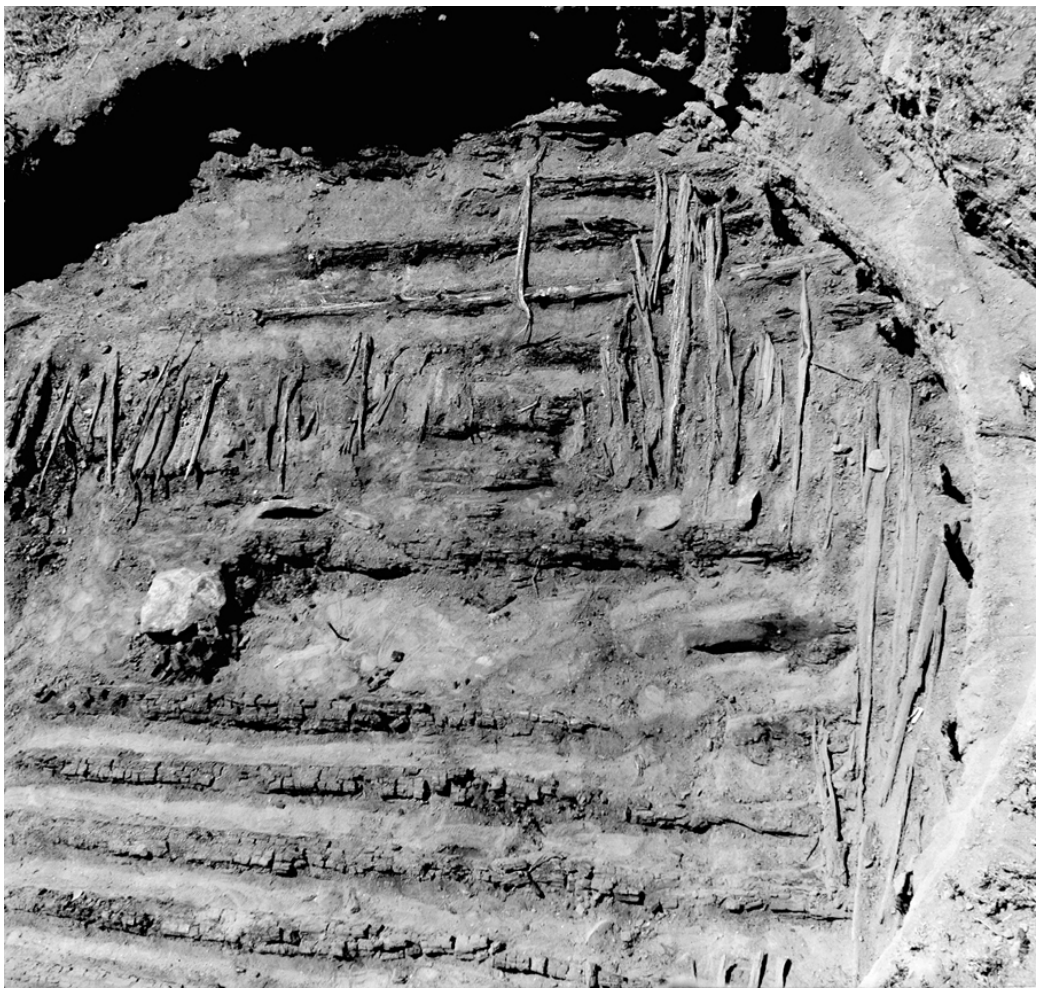

Figure 4.8: Kiva E Roof Beams, Picuris

the west wall above the subsidiary ventilator. Nothing remained of the shelves except four postholes. Five additional horizontal postholes were found in the wall of Kiva C. These postholes indicated places where there had been horizontal posts used to hang ceremonial paraphernalia. Kidder (1958:271) describes such posts used to hang drums in the kiva at Nambe. People at Picuris mentioned to Dick that ceremonial paraphernalia was still being hung on such posts in the kivas being used at the pueblo in the 1960s.

Prayer Plume Holes

Three pairs of small (average diameter 2 mm [0.08 in]) holes were found in the wall of Kiva C. A total of 40 similar holes were found in the portions of the Kiva M walls that had been exposed at the east and west end of the trench running through this kiva, the largest of the kivas excavated at Picuris.

The Picuris Indians stated that ceremonial twigs are placed in these holes.

Floor Features

The floors of all of the kivas were made of adobe. There were four postholes in the floor of each of the smaller kivas; these ranged in diameter from 10 cm (4 in) to 25 cm (10 in). All the kivas had a central hearth either circular or elliptical in shape, with the exception of Kiva A, which had a "D-shaped" hearth. In Kiva D two additional hearths were found below the westernmost slab covering the west subfloor channel. The westernmost hearth was the earlier of the two and had a diameter of 65 cm (2.1 ft) and a depth of 70 cm (2.3 ft). The other hearth was 75 cm (2.5 ft) in diameter and 70 cm (2.3 ft) deep.

A shallow ladder trench (10 cm [4 in] deep) was found east of the hearth in Kiva C. Two ladder holes, each 30 cm (12 in) deep in a trench 6 cm (2.4 in) deep, were found east of the hearth in Kiva D. A rectangular slab-lined depression was also found east of the hearth in Kiva D. Kiva B was the only kiva that had an ashpit. The ashpit was elliptical and 21 cm (8.4 in) deep.

Sipapus

Possible sipapus were found northeast of the hearth in Kivas B and D. The sipapus consisted of pots with circular holes buried in the floor in such a manner that only the hole protruded through the floor. Both sipapu holes were 2 mm (0.08 in) in diameter. The Kiva B subfloor pot was lying on one side. This pot (Figure 4.9) had parallel rows of indentations around the body and was roughly spherical with a flaring rim. It had two additional holes, one on the side opposite the sipapu hole and the other on the bottom. The Kiva D subfloor pot was a plain culinary-ware shoe pot with a single hole in its base. These are not traditional sipapus in the sense of being larger circular holes located between the hearth and the west wall as has been reported elsewhere (Adler 1994; Kidder 1958; Wetherington 1968). These features were, however, purposeful holes leading from the surface of the kiva floor to a hollow space not used for storage, much the same as other sipapus described in the literature.

Stone Altar

A possible two-stone altar was embedded in the floor of Kiva D, 76 cm (2.5 ft) southeast of the hearth (Figure 4.10). The headstone was embedded 36 cm (1.2 ft) in the floor, with 7 cm (2.8 in) of the stone sticking above the floor. The second stone, which was incised and showed signs of having been previously used as a metate, was embedded so that the incised surface appeared at floor level. A similar headstone was found southeast of the hearth in Kiva C; however, no incised stone was found with it.

Deflectors

The only trace of a deflector found in any kiva was a low adobe stump in Kiva B. Workers from Picuris who were excavating the kiva stated that present-day kivas have deflectors constructed on the east edge of the hearth. A deflector was built in Kiva C using the dimensions of a deflector that is in one of the present-day Picuris kivas. This deflector, in the form of a terraced pyramid, is made of adobe and is 81 cm (2.7 ft) high and 15 cm (6 in) thick. Five steps on the edges of the deflector take it from a length of 88 cm (2.9 ft) at the base to 21 cm (8.4in) at the top.

Subfloor Channels

A kiva feature found nowhere else in the Rio Grande drainage except the Taos area is the subfloor channel. These channels radiate out from the firepit to the north,

Figure 4.9: Miniature Vessel Used as Sipapu in Floor of Kiva B

Figure 4.10: Possible Altar Stones, Kiva D

west, and south. Similar channels have been reported by Brew (1946:141–144) at Alkali Ridge, by Smiley (1952:28–31) at Point of Pines, and by Joe Ben Wheat (pers. comm.) at Porter Pueblo in southwestern Colorado. The channels in the Picuris kivas are dug into the native soil during the construction of the kiva floor. Often the channels are lined with small slabs of schist or other stone (Kivas A, sub-A, and C), and then the entire length of each channel is covered with stone slabs. The floor is plastered over the slabs, leaving no evidence of their presence on the kiva floor. In Kiva sub-A, two slabs cover the channels for a short distance away from the firepit (about 60 cm [2 ft]); the rest of the channel is covered with pieces of wood placed crosswise over the channels. In Kivas sub-A, B, and C, the ends of the channels were closed off from the hearth with plain culinary-ware sherds.

In Kiva C, the sherds had holes in their centers 2 mm (0.08 in) in diameter. The ends of the channels in Kivas A and D were closed off from the hearth with a stone slab. With the exception of the south channel in Kiva D, the lengths of the channels are 1.4–1.95 m (4.6–6.4 ft), the widths are 11–26 cm (4.4–10.4 in), and the depths are 8–20 cm (3.2–8 in). There was no south channel in Kiva D. In its place, a slab was embedded in the floor just south of the hearth. The subsidiary vents on the west side of the kivas in all cases line up with the west subfloor channels. In addition, the fact that Kiva D has three subsidiary vents seems to indicate that there is a connection between the channels and the subsidiary vents. The Picuries refer to these channels as “spirit channels.” One community member said that spirit messages are sent through the channels. A second indicated that the channels also helped radiate heat out of the hearth, helping to warm the structure during the colder months.

Kiva D

Kiva D is worthy of special mention. As excavations began on this kiva in 1962, some workers referred to the feature as the remains of the "Cochiti Witch Kiva." Several Picuries said that they had heard stories about the kiva but that no one alive was old enough to have seen the kiva when it was in use. Excavators found that all of the wall niches had been filled with adobe and that the subsidiary ventilators (north, west, and south) had been closed off with stone slabs. After the niches and subsidiary ventilators had been closed, the entire kiva wall was given an extra coat of plaster, which served to cover the kiva paintings, the plugged niches, and the subsidiary vents. The kiva then appears to have been intentionally burned. The significance of this kiva abandonment method is discussed in more detail in the concluding chapter of this volume.

Kiva M

Kiva M is significant due to its size (Figure 4.11). The remains of this structure were encountered during salvage excavations. The excavation, widened in the middle of the kiva to expose additional floor contexts, ran diagonally from the northeast wall to the westernmost wall, directly across the hearth area.

The floor consisted of many thin, smoke-blackened, polished-adobe layers and was about 6 cm (2.4 in) thick. The sides of the roughly rectangular hearth were stone-lined. The hearth measured 42 cm (1.4 ft) (N-S) by 36 cm (1.2 ft) (E-W) and was 36 cm (1.2 ft) deep, surprisingly small for a big kiva, especially considering the large hearths found in the small kivas.

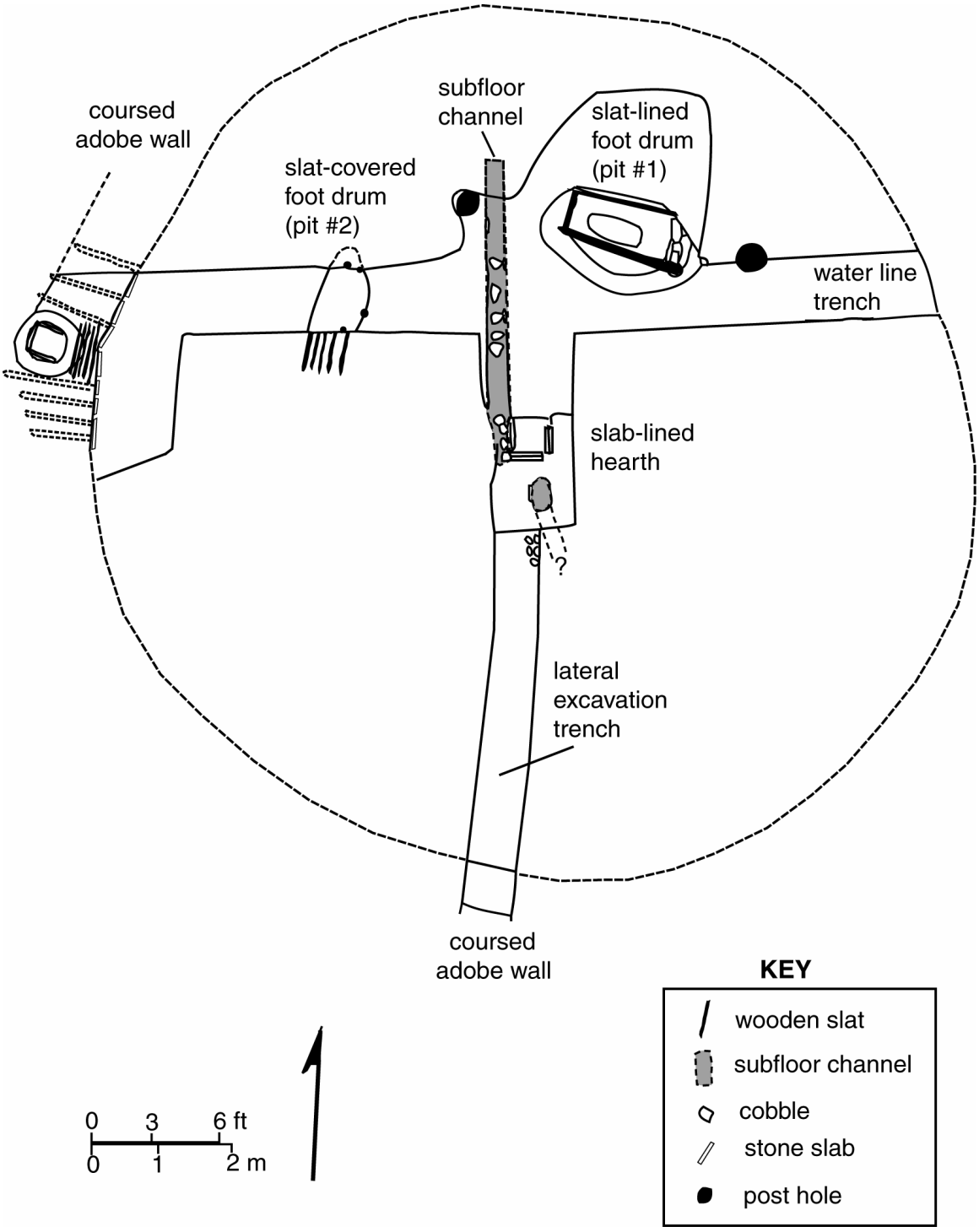

Figure 4.11: Kiva M, a Partially Excavated Large Kiva at Picuris Pueblo

Two large juniper roof-support posts were found in the east-west trench. From their placement it appears that the kiva had six roof-support posts arranged in two parallel east-west rows of three posts each. If this is the case, the posts uncovered were the northeast and north-central posts. Both were about 45 cm (1.5 ft) in diameter and stood 1.2 m (4 ft) above the floor. Though no cutting dates were obtained, the posts yielded non-cutting dates in the early 15th century (1411vv and 1405vv). The northeast posthole was 76 cm (2.5 ft) deep and the other posthole was70 cm (2.3 ft) deep. Both postholes were lined on the side with rock wedges and had stone slabs on the bottom. The roof was probably made of three parallel north-south vigas covered by latillas running east-west, essentially following the same roofing procedure described for the small kivas.

Two subfloor pits (Figure 4.11) located northeast and northwest of the hearth have been tentatively identified as foot drums. Good evidence of wooden slats roofing both pits was found. A poorly constructed subfloor channel was found oriented slightly west of magnetic north, running a distance of at least 3.3 m (10.9 ft) north of the hearth. The channel was about 30 cm (1 ft) wide as well as deep and had small slabs of schist lining the walls and covering the channel. A second perpendicular trench was dug 3 m (10 ft) south of the first trench in order to locate the hearth. Because the contractor had to move his trucks through the Kiva M area, excavations were not allowed any farther north, leaving the north wall of the kiva unexposed. A 1.2-x-1.5 m (4-x-5 ft) pit was dug to the kiva floor south of the main trench to expose more of the west wall near the subsidiary ventilator.

Kiva M was constructed by digging into what was then the west side of the hill rather than digging the hole down from a flat surface. The walls were constructed of coursed adobe with large stone slabs embedded at the base of the wall. The highest remaining portion of wall still retained a maximum height of 2.6 m (8.6 ft) at the time of excavation. No plaster was found on the walls.

The ventilator was not found in the trench, but the top of a circular coursed adobe wall 2.9 m (9.6 ft) in diameter was located on the east side of the small modern house east of the kiva. This may indicate an antechamber or tunnel entrance on the east side of the kiva. A tunnel on the west side entered the kiva 76 cm (2.5 ft) above the floor. The tunnel (70 cm [2.3 ft] wide, 67 cm [2.2 ft] high, and 1.10 m [3.6 ft] long) may have served as an entrance, a subsidiary vent, or both.

A shelf, indicated by six postholes in the west wall symmetrically arranged with three on either side of the subsidiary vent, was located about 1.45 m (4.8 ft) above the floor. Near the hearth the channel is unlined and not well-defined. This is the only subfloor channel found, but small holes ran under the floor near the hearth, possibly due to rodent disturbance. In addition, a horizontal stone slab and a small vertical schist slab were found south of the hearth. Time did not allow further excavation of this very interesting kiva.

Settlement Layout

The exterior shape of the pueblo at Picuris at the height of its occupation cannot be determined given the incomplete excavation and the loss of architectural units to erosion. Dick (1965b) was convinced that, unlike the planned circular shape of Tyuoni or the "D"-shaped town of Pueblo Bonito, the shape of Picuris indicated no purposeful overall plan. Room-block growth was by accretion to the

main room-block according to standard room shapes and sizes.

Though no overall shape appears to have been the goal at Picuris, it is notable that large, open areas were reserved as plaza space at the settlement. Extensive excavations in these areas (see below) show evidence of exterior hearths, storage pits, and other features. In addition, the plaza spaces served as the primary construction overall plan appears to have influenced the location of room-blocks, plazas, and kivas, it is worth noting that the rooms in the large room-blocks have their long and short axes lined up in cardinal directions and that ventilator systems in the kivas were oriented along the magnetic east-west line.

Pithouses and Kivas: Definitional and Conceptual Approaches

The subterranean kivas found at Picuris and Taos Pueblos today are part of a long tradition of ritual architecture that at one time encompassed nearly the entire Pueblo world. In the Taos region, the use of subterranean architecture can be traced back to the 11th century, representing the earliest permanent architecture in the area. The basic characteristics of the Northern Rio Grande pithouse-kiva tradition are circular, sheer walls, subterranean, deep (2–3 m [6.6–10 ft]), four-post roof-support system, roof entrances, east- or slightly southeast-oriented ventilators, ventilators constructed by roofing a trench (rather than digging tunnels through the soil), central circular hearth, rarity of true deflectors, and the presence of damper slabs.

The question of the pithouse-kiva transition has been a particularly vexing one in the Taos region for a number of reasons. First, the assumption that ritual kivas developed out of a general class of subterranean domestic structures is based on a developmental scheme that does not allow for multipurpose functions among locus for kivas, important ritual integrative spaces built and used throughout the occupation of the settlement. Thus, even though there may not have been a "village plan" that determined the overall shape of the built space at Picuris, ritual integrative architecture was set apart in plaza spaces that were surrounded by larger room-blocks of multistory architecture. Though no

these structures. Second, past arguments assume that the introduction of kivas spelled the beginning of group ritual behavior among ancestral Pueblo people that, prior to kivas, did not practice such activities in a built environment. For example, Wetherington (1968:80) states that the primary social unit during the Valdez phase was the nuclear or extended family. These groups lived in physically separated domestic sites clustered in at least three areas of concentration in the Taos region. Though these settlement clusters were probably mutually cooperative, Wetherington does not find evidence of "a common ceremonial complex or common economic organization" during the Valdez phase. The lack of a ceremonial complex is directly attributable to the presumed absence of kivas during the Valdez phase. Third, the question of when a pithouse becomes a kiva has been predicated on the presence of surface architecture in association with subterranean structures (Green 1976). The assumption is that surface architecture is solely domestic in function and that its presence allows pit structures to be transformed to specialized ritual use facilities.

The question of the pithouse-kiva transition has become a nonquestion due to the number of unfounded assumptions that have accrued over the past decades. Smith (1952a) elegantly argued that kivas cannot be identified simply on the basis of compiling trait lists. At the time that

Picuris was under excavation, however, the assumptions still prevailed not only that the kivas could be differentiated from the pithouses, but also that the two were linked in a sort of architectural family tree spread out across the prehistoric Southwest. For example, Dick (1965b) argues for a Taos-area transitional "pithouse-kiva" architectural type that directly precedes the adoption of full-fledged kivas at Picuris during the 13th and 14th centuries. He attributes the origins of the type to a "generalized Anasazi-Mogollon pit structure base," as though the features were linked to a generic culture spreading out of the central Southwest to peripheral areas such as the Taos region.

Adler (1993c) has argued that the question is not how kivas developed out of pithouses but how and why increasingly specialized ritual architectural spaces may have developed among the communities of the northern Rio Grande. The differentiation of architectural space into increasingly specialized uses lies at the heart of the kiva-pithouse dichotomy. Based on assumed increases in population size through time in each of the dispersed pithouse communities in the Taos area, it is likely that subterranean architectural spaces were utilized for both ritual and domestic activities throughout the Valdez phase. The lack of "a common ceremonial complex or common economic organization" proposed by Wetherington (1968:80) is based on the assumption that each of the small pithouse settlements functioned as a separate economic and ritual entity. With the numerous cross-cultural examples of dispersed agricultural communities that built and utilized ritual integrative spaces within and outside their settlements (Adler 1990), it is more likely that the small Valdez phase settlements were parts of large, dispersed communities within which a select number of structures were utilized for ritual activities. The rituals probably served to integrate and link multihousehold groups within and between communities. These same subterranean structures were probably also used as domestic spaces, but the multipurpose use is consistent with the flexibility in function that accompanies architectural features in most small-scale societies.

Increasing ritual specialization accompanied the development and use of large or "great" kivas across the Southwest after about A.D. 600. These oversized features were constructed as community-level ritual features, serving to integrate the multihousehold groups associated with smaller integrative features. This same hierarchy of integrative features is found throughout the rest of the world (Adler and Wilshusen 1990), and gets its start in the Southwest during the Basketmaker period. The late appearance of these large features in the northern Rio Grande is not the result of any "lag" in the diffusion of culture traits to the area but is due to the relatively late regional development of larger communities that construct and use such facilities. Ritual integration, social organization, and architecture in the Taos area are discussed in more detail in the final chapter of this volume.

In sum, the occupation of Picuris Pueblo evidences a strong continuity in secular and sacred architectural forms over a long period of time. The initial sedentary occupation at Picuris, and in the Taos region in general, was by pit-structure dwellers. Rather than being a "stage" in some sort of evolutionary developmental scheme for relatively permanent architecture, pit-structure use tends to be associated with groups that are relatively mobile, moving their domiciles at least every few decades or less (Gilman 1987). This household mobility is common in situations in which groups utilize rich

resource patches or produce their own food through horticultural or agricultural strategies but do so in a relatively sparsely populated landscape. As Gilman has pointed out, pit-structure use allows people to move seasonally to other areas and to close the pit structure up against animals, climatic changes, and other potentially disturbing influences. Also, pit structures are not built for long periods of use without major repair, an architectural self-obsolescence that is well-suited to households moving every several years or so. Human dependence on this structure type at Picuris and elsewhere in the Taos area is consistent with the expectations, since the region was only sparsely populated throughout the Valdez phase. Before the 13th century, most households lived in small settlements (1–4 pit structures) that together probably composed two or more dispersed communities in the area (Boyer 1994).

Beginning in the 13th century, Picuris was certainly not unique it its dependence on large aggregated room-blocks. Large multistory apartment complexes are the defining feature of late prehistoric and historic pueblos, and the Picuries constructed and inhabited archetypal pueblo domiciles between the late 13th and the 18th centuries. The coursed-adobe multiple-story pueblo was characteristic of the entire northern Rio Grande region during the Coalition period (A.D. 1200–1325). Though many pueblos in the region depended largely or in part on stone masonry, the populations of the Taos area retained coursed adobe. The "origin" of the Taos-area adobe architecture tradition is somewhat of a moot point, since the earliest examples of subterranean architecture utilize this building medium. Although earlier examples of coursed adobe have been found in the Southwest (see chapter 10 in this volume), the local Pueblo populations have one of the longest continual traditions of coursed-adobe architecture. This conservatism is also reflected in the pottery: the black-on-white tradition of ceramic decoration continued in parts of the northern Rio Grande until 1680, long after many other portions of the Pueblo world had abandoned this style.

This conservatism in building material and technology, however, was not without change. Though the chronological data from Picuris still leave some room for reinterpretation, it appears that the increasing reliance on multistory architecture translated into the use of somewhat smaller rooms through time. The associated loss of floor space, however, appears to have been countered by the increasing volume of the ground-floor storage pits so characteristic of the later surface architecture at Picuris.

What the architecture at Picuris tells us about culture contact and isolation is still open to debate. During the excavations at Picuris and in subsequent written synthesis, Dick and others (n.d.) argued that the number of local architectural specializations documented at Picuris and other local sites was indicative of the cultural isolation of the Taos area residents. This "isolation" continued, they argue, until A.D. 1500, when trade and influence from the northern Rio Grande can be recognized in the acceptance of Glaze D ceramics and other nonlocal traits.

Although unique architectural and artifactual traits are evident in the prehistoric sites of the Taos area, there are many commonalties between the area and much of the rest of the Pueblo world through time. For example, Taos-area populations shared the black-on-white ceramic decorative tradition with much of the rest of then northern Southwest before A.D. 1350. Taos potters began to use organic pigments during the late 13th and

early 14th centuries, a shift not unlike the change seen throughout most of the Pueblo world at about this same time.

The continued use of the black-on-white ceramic decorative technology after A.D. 1350 has also been cited as an argument for the cultural isolation of the Taos area. Though regional shifts to glaze ceramics occurred after this time, other populations also retained a black-on-white tradition well into the historic period, including those people in the Jemez region who made Jemez Black-on-white until A.D. 1700.

The social and ritual organization of Taos-area populations is open to debate, but the village layout patterns, the reliance on both small and large ritual integrative facilities, and the adoption of an aggregated village life, are evidence of a great deal of similarity between the Taos-area Pueblo communities and those communities recorded in other parts of the southwest from A.D. 1100 to the present. These similarities are examined in more detail in the last chapter of this volume.

The material and temporal disjunctions, however, between Taos-area culture change and the culture change documented for other parts of the Pueblo Southwest do require explanation. The excavations at Picuris document a lower frequency of extralocal materials in refuse and habitation areas before the 16th century. One potential explanation is that the introduction of the horse allowed greater mobility and interaction among southwestern (and Plains) groups after the 1500s. Another possibility is that the increased adoption of an aggregated settlement strategy after the 13th century in the Taos area and elsewhere led to an overall decrease in the mobility of communities through time. Such a decrease in local and regional mobility would be reflected in decreasing amounts of extralocal materials in settlements. Lekson (1996) has also proposed that the post-Chaco Pueblo world was characterized by increasing regional "balkanization," a change that would also have resulted in less interregional contact and exchange.

The architectural record at Picuris documents the use of features rare or unique in the Southwest, including subsidiary ventilators, subfloor channels in the kivas, center posts, and central storage pits. Some of these features have more in common with settlements in southeastern New Mexico and northern Chihuahua than with neighboring areas of the northern Rio Grande. Cameron (1994) has pointed out that adobe architecture is found throughout much of the Sonoran desert environmental zone. Cameron (1994) has proposed that groups occupying northern climes may have utilized coursed-adobe architecture as a stylistic indicator of cultural affiliation with groups farther south. It is also possible that adobe is the more-resilient building technology in low moisture regimes such as that found in the Sonoran region.

The Record of Ceramic Change at Picuris, A.D. 1150–Present

Picuris Pueblo is one of the most deeply stratified and longest-occupied sites in the Southwest. Thus, it is only natural that the ceramic sequence should be of extreme importance. Three new vegetal (carbon) paint Black-on-white types are found here in stratigraphic sequence from A.D. 1375 to 1696, and evidence of local pottery manufacture from A.D. 1150 to the present was also documented in the materials excavated at Picuris.

No extensive petrographic analysis has been completed on the Picuris ceramic assemblage to date. At this time we can offer no more than preliminary descriptions of the local types. For those types already

defined and described in the literature, we refer readers to the extant descriptions.

A large number of dendrochronological specimens were recovered during excavations, mainly juniper center posts from storage rooms (Robinson and Warren 1971:45-47), but most excavated contexts lack chronometric dates. Hence, ceramic type associations remain the major source of chronological control for our understanding of prehistoric change at Picuris Pueblo.

The most basic information used in estimating occupation dates for the various parts of the settlement was the presence of many extralocal types that have been well dated in other parts of the Southwest. The dating of structural and refuse areas depends largely on the chronological summary of northern Rio Grande pottery types found in Shepard (1942), Smiley, Stubbs, and Bannister (1953:55), Stubbs and Stallings (1953), Wetherington (1968), and Boyer et al. (1994). Dates for the Rio Grande Glaze series relies largely upon Mera's (1940) and Kidder and Shepard's (1936) discussions, as well as more recent discussions by Warren (1977). The Hopi pottery dates are taken from Colton (1956). Dates for Little Colorado ceramic types are derived from Carlson (1970) and from later work by Kintigh (1985). For the most part, these types (Tewa series, Taos Black-on-white, Glaze series, and Hopi ware) serve as the backbone of the Picuris temporal analysis (Figure 4.12). Where stratigraphic relationships do not support the extant dates for known types, it has been necessary to suggest alternate dates of manufacture for those types, at least as they occur at Picuris. It is quite possible that in many cases, there is a slight time lag or a holdover in the occurrence of any particular type at Picuris.

During the course of sorting the pottery from the excavations, 49 different pottery types were recognized, including 14 culinary types. To facilitate description and discussion, we will break these types down into eight major categories. The different types of culinary wares recovered at Picuris include the following: plain culinary, nonoverlap coil, corrugated, smeared corrugated, indented corrugated, smeared indented corrugated, sharp indented, blunt indented, smeared indented, ribbed, sharp ribbed, indented ribbed, linear incised, and linear scored.[4]

Mineral-Painted Wares

The only iron-paint black-on-white type found at Picuris is Taos Black-on-white.[5] Though the mineral-painted wares are uniformly identified as the earliest decorated ceramics in the Taos region, debate has centered on the proper typological classification for these wares. Mera's (1935:6) original definition of Taos Black-on-white differentiated this type from Kwahe'e Black-on-white based on the use of a thicker slip on Taos Black-on-white and a thinner wash on Kwahe'e Black-on-white. Mera also argued that Kwahe'e Black-on-white was a sherd-tempered ware, whereas Taos Black-on-white tended to be tempered with sand.

Later revisions of Mera's types by Peckham and Reed (1963:10–11), Wolfman, Wolfman, and Dick (1965:6–7), Wetherington (1968:51–54), Green (1976), Glassow (1980:137), Lent (1991), and Proctor (Proctor-Weiss 1983, Proctor 1993) have been discussed in detail by Levine (1994). Levine points out that Mera's original differentiation based on slip and temper characteristics of Taos and Kwahe'e is not consistently represented within ceramic assemblages across various localities in the northern Rio Grande region. Sand and sherd tempers are present in mineral-painted wares throughout the Northern Rio Grande. Similarly, slip

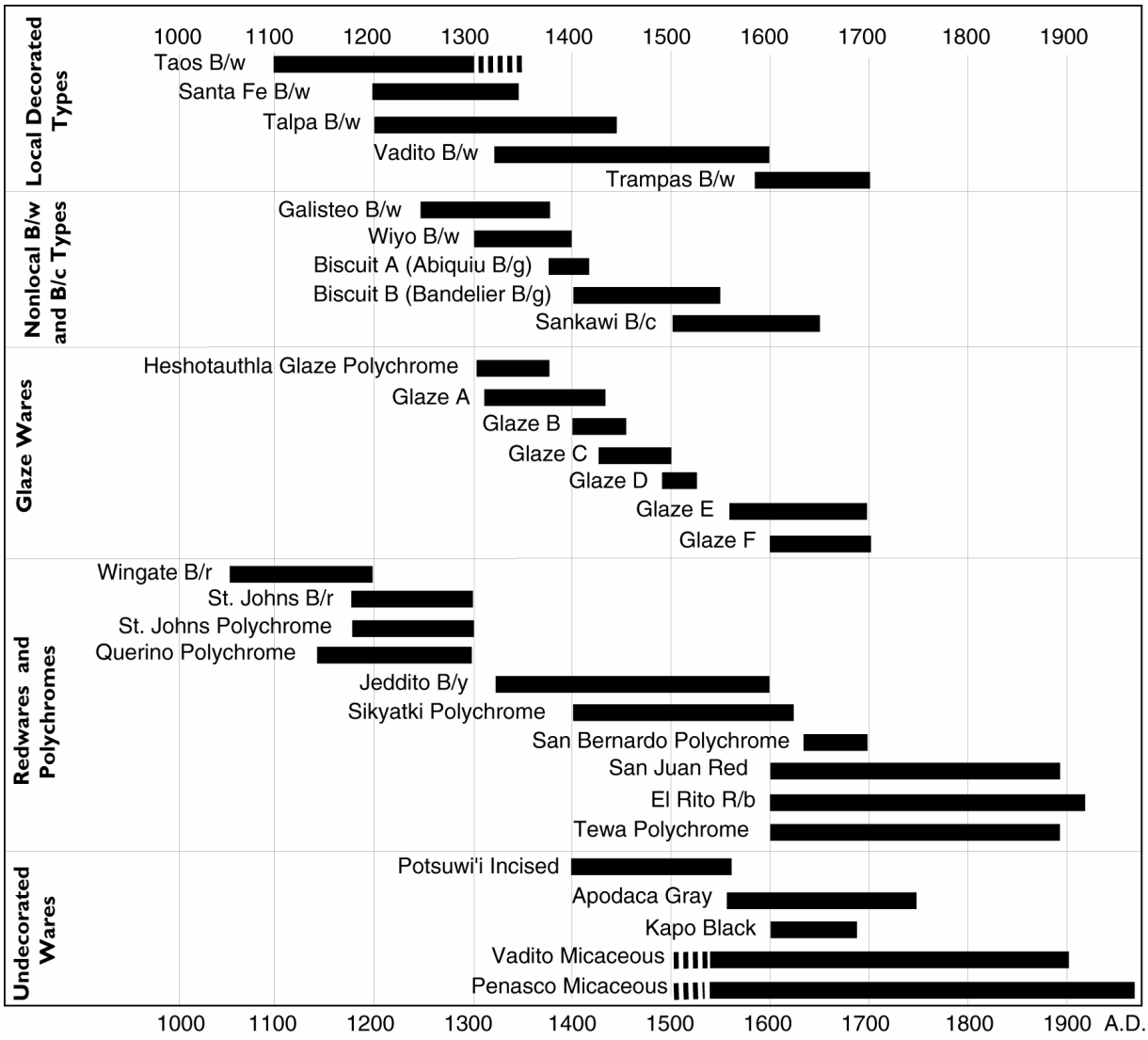

Figure 4.12: Date Ranges for Ceramic Types Identified at Picuris Pueblo

characteristics vary throughout the region, with evidence of thin, thick, interior, and exterior slipping on bowl sherds from sites that have been extensively excavated.

The variation observed by Levine in slip and temper characteristics of mineral-painted wares in the Taos area does not appear to be linked to the presence of local and nonlocal ceramics. A preliminary petrographic study of mineral-painted sherds from the Pot Creek project (Hill 1994) indicates that all the sherds came from vessels made of locally available, self-tempered clays.

Based on the diversity Kwahe'e Black-on-white is not warranted, and she suggests that researchers refocus attention on the temporal range and stylistic

attributes associated with the early mineral-painted wares in the northern Rio Grande.

Smiley, Stubbs, and Bannister (1953:58) date the manufacture of Taos Black-on-white to A.D. 1150 to 1250. Based on the association of mineral-painted by Wetherington (1968:51–54), but they also differ in terminal date from the date range of A.D. 1100–1350 proposed by Levine (1994), who based her estimate on a compendium of absolute dates from recent excavations in the Taos area (Boyer 1994). The possibility exists that mineral-painted wares continued to be made into the 14th century, but ceramics from post-1300 contexts at Pot Creek Pueblo show a definite decrease and sometimes total absence of Taos Black-on-white sherds in these contexts (Adler 1993b). The presence of some Taos Black-on-white sherds in these contexts at Pot Creek Pueblo is to be expected, given that the site was occupied during the Valdez phase, as evidenced by the excavation of two pithouse structures covered by later surface architecture (Wetherington 1968).

Vegetal-Painted Wares

As with the mineral-painted wares of the northern Rio Grande, inferences about the place of manufacture and the local stylistic and technological traditions have been central to the classification of vegetal-painted (carbon-painted) painted wares.[6] Typologists all agree, however, that the northern Rio Grande ceramic tradition(s) included a widespread adoption of vegetal-based paints for the decoration of slipped and polished ceramics during and after the late 12th century.

Vegetal paint was made by boiling down plant material, most likely Rocky Mountain beeweed (*Cleome*), to a sticky paste and then painting the paste onto bowl and jar surfaces. The paint was often polished into the surface before firing. The use of organic paint in vessel decoration was not new to ancestral Pueblo potters, since it is likely that this same organic paint had been used as the binder for the earlier mineral-based paints that dominated the ceramic decorative tradition in the northern Southwest before the 12th and 13th centuries (Blinman 1993; Lister and Lister 1978).

Ceramic analysts have tended to classify northern Rio Grande vegetal-painted wares as Santa Fe Black-on-white since Mera (1935) first named the type, replacing Amsden's (1931) earlier "blue-gray type." In addition to the clear shift to vegetal paint, Mera noted that Santa Fe Black-on-white was tempered primarily with coarse sand, sherd, and volcanic tuff. Mera assigned this type to the entire northern Rio Grande and Jemez Mountain regions. Although Santa Fe Black-on-white is often linked stylistically to Mesa Verde Black-on-white, it generally lacks the framing lines that characterize the classic design layout and composition of Mesa Verde Black-on-white ceramics.[7]

Mera and others did not split the Santa Fe type, unlike the mineral-painted types, into local types based on design style, slip, or temper composition (but see Ellis and Brody 1964, who use Taos-Poge Black-on-white instead of Santa Fe Black-on-white). Recent research, however, has led Proctor to propose that a separate type designation, Pot Creek Black-on-white, be used to identify vegetal-painted wares made in the Taos area during the first half of the 13th century (Proctor-Weiss 1983, Proctor 1993). Proctor's argument is a direct outgrowth of the debate surrounding the differentiation of Taos and Kwahe'e Black-on-white. The Taos/Kwahe'e differentiation rests on whether there is a significant suite of stylistic and technological differences that separate these two early mineral wares.

Although some ceramic analysts downplay the differences in slip, temper, and design style (Lent 1991; Levine 1994), others, including Proctor, argue that the Taos-area ceramic traditions were sufficiently different from those farther south to warrant a new set of type names. The crux of the debate is whether locally made mineral-painted pottery constitute a separate ceramic type based on stylistic and technological characteristics. Because the scope of compositional analyses of vegetal-painted wares has been so limited to date in the Taos area, the adoption or rejection of the typological differentiation between Santa Fe Black-on-white and Pot Creek Black-on-white is far from being resolved. For the purposes of this volume, we retain the more conservative position, choosing to classify the corpus of 13th-century vegetal-painted wares found at Picuris as Santa Fe Black-on-white.[8]

The earliest vegetal-painted ware assemblages at Picuris included both local and imported vessels. Based on preliminary identification of temper types by Dick (1965b), the majority of Santa Fe Black-on-white ceramics at Picuris Pueblo contain tuff and silt temper. The greatest quantity of tuff- and silt-tempered Santa Fe Black-on-white recovered at Picuris came from the south trash slope of Area VI . The presence of tuff temper has traditionally been used as an indication of manufacture in the Santa Fe area (Mera 1935, Stubbs and Stallings 1953). The local manufacture of tuff- and silt-tempered Santa Fe Black-on-white remains a possibility, however, since there are substantial deposits of volcanic tuff in the Picuris area (Montgomery 1953:52–53). Volcanic tuff can take many forms, particularly if it is reworked from primary deposits, and further compositional analysis must be carried out to source the tuff temper found in the vegetal-painted ceramics at Picuris. Nonetheless, Dick (1965b) regards the tuff- and silt-tempered Santa Fe Black-on-white as a trade ware originating from the Santa Fe area. Included in his vegetal-paint trade wares are Santa Fe Black-on-white (tuff- and silt-tempered varieties), Wiyo Black-on-white, Biscuit A (Abiquiu Black-on-gray), Biscuit B (Bandelier Black-on-gray), and Sankawi Black-on-cream.

Dick (1965b) also identified at Picuris a locally made variety of Santa Fe Black-on-white tempered with arkosic sand. Identified as "local Santa Fe Black-on-white," this variety is identical in every way except in temper to the Santa Fe Black-on-white that he attributes to manufacture in the Santa Fe area (Stubbs and Stallings 1953:48–50). These ceramic wares tempered with arkosic sand may be the products of people who migrated to the Taos area, settled at Picuris, and used local tempering materials in their pots. Although sand is one of the possible tempering materials in the description of Santa Fe Black-on-white (Stubbs and Stallings 1953:48; see also Shepard in Kidder and Shepard 1936), the sand in the Santa Fe Black-on-white from the Santa Fe area is very silty and generally does not include large arkosic sand granules such as are found in the Picuris variety. At this point it appears as if the local variety of Santa Fe Black-on-white was made in the Taos area almost as early as true Santa Fe Black-on-white was made in Santa Fe. According to Stubbs and Stallings (1953:chart at end of report), Santa Fe Black-on-white appeared as early as A.D. 1190 in Santa Fe. By about A.D. 1200, tuff- and silt-tempered Santa Fe Black-on-white was traded into the Taos area, with the local arkosic sand variety appearing at the same time or just slightly later.

Various authors extend the manufacture span of Santa Fe Black-on-white into the 13th and 14th centuries (Stubbs and Stallings 1953; Kidder and Shepard1936; Crown 1990). Dick (1965b) proposed that a second vegetal-painted ware, Talpa Black-on-white, began to be made by Picuris potters contemporaneously with the manufacture of Santa Fe Black-on-white. Wetherington first proposed this new type in both preliminary reports and his dissertation on Pot Creek Pueblo (Wetherington 1964) and later published the type description in his Pot Creek Pueblo monograph (Wetherington 1968). Dick (1965b:129–131) also provided an early description of Talpa Black-on-white[9]. Because Dick's description of Talpa Black-on-white was based on examples from both Picuris and Pot Creek Pueblos and does differ from Wetherington's (1968:56–57) summary of the type at Pot Creek Pueblo, it is included here in its entirety.

Talpa Black-on-White

Time: A.D. 1200–1450 (does not appear in significant quantity at Picuris until 1275)

Range: Taos County, New Mexico

Type Site: Pot Creek site (TA-1)

Construction: Coiling and scraping

Firing atmosphere: Reducing

Core: White to dark gray; occasional carbon streak

Temper: Medium to coarse quartzitic and arkosic sand with inclusions of magnetite and rare pieces of muscovite mica

Texture of the core: Medium to coarse

Fracture: Rough and irregular

Shape: Bowls

Rims: Tapered almost to a point

Wall thickness: 4.5–7.8 mm (0.18–0.31 in)

Surface finish: A thin wash is found on bowl interiors (the painted surface) and more often than not on bowl exteriors. Very occasionally, at Picuris, this wash is absent from the interior. Absence of a wash is more common at Pot Creek Pueblo. Bowl interiors range from rough to well polished whereas exteriors are generally rough and show signs of coiling. Polishing marks are apparent on the interiors and scraping marks can be seen on the exteriors.

Pigment: Vegetal paint.

Decoration: See Figure 4.13. Decoration is confined solely to bowl interiors. Early Talpa Black-on-white shows frequent use of band patterns composed of large linear elements, mainly pendant triangles. Also found on early Talpa Black-on-white ware are checkerboarding, ticked and barbed lines, small circles, and frequent hatched designs. An unbroken line completely encircling the bowl just below the rim is almost always found. Line widths on early and late Talpa Black-on-white range from 2 mm (0.08 in) to 4 mm (0.16 in). Late Talpa Black-on-white has a fairly heavy slip, and thus late body sherds are indistinguishable from Vadito Black-on-white body sherds, rim form being the distinguishing characteristic.

Remarks and comparisons: The vegetal-painted vessel forms and designs of Talpa Black-on-white undoubtedly derive from Santa Fe Black-on-white, but the

coarse, dirty paste of Talpa Black-on-white is a far cry from the hard, clean-gray paste of Santa Fe Black-on-white.

Both Wetherington and Dick agree on construction techniques, firing atmosphere, texture of the core, fracture characteristics, paint type, and vessel form in their summaries of Talpa Black-on-white. Differences in the two descriptions do exist, however, and are worthy of mention. First, Wetherington dates the ware to A.D. 1250–1400. Dick proposes that Talpa Black-on-white was being made in the Taos area before its use at Picuris and Pot Creek Pueblos, and that an initial date of A.D. 1200 may be more realistic. This temporal difference in the introduction date for the ware has not been addressed in detail in excavations in the Taos area, and current evidence is equivocal on the topic. A sample of 82 rim sherds excavated from the Llano site (Jeançon 1929) and studied by Rebecca Proctor at the Smithsonian Institution did contain examples of Talpa Black-on-white. Proctor classified 19 percent of the decorated rim sherds as Talpa Black-on-white (pers. comm. 1995). The rest of the collection was composed of Taos Black-on-white (53%) and Pot Creek Black-on-white (Santa Fe Black-on-white, local variety) (28%). The Llano site occupation probably dates to the early half of the 13th century, indicated by a suite of tree-ring dates between 1207vv and 1239r.

Vickery's (1969) excavations at TA-26, located next to Pot Creek Pueblo, recovered 57 sherds that she classified as Talpa Black-on-white, composing 2 percent of the total sample of decorated sherds from the site. Vickery (1969:280) dates the site occupation to A.D. 1190–1250, indicating an earlier presence of Talpa Black-on-white in the area. Thus there is evidence for pre-1250 manufacture of Talpa Black-on-white in the Taos area, but both samples are from contexts with few or no cutting dates. Further work will require larger samples of ceramics from well-dated contexts in the Taos area, such as at the partially excavated TA-25 (Blumenschein 1958), a site with an occupation dating to approximately A.D. 1230 (identified as PC-58 by Robinson and Warren 1971:44).

Second, Dick (1965b:129) identifies only coarse quartzitic and arkosic sand as the primary temper types for Talpa Black-on-white, whereas Wetherington includes tuff and sherd temper in his type description. The lack of these two latter temper categories in the Picuris sample is probably due not to their absence, but to Dick's definition of Talpa as a local decorated ware. As in the case of Santa Fe Black-on-white, tuff and sherd tempering are indicators of nonlocal manufacture for Dick. Because he specifically proposes Talpa Black-on-white as unique to the Taos area, Dick excludes the nonlocal temper types.

Third, although both researchers identify Talpa Black-on-white on the basis of bowl sherds, their definitions differ as to surface finish and rim forms. Wetherington describes the lack of a slip or thin wash on the exterior of Talpa bowls, whereas Dick finds that a thin wash is more common than not on Talpa sherds at Picuris. Rim forms at Picuris are tapered, but Wetherington observes tapered, flattened, and slightly outcurving rim profiles in his sample of Talpa Black-on-white vessels at Pot Creek Pueblo.

Finally, both researchers observe the common use of framing lines around the banded design layouts on Talpa Black-on-white bowls, but Wetherington (1968:57) differentiates Talpa and Santa Fe on the basis of the "unrestrained freedom" more common in Talpa design layouts.

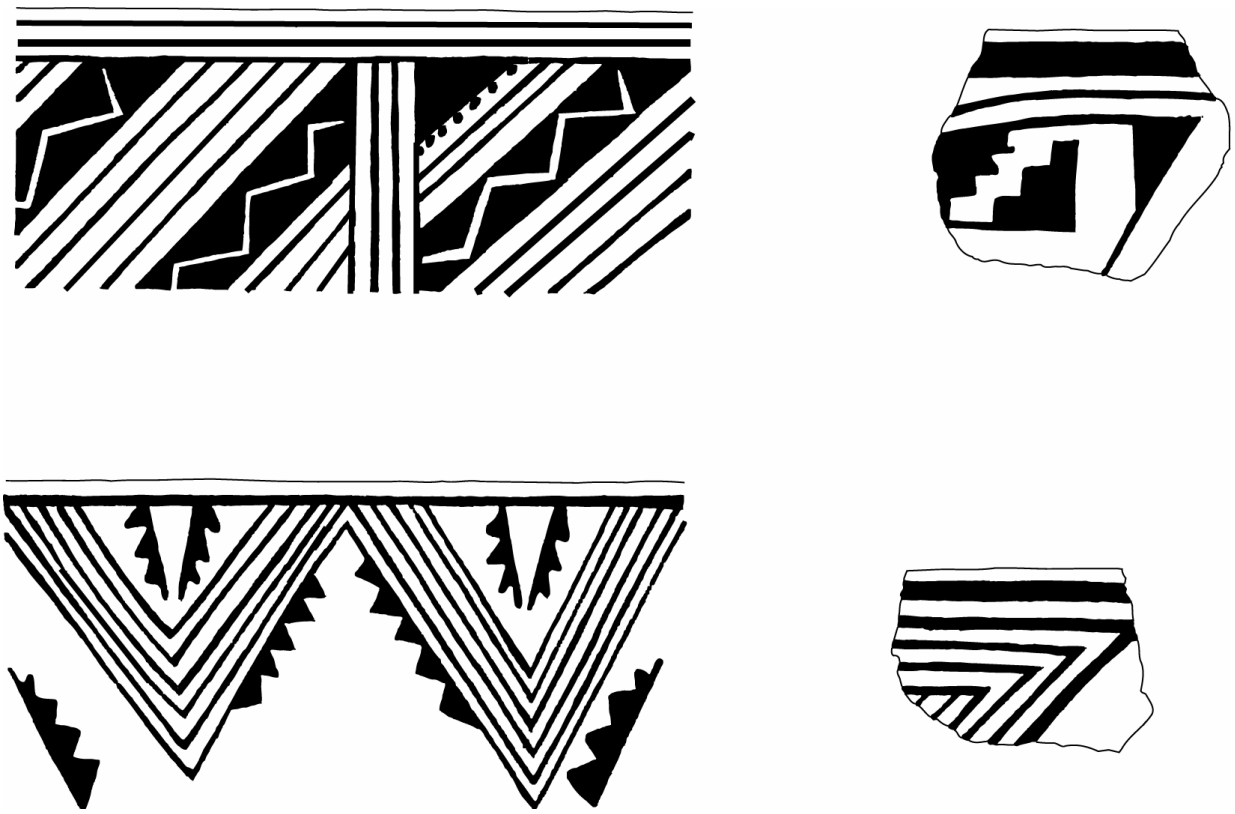

Figure 4.13: Painted Designs on Talpa Black-on-White Pottery, Picuris Pueblo

Both Wetherington and Dick were well aware of the range of variation present in the vegetal-painted wares used in the Taos area during the 13th and 14th centuries. Dick (1965b:131) points out that the earliest vegetal-painted wares (Talpa Black-on-white and, if one follows Proctor [1993], Pot Creek Black-on-white) had rough surfaces and the same paste found in Taos Black-on-white. Dick proposed that the differences in texture through time were due to changes in firing technology. When vegetal-painted ware was fired to the high temperatures previously used to fire Taos Black-on-white, the vegetal paint burned off, which led the potters to try lower firing temperatures, thus producing a softer, more friable paste. Polishing of the painted surface was necessary because it preserved the vegetal paint at higher firing temperatures.

Technological shifts did occur in the Taos-area ceramic tradition through the 13th and 14th centuries, but the use of vegetal paint continued in the region long after glaze-paint technology had been adopted in other portions of the ancestral Pueblo world. The next vegetal (carbon) painted type defined at Picuris, Vadito Black-on-white, has not been published to date in an accessible form (Dick 1965b:131-134), and is discussed in here in some detail.

Vadito Black-on-White

Time: A.D. 1325–1600
Range: Taos County, New Mexico
Type site: Picuris Pueblo (TA-111)

Construction: Coiling and scraping
Firing atmosphere: Reducing
Core: Light to dark gray; carbon streak frequent; occasionally tan
Temper: Medium to very coarse arkosic and quartzitic sand with inclusions of muscovite mica and magnetite
Texture of the core: Medium to very coarse
Fracture: Rough and irregular
Shape: Bowls only.
Rims: The principal forms are:
(1) Parallel sides with a flattened lip
(2) Thickened on the interior of the vessel with a flattened or rounded lip
(3) Tapered and recurved (rare)
(4) Interior bulge below the rim (rare)
Wall thickness: Rims range between 4 mm (0.16 in) and 9 mm (0.36 in) in thickness; the body portions of bowls range between 2.5 mm (0.1 in) and 6 mm (0.24 in).
Surface finish: A heavy slip ranging in color between white and gray (occasionally tan) is found on the interior. A thinner slip of the same material is found on the exterior. Crazing occurs on the heavily slipped areas. Horizontal polishing marks made with an unyielding tool are common on painted surfaces (primarily the interior); unpainted exterior surfaces are normally rougher, and scraping marks are often apparent.
Pigment: Vegetal paint.
Decoration: Decoration is primarily confined to the interior of the bowl. Very occasionally a design is found on the exterior surface just below the bowl rim. Design elements, usually poorly executed, are normally heavy, solid geometric elements. Most common are band patterns of opposed pendant triangles. Occasional interlocking scrolls and solid stripes, bars, and lines are also present. Bars, stripes, and lines may be vertical, horizontal, or oblique. The average width of the lines is 2.5–3.5 mm (0.1–0.14 in); stripes and bars range in width from 4 mm (0.16 in) to7 mm (0.28 in). Vadito Black-on-white bowls invariably show a broad, unbroken stripe encircling the interior immediately below the rim. The majority of the rims are ticked with a series of dashes or occasionally with a double row of dots. The dashes may be oblique or at right angles to the rim. Although a fair number of rim sherds without ticking have been observed, only a very few of them were of sufficient size to indicate that no ticking was present on the whole pot from which the sherd came.

The primary defining distinction between Vadito Black-on-white and Talpa Black-on-white is rim form. Though the two types were contemporaneous during the late 14th and early 15th centuries, Dick defines Talpa Black-on-white as having a straight, tapering rim, whereas Vadito Black-on-white is made with increasingly flatter and recurved rims. Dick attributes the increased use of a recurved rim to influences from the Biscuit ware tradition, Glaze C period wares, and Pecos Glaze IV rim styles, all of which are present in the ceramic assemblage at Picuris. Wetherington (1968:57) describes a wider range of variation in Talpa Black-on-white

rim forms, some of which match those depicted for Vadito Black-on-white.

Other Vadito Black-on-white characteristics not shared by earlier types include a thicker slip and increased use of the bowl exterior as a decorative field. Vadito Black-on-white has a thick interior slip and a thinner exterior slip, though Dick (1965b:132) observes that body sherds of late Talpa Black-on-white sometimes have a heavy slip and thus are indistinguishable from Vadito Black-on-white body sherds. Exterior painting includes simple lines and geometric motifs.

The most pronounced design change between Talpa Black-on-white and Vadito Black-on-white is the absence in the latter ware of the hatched design elements that are so prevalent in the former. The absence of checkerboarding, ticked and barbed lines, and small circles in Vadito Black-on-white should also be noted in comparing this ware with Talpa Black-on-white.

Vadito Black-on-white is essentially the same as the Taos/Poge Black-on-white type described by Ellis and Brody (1964:317). Dick (1965b:133) bases his definition of a new type on the belief that Vadito Black-on-white is a local development of Talpa Black-on-white and not a local variant of Poge or Galisteo Black-on-white. Poge Black-on-white, as defined by Stubbs and Stallings (1953:50, 56), is derived exclusively from Galisteo Black-on-white. Sloughing off of slip is more pronounced in both Poge Black-on-white and Galisteo Black-on-white than in Vadito Black-on-white.

Trampas Black-on-white

Time: A.D. 1575–1696?

Range: So far known only from Picuris Pueblo

Type site: Picuris Pueblo (TA-111)

Construction: Coiling and scraping

Firing Atmosphere: Reducing

Core: Normally gray; occasionally tan or tan with a gray center

Temper: Fine to medium quartzitic and arkosic sand with inclusions of muscovite mica and magnetite

Texture of the core: Medium fine to medium

Fracture: Crumbling

Shape: Bowls and miniature canteens (one double bowl has been found)

Rims: Interior bulge below the rim on bowls; straight rim on the miniature canteens

Wall thickness: The thickest part of the rim ranges from 6 mm (0.24 in) to 7.5 mm (0.3 in). The thickness of the bowl bodies range from 3 mm (0.12 in) to 5.5 mm (0.22 in). Thickness of the miniature canteen walls is ca. 3.5 mm (0.14 in).

Surface finish: A thin gray (sometimes tan) wash on both the exterior and the interior of bowls is nicely polished to form an eggshell finish; however, surface crazing on some sherds is extreme. The exterior of the miniature canteens has the same finish.

Pigment: Vegetal paint

Decoration: On bowls, a single wavy stripe ranging between 4 mm (0.16 in) and 7.5 mm (0.3 in) around both the exterior and the interior is most common. Occasionally other simple linear designs are found on bowls, and very occasionally terraced cloud elements are found on bowls. The terraced cloud design element is most common on the

miniature canteens, as are lightning bolts and feather elements.

Trampas Black-on-white is the last type in the local vegetal-paint Black-on-white series. Although it was never made in abundance, Dick (1965b:135) describes Trampas Black-on-white in his salvage report as an important late decorated wares made at Picuris. The paste, finishing technique, and linear design elements of Trampas Black-on-white are very similar to the characteristics of late Glaze-paint types. The designs are much simpler and the paste much finer than that of the preceding Vadito Black-on-white.

Whereas Dick bases his description of Trampas Black-on-white on both bowls and miniature canteens, it is clear from his report that the unique motifs on the miniature canteens had a significant impact on his definition of the type. The miniature canteens found in the subfloor caches (see chapter 5 of this volume) were painted with some of the same designs (clouds and lightning) as were found on the Picuris kiva murals (see chapter 9, this volume). Dick (1965b:135) notes that this is the only decorated type found in the caches. He posits that the special treatment of these vessel types may indicate that the Picuris potters viewed vegetal-painted wares as belonging to an earlier, perhaps more sacred, time and thus chose to decorated their ceremonial vessels with this paint type.

Nonlocal Vegetal-Painted Types

A number of nonlocal ceramic types were recovered during the excavations at Picuris. Each of the types was present in amounts ranging from rare to common and were identified based on differences in paste color, temper, decorative style, and/or surface treatment. Because only small numbers of sherds were actually examined microscopically, and the results of the examinations were never compiled, little more than a listing of the types and their relative amounts can be presented here.

Santa Fe Black-on-White

This type was named and redescribed by Mera (1933:11–16) replacing the Blue-gray type described by Amsden (1931:23–24). A more recent and thorough discussion of this ware by Stubbs and Stallings (1953:48–50, 57–91) is in their report on Pindi Pueblo. As described above, this tuff-tempered type was common in sections of the site (Area VI), but there remains some question as to whether some or all of the Santa Fe Black-on-white vessels could have been made locally.

Wiyo Black-on-White

This type was named and described by Mera (1934:8–9; 1935:16–18), replacing the Biscuitoid type described by Amsden (1931:24–25). The type is also discussed by Stubbs and Stallings (1953:50), who assign dates of A.D. 1290–1400 to its manufacture. Wendorf (1953:54) assigns the type to A.D. 1275–1350. Ellis (1964:34), however, assigns a date range of A.D. 1300–1400 to the type. At Picuris the latter date range appears to be the most consistent with dated contexts. True Wiyo Black-on-white is extremely rare at Picuris.

Galisteo Black-on-White

This type was named and described by Mera (1935:20–22), replacing Crackle and Late Crackle types described by Amsden (in Kidder 1931). Stubbs and Stallings (1953:50) discuss the distribution of the type and date its manufacture to A.D. 1250–1375. At Picuris the rare occurrence of this type dates to approximately A.D. 1250–1300.

Biscuit A (Abiquiu Black-on-Gray)
Descriptions of this type are to be found in Kidder's earliest published work on the Pajarito Plateau and the Rio Grande Valley (Kidder 1915:447–450, and Kidder and Kidder 1917:329). A more complete description was presented in the first volume of The Pottery of Pecos (Kidder 1931:72–100). Mera (1934:18) dates the type to the beginning of the 15th century. Ellis (1964:34) dates this type to A.D. 1350–1425. At Picuris it is present in contexts that date between A.D. 1375 and A.D. 1425.

Biscuit B (Bandelier Black-on-Gray)
Kidder (1915:427–436) first named and described this type, and Amsden (1931:101–130) later added more detail to the type description. Mera (1934:18) assigns the beginning of the 16th century as the height of Biscuit B manufacture. Ellis (1964:34) dates Biscuit B from A.D. 1400 to A.D. 1550. Excavated examples of Biscuit B found at Picuris support Ellis' dates for the type.

Sankawi Black-on-Cream
This type was first described by Mera (1932:8–12). Wendorf (1953:55) gives the approximate dates of A.D. 1500 for the beginning of this type and no later than A.D. 1694 as a terminal date for its manufacture. Smiley, Stubbs, and Bannister (1953) give dates of A.D. 1510–1600 for this type. A date range of A.D. 1500–1650 for the manufacture of Sankawi Black-on-cream is consistent with dated contexts at Picuris that contain this type, although many (if not all) of the latest sherds classified as Sankawi Black-on-cream may be from the upper portion of Tewa Polychrome vessels.

The Glaze Paint Pottery Sequence at Picuris
The Kidders (1917:332–337) utilized rim form and stratigraphic superposition to work out six different glaze classifications (Glaze I-VI) at Pecos Pueblo. A.V. Kidder (in Kidder and Shepard 1936:610) later offered date ranges for each of the defined types. Mera (1933) also proposed a glaze sequence based on survey material from a great many sites in the Rio Grande valley. Whereas the Kidders' six styles were designated by the Roman numerals I through VI, Mera designated his type sequence as A through F. Later work by Mera (1940) focused on population changes in the Rio Grande area and, based on tree-ring material, updated the chronological span of each glaze type. Mera (1940:1-6) dated Glaze A to about A.D. 1350–1450. In his southern region, he proposed that Glaze A developed directly into Glaze C, whereas in the northeastern area, a local version of Glaze B was made during the first half of the 15th century. He proposed that Glaze C was manufactured in both these areas approximately A.D. 1450–1490. His Glaze D was dated to A.D. 1490–1515, Glaze E to A.D. 1515–1650, and Glaze F dated to A.D. 1650–1700.

A more recent revision of the glaze-paint sequence by Warren (1977) follows Mera's early chronology fairly closely, with only minor changes to some of the date ranges. Warren's work was based on research carried out in association with the Cochiti Reservoir Archaeological Project, but Warren included ceramic assemblage information from 47 archaeological sites in the northern Rio Grande region between Nambe Pueblo and Puaray. Like Mera, Warren included one or more different glaze types in her glaze groups. The types composing Glaze A date between A.D. 1315–1425, slightly overlapping the manufacture of Glaze B ceramics dated to A.D. 1400–1450. Glaze C spans A.D. 1400–1500, Glaze D dates between A.D. 1490–1515, Glaze E (which includes transitional E-F late in the

sequence) dates between A.D. 1515–1650, and Glaze F dates to A.D. 1650–1700, possibly as late as A.D. 1750.

In the work at Picuris, Mera's designations have been used, though not always with the same temporal spans he originally posited. Based on rim form of glaze-painted ceramics, rim style changes that differentiate Glazes A-E at Picuris correspond closely to those described by Kidder at Pecos Pueblo. However, the Glaze F style at Picuris is closer to Mera's Glaze F.

Although the date spans used by Mera (1933) and Warren (1977) are valid in parts of the Rio Grande area, stylistic changes evident in the glaze ceramic sequence at Picuris do not correspond to their dates for Glaze D, E, and F. There is some evidence that the very minor amounts of Glazes A and B recovered at Picuris were made locally, but Dick does not elaborate on these data. Dick (1965b:141) does assert his doubts that the temporal divisions between the types were as sharp as indicated by any of the researchers mentioned above.

There are numerous examples of Glaze C ceramics at Picuris, but stratigraphic data indicate that this glaze style may have persisted in this part of the northern Rio Grande until A.D. 1600, over a century past the time that Mera and others define as the terminal date for this type. The Glaze D rim style was the most abundant at Picuris and apparently persisted long after the maximum date of A.D. 1515 offered by Mera. Because there are only scattered contexts that yielded absolute dates from Picuris, Mera's date of A.D. 1490 for the introduction of Glaze D will have to be used here. This rim style, which at Picuris is identical to Kidders' Glaze IV style at Pecos, was made contemporaneously with both the Glaze E and the Glaze F rim styles defined by Mera (1933). Given this co-occurrence at Picuris, it is possible that the Pecos Glaze IV rim style persisted at Picuris until 1650 and possibly until the temporary abandonment of Picuris Pueblo in 1696.

The later Glaze D vessels at Picuris are readily distinguishable from the earlier ones due to changes in both surface color and control of glaze paint. Early Glaze D vessels have fairly well drawn lines of black glaze paint applied to red or orange backgrounds. These early forms of Glaze D at Picuris are identical in decoration and rim form to the typical Pecos Glaze IV (Kidder and Shepard 1936) and also correspond to Mera's (1933:6–7) San Lazaro Glaze Polychrome in terms of decoration but not rim form. The later Glaze D vessels at Picuris exhibit the same rim form as Kidder's Glaze IV style at Pecos. In contrast to the finer line work evident on the earlier Glaze D vessels, a thick, runny brown glaze paint is generally applied to a thick white slip on later Glaze D vessels.

In addition to the conventional Glaze rim styles at Picuris, Dick (1965b) was also able to isolate a rim style that is intermediate between the D and F styles. This rim retains the straight back of the Glaze D rim but has a less well-defined interior bulge below the lip. Formally this makes the rim form transitional between Glaze D and the parallel-side rim style of Glaze F. For the lack of a better classificatory name, this type is called "Glaze D-F transitional."

Kidder and Shepard's dates for Glaze VI agree with the dating of Glaze F at Picuris. Although the bottom date on Glaze V (A.D. 1600) agrees with the terminal date at Picuris for Glaze E, this date (A.D. 1650 at Picuris) is 50 years earlier than the terminal date of Glaze V at Pecos.

Given the range of stylistic similarities and differences evident in this comparison between the Picuris glaze wares and similar glazes found in other parts of northern and central New Mexico, a number of topics require further investigation. First, there is a basic need to define whether the various rim styles that appear in Glaze F have any temporal significance. Research indicates the possibility of increasing specialization in the manufacture of glaze-painted ceramics through time in the eastern Pueblo region (Shepard 1942; Habichte-Mauche 1993). Chemical characterizations of variation in ceramic paste and temper composition at Picuris are required in order to assess manufacture and exchange relationships in the northern Rio Grande region. Second, the relative contributions of both the glaze and the biscuit ware traditions to the ceramic assemblage at Picuris need to be addressed. Glaze wares and biscuit wares tend to be geographically differentiated as southern and northern ceramic decorative traditions, respectively. Given Picuris' location on the northeastern margin of the Pueblo world, a greater presence of biscuit wares, particularly the locally made versions of this ware, should be expected.

Other Nonlocal Decorated Wares

Little Colorado Red Wares

Red wares from the Little Colorado area were found in very limited amounts at Picuris and therefore are given only passing mention here. These decorated wares from the Little Colorado and Zuni regions are described by Colton and Hargrave (1937), Carlson (1970), and Kintigh (1985), among others. Excavations and analysis in this area have led to a relatively robust temporal seriation of these extralocal types. On the basis of these studies, date ranges have been assigned to each of the types (Figure 4.12), with stress placed on the date range summary provided by Kintigh (1985).

The value of the Little Colorado red wares in dating occupation at Picuris rests in their prevalence between the 11th and 15th centuries. During this time, several types were made and exchanged across the ancestral Pueblo world. The first type to be widely made and traded was Puerco Black-on-red, which was made from A.D. 1000 to about A.D. 1200, with a peak at about A.D. 1100. Sherds of this type were recovered in early deposits at Picuris.

Dating to about the same period, Wingate Black-on-red vessels were traded into the northern Rio Grande between about A.D. 1050 and A.D. 1200, but were not made in quantity until about A.D. 1100. As Wingate and Puerco Black-on-red waned in popularity in the Little Colorado area, the St. John's series became the next popular set of decorated red wares. St. John's Black-on-red and St. John's Polychrome both date between A.D. 1175–1300. It is possible that the polychrome type was made with greater frequency in the latter half of this time span (Crown 1994).

St. John's Glaze Polychrome is an early variety of Heshotauthla Glaze Polychrome, which was made from A.D. 1275–1400 in the Little Colorado and Zuni regions. This type probably played a large part in the introduction of the glaze-painted pottery tradition that became such a major part of ancestral Pueblo ceramic technology after about the 14th century.

Jeddito Yellow Wares

The Jeddito Yellow Wares have been described by Colton and Hargrave (1937), Hawley (1937a), Colton (1956), Smith (1971), Hayes (1991), Adams, Stark, and Dosh (1993), and others. Also called Hopi Yellow Wares, this coal-fired ware with the distinctive yellow color and hard-fired paste includes a number of

different types found at Picuris, including Jeddito Black-on-yellow, Sikyatki Polychrome, Awatovi Polychrome, Jeddito Stippled, and San Bernardo Polychrome (Figure 4.14). Based on preliminary analysis of paste color and hardness characteristics of Jeddito Yellow Ware sherds recovered at Picuris, Kulisheck (n.d.) has shown that the yellow wares were not locally made versions of this pottery style. Comparison of the Picuris materials with the range of variation in the Awatovi (Smith 1971:477) ceramic sample suggests that the yellow wares recovered at Picuris were probably made in north-central Arizona, over 280 air miles to the west. Debate exists as to whether the extensive exchange of yellow wares was part of the larger shift to Katsina religious ideology across the Pueblo world during and after the 14th century (Adams 1991) or whether an emerging class of elites controlled the manufacture and distribution of these wares during this same time period (Upham 1982; Upham, Lightfoot, and Feinman 1981). The Picuris sample of Jeddito Yellow Wares is insufficient to assess these debates, but it is significant that these western extralocal wares are found at Picuris, Pecos, and other large late prehistoric settlements on the eastern fringes of the Pueblo world.

Various dating schemes have been applied to the Jeddito Yellow Wares. Here we follow the summary by Hayes (1991:26). Jeddito Black-on-yellow, dated from A.D. 1325 to A.D. 1600, and Sikyatki Polychrome, dated from A.D. 1375 to A.D. 1625, were recovered in some number across the site. Though Dick (1965b) does not distinguish temporal variations in style within the Sikyatki Polychrome sample recovered at Picuris, Colton and later researchers recognize an early and late Sikyatki style. Early Sikyatki Polychrome designs are dominated by geometric motifs with thin red outlines, whereas the later style incorporates more life forms and free treatment of design motifs. Further analyses of the design motifs on Sikyatki sherds from Picuris will have to be undertaken in order to assess the occurrence of these temporal trends in these extralocal materials. A final Jeddito Yellow Ware, San Bernardo Polychrome, has only tentatively been identified at Picuris. San Bernardo Polychrome is dated to A.D. 1630–1700 by Colton (1956).

The number of Jeddito Yellow wares increases substantially in contexts that postdate A.D. 1600, but there are fewer examples from contexts that predate A.D. 1550. One of the intriguing findings to come out of the stratigraphic studies at Picuris has been the persistent occurrence of large amounts of Jeddito Yellow Ware, notably Jeddito Black-on-yellow and Sikyatki Polychrome, in contexts that are somewhat later than the terminal dates proposed for their manufacture in the Hopi region. Large amounts of both types were found in Kiva M at Picuris, a structure that appears to have been constructed in about A.D. 1650. One possible explanation for these temporal inconsistencies is that significant numbers of Hopi vessels were kept as heirlooms at either Picuris or Hopi for at least 25 years after being made in the Hopi region, thus extending the use lives of the vessels past their manufacturing date. Other possibilities include the need to adjust the dates assigned to ceramic complexes at Picuris or to extend the manufacture dates for Jeddito Yellow Wares in the Hopi region.

Red Mesa Black-on-White

Only one sherd of Red Mesa Black-on-white was recovered in excavations at Picuris, but this type has been reported in pithouse sites near the Rio

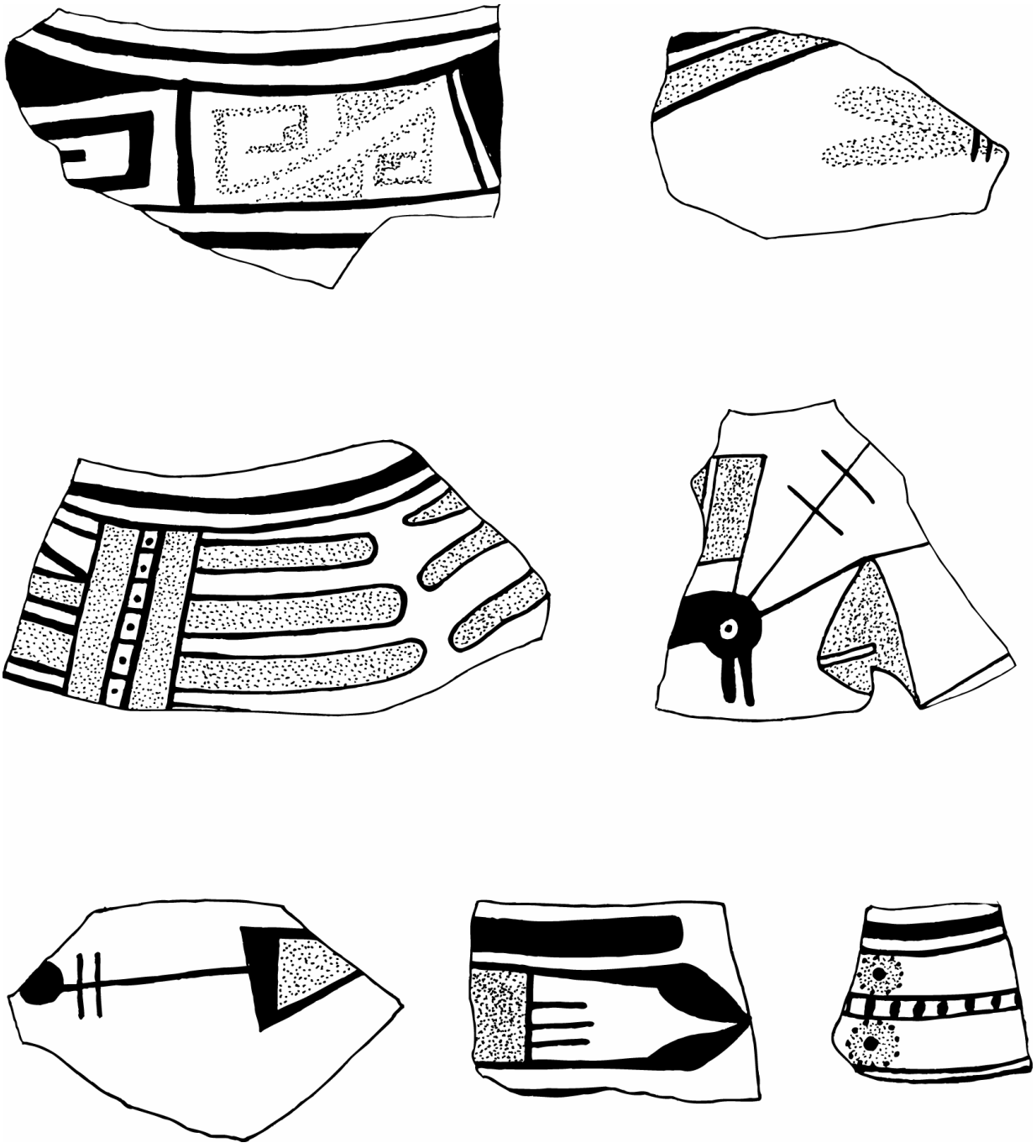

Figure 4.14: Examples of Sikyatki Polychrome Pottery Recovered from Picuris Excavations. These Vessels Were Most Likely Made In and Around the Hopi Pueblos During the Early Historic Period.

Hondo, about 10 miles north of the town of Taos (H. Blumenschein pers. comm., to H. Dick, 1965). The type, originally called Chaco 2 (a type name later dropped from use), was first reported in the Rio Grande region by Mera (1935:5). Under its present name, the type was described by Gladwin (1945), who assigned a date span of A.D. 870–930 to the type.

This is relatively early for dated occupations in the Taos area. Crown (1990) and Boyer (1994) have dated the earliest pithouse occupations in the Taos area to the 11th century. Dates for Red Mesa Black-on-white remain ambiguous and requires continued research. The possibility exists that Red Mesa Black-on-white continued to be made elsewhere outside the San Juan Basin during and after the 10th century.

Spanish Influenced Wares at Picuris

Shortly after the earliest contacts between Native American occupants and Spanish explorers in the Southwest in the early 16th century, several new wares appear at Picuris. With one exception, Apodaca Gray (a new type described below), these postcontact wares do not appear in abundance. In addition to Apodaca Gray, Kapo Black and a poor copy of San Juan Red were probably made locally. The other types, including Tewa Polychrome, El Rito Red-on-brown, and San Juan Red, are nonlocal wares, indicating contact with pueblos farther south in the Rio Grande valley. Examples of these nonlocal types at Picuris are tempered with large glassy spicules of tuff similar to that found in deposits on and near the Pajarito Plateau. This tuff temper is identical to the tempering material found in sherds of the same types collected by Herbert Dick at San Juan Pueblo.

Tewa Polychrome

This type was named by Mera (1932:2), who later argued for the introduction of the type in the latter part of the 17th century and for the type's continued manufacture through the middle of the 18th century (Mera 1939:11–12). Ellis (1964:34) assigns a beginning date of A.D. 1550 to this ware, and unpublished work by Dick (notes on file, Fort Burgwin Research Center) proposed that this type persisted through the 19th century. Excavations at Picuris document the appearance of the type by A.D.1575, and with evidence of its presence as late as A.D. 1900.

San Juan Red

Although there was no formal description of this type during the excavations at Picuris, the name was suggested by Ellis (1964:37, Table 2) as a variant of San Juan Red-on-orange. Ellis' classification is a reversal of her earlier position distinguishing this ware by the name Posuge Red (Ellis and Brody 1964:320-321), which was first suggested by Mera (1939:12–13). Mera limited Posuge Red to pots with outward flaring rims and placed the time range at the latter part of the 17th century through the middle of the 18th century. Ellis (1964:35) assigned a beginning date of A.D. 1600 at Taos Pueblo and a possible beginning date of A.D. 1500 or 1550 at Nambe for the San Juan Red-on-orange type. She suggests a minimum date in the 1400s for the red variant (Ellis and Brody 1964:324). Evidence from Picuris contradicts her summary, and a more conservative beginning date of A.D. 1600 is proposed for San Juan Red at Picuris.

A poor copy of the generally well-made, highly polished San Juan Red type appears to have been made at

Picuris in limited quantities. The local variety is not as well polished, is softer, and has in the paste abundant mica inclusions, which are lacking in the true San Juan Red. It is possible that as ceramic studies continue, this variety will be broken off as a new type. Unpublished excavations in Spanish sites by Dick have shown that this type persisted until the end of the 19th century, with a variant made up to 1930.

El Rito Red-on-Brown (Casitas Red-on-Brown)

This type was first described by Hurt and Dick (1946:282) as Manzano Thin Red-on-brown and has also appeared in the literature as San Juan Red-on-orange (Ellis and Brody 1964; Ellis 1964). A revised version of the type was published by Dick (1968) as Casitas Red-on-brown. Though El Rito Red-on-brown is roughly contemporaneous with Casitas Red-on-brown, Dick (1965b) attributes a longer period of manufacture to the historic red-on-brown wares at Picuris. El Rito Red-on-brown was made from the end of the 16th century (perhaps slightly earlier according to Ellis [1964:35]) until about 1930.

Kapo Black

Mera's (1939:14–16) original description of this late form of polished black pottery was limited to long-necked olla forms. As used at Picuris, this type refers to all forms of late polished black pottery. In earlier publications this was also referred to as Manzano Burnished Black Ware (Hurt and Dick 1946:282), and a full description of the Kapo Black type has been published by Dick (1968:82–83). Examples of black burnished ware occur throughout historic contexts along the Rio Grande valley from southern Colorado south to Isleta Pueblo. Kidder (1936:291) describes this type at Pecos as well, noting that most examples were grayish-black and only moderately lustrous.

Ellis pushes this type back to the early 15th (Ellis and Brody 1964:324) or even late 14th (Ellis 1964:35) centuries. The contexts at Picuris that contain Kapo Black tend to date later than Ellis' estimates, with A.D. 1600 as a reasonable beginning date for this type at Picuris. Various polished black varieties have been made in the Rio Grande valley from earliest historic (and perhaps earlier) times to the present. The ending date for the manufacture of this type at Picuris is unknown.

<u>Undecorated Wares at Picuris</u>

Culinary Graywares

As with most research projects in the Southwest, significantly more effort has been expended in the analysis of decorated wares at Picuris than in the analysis of the undecorated wares. This is unfortunate given the potential value that most undecorated wares exhibit as indicators of temporal change and regional exchange relationships (Habichte-Mauche 1989). Until more focus is placed on the gray and micaceous wares elsewhere in the Rio Grande region little can be done with regional comparisons of manufacturing styles and dates. Here we offer no more than a rough indication of some of the gross changes that took place in the culinary wares during the 800-year occupation of the site.

The earliest culinary pottery made at Picuris was the Taos Gray ware made primarily during the Taos phase and described by Peckham (Peckham and Reed 1963:13-14). This ware is distinguished by being harder than the culinary wares made in the succeeding

phases at Picuris. Use of incising to create surface designs, particularly the herringbone pattern, which never appeared in later phases, reached its peak during this period. Use of indented decorations on plain culinary ware also reached its peak during the Taos phase. As in all phases at Picuris the plain culinary type was by far the most prevalent.

Following the Taos phase, technological changes can be seen in the manufacture of culinary wares at Picuris. The average hardness of grayware pastes decreased during the Santa Fe phase, resulting in a softer, sand-tempered culinary ware composed of a paste similar to that used for Talpa Black-on-white. The use of incising and indenting as a decorative style declined and was replaced by smeared indented corrugated (also called blind-corrugated and indented blind-corrugated by Kidder and Shepard 1936:304) and, to a lesser extent, by smeared corrugated surface treatment.

The culinary wares in the Talpa and Vadito phases continued the trend started in the Santa Fe phase with a progressive coarsening of the paste, similar to the change in paste that took place in the transition from Talpa Black-on-white to Vadito Black-on-white. Surface treatments continued to diversify during these phases. A range of culinary vessel surface treatments was recorded at Picuris, including nonoverlap coil, corrugated, indented corrugated, sharp indented, blunt indented, smeared indented, ribbed, sharp ribbed, indented ribbed, linear incised, and linear scored. These variations appear only in small quantities and generally follow the paste changes noted above. These variations in surface treatment do not warrant unique classificatory names, since they are simply slight variations on the smeared corrugated surface treatment so common in the Taos area after the 13th century.

One notable change in surface treatment during the 15th century was the reintroduction of incised designs on culinary vessels. The manufacture of Potsuwi'i Incised is generally dated to the 15th and early 16th centuries and commonly co-occurs with Biscuit B decorated wares. As originally defined by Mera (1934), Potsuwi'i Incised is found in the northern Rio Grande and Pajarito Plateau areas and is decorated with geometric and rectilinear designs on a smoothed surface. A micaceous paste is common, and vessel exteriors often have a micaceous slip applied over the top of the incised designs. Wendorf and Reed (1955:151) cite the increased contact and interaction between the northern Rio Grande pueblos and pottery-making groups on the southern Great Plains as the most probable source for the incised designs on Potsuwi'i Incised. Though contacts with the plains groups are well-documented for the late prehistoric and historic periods (Spielmann 1991), incised designs are also common in northern Mexico, particularly in the Paquimé (Casas Grandes) area, prior to the reintroduction of incised designs in the northern Rio Grande. Exchange connections between the Paquimé region and that portion of the Southwest north of the international border have also been documented (Riley and Hedrick 1978; Hedrick, Kelley and Riley 1974), and should be further investigated as a source for the reintroduction of this surface treatment.

Potsuwi'i Incised was not mentioned in the original summaries of the ceramics recovered at Picuris (Dick

1965b; Dick et al. n.d.). During the compilation of ceramic type frequencies for this volume, a heavy presence of incised wares was noted for contexts dating to the Vadito and San Lazaro phases. Because these contexts are temporally too late to contain significant numbers of Taos Incised sherds, the only other possibility is that these sherds come from Potsuwi'i Incised vessels used at Picuris during the 15th and 16th centuries.

Based upon analyses of the Picuris ceramic assemblage, several changes in temper type and surface treatment occurred during the San Lazaro and Trampas phases. These include a shift toward finer sand temper, smoother surfaces, and a decline in the smeared-indented corrugated surface treatment in the culinary wares. Ollas with outward-flaring rims also compose a large part of the assemblage during these phases. This general trend toward the use of large ollas with outward flaring rims reached its apogee in Apodaca Gray (with perhaps a slight influence from the Spanish wares). The change in paste at this time can again be seen as a reflection of the paste change that took place in the local black-on-white types. Like Trampas Black-on-white, which first appeared in the middle of the San Lazaro Phase, Apodaca Gray has a fine sand temper.

Between A.D. 1696 and 1706 (Tewa phase), the culinary ware paste is somewhat coarser than the paste in the Trampas phase culinary wares, and striated culinary ware appears at this time in small numbers (Kidder and Shepard 1936). A thorough discussion of the manufacture of culinary wares, particularly indented corrugated and smeared indented corrugated (blind-corrugated and indented blind-corrugated) can be found in Kidder and Shepard (1936:552–65).

Apodaca Gray

Time: A.D. 1550–1750+
Range: Taos County, New Mexico
Type site: Picuris Pueblo (TA-111)
Construction: Coiling and scraping
Firing atmosphere: Reducing
Core: Light gray, occasionally tan
Temper: Fine quartzitic and arkosic sand with inclusions of biotite mica; there may have been some tuff temper, but none was apparent megascopically.
Texture of the core: Fine
Fracture: Moderately rough
Shape: Bowls and ollas; ollas are more common
Rims: (1) The ollas have everted rims
(2) The bowls have
(a) parallel sides with a rounded lip,
(b) an interior bulge below the rim with flat or rounded lip,
(c) thickening on the interior of the rim with a flattened lip (rare).
Wall thickness: Rims range between 5 mm (0.2 in) and 8 mm (0.32 in) in thickness; the lower portions range between 3.5 mm (0.14 in) and 6 mm (0.24 in).
Surface finish: This type is characterized by a very fine polish usually applied to both the exterior and the interior of vessels. A fine wash of the same clay as the rest of the vessel is sometimes discernible on one or both surfaces.

Pigment: None
Decoration: None
Remarks and Comparisons: This type differs mainly in color from the polished black discussed by Ellis and Brody (1964:318) and in the absence of the thick slip mentioned by Mera (1939:14–15) for true Kapo Black. The thick black Kapo slip is found at Picuris and has very rarely been found on the upper portion of a pot whose lower portion was Apodaca Gray. Apodaca Gray may have developed exclusively out of the local culinary wares without any Spanish influence. Ellis and Brody (1964:324) suggest that polished black also derived exclusively from the local culinary wares.

Micaceous Wares

During the excavations at Picuris in the 1960s, the only locally made pottery was a fine, hard, thin-walled micaceous ware. With the exception of the grayware pottery made by a few potters in the community, micaceous wares remain the primary pottery type still made at Picuris. On the basis of the excavations at Picuris, the micaceous ware tradition has a long history at the settlement. Two new micaceous pottery types were defined at Picuris, Vadito Micaceous and Peñasco Micaceous. Although both were first made about A.D. 1600, the thick-walled Vadito Micaceous predominated until the early part of the 20th century, at which time it ceased to be made, leaving the thin-walled Peñasco Micaceous as the sole locally made pottery type. The clay for this pottery comes from a serecite deposit rich in muscovite mica on the slopes of Picuris Peak, a few miles north of the pueblo.

Dick (1965b, 1990) has proposed that both micaceous types began to be used in the Taos area during the 17th century. The origin of the micaceous ware tradition has been a matter of some debate (Gunnerson 1969). Some attribute its popularity to continued and increased contacts with Ute and Apache groups located to the north and east during the late prehistoric and protohistoric periods. The conical vessel form utilized by these groups, particularly the Jicarilla Apache, is the predominant vessel form for the micaceous containers. The Jicarilla have been identified as the source of the micaceous wares elsewhere in the Rio Grande region (Skinner 1968), but Woosley and Olinger (1990) caution against the use of micaceous wares as an indication of ethnic affiliation. Though they propose that the Jicarilla probably began making micaceous pottery around A.D. 1700, Woosley and Olinger (1990:367) document the wide range of interaction between Apache, Pueblo, and Hispanic populations before and after A.D. 1700. These interactions provided the context within which potters from these various ethnic groups adopted micaceous pottery production techniques. Compositional analyses of micaceous sherds from Taos Pueblo indicate the use of at least five different clay sources (Woosley and Olinger 1990:366). These data would support the widespread manufacture and use of micaceous wares by various ethnic groups throughout the northern Rio Grande during the historic period.

Whatever the origins of this distinctive ceramic tradition in the upper reaches of the Rio Grande, at least two

new types of micaceous ware were defined at Picuris. As first described by Dick (1965b), Vadito and Peñasco Micaceous wares differ in both composition and construction. The primary defining distinction between Vadito Micaceous and Peñasco Micaceous is the thicker walls in Vadito Micaceous. Another trait almost always found in Vadito Micaceous is the application of a micaceous clay slip over the coarse culinary-type core. Peñasco Micaceous never has a slip and is rich in mica throughout, although occasionally a thin wash, exceptionally rich in mica, of the same clay is placed on Peñasco Micaceous. Exterior olla surfaces are generally rougher in Vadito Micaceous than Peñasco Micaceous. Although Vadito Micaceous is no longer made at Picuris Pueblo, two bowls of this type collected by H. J. Spinden at Picuris in 1910 are in the American Museum of Natural History.

Vadito Micaceous

Time: A.D. 1600–1910
Range: Taos County, New Mexico
Type site: Picuris Pueblo (TA-111)
Construction: Coiling and scraping
Firing atmosphere: Both reducing and oxidizing atmospheres were used, although the reducing atmosphere was more common.
Core: Dark gray
Temper: Coarse quartzitic and arkosic sand, mica (generally as a natural constituent of the clay) and occasional pieces of gravel up to 10 mm (0.4 in) in diameter
Texture of the core: Coarse
Fracture: Rough and irregular
Shape: Bowls and ollas; ollas are more common
Rims: (1) The ollas have everted rims.
(2) The bowls have parallel sides with a flattened lip.
Wall thickness: The lower parts of vessels range between 7.5 mm (0.3 in) and 12.5 mm (0.5 in). The rims of the ollas taper to as little as 5 mm (0.2 in).
Surface finish: Almost all the sherds of this type have a thin slip of the mica-rich serecite clay found in the clay deposits used at the present time by the Picuries. The slip is applied both to surfaces of bowls and to olla exteriors. Usually this slip is medium to dark gray in color, but occasional sherds with an orange slip have been found. Bowl and olla exteriors and interiors are generally rough, although the interiors of ollas are smoother than exteriors and occasionally are polished.
Pigment: None
Decoration: None

Peñasco Micaceous

Time: A.D. 1600/1650 to present[10]
Range: Taos County, New Mexico
Type site: Picuris Pueblo (TA-111)
Construction: Coiling and scraping
Firing atmosphere: Modern examples are almost always fired in an oxidizing atmosphere, although occasionally smudged pots are made. The excavated examples, however, are about evenly divided between oxidized and reduced.

Core: Medium to dark gray, occasionally orange with a carbon streak

Temper: The major tempering material is biotite mica, which is found naturally mixed in the clay deposit. Occasional large grains of quartzitic sand are also found in the pottery.

Texture of the core: Medium

Fracture: Rough and irregular

Shape: Bowls, ollas, and in recent years many other forms, from sugar bowls with lids to coffee pots

Rims: Usually parallel sides with rounded lips; ollas have everted rims

Wall thickness: The range is from 3 mm (0.12 in) to 7 mm (0.28 in), with the great majority below 5.5 mm (0.22 in).

Surface finish: The surfaces are unslipped and fairly rough, although not as rough as exterior surfaces found on Vadito Micaceous ollas. Occasionally a thin wash made of the same clay as the core, but exceptionally rich in mica, is placed on the vessel surfaces.

Pigment: None

Decoration: None

Conclusions

In addition to the use of ceramics as a valuable temporal indicator of occupation, some inferences can be made about the integration of Picuris Pueblo into local and regional patterns of ceramic manufacture and exchange during the precontact and postcontact periods.

The early occupation of Picuris is documented both ceramically and architecturally. Although Taos Black-on-white is part of a broad ceramic horizon with stylistic cognates made elsewhere throughout the ancestral Pueblo world, extralocal exchange in ceramics is not clearly indicated for the early pithouse occupation at Picuris. No definite examples of early extralocal wares (Kwahe'e Black-on-white) were found in the Taos phase proveniences at the site. The local mineral-painted ware, Taos Black-on-white, is the sole decorated ware recovered from these contexts. Though Kwahe'e Black-on-white is reported from contexts at Pot Creek Pueblo, ceramic profiles at other early settlements throughout Taos County (Levine 1994; Loose 1974) show the same lack of Kwahe'e seen at Picuris, suggesting a low degree of regional exchange during the period of approximately A.D. 1050–1225. Toward the end of the Taos phase, Santa Fe Black-on-white vessels were imported from the south, with vessels of this type recovered at Picuris and other local sites such as Pot Creek Pueblo.

During the Santa Fe phase, ceramic materials from the Santa Fe area were probably imported into Picuris. In addition to the architectural parallels with sites to the south, the presence of tuff- and silt-tempered Santa Fe Black-on-white in portions of the site argues for extensive interaction with groups to the south. Farther north, at Pot Creek Pueblo, a mixture of both local ceramics (Talpa Black-on-white) and extralocal Santa Fe Black-on-white pottery is documented for this phase (Wetherington 1964). It should be noted that the redwares from the Little Colorado area to the west appear during this phase, but during the following

Talpa and Vadito phases there is little significant ceramic evidence for exchange with this region.

The ceramic evidence indicates that the Talpa phase was a period of decreased exchange or contact with other groups outside of the Taos area. This relative isolation appears to have continued through the Vadito phase. During the 14th century, Wiyo Black-on-white and Galisteo Black-on-white were the most popular types manufactured to the south in the Santa Fe area and the Galisteo Basin. These southern decorated types are relatively rare at Picuris. Similarly, during the 14th and early 15th centuries, Glaze A, B and C wares became increasingly popular in regions to the south and southeast. At the same time, Biscuit A and B wares were in vogue on and around the Pajarito Plateau. The early glaze and biscuit wares are found in only very limited amounts at Picuris, indicating limited exchange (in ceramics) with populations to the south from A.D. 1300 until around A.D. 1490.

Although some extralocal exchange may be masked by the stylistic similarities of the local and nonlocal whitewares, Galisteo Black-on-white and Vadito Black-on-white for example, we must also entertain the possibility that Picuris underwent depopulation or even abandonment during this period. Though there is a paucity of well-dated contexts, the low number of tree-ring dates during the 14th and 15th h centuries may indicate settlement depopulation rather than a sampling problem. Site depopulation might have resulted in an overall decrease in ceramic exchange, creating a ceramic signature similar to that inferred by Dick (1965b) as indicative of cultural isolation.

With only the slightest hint of increased outside contacts in the late Vadito phase (due to the increase in Glaze C, opposed to the paucity of Glazes A and B), there is a significant change in the types and amounts of nonlocal ceramics during the succeeding phases. At about A.D. 1500 there is an increase in nonlocal ceramics, as well as a change in the styles of locally manufactured wares. During the 16th century, vast amounts of trade and locally made Glaze D appear at Picuris. From this point through the end of the Tewa phase, the Picuris ceramic profile very strongly resembles the ceramic profiles of sites in the Galisteo Basin and of Pecos Pueblo. It is at this time that trade ceramics from the west (the Jeddito Yellow wares) appear again at Picuris, indicating a generally widening trade pattern.

As discussed in the section on architecture, there is a concomitant surge in the construction of large, aggregated room-blocks during this time. There is a possibility that a large population influx may have occurred at Picuris during this time. It may also be that there were actual increases in regional exchange of ceramics and other goods between the Taos area and other Pueblo communities. Unfortunately, we lack significant archaeological deposits created after the Tewa phase; therefore, it is not possible to comment on the ceramic contacts at Picuris in the post-Tewa phase.

In conclusion, it should be pointed out that these interpretations of changing patterns of regional trade and interaction are based on ceramics alone. Based on recent research into the relationships between the Rio Grande Pueblos and groups to the east on the plains (Spielmann 1991), it is very likely

that an extensive trade network was moving both durable and perishable goods across and through the northern Rio Grande region. Hunted game, agricultural goods, skins, and other commodities may have been moving both east-west and north-south during the late prehistoric and early historic periods. Interestingly, although most lithics excavated at Picuris (see section on lithics) can be obtained locally, obsidian cannot. Throughout the contexts dated to the Talpa and Vadito phases, significant quantities of obsidian tools were being made and used at Picuris, indicating that raw obsidian was being obtained from outside the Picuris area (probably from the Jemez Mountains). This time period, however, is characterized by little evidence of extralocal ceramics. Though it is plausible to suggest that raw obsidian could have been collected by small groups of Picuries who traveled to the Jemez Mountains, such trips would not seem to preclude the same foray groups from bringing back other durable goods such as pottery.

In sum, the large corpus of ceramic data indicates temporal fluctuations in the amounts and types of local and extralocal ceramics at Picuris. The position of this long-lived settlement on the fringes of the Pueblo world makes it a candidate for both an exchange gateway to the western Great Plains and an isolable settlement on the frontier of interaction networks in the Galisteo Basin, Pajarito Plateau, and central Rio Grande region. The excavated sample of ceramics represents one of the longest sequences of pottery manufacture and use in the eastern Pueblo region. As such, it stands as a valuable resource for future research into culture change and continuity in the northern Rio Grande region.

Endnotes

Editor's Note: Unpublished portions of this chapter were originally completed by Dick, Wolfman, and Schaafsma in the mid-1960s. The section on architecture and room size was altered substantially with more recent work by Adler. Permission for coauthorship of this chapter comes from Curtis Schaafsma and Martha Dick. The sections on Picuris architecture and pottery were much enhanced by the comments and criticisms of Stewart Peckham, Ronald Wetherington, and Fred Wendorf, each of whom has made great contributions to our knowledge of northern Rio Grande prehistory.

[1] The phase names were introduced by Herbert Dick (Dick 1965b) and reflect both local places and regional location names.

[2] At the time Dick and Wetherington were defining Talpa Black-on-white, both were working at the Fort Burgwin Research Center, with Dick directing the excavations at Picuris and Wetherington directing the excavations at nearby Pot Creek Pueblo. Dick began petrographic studies of materials from both sites, though he never published the results. These data are on file at the Fort Burgwin Research Center. Both use Pot Creek Pueblo as the type site for Talpa Black-on-white

[3] Kiva C was reconstructed in 1964 and was open to public visitation for several years. Later the structure was closed to the public, and some of the boxed artifacts from the 1961–65 excavations were stored in the structure. The roof of the rebuilt kiva later collapsed, reburying

the boxes of artifacts stored in the chamber.

[4] Little description of the culinary wares was attempted in the original Picuris reports aside from this basic listing of surface treatment. Additional information on Taos-region culinary wares has been summarized by Levine (1994) and Habichte-Mauche (1989).

[5] Peckham and others continue to differentiate between Taos Black-on-white and Kwahe'e Black-on-white on the basis of slip and paint characteristics, though they also grant that the differentiation does not assist with chronological differentiation because the types are relatively contemporaneous. Peckham has suggested that a Taos-Kwahe'e Black-on-white category would be a legitimate lumping of these types for chronological, but not geographic, differentiations in ceramic classification in the northern Rio Grande (Peckham, pers. comm. 1995).

[6] Carbon paints are also referred to as organic paints and vegetal paints. Peckham (1991) believes the term "carbon paint" to be a misnomer. The process of boiling down iron-rich plants such as Cleome concentrates iron oxide in the vegetal paint, and he argues that this oxide, not carbon, provides the pigment for the paint. Shepard (1942) argues that the pigment is primarily carbon.

[7] In the Four Corners area, the classic Mesa Verde Black-on-white ceramic style was most popular during the last half of the 13th century. The style has been defined primarily using bowl designs and involves a banded layout of repeating geometric motifs, with both thick and thin lines framing the banded layout at the rim and in the bowl interior. Organic-painted wares lacking the framing lines have generally been classified as McElmo Black-on-white, a type that may predate the classic Mesa Verde style by 25 to 50 years, but is also made contemporaneously with Mesa Verde Black-on-white during the latter half of the 13th century. Ellis and Brody (1964:326) draw links between the Taos-area vegetal-painted wares and McElmo Black-on-white made to the west.

[8] Recent research by Post on Santa Fe Black-on-white firing features found north of Santa Fe suggests that the "blue-gray" firing clay characteristic of this decorated type may come largely from sediments of a Pleistocene lake near Santa Fe. Post suggests that this high-quality, self-tempered clay was sought by local potters even though adequate (but lower-quality) clays were available at closer localities (Post 1995).

[9] At the time Dick and Wetherington were defining Talpa Black-on-white, both were working at the Fort Burgwin Research Center, with Dick directing the excavations at Picuris and Wetherington directing the excavations at nearby Pot Creek Pueblo. Dick began petrographic studies of materials from both sites, though he never published the results. These data are on file at the Fort Burgwin Research Center. Both men use Pot Creek Pueblo as the type site for Talpa Black-on-white.

[10] Dick used A.D. 1600 as the beginning date for Peñasco Micaceous in his early writings on Picuris ceramics (Dick 1965b), but he later revised the beginning date for this type to A.D. 1650 (Dick 1990).

Chapter Five: Ceremonial Caches From Picuris Pueblo

Daniel Wolfman and Herbert Dick

During the course of four summers' work at Picuris, all or parts of 110 surface rooms were excavated, some of which had excavations continue beneath the floor level. As described in chapter 4, a number of the rooms had been constructed over the top of earlier structures, as evidenced by the presence of walls, floors, and room fill beneath the uppermost adobe floors.

Within Area VI (see Figure 4.2), a series of subfloor pits containing a variety of artifacts was discovered. The artifacts had been placed into the subfloor pits, which were subsequently covered with stone slabs and new adobe floors. Area VI consists of 14 excavated storage rooms (Features 2, 4–14, and 16–17), 2 partially excavated storage rooms (excavation of Features 1 and 3 was discontinued at the request of Picuris community members), a pithouse, and a room of the old pueblo still standing above ground level and commonly known as the Castillo Viejo. Almost all of the ground-floor rooms have storage pits and central upright posts that supported the main roof beam (Figure 4.6). The living rooms were located in the upper stories.

The storage rooms in Area VI were filled comparatively recently. Some of the older inhabitants of the pueblo recall when the ruin around the Castillo Viejo was used as a corral. This is verified by the levels of manure found in the fill of Features 3, 5, 7, and 9. Parsons' (1939a:209) sketch map of 1925 shows the outline of 42 rooms in ruin in the vicinity of the Castillo Viejo. Pottery in the fill of these rooms indicates that the rooms were intact in the late 19th, and perhaps early 20th centuries.

Below the floors of Features 2, 6, 12, and 16, caches covered with stone slabs were discovered. These were the only rooms with caches. All other room floors were probed with a thin steel rod to test for other caches. Though such features may have been missed, no additional slab-covered features were found with the probe.

These subfloor artifact hoards (Figures 5.1 - 5.3) are probably votive caches left by groups or individuals who had used the materials for ritual purposes. The range of materials found in the caches is large and unique, including small pottery vessels, wind instruments, fossils, stone concretions, bones, shaped stones, clay objects, and other items often associated with Pueblo ritual activities (see Parsons 1939b). Steve Conway (see chapter 6) discusses the ritual uses of flutes. Select references to ritual caches and materials recovered at other Pueblo settlements are mentioned, but these references are certainly not complete for the full range of ceremonial caches excavated in the Southwest.

Pottery

The caches in Features 6 and 16 were particularly interesting because they contained small pots on which were depicted cloud (terraced pyramid) and lightning designs very similar to the designs found on the walls of the Picuris kivas (see chapter 9 in this volume). One small black-on-white pot (Feature 16, pot # 2) had designs that could be compared to Hopi feather designs (Smith

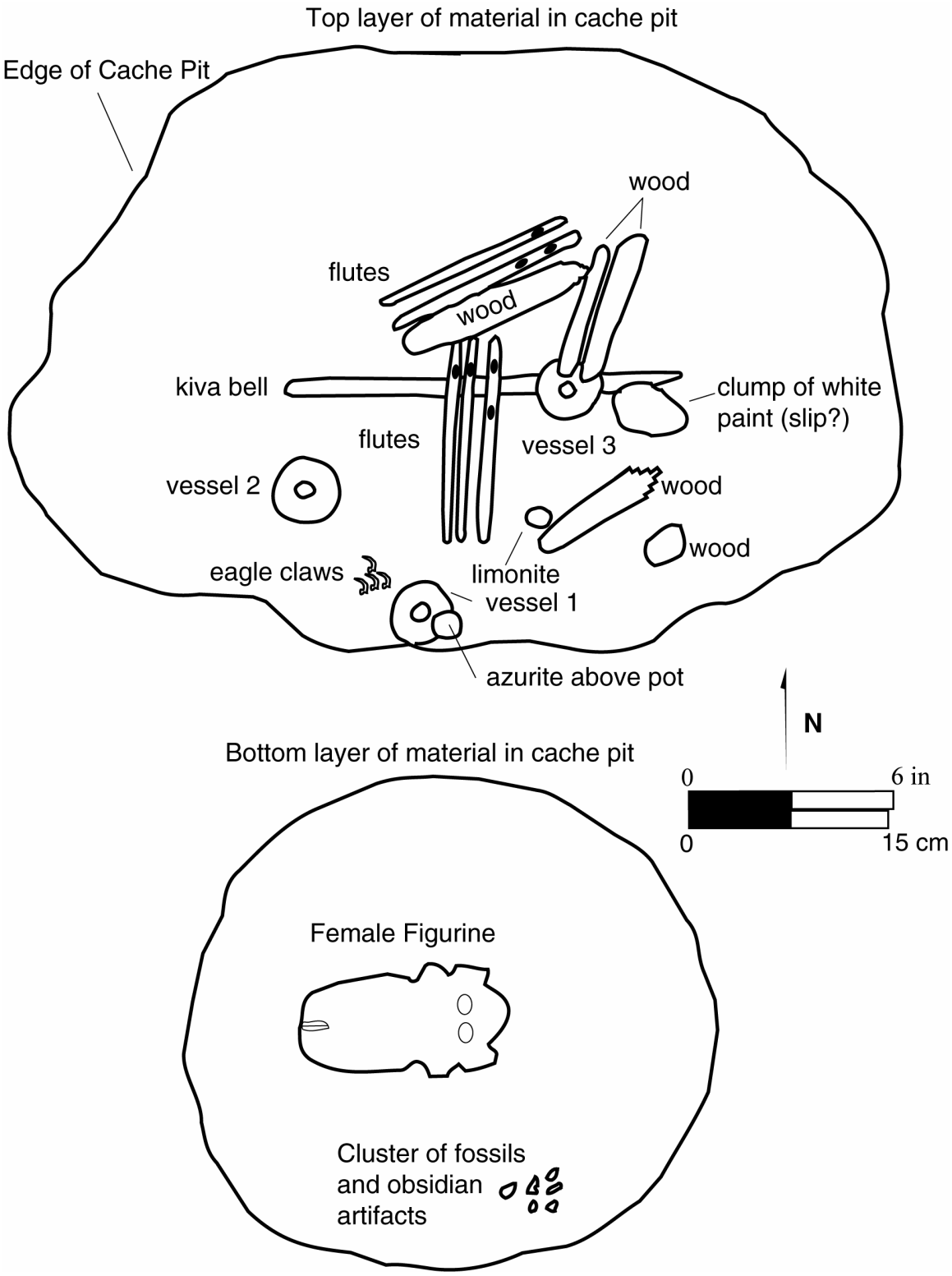

Figure 5.1. Artifacts from Various Levels of Cache Pit, Feature 6, Area VI (W=Whistles, Pots=Miniature Vessels, Numbers Correspond to Figure 5.7 Vessels).

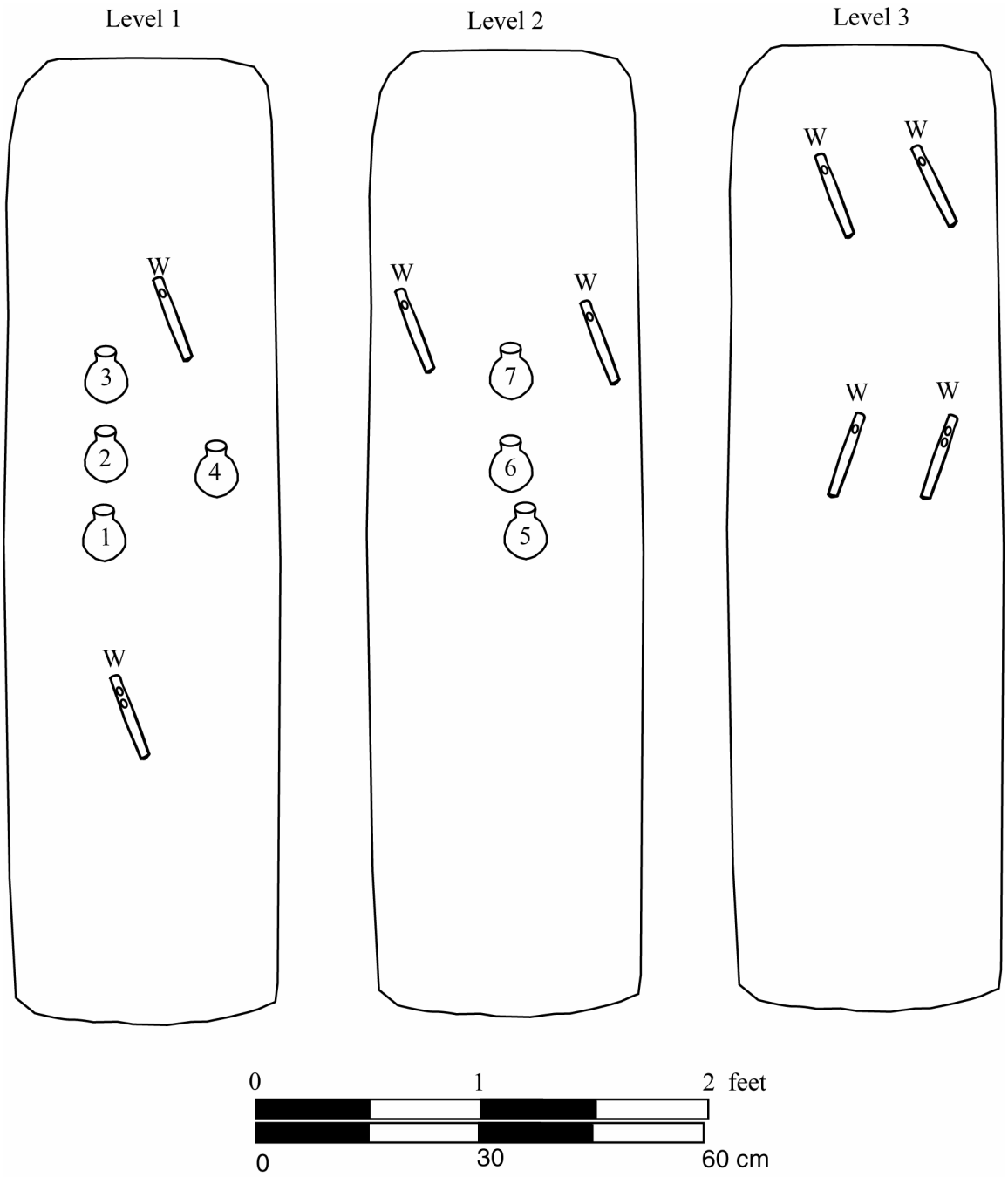

Figure 5.2. Cache Pit and Contents, Feature 16, Area VI. Materials Were Deposited in Two Layers Within the Pit.

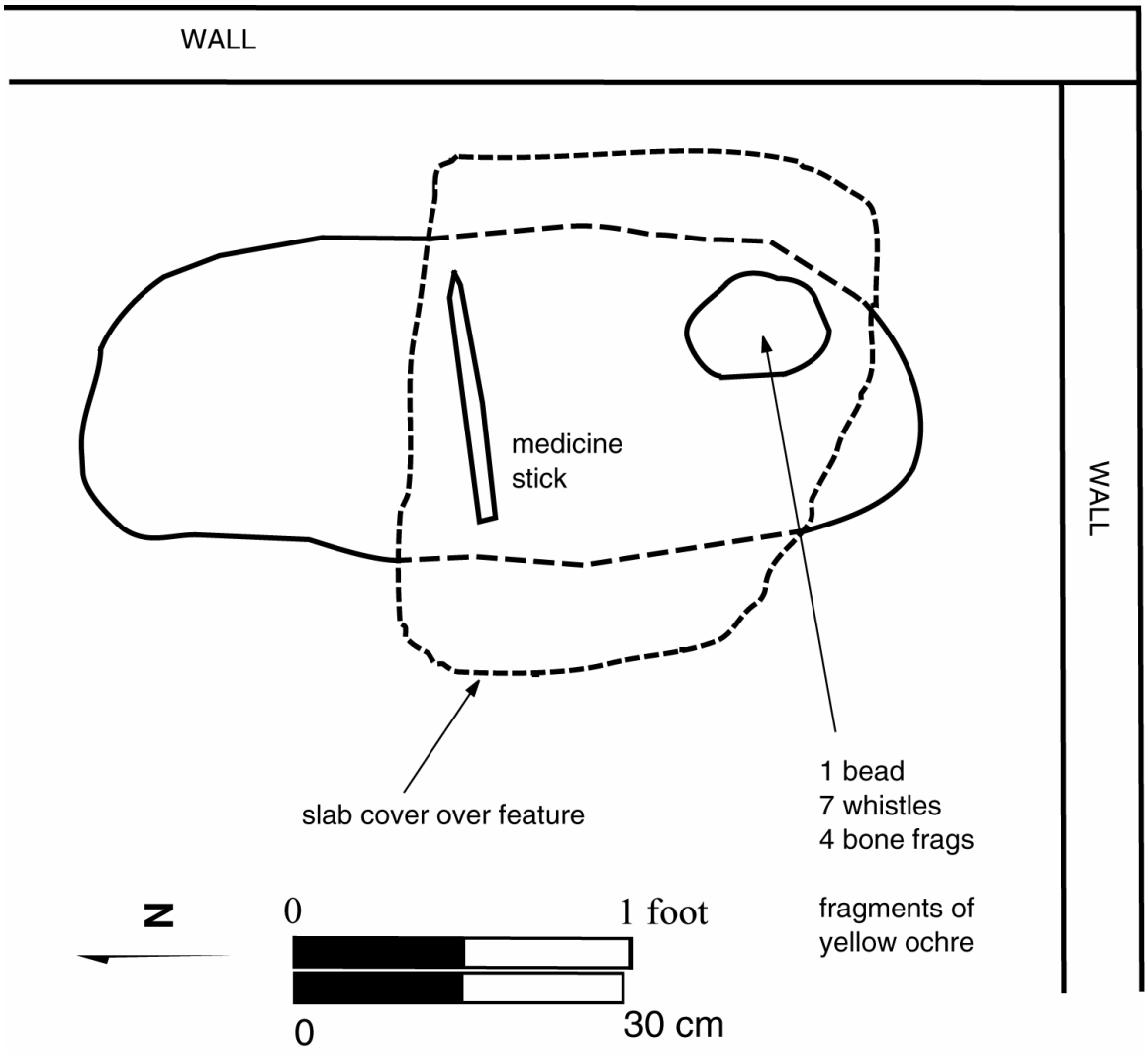

Figure 5.3. Feature 2, Area VI: Subfloor Cache in Southeast Corner of Room

1952b:figures 9aa, bb, and ff). Several Picuris excavators mentioned that the materials in these caches were used in kiva ceremonies. During the excavations at Picuris, only one additional small black-on-white pot with cloud and lightning designs was found outside of cache deposit contexts. This pot was located below the floor of Kiva A.

Kidder (1936:278–286) reported "about forty" small ceremonial vessels at Pecos Pueblo, and in Kiva 7 at Pecos, Wendorf (Kidder 1958:186–199) found seven more small pots and fragments of an eighth. Several of the small pots from Pecos have cloud designs (Kidder 1936: Figures 239c & d, 241d, 242b & c, 243f & i, 244g & i, 245c, 246a & b). Stubbs (cited in Kidder 1958:333) stated that pots similar to the Pecos miniature pots have been reported from several modern pueblos. Kidder noted (1958:333), "Jemez informants have told

Stubbs that such little pots were used by them in sets of seven to hold water from North, South, East, West, above, below, and 'here' a mixture of the other six; most excavations in the area disclose a few such pots, but not always in sets." At Picuris there were seven small pots in the Feature 6 cache but only three in the Feature 16 cache.

The small pots found in the caches were of four different types: Trampas Black-on-white, red slipped plain ware, plain ware, and incised plain ware. Design elements are confined largely to simple geometric patterns, primarily zigzag bands on bowl interiors or exteriors. Bowl rims of Trampas Black-on-white bear a distinct resemblance to those of Rio Grande Glaze D. Given this similarity, a date of about A.D. 1500 would be proper for a beginning date on Trampas Black-on-white. Stratigraphic associations with Rio Grande Glazes E and F, quantities of modern glass, iron, horsehoofs, and other postcontact materials indicate that A.D. 1650 might not be too late for an ending date for the manufacture of Trampas Black-on-white.

Whistles and Flageolets

The most common artifacts in the caches were bone whistles and flageolets. It is interesting to note that although the types of flageolets and tubular whistles found at Picuris were also relatively plentiful at Pecos (Kidder 1932:249–253), no examples of "*Bitsitsi* whistles," described by Hodge (1920:130–132) and Stevenson (1904:280–281), were found at Pecos. Three *Bitsitsi* whistles were found in the caches at Picuris, although none of our *Bitsitsi* whistles were notched as are some of those described by Hodge (1920:131) and Stevenson (1904:280). Conway (chapter 6 in this volume) discusses prehistoric and historic flute use in the Southwest.

Description of the Caches

Feature 2

The cache (Figure 5.3) was in an oval-shaped hole 55 cm (N-S) x 43 cm (E-W) x 61 cm deep, lined on the sides and bottom with pine bark (Figure 5.3). The hole was covered with a roughly rectangular stone slab, 46 cm (N-S) x 53 cm (E-W) x 26 cm thick. The slab did not cover the northern 10 cm of the hole.

The Cache

1. Six small bird-bone whistles all made from golden eagle (*Aquila chrysaetos*). All the whistles had burned-bone inserts that were "v" notched longitudinally.
    a. Cut from the distal half of the shaft of a left ulna. An oval hole was drilled at the nutrient foramen in the palmar face. Both ends of the tube are notched in both faces. Length: 3.78 cm; average diameter: 1.03 cm; hole length: 0.61 cm; hole width: 0.55 cm (Figure 5.4a).
    b. Cut from the proximal half of a right ulna. A round hole was cut in the anconal face. Both ends of the tube are notched in both faces. Length: 3.47 cm; average diameter: 1.02 cm; hole diameter: 0.56 cm (Figure 5.4b).
    c. Cut from the central section of a right ulna. A round hole was cut in the anconal face. The proximal end is notched in the palmar face.

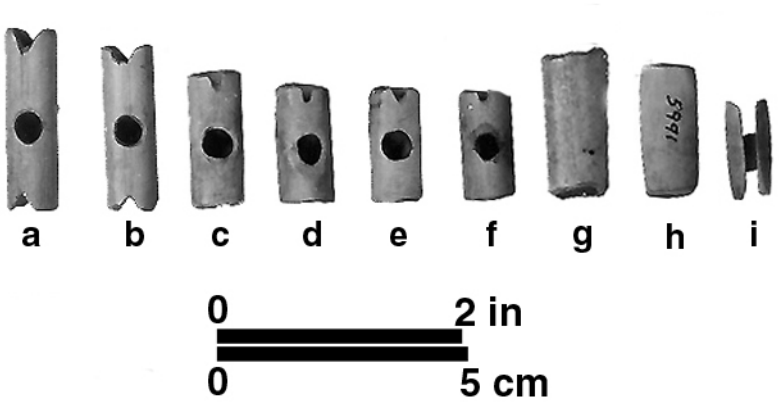

Figure 5.4: Bone Whistles and Tubes, Feature 2, Area VI

Length: 2.80 cm; average diameter: 1.11 cm; hole diameter: 0.6 cm (Figure 5.4c).

d. Cut from the proximal half of a right ulna. An oval hole was cut in the palmar face. The proximal end is notched in the anconal face, and the distal end is notched in the palmar face. Length: 2.45 cm; average diameter: 1.06 cm; hole length: 0.62 cm; hole width: 0.50 cm (Figure 5.4d).

e. Cut from the proximal half of a right ulna. An oval hole was cut into the palmar face where drilling started in the nutrient foramen. The proximal end was notched in the anconal face and the distal end was notched in the palmar face. Length: 2.32 cm; average diameter: 1.04 cm; hole length: 0.55 cm; hole width: 0.44 cm (Figure 5.4e).

f. Cut from the distal half of a left tibiotarsus (part of the fibula spine remains). An oval hole was cut in the anterior face (opposite the proximal end of the fibula spine). The proximal end of the whistle was notched in the posterior face and the distal end was notched in the anterior face. Note the same direction of notching and facing as in ulnae. Length: 2.39 cm; average diameter: 0.95 cm; hole length: 0.60 cm; hole width: 0.62 cm (Figure 5.4f).

2. A tube cut from the distal portion of the proximal half of the left tibiotarsus of a young individual. The medullary foramen is present. Length: 2.98 cm; width: 1.32 cm; thickness: 0.85 cm (Figure 5.4g).

3. Two *Bitsitsi* whistles, each made up of two rectangles of bone.

   a. Cut from mammal bone not identifiable as to family. 2.78 cm x 1.18 cm x 0.33

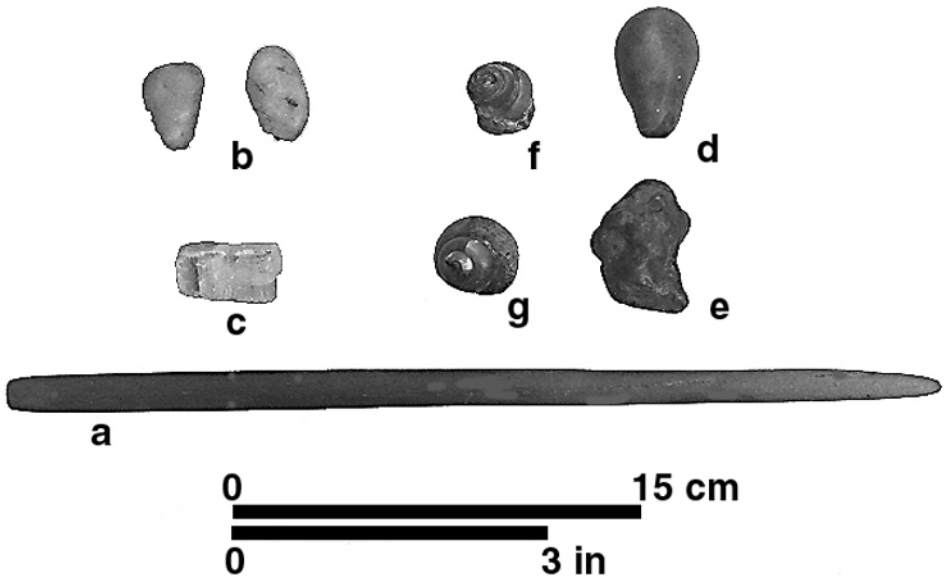

Figure 5.5. Materials from Cache, Feature 2, Area VI

cm and 2.69 cm x 1.17 cm x 0.32 cm (Figure 5.4h).

b. May have been cut from the tibiotarsus of a turkey (*Meleagris gallopavo*). 2.05 cm x 0.94 cm x 0.18 cm and 1.97 cm x 0.99 cm x 0.21 cm (Figure 5.4i).

4. Slate rod with an oval cross section. The rod comes to a dull point at one end; one informant stated that these rods were thrown at people in ceremonies. Length: 22.80 cm; width: l.l cm; thickness: 0.84 cm (Figure 5.5a).
5. Unworked stone.
   a. Two milky quartz pebbles. 2.54 cm x 1.63 cm x 1.25 cm and 2.32 cm x 1.57 cm x 1.24 cm (Figure 5.5b).
   b. Calcite rhomb. 2.40 cm x 1.38 cm x 1.24 cm (Figure 5.5c).
6. Concretions.
   a. Siliceous concretion shaped somewhat like the head and body of a chipmunk. 3.26 cm x 2.10 cm x 1.32 cm (Figure 5.5d).
   b. Hematite concretion, botryoidal form. 3.34 cm x 2.44 cm x 1.63 cm (Figure 5.5e).
7. Fossils.
   a. *Viviparus* sp. Agate or chalcedony steinkern (internal mold) of a freshwater gastropod. Likely Jurassic in age (similar forms occur near Tuba City, Arizona and Grand Junction, Colorado). 2.10 cm x 1.74 cm x 1.50 cm (Figure 5.5f).
   b. *Amplovalvata* sp. Agate or chalcedony steinkern (internal mold) of a

freshwater gastropod. Probably Jurassic in age (similar forms occur near Tuba City, Arizona, and Grand Junction, Colorado). 1.65 cm x 2.10 cm x 1.75 cm (Figure 5.5g).

8. Pieces of ground-up limonite (not shown).
9. Five pieces of unfired and partially fired clay ranging in length from 2.25 cm to 8.73 cm; in width from 2.05 cm to 7.96 cm; in thickness from 1.57 cm to 4.15 cm (not shown).

Feature 6

An oval-shaped hole, 130 cm (N-S) x 35 cm (E-W) x 38 cm deep, in the southwest corner of Feature 6 was covered by two roughly rectangular slabs (Figure 5.1). The southernmost slab was 60 cm (N-S) x 36 cm (E-W) x 2 cm thick. The second slab, right next to the first slab, was 30 cm (N-S) x 37 cm (E-W) x 2 cm thick. This left the remaining 36 cm of the hole without a slab cover, but the floor was plastered over this portion, indicating some filling prior to closing the cache. The cache appeared to be set down in three levels. The bottoms of the pots in level 1 were 26 cm below the floor of Feature 6; the bottoms of the pots in level 2 were 37 cm below the floor of Feature 6; and the four whistles in level 3 were lying on the bottom of the hole, 38 cm below the floor of Feature 6.

The Cache

1. Eight large bone whistles. All except those in Figures 5.6d and 5.6g have bone inserts right next to the hole.
    a. Made from the distal section of a left ulna of a golden eagle (*Aquila chrysaetos*). An oval hole was cut in the palmar face. Length: 11.70 cm; average diameter: 0.98 cm; hole length: 0.84 cm; hole width: 0.66 cm (Figure 5.6a).
    b. Made from the central section of a left ulna of a large Canada goose, which is in the size range of *Branta canadensis moffitti*. An oval hole was cut in the anconal face. Length: 12.4 cm; average diameter: 0.92 cm; hole length: 0.85 cm; hole width: 0.48 cm (Figure 5.6b).
    c. Made from the shaft of a left tibia of a bobcat (*Lynx rufus* cf. *baileyi*). An oval hole was cut in the shaft. Length: 9.53 cm; average diameter: 1.03 cm; hole length: 1.45 cm; hole width: 0.54 cm (Figure 5.6c).
    d. Made from the distal half of the right ulna of a golden eagle (*Aquila chrysaetos*). An oval hole was cut in the anconal face. Length: 11.22 cm; average diameter: 1.00 cm; hole length: 1.11 cm; hole width: 0.51 cm (Figure 5.6d).
    e. Made from the distal half of a right ulna from a large (female?) Golden Eagle (*Aquila chrysaetos*). A triangular hole was cut in the anconal face. Length: 8.50 cm; average diameter: 1.05 cm; hole length: 0.96 cm; hole width (at base of triangle): 0.59 cm (Figure 5.6e).

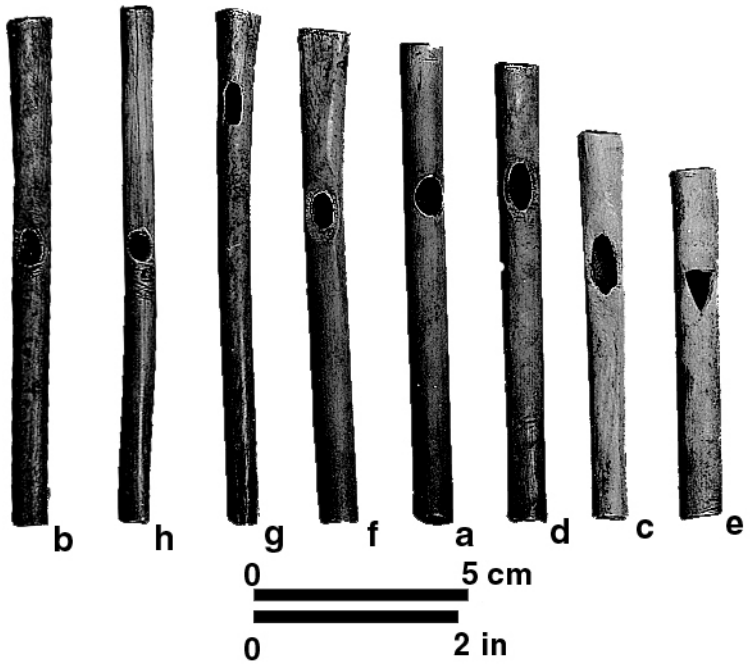

Figure 5.6. Whistles from Feature 6, Area VI.

f. Made from the proximal three-fourths portion of a left ulna from a small (male?) golden eagle (*Aquila chrysaetos*). An oval hole was cut in the palmar face. Length: 11.9 cm; average diameter: 0.94 cm; hole length: 0.85 cm; hole width: 0.51 cm (Figure 5.7f).

g. Made from the central section of a right ulna from a large Canada goose which is in the size range of *Branta canadensis moffitti*, but which is a small individual (female?) of this species. A rectangular hole was cut in the anconal face. Length: 12.5 cm; average diameter: 0.80 cm; hole length: 1.0 cm; hole width: 0.37 cm (Figure 5.7g).

h. Made from the shaft of a left tibiotarsus of a fully adult, but small, turkey (*Meleagris gallopavo*). An oval hole was cut in the interior face. Length: 12.5 cm; average diameter: 0.89 cm; hole length: 0.64 cm; hole width: 0.50 cm (Figure 5.7h).

2. Seven small ceremonial pots (Figure 5.7).

   a. Pot #1. Trampas Black-on-white miniature canteen with a pair of horizontal loop handles, straight rim, and rounded lip. Height: 6.2 cm; width: 6.1 cm; interior neck opening: 2.3 cm (Figure 5.7c).

b. Pot #2. Trampas Black-on-white jar with a pair of horizontal loop handles, slightly outcurved rim, and a rounded lip. Height: 6.1 cm; width: 8.4 cm; interior neck opening: 5.2 cm (Figure 5.7e).
c. Pot #3. Incised miniature canteen, unknown type, with a pair of horizontal loop handles (one handle broken), straight rim, and rounded lip. Color ranges from black to light brown; the paste contains mica. Height: 6.8 cm; width: 7.0 cm; interior neck opening: 2.3 cm (not shown).
d. Pot #4. Trampas Black-on-white miniature canteen with a pair of horizontal loop handles (both broken), slightly outcurved rim, and rounded lip. Height: 7.8 cm; width: 7.5 cm; interior neck opening: 3.8 cm (Figure 5.7d).
e. Pot #5. Trampas Black-on-white miniature canteen with a pair of horizontal loop handles, straight rim, and rounded lip. Mica flecks can be seen on the exterior; mica was contained in the slip clay. Height: 4.6 cm; width: 4.4 cm; interior neck opening: 1.8 cm (Figure 5.7a).
f. Pot #6. Undecorated slipped red miniature canteen, unknown type, with a pair of lugs, straight rim, and rounded lip. Height: 4.8 cm; width: 5.4 cm; interior neck opening: 2.3 cm (not shown).
g. Pot #7. Trampas Black-on-white miniature canteen with a pair of vertical loop handles, straight rim, and rounded lip. In addition to the designs depicted (Figure 5.9), a wavy line, broken at one point, encircles the interior of the neck. Height: 5.8 cm; width: 6.2 cm; interior neck opening: 2.1 cm (Figure 5.7b).

Feature 12

This was the smallest cache, and no map was found of the cache. The cache was located along the center of the south wall. Immediately under the floor, a roughly circular stone slab, 23 cm in diameter and 3 cm in thickness, was encountered. The cache materials were under the slab.

The Cache

1. A small turquoise pendant. Unfortunately this specimen was lost on the floor of the artifact lab. It was similar to the pendants illustrated in Kidder (1932:101).
2. A *Bitsitsi* whistle of two small bone sections. 1.7 cm x 0.91 cm x 0.14 cm and 1.89 cm x 82 cm x 0.13 cm Probably from the tibiotarsus of a turkey (*Meleagris gallopavo*).
3. Ten fish bones, species unknown.

Feature 16

The cache was in an oval-shaped hole, 43 cm (N-S) x 53 cm (E-W) x 49 cm deep, covered by a roughly

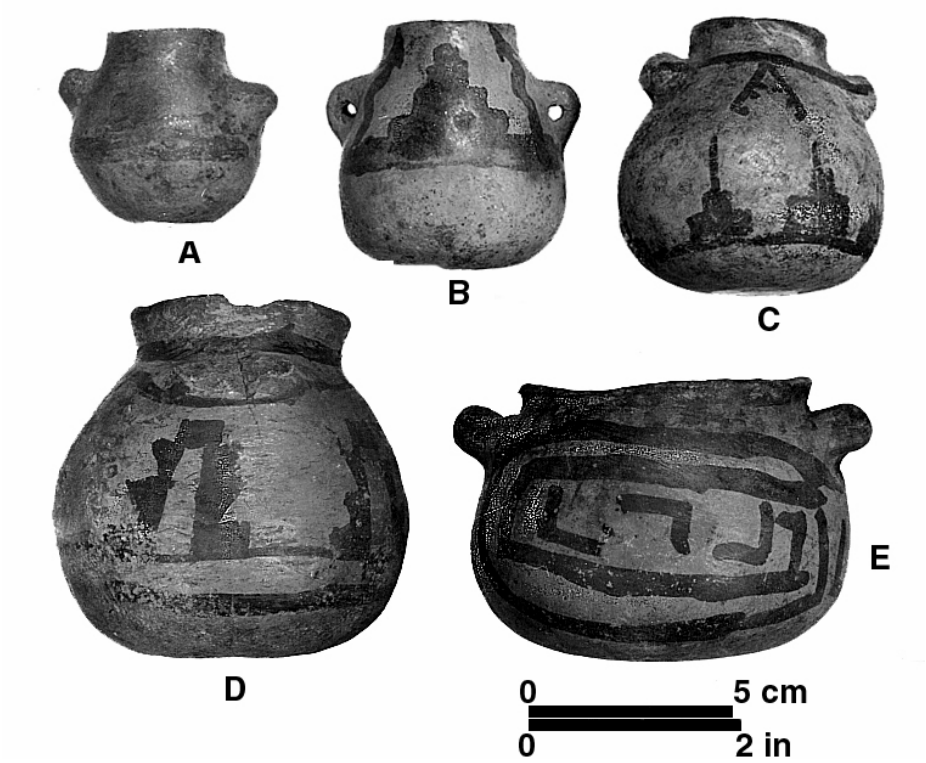

Figure 5.7. Miniature Vessels from Feature 6, Area VI.

rectangular slab, 38 cm (N-S) x 51 cm (E-W) x 3 cm thick. The hole was in the southwest corner of the room (Figure 5.1).

The Cache

1. Five three-stop flageolets (not pictured) cut from ulnae of golden eagle (*Aquila chrysaetos*), "a" and "b" from left ulnae, "c", "d," and "e" from right ulnae. All the holes have been cut in the palmar face of the bones—"c" and "e"–fall into Kidder's (1932:249–250) subtype 2; the other three fall into subtype 1. In all the flageolets, the large oval vent hole is at the proximal end of the bone, and the stops are toward the distal end. The stops are numbered from the proximal toward the distal end of the bone.

   a. The proximal end of this flageolet was broken off and missing. The break is through the center of the vent hole. Length: 19.2 cm; average diameter: 0.93 cm; vent length: unknown; vent width: ca. 0.47 cm. First stop, oval, length: 0.49 cm, and width: 0.44 cm; second stop, circular, diameter: 0.47 cm; third stop, circular, diameter: 0.38 cm.
   b. Length: 18.0 cm; average diameter: 0.97 cm; vent hole length: 1.63 cm; first stop diameter: 0.43 cm; second stop diameter: 0.49 cm; third stop diameter: 0.29 cm.

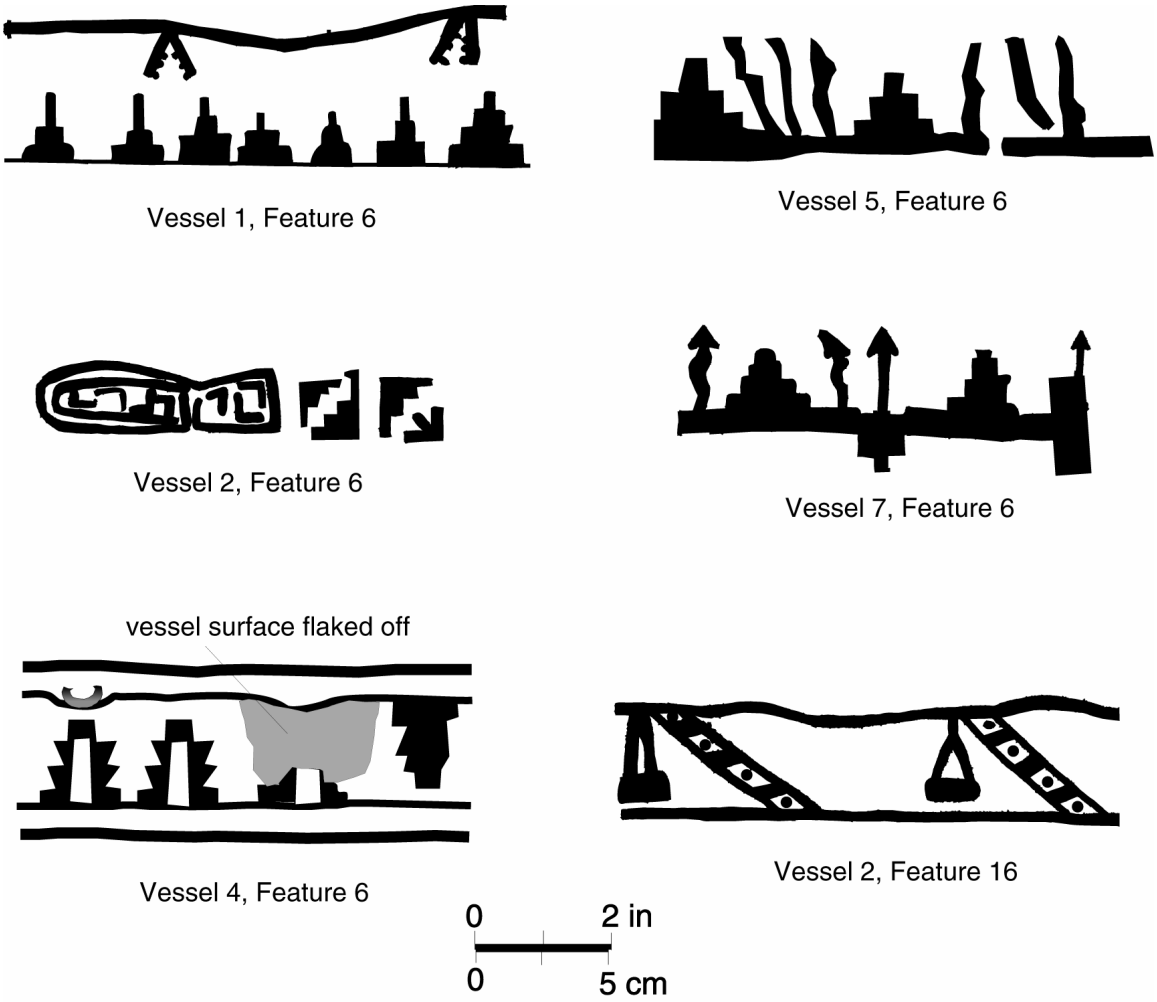

Figure 5.8. Rollouts of Painted Designs from Miniature Vessels, Features 6 and 16.

c. Short incised lines run crosswise to the shaft between the second and third stops and along the left side of the flageolet in the vicinity of the stops, and a zigzag incised line runs between the vent and the first stop. Length: 14.7 cm; average diameter: 1.02 cm; vent length: 0.84 cm; vent width: 0.60 cm; first stop diameter: 0.31 cm; second stop diameter: 0.29 cm; third stop diameter: 0.26 cm.

d. Length: 20.0 cm; average diameter: 1.02 cm; vent length: 0.80 cm; vent width: 0.58 cm; first stop diameter: 0.38 cm; second stop diameter: 0.38 cm; third stop diameter: 0.35 cm.

e. A zigzag line runs along the anconal face from the distal end to 7.85 cm from the distal end. A plug was found on the proximal side of the vent. The vent was

constructed by drilling two intersecting circular holes in the shaft. Length: 18.5 cm; average diameter: 1.14 cm; vent length: 0.97 cm; vent width: 0.48 cm; first stop diameter: 0.50 cm; second stop diameter: 0.45 cm; third stop diameter: 0.44 cm.

2. Three small ceremonial pots.
    a. Pot #1. Unpainted black-and-gray jar, type unknown, lacking handles (color variation is due to fire clouds). The rim curves outward at an angle of 45°–60°, and the lip is rounded. Height: 8.5 cm; width: 9.1 cm; interior neck opening: 2.5 cm (not shown).
    b. Pot #2. Trampas Black-on-white miniature canteen with a pair of horizontal loop handles (one broken), a straight rim, and a rounded lip. Height: 6.9 cm; width: 8.0 cm; interior neck opening: 2.8 cm. (not shown, but see Figure 5.8 for design layout).
    c. Pot #3. Trampas Black-on-white miniature canteen with a pair of horizontal loop handles (one broken), a straight rim, and a rounded lip. Above the broken handle is a hole, 0.55 cm in diameter. Height: 7.1 cm; width: 8.0 cm; interior neck opening: 1.5 cm. (not shown)
3. Worked stone.
    a. Stone rod, unknown material. Cylindrical, tapered at both ends. Length: 14 cm; diameter: 4 cm (Figure 5.10b).
    b. Figurine of fine-grained micaceous schist. Nude female torso with butterfly hairdo. Height: 13.06 cm; width: 6.91 cm; thickness: 3.92 cm (Figure 5.11).
    c. Slate rod, ground smooth. Identified by Picuris excavators as a "kiva bell," broken. Length: 28.01 cm; width: 2.52 cm; thickness: 0.64 cm (Figure 5.10a).
    d. Rectangular rod of polished fine-grained basalt, one end broken off. Length: 11.68 cm; width: 3.07 cm; thickness: 1.93 cm (Figure 5.10c).
    e. Grossly flaked, non-functional blade of fine-grained basalt. Length: 12.81 cm; width: 3.74 cm; thickness: 1.57 cm (Figure 5.10d).
    f. Grossly flaked flat rectangle of fine-grained basalt. Length: 11.19 cm; width: 5.75 cm; thickness: 1.96 cm (not shown).
    g. Fine-grained micaceous schist rod, rubbed smooth at both ends. Length: 37.57 cm; width: 4.02 cm; thickness: 3.43 cm (Figure 5.9).
    h. Black, waterworn, siliceous cobble. One side is flat and may have served as a pot polisher. Length: 5.02 cm;

Figure 5.9. Schist Rod, Feature 16, Area IV

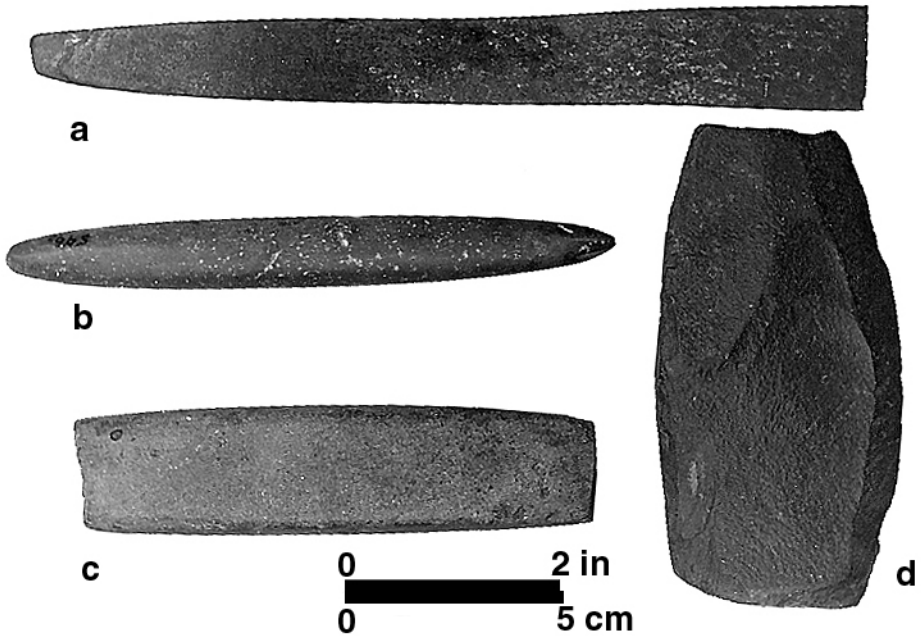

Figure 5.10. Ground and Flaked Stone, Feature 16, Area VI.

width: 3.78 cm; thickness: 3.03 cm (not shown).

i. Black siliceous pot-polishing stone. Length: 5.14 cm; width: 3.51 cm; thickness: 1.53 cm (not shown).

j. Chalcedony projectile point, corner notched, with convex blade edges, a stem narrower than the blade, and a concave base. Length: 4.06 cm; width: 2.96 cm; thickness: 0.58 cm (not shown).

k. Obsidian projectile point fragment with convex edges, probably stemless. Length: 4.02 cm; width: 1.76 cm; thickness: 0.56 cm (not shown).

Figure 5.11: Female Figurine, Front View, Feature 16, Area IV.

l. Triangular obsidian projectile point with serrated edges and a notch in the base. Length: 3.02 cm; width: 1.65 cm; thickness: 0.31 cm (not shown).

m. Obsidian two-edged knife. Length: 5.15 cm; width: 2.89 cm; thickness: 0.75 cm (not shown).

n. Utilized obsidian flake. Length: 3.29 cm; width: 1.55 cm; thickness: 0.74 cm (not shown).

o. Utilized obsidian flake, roughly triangular shape. Length: 5.29 cm; width: 3.42 cm; thickness: 0.98 cm (not shown).

p. Roughly rectangular obsidian side scraper. Length: 4.38 cm; width: 3.65 cm; thickness: 0.73 cm (not shown).

q. Roughly rectangular piece of coarse crystalline micaceous schist, smoothed on both ends. Length: 11.24 cm; width: 6.21 cm; thickness: 3.84 cm (not shown).

r. Magnetite-chalcedony pebble, smoothed on one side. Length: 2.84 cm; width: 2.40 cm; thickness: 1.50 cm (not shown).

s. Hematite cylinder, polished. Length: 2.16 cm; average diameter: 1.32 cm (not shown).

t. Flat, elongated oval piece of limestone, rubbed on one side. Length: 7.29 cm; width: 2.08 cm; thickness: 0.78 cm (not shown).

u. Tabular piece of feldspar, cut along one edge. Length: 3.10 cm; width: 2.97 cm; thickness: 0.75 cm (not shown).

4. Unworked stone

a. Two quartz cobbles, one hemispherical and the other rectangular. Hemispherical cobble: Length: 5.50 cm; width: 4.03 cm; thickness: 2.95 cm. Rectangular cobble: Length: 5.39 cm; width: 2.60 cm; thickness: 2.17 cm (not shown).

b. Chert cobble, roughly egg-shaped. Length: 5.24 cm; width: 3.92 cm; thickness: 3.87 cm (not shown).
c. Metamorphic quartz hornblende cobble, egg-shaped. Length: 7.97 cm; width: 6.90 cm; thickness: 6.16 cm (not shown).
d. Green and orange siliceous oval pebble. Length: 3.68 cm; width: 2.15 cm; thickness: 1.79 cm (not shown).
e. Fourteen black-and-brown siliceous pebbles, waterworn, ranging in length from 1.70 cm to 3.93 cm, in width from 1.22 cm to 3.43 cm, and in thickness from 1.04 cm to 2.15 cm (not shown).
f. Botryoidal chalcedony. Length: 2.79 cm; width: 2.42 cm; thickness: 1.39 cm (not shown).
g. Two waterworn chalcedony pebbles. One milky-colored—Length: 2.28 cm; width: 1.54 cm; thickness: 1.10 cm; one red and white—Length: 2.00 cm; width: 1.61 cm; thickness: 1.11 cm (not shown).
h. Small amount of malachite adhering to a plain culinary ware sherd (not shown).
i. Small piece of malachite-azurite mineral. Length: 1.68 cm; width: 1.23 cm; thickness: 1.05 cm (not shown).
j. Calcite pebble. Length: 2.54 cm; width: 2.10 cm; thickness: 2.20 cm (not shown).
k. Eight calcite rhombs ranging in length from 1.05 cm to 2.28 cm, in width from 0.98 cm to 1.35 cm, and in thickness from 0.27 cm to 1.22 cm (not shown).
l. Six pieces of gypsum selenite ranging in length from 2.28 cm to 5.42 cm, in width from 1.11 cm to 1.70 cm, and in thickness from 0.16 cm to 0.50 cm (not shown).
m. Two spherical sandstone pebbles. Diameters: 1.72 cm and 1.52 cm (not shown).
n. Four quartz crystals ranging in length from 1.60 cm to 4.57 cm, in width from 1.10 cm to 2.47 cm, and in thickness from 1.08 cm to 1.75 cm (not shown).
o. Thirteen milky quartz pebbles, waterworn, ranging in length from 1.88 cm to 3.12 cm, in width from 1.33 cm to 2.10 cm, and in thickness from 0.92 cm to 1.93 (not shown).
p. Limonite. Length: 5.61 cm; width: 3.30 cm; thickness 1.94 cm (not shown).
q. Jasper cylinder, waterworn. Length: 3.33 cm; average diameter: 2.03 cm (not shown).
r. Irregular piece of opal. Length: 3.70 cm; width: 1.87 cm; thickness: 1.74 cm (not shown).

5. Molded alabaster gypsum, roughly egg-shaped. Length: 6.34 cm; Width: 4.51 cm; thickness: 4.05 cm (not shown).

6. Concretions.
    a. Four sandstone concretions, botryoidal forms, ranging in length from 2.55 cm to 5.71 cm, in width from 1.86 cm to 2.73 cm, and in thickness from 1.38 cm to 2.37 cm (not shown).
    b. Sandstone concretion cobble, roughly egg-shaped. Length: 8.67 cm; width: 7.55 cm; thickness: 7.19 cm (not shown).
    c. Limestone concretion, roughly egg-shaped. Length: 2.90 cm; width: 2.82 cm; thickness: 2.14 cm (not shown).
    d. Six siliceous concretions, assorted shapes, ranging in length from 2.13 cm to 4.08 cm, in width from 2.05 cm to 3.24 cm, and in thickness from 0.91 cm to 2.42 cm (not shown).
    e. Magnetite concretion fragment. Length: 1.30 cm; width: 1.42 cm; thickness: 0.88 cm (not shown).
    f. Three hematite concretions. 1) Large, hemispherical shape—Length: 5.50 cm; thickness: 3.18 cm (not shown). 2) Small, circular in cross section with a hole in the middle—Length: 2.75 cm; width: 2.04 cm; thickness: 1.17 cm (Figure 5.16a). 3) Small, hollow hemisphere—Length: 2.11 cm; width: 1.95 cm; thickness: 0.67 cm (not shown).
7. Fossils.
    a. *Gryphaea newberryi* (oysterlike pelecypod). Age = Upper Cretaceous: Lower Mancos (just above Dakota sandstone). Could have come from 36 miles to the west in the area between Sapello and Golondrinas. 4.19 cm x 3.05 cm x 1.87 cm (not shown).
    b. *Echinaria semipunctata* (formerly *Echinoconchus semi-punctatus*). Age = Pennsylvanian. This fossil is filled with micaceous sandstone, an unusual occurrence for a productid brachiopod. Generally found in limestone or shale. 6.25 cm x 6.18 cm x 2.30 cm (not shown).
    c. *Neospirifer dunbari*. Age = Pennsylvanian. Could have come from the Magdalena group a few miles away. 4.90 cm x 3.50 cm x 2.25 cm (not shown).
    d. *Gyrolithes(*?) Spirally coiled burrow of an unknown animal, resembling a loosely coiled gastropod except that the diameter remains constant. Apparently filled with clay speckled with limonite (and possibly pseudomorphous after pyrite). Age: = unknown, 2.47 cm x 2.37 cm (not shown).
    e. *Meekella striatocostata* (Brachiopod). Age = Pennsylvanian. Could have come from the Magdalena group a few miles away. 3.53 cm x 2.75 cm x 1.80 cm (not shown).

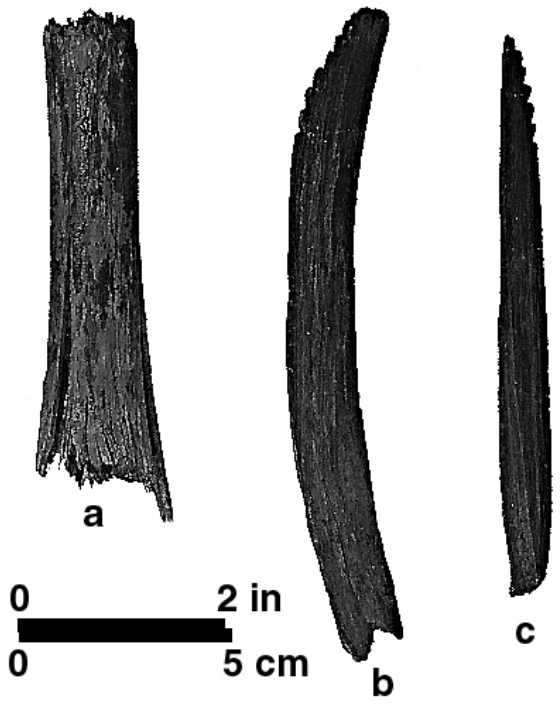

Figure 5.12: Wood Artifacts, Feature 16, Area VI.

f. *Antiquatonia* sp. (formerly *Dictyoclostus*, *Productus*, etc.). Age = Pennsylvanian. 3.39 cm x 2.68 cm x 1.32 cm (not shown).

g. Crinoid columnal. Age = Pennsylvanian. 2.94 cm x 1.86 cm x 1.40 cm (not shown).

h. Undetermined gastropod. Similar forms occur in the Pennsylvanian and again in the Upper Cretaceous. 4.20 cm x 1.97 cm x 1.90 cm (not shown)

8. Wood.

a. Two spatulate-shaped pieces of wood, carved at one end to form a terraced pyramid (seven terraces on one piece; nine terraces on the other). Compare with Kidder 1932:292, Figure 5.24lf. Length: 14.74 cm; width: 2.55 cm; thickness: 0.57 cm (Figures 5.12b, 5.12c).

b. Unworked piece of wood. Length: 10.23 cm; diameter: l.97 cm (Figure 5.12a).

9. Miscellaneous Bone.

a. A tube (with the nutrient foramen present) cut from the proximal half of a left radius of a golden eagle (*Aquila chrysaetos*). Length: 4.86 cm; average diameter: 0.58 cm (Figure 4.13b).

b. A broken tube cut from the shaft of a right tibiotarsus of a turkey (*Meleagris gallopavo*). Only the posterior face remains,

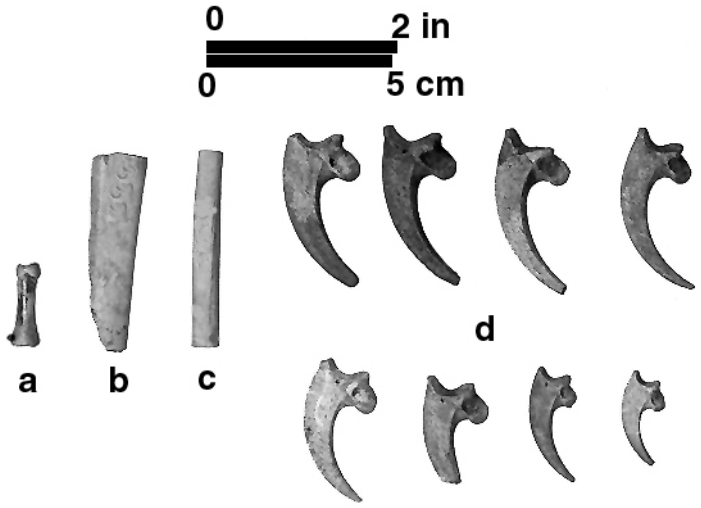

Figure 5.13. Bird Bone Artifacts, Feature 16, Area VI

possibly trash. Length: 4.87 cm; average diameter:unknown due to break (Figure 4.13c).

c. Eight assorted golden eagle (*Aquila chrysaetos*) unguals (claws) representing a minimum of two individuals (Figure 5.13d).

d. A pedal phalanx (toe bone) of a young turkey (*Meleagris gallopavo*). Possibly trash (Figure 4.13a).10. Eighteen pieces of unfired and partially fired clay. Among the remaining thirteen pieces, the lengths range between 3.58 cm and 12.62 cm, widths between 2.57 cm and 6.01 cm, and thicknesses between 2.21 cm and 5.68 cm (not shown).

Chapter Six : The Music of Plenty in the Prehistoric and Historic Southwest

Steve Conway

> "Ages ago, among the Yuma Indians of western Arizona, two young brothers, the sons of a bird, decided to make a flute, which would make the girls love them. Upon finishing, a song was composed by one of the boys and played on the new instrument. The words that accompanied the melody were: 'I have the flute in my mouth. Anyone living far away will hear and come listen' (Densmore 1932:49–50).

For American Indians, bird song is more than beautiful: it possesses a magical quality. Likewise, a human being's singing also has a magical power, which is why singing forms a major part of the festivals, ceremonies, and rituals of Native American cultures (Spinden 1933:8–17; Cushing 1901:xi). A flute's "singing" has also been a major part of Native American ceremonies, and these instruments were likely perceived to have held magical qualities. Magical or not, these wind instruments—made of bone, cane or wood—are well represented in southwestern prehistoric material culture. Flutes are still important today. They continue to be used in the rituals and ceremonies of the Pueblo Indians, are included in numerous myths, legends, and folk-tales, and are depicted in Indian art.

The importance of flutes during the prehistoric and historic periods has been well established through excavations at Picuris. Wolfman and Dick (chapter 5 in this volume) report that bone whistles and flageolets were the most common artifacts in the Picuris caches. This is not surprising, since bone whistles and flutes (both bone and wood) are two of the most common musical instruments found in the Southwest (Brown 1967:80). Cole (1994:301) makes a strong case that bone whistles and flutes have been continuously represented in ancestral Pueblo imagery from around 500 B.C. to A.D. 1450. They are also part of the material record of the Mogollon and Hohokam cultures (Brown 1967). Reed flutes from Arizona date from as early as 150 B.C. (Martin et al. 1952:429). Wood flutes from the northern areas date as early as A.D. 470–488 (Morris 1959:406). Interestingly, the greatest number of bone flutes and whistles occurs in the northern Rio Grande valley area (Brown 1967:81).

Given the importance of flutes and whistles at Picuris, it is worthwhile to investigate the popularity and role(s) of these instruments elsewhere in the prehistoric and historic Pueblo world. The primary role of this chapter is to show that, based on both ethnographic and archaeological evidence, wind instruments have been and continue to be consistently associated with rituals that ensure fertility and moisture. The themes of fecundity and moisture permeate the ritual and ceremonial life of southwestern cultures, and both the cultures and these themes have great time depth (Adams 1991; Crown 1994). It should not be surprising, then, that Picuris, one of the oldest continually occupied pueblos in the Southwest, is no exception to this pattern associating flutes and fertility.

Flutes and Whistles in the Archaeological Record

Prehistoric wind instruments found in the Southwest take several forms: whistles,

Bitsitsi whistles, and flageolets. Whistles are defined as instruments in which the tone is created by blowing either into the end of the tube or across a tone hole bored into the surface of a bone at the approximate center of the tube's length. A single tone hole on the tube generally identifies the instrument as a whistle (Payne 1991:165–167). A *Bitsitsi* whistle gets its name from Bitsitsi, a character associated with the Zuni Shalako rites. It is usually made of two curved pieces of wood bound together with a wrapping of hair cord (Hodge 1920:130–131). Between the two curved pieces is a reed (Brown 1967:83), which vibrates rapidly when blown. Wendorf (1953:90) reports finding bone *Bitsitsi* whistles, similar to those found at Picuris, at Te'ewi, near the confluence of Rio del Oso and the Chama River. The third type of instrument is the flageolet. This is a duct flute that is similar to a recorder in that it is end blown but has fewer tone holes. A true flute is played transversely, with the mouth of the player directing the air against the edge of the embouchure hole (Randel 1986:310, 312). Despite these definitional differences, the terms flageolet and flute (recorder-type) are often used interchangeably.

Flutes and whistles have been found in archaeological contexts throughout the Southwest. Sites containing prehistoric wind instruments include Tularosa Cave and the Upper Gila River in southwestern New Mexico (Martin et al. 1952:357; Cosgrove 1947:120), Basketmaker sites in northeastern Arizona (Morris 1980:134; Morris 1959:406–407; Guernsey and Kidder 1921:112), Bear Ruin in central Arizona (Haury 1940:115), and Talus Village in southern Colorado (Morris and Burgh 1954:63). In the northern Rio Grande area they are reported from, among other places, Pecos (Kidder 1932), Otowi and Jemez (Payne 1991), Paa-ko (Lambert 1954), the Chama Valley (Wendorf 1953; Jeançon 1923), and of course, Picuris.

Clearly there existed a wide range of variability in the manufacture and decoration of prehistoric flutes and whistles. Pepper (1920:166) illustrates a painted flute taken from Pueblo Bonito in Chaco Canyon. The decorations include design fields of either stacked or reflected, stepped terraces separated by bands of circles. Earl Morris (1925:293) described a burial excavated in Canyon del Muerto, Arizona, which contained "the body of an old man, surely once a priest or chief. Besides the usual offerings of beads, baskets, and sandals, there lay above his buckskin wrappings a flute, one end beneath the chin, the other between the thighs." Most of the flutes found by Pepper and Judd at Pueblo Bonito in Chaco Canyon were also in the context of burials assumed to be those of priests (Payne 1989:18; Pepper 1920:164–279; Judd 1954:304–305). Clearly these instruments, as part of a mortuary offering, were special. Their unique character is suggested by the close association of flutes with the mythological characters of southwestern Indian traditions.

Flutes and Flute Players in Southwestern Oral Tradition

Flutes, in particular, play an important part in southwestern Indian mythology and folktales. In one version of the Hopi emergence story, the locust searched for the sipapu leading from one world to the next. On his arrival at the sipapu, the clouds shot at him with lightning bolts. All the while, the locust calmly played his flute, ignoring the lightning being hurled at him (Hill 1995:21; Schaafsma 1980:140; Waters 1950:300; Parsons 1938:337).

According to the Hopi, the locust became the famous and ubiquitous humpbacked flute player called Kokopelli

or Kokopilau. The two Hopi Flute Clans, the Blue and the Gray, are named for him (Waters 1963:37–38). It is the humpbacked flute player that plays his flute at the altar of the Flute Society, bringing warmth and melting the snow (Waters 1950:300). Kokopelli's powers include healing, bringing rain, and ensuring fertility (Lambert 1967:400).

Fertility concepts figure heavily into the Zuni story of Payatamu. In these accounts, Payatamu appears out of the east, playing his flute, and subsequently teaches the corn-growing ritual to the Zuni (Parmentier 1979:615). Parsons (1994 [orig. 1926]) also recorded numerous Rio Grande Tewa folktales that involve the use of a flute. These include "Coyote Plots to Become Summer Chief," "The Broken Water Jar," and "The Women Stealer."

As noted above, the Yuma Indians of western Arizona have a story of the flute's origin; part of the legend is connected with their cremation custom and the Memorial Ceremony. The Papago Indians have a similar folktale for the origin of their first flute (Densmore 1932:49). It seems fitting that the offspring of a bird, whose song is considered magical, should be credited with making a musical instrument that is capable of mimicking a bird's song. In fact, the medicine men of Santo Domingo Pueblo use a short reed whistle to imitate the singing of birds during their curing ceremonies and throughout the Christmas Eve festival. The end of the whistle is submerged in a bowl of water and blown, reproducing the songs of the quail, owl, crow, and eagle (Densmore 1938:38–40, 58). Bird-bone whistles are treasured by many present-day Native American groups and are commonly used in their ceremonies (Payne 1991:175).

Flutes and Whistles in Ritual and Ceremonies

The Indians have long sought to obtain the help of the ancients with music and dancing (Cushing 1901:xv), and the flute, it seems, has always played an important part in ritual and ceremonies (Lambert 1967:400). Among the historic Pueblos, the prayers and supplications to the gods are focused chiefly on bringing rain (Waters 1950:297). A second, equally important purpose is to recount the myths and legends of the group (Waters 1950:241). It is not surprising, therefore, that many of the flute-playing deities and legendary characters such as those mentioned above, play an important role in these activities. In the ceremonies, these characters take the form of Katsinas, the reincarnation of the ancestors and ancients (Frigout 1979:572) and a key symbol in Pueblo ceremonialism (Waters 1950:277).

In the annual public rituals of the Hopi, at least three Katsinas appear with flutes in hand, including Road Runner, Snow Kachina, and Flute Kachina (Fewkes 1985:80, 84, 101; Stephen 1969:174). The humpbacked Kokopelli borrows a flute from the Flute Kachina during the Mixed Kachina Dance (Colton 1959:35). Kachinas, at least among those groups practicing this belief system during the historic period, are representations of the spirits or gods. After donning the sacred masks for ceremonial dances, the mask wearers come to possess the powers of the spirit (Fewkes 1985:13–16; Waters 1963:167).

There are several Hopi ceremonies featuring the use of the flute: the Flute Dance (*Leleñti*), the Mixed Kachina Dance, and the Flute Ceremony (Cole 1994:305; Fewkes 1985:29, 57; Waters 1963:210–214). The last is extremely important to the Hopi and alternates every other year with the famous Snake-Antelope Ceremony.

The practical purpose of this ceremony is to help mature the crops and bring the summer rains (Waters 1963:210). However, on the last day of the Flute Ceremony, the Hopi emergence myth is reenacted (Waters 1963:213).

At Santa Domingo Pueblo, New Mexico, the people who play the flute or drum belong to medicine societies. Each moiety group had its own musicians and a leader. The flute people's responsibility was to ensure the success of summer crops, and they performed as the corn was planted, in the belief that the music made everything grow better. The music of the instruments also accompanies the grinding of corn for ceremonial use (Densmore 1938:22–23).

Flutes, a male fertility symbol, are played at the Zuni phallic ritual, which is a part of the Corn Dance (Bunzel 1932:530). The Payatamu order in the Little Fire and Bedbug societies of the Zuni perform on long flutes (Stevenson 1904:485, 509). Each dancer in the Acoma Flower Dance carries a cane flute (Densmore 1957:3). As described in more detail below, it is likely that the flutes and whistles found in archaeological contexts at Picuris were used in kiva ceremonies.

Prehistoric Flute Imagery

Out of the myths and folktales, reinforced and amplified by ritual and ceremonies, emerged the flute-player symbolism and imagery found throughout the Southwest. The flute player—with and without a humped back, with and without a phallus—is found in petroglyphs and pictographs, mural painting, and pottery designs [1]. Schaafsma (1980:122) suggests that the earliest images of the flute player appeared in the Basketmaker III period (A.D. 400–700). Cole (1994:303) sets the date as early as Basketmaker II (A.D. 1–400). These earliest flute-playing images are stick figures that lack the humped back and phallus, and are often portrayed in a seated position (Schaafsma 1980:122). After about A.D. 1000, Kokopellis are depicted with the humped back and phallus (Schaafsma 1980:136). These figures are often depicted with a flute—dancing, sitting, reclining, standing, right-side up and upside down. Kokopelli is found in hunting scenes and in close association with birds, lizards, snakes, bighorn sheep, insects, corn, and various geometric figures (Slifer and Duffield 1994; Brody 1991; Schaafsma 1980; Schaafsma 1975). He is also depicted chasing women, copulating, or observing the act (Slifer and Duffield 1994:45, 81; Patterson-Rudolph 1990:plate 3). The flute player is also associated with figures that Patterson-Rudolph (1990:51) interprets as women giving birth (Slifer and Duffield 1994:63; Patterson-Rudolph 1990:plate 3; Schaafsma 1980:139). Aside from the humanlike musician, the rock art depictions of flutes include various zoomorphic figures and insects playing the instrument (Slifer and Duffield 1994; Schaafsma 1980).

In addition to the ubiquity of Kokopelli in rock art, he is also found in ceramic painting and murals. Flute-player images have been found painted on the walls of structures at Mesa Verde (Brody 1991:62; Chapin 1988:122). In a kiva found in the Chaco district, three flute players are the main figures on the kiva bench (Slifer and Duffield 1994:115; Kluckhohn 1939:43). At Jemez Pueblo, a particularly striking kiva mural features two flute players. Each is standing on a stepped terrace, playing his flute over a vessel containing either corn or corn plants (Slifer and Duffield 1994:117-118; Brody 1991:140).

At Yellow Jacket Ruin and Sand Canyon Pueblo, both located in southwestern Colorado, Kokopelli images were carved into kiva floors and then

covered over with either plaster or compacted fill (Slifer and Duffield 1994:118–119; Bradley 1989:158–159; Lange et al. 1986:32). The carving at Yellow Jacket covered half of the kiva floor (Slifer and Duffield 1994:118; Lange et al. 1986:32). The example at Sand Canyon Pueblo depicts a stylized Kokopelli playing a flute; it is pecked into the bedrock upon which the kiva was built in the late 13th century.

In addition to the mural representations, there are numerous examples of flute players painted onto ceramic vessels. Slifer and Duffield (1994:110–115) present a number of examples on ceramics originating everywhere from Mesa Verde in southwestern Colorado to Snaketown in southwestern Arizona and points in between. On one Mesa Verde bowl, our hero appears with a bow hunter and rows of ducks. On another specimen, a Mancos Black-on-white bowl, he appears with a horned lizard and a bighorn sheep. Lambert (1967) reported a Gallup Black-on-white effigy pitcher that was found in northwestern New Mexico. The handle is a flute that is being held by the flute player. On the neck of the vessel, one on each side, appear a phallic figure and a female. These figures may represent the Hopi deities Kokopilau and Kokopilmana, the female counterpart of the Locust Flute Player. Lambert suggests (1967:400) that the pitcher dates to the 11th or 12th century and was used in rites and ceremonies associated with a Kokopelli cult.

A collection of 28 sherds from Snaketown feature the flute player. In most cases he is alone and nonphallic, and although his back is arched, it does not appear humped (Haury 1976:239-240). The Hohokam flute player often wears a headdress. When not alone, he appears in a line of identical figures but never in association with other icons (Slifer and Duffield 1994:30).

A bowl from the Zuni reservation in New Mexico portrays a single insect form of the flute player (Slifer and Duffield 1994:112; Roberts 1932:123, Fig. 27a). A ladle from Sikyatki, in Arizona, carries the image of the flute player on the bottom. The humped back is present and he is wearing a feather, which is an integral part of the chief's badge among the Tusayan and adorns most objects involved with worship (Fewkes 1898:plate CXLII, 65).

Discussion and Conclusions

Flutes and whistles not only are common in the material culture of the Southwest but also are associated with Native American oral traditions, certain clan and medicine society rituals, Katsina ceremonies, and iconography. As was noted earlier, the antiquity of flutes and whistles is documented by excavated examples as well as by iconographic depictions dating back well over 1,500 years. These musical instruments are still commonly used throughout the area in both public and private ceremonial contexts.

Payne (1989) attributes flute and whistle use to the Hopi, Yuma, Papago, Pima, Zuni, and Yaqui tribes. It is also clear that flutes were used historically among the Tewa and Acoma (Densmore 1957, 1938), and are probably still in use today.

The assumption that the past uses of flutes parallel their uses recorded by ethnographers during the 19th and 20th centuries is open to debate, as is the general use of analogy in archaeological interpretation. Iconographic and archaeological evidence, however, supports this contention. As discussed above, both flute and whistle music and the instruments themselves are consistently included in ceremonies that ensure the fertility of crops,

animals, and humans. Moisture is the element most essential to the propagation of life in the arid Southwest, and it is no surprise that wind instrument music traditionally accompanies ritual requests for moisture.

The presence of flutes on the floor of Kiva A at Picuris provides at least some contextual evidence of the probable use of flutes in rituals and ceremonies. Subfloor excavations in surface rooms also uncovered caches that included flutes, whistles, and a wide variety of other artifacts, many of which were probably ritual items and fetishes associated with medicine society or clan ceremonies (see Wolfman and Dick, chapter 5 of this volume). Hunters used *Bitsitsi* whistles, similar to those found at Picuris, for attracting birds and maybe certain animals (Hodge 1920:128). Jeançon (1923:27) described the use of whistles as turkey calls among some of the eastern Pueblos. This use may have been the intended interpretation of the rock art depicting Kokopelli playing his flute in various scenes that include both large and small game.

The ubiquity of Kokopelli images across much of the Southwest also suggests the prehistoric importance of the flute, although it is the flute player, not the instrument, who is the focus of attention. From A.D. 1000 on, he is shown engaged in all manner of activities and associated with all manner of beasts, insects, and geometric figures. Brody (1991:70–71) cautions against trying to apply literal interpretations to prehistoric iconographic images, stating that the images could be anything from totally random to completely structured. In fact, however, no human signs or symbols are totally random, since to be so would preclude any means of our recognizing them as symbols in the first place. On the other hand, Brody effectively makes the point that literal "translations" of these symbols into actual messages, such as that attempted by Patterson-Rudolph (1990), do not constitute testable knowledge about prehistoric peoples and their beliefs. In either case, one key message we can derive from the archaeological and iconographic information is the importance of wind instruments, particularly flutes, and of the individuals playing them, in the life of the prehistoric peoples of the Southwest. Relatedly, the music, real or mythical, created by the instruments and players was also a central part of prehistoric and historic life among southwestern peoples.

Music itself is considered to be magic in many cultures, and the phrase, "to sing" can be interpreted as "to make magic" (Spinden 1933:23). Perhaps, in the mind of the ancestral peoples of Picuris, it was the flute's "singing" that vested it with the magical power to help people and animals reproduce, bring the rain, make the earth fertile, and ensure a successful hunt.

Endnotes

As an art form, the flute-player image is popularly called Kokopelli, the Humpbacked Flute Player; however, he is also called Kókopilau, Kokopolo, and Kokopele (Slifer and Duffield 1994:8; Waters 1963; Colton 1959). Among the Zuni, the flute player is called Chu'lu'laneh, which is the name of the instrument played by the rain priests (Hill 1995:20; Slifer and Duffield 1994:67; Roberts 1932:150).

Chapter Seven : The Nonavian Fauna from Picuris Pueblo

Arthur H. Harris

Approximately 9,500 individual nonavian elements from excavations at Picuris were identified in the mid-1960s while I was at the University of New Mexico and Fort Hays Kansas State College.[1] The following data are based on catalogue information and notes made at that time, with minor additions and corrections made during the following years. Interpretations, necessarily, are based only on the chronology and other data available from that era.

Materials and Methods

Osteological material was received in the original paper field-collection bags, and data relating specifically to given osteological elements are dependent solely on the labeling on the bags. Identifications, together with pertinent data, were recorded in a catalogue specific to the Picuris material; individual elements were marked with serially assigned catalogue numbers preceded by the letter "P."

Most of the osteological material is currently curated in the collections of the Laboratory for Environmental Biology, Centennial Museum, University of Texas at El Paso. However, a portion was lost when overzealous physical plant workers cleared and discarded material from a storage area during the 1970s.

Some material of particular interest has been assigned a Laboratory for Environmental Biology number (acronym UTEP). Picuris has the UTEP locality number "37," and material catalogued into the UTEP system has serially assigned numbers with "37" as a prefix.

Minimum numbers of individuals (MNI) were calculated based on the excavation unit as given on field-collection bags. Thus, in most cases, different levels of the same feature had the MNI calculated separately. Available chronological data limited the number of excavation units and biological elements useful for interpreting change through time. Most interpretations of these materials utilized percentages based on MNI. The number of identified specimens (NISP) sometimes gives information concealed by MNI data and consists of a straight count of identified bones and fragments where fragments are not obviously a result of excavation damage.

The dependence on MNI measures calculated from intrafeature provenience information was necessary given the original data-recording method used. Because this approach, in some instances, split up faunal sample obtained from the same archaeological feature, there is a likelihood that certain reported MNI counts overestimate the actual MNI that would have resulted if the entire provenience had been used as a single sampling unit. The results of the quantification, then, should be used with caution. The species lists can be used with confidence, but comparisons of these MNI figures with other southwestern contexts is not advisable given the nonstandard division of feature contents used during the coding.

Most categories used in interpretation are self-explanatory; however, the category "Other Edibles" is not. This group includes all small mammals (beaver-sized and smaller) except the rabbit group (Sylvilagus and Lepus) and carnivores. It almost certainly includes some animals that were intrusive and not utilized for food.

Results and Discussion

Results fall primarily into two areas: those without chronological control and those with. The former are shown in Table 7.1 and the latter in Table 7.2. The order of presentation follows Banks, McDiarmid, and Gardner (1987).

Figure 7.1 suggests a decreasing utilization of lagomorphs (cottontail and jack rabbits) through time, together with an increasing utilization of large-hoofed mammals. Caution is needed in interpreting data such as these, since increase in one class necessarily results in decrease in other classes to keep the total at 100 percent (see the discussion in Harris 1993). The trend appears most meaningful in postcontact times. The MNI for the same taxa are plotted in Figure 7.2 and show that there was an actual major increase in artiodactyl usage rather than a decrease in lagomorph utilization or in numbers of other taxa. Particularly emphasized by both figures is the increase in artiodactyl usage during the Trampas phase.

Plotting percentages (Figure 7.3) of the various artiodactyl species indicates an amazingly constant percentage of deer (Odocoileus) throughout the record (domestic pig, Sus scrofa, is omitted from the figure as inconsequential). The increase in utilization of artiodactyls during postcontact time is seen to be the result of moderate increases in pronghorn (Antilocapra americana) and cattle (Bos taurus), and of, particularly, the addition of sheep and/or goats (Ovis/Capra) during the Trampas phase. A single, tentatively identified record of sheep/goat from the Talpa phase is presumed to record contamination from later deposits or a misidentification. Figure 7.4 shows the same data for artiodactyl taxa on the basis of MNI.

Differentiation of cattle from bison (Bos bison) is difficult on fragmentary elements and though some elements are definitely identifiable as cattle, none have been identified as bison on morphological grounds. Assuming nonintrusion, however, precontact Bos necessarily are bison, and the increase seen during the Talpa phase may indicate increased hunting activity in the plains to the east. Since deer utilization increases during this same time, however, there may instead be a general increase in concentration on large game.

Approximately 55 nonavian taxa (Table 7.1) have been identified from the excavated material. These are considered in a series of taxon accounts, below.

Unionidae (Clams, Mussels, and Relatives). Several pieces of bivalves were recovered but were too fragmentary to allow further identification. They seem most like freshwater clams, but the possibility of their having been traded in from elsewhere (including marine environments) cannot be ruled out.

Osteichthyes (Bony Fishes). Bony fishes are represented only by one skull fragment. Since fish undoubtedly were present in nearby streams, this suggests lack of utilization. It should be pointed out, however, that fish bones are notoriously difficult to recover from archaeological contexts without fine-mesh screening and flotation, neither of which were used at Picuris.

Anura (Frogs, Toads, and Relatives); ? Bufo. The scanty remains of amphibians probably record natural occurrences. Toads often burrow to escape hot, dry weather or to hibernate. Disturbed ground may provide easy digging, and in some cases, abandoned and collapsed dwellings may provide moister soil for hibernation than available elsewhere.

Testudinata (Turtles); Terrapene cf. ornatus (Ornate Box Turtle). Turtle remains are moderately common. Those that are identifiable to a level lower than "turtle"

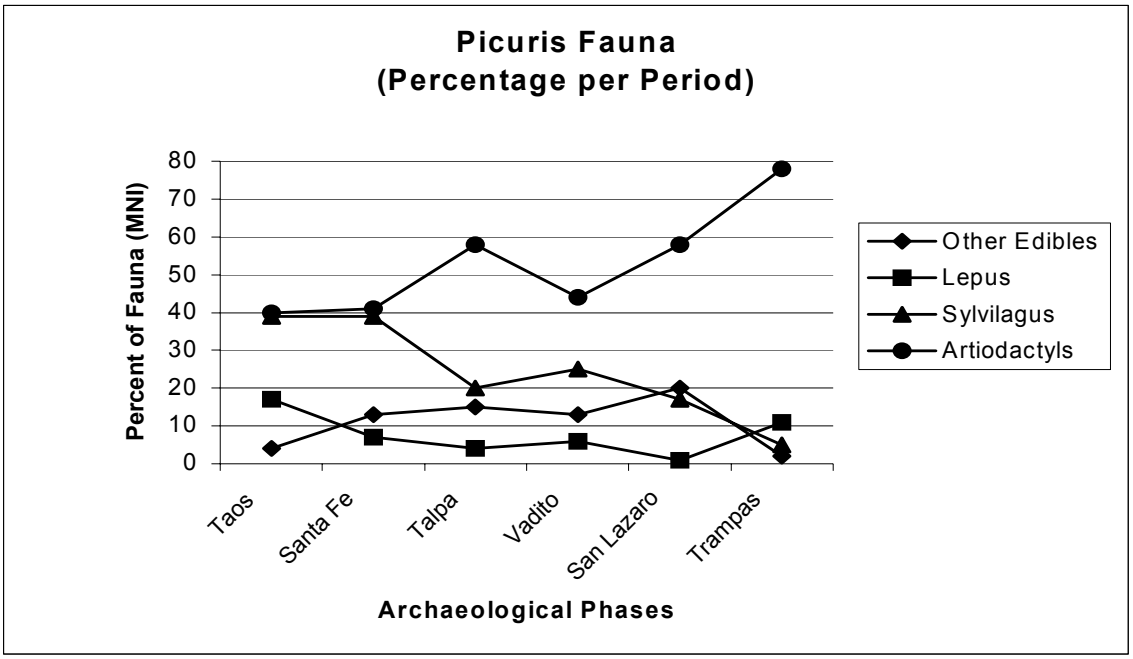

Figure 7.1. Change in Faunal Species Through Time at Picuris, Based on Percentage

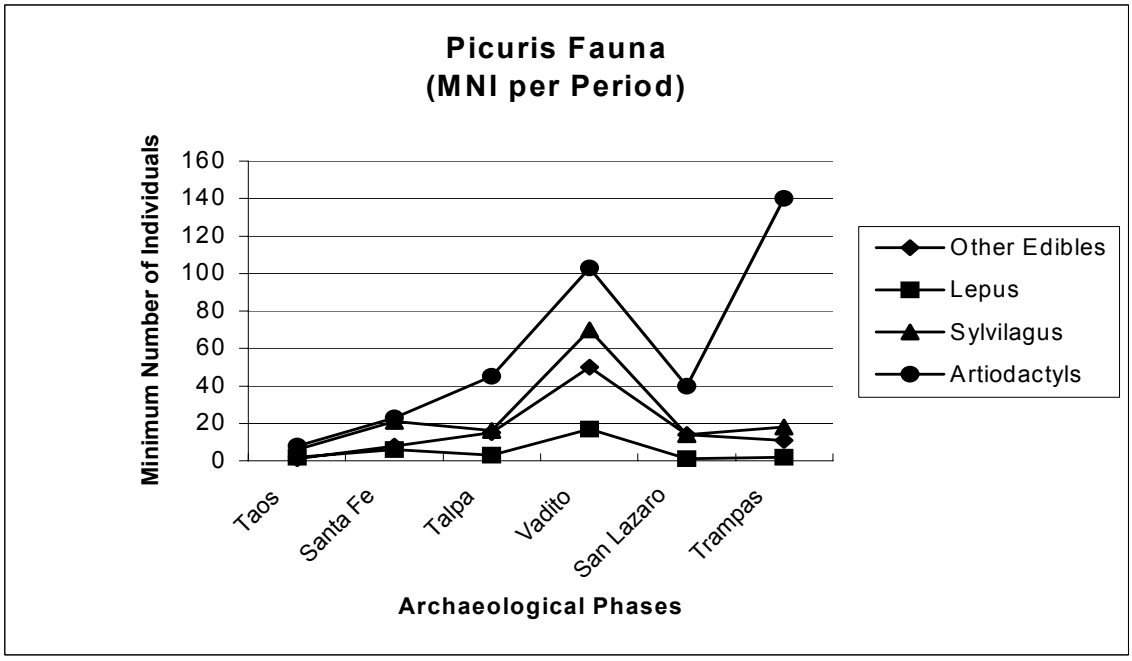

Figure 7.2. Change in Faunal Species Through Time at Picuris, Based on MNI

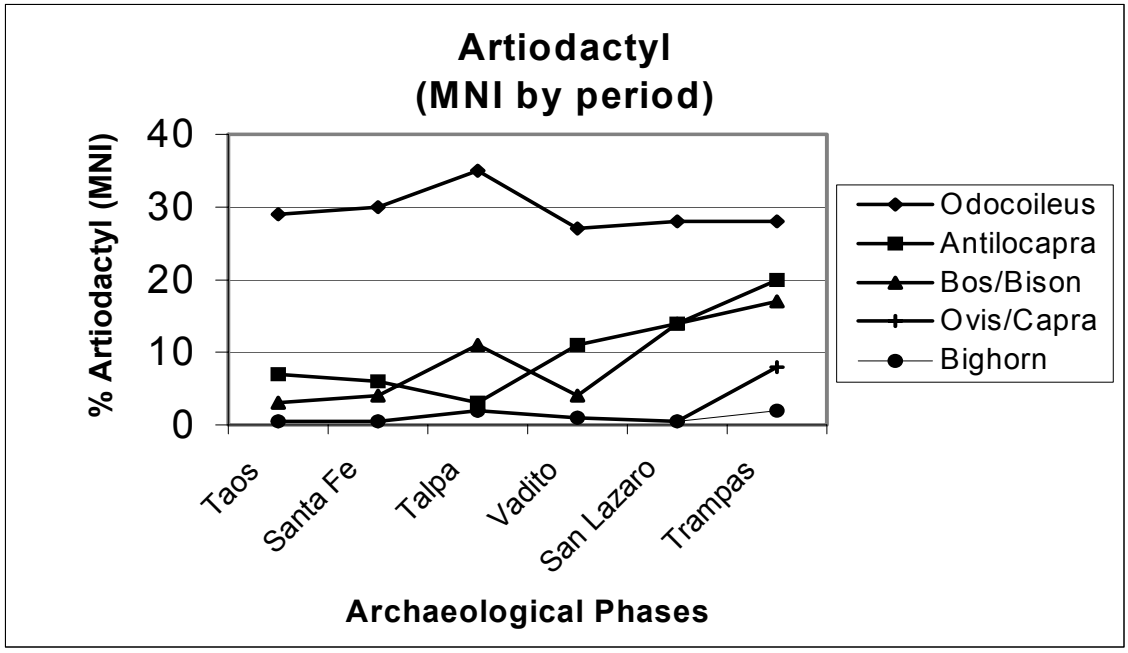

Figure 7.3. Change in Faunal Species (Artiodactyl) Through Time at Picuris, Based on Percentage

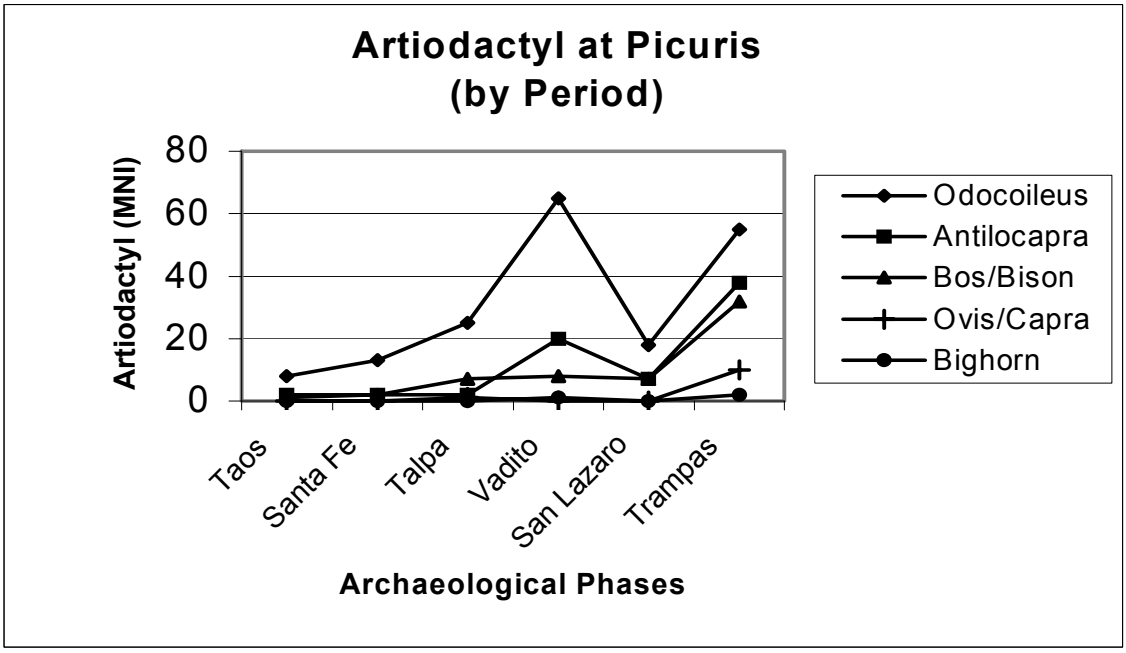

Figure 7.4. Change in Faunal Species (Artiodactyl) Through Time at Picuris, based on MNI.

represent box turtles (Terrapene), and the species nearest Picuris is T. ornatus. Use for ceremonial purposes, such as rattles, is likely. Box turtles do not reach the Picuris area today, occurring in southern New Mexico and in the Great Plains to the east. Thus Terrapene remains almost certainly derive from forays to the east (or south) or trade with groups in those areas.

Homo sapiens (Human). Human remains consist largely of elements not easily recognized during excavation, such as podials and metapodials. These materials were later separated from the rest of the faunal collection and were returned to Picuris Pueblo for reburial. In calculations of faunal percentages, Homo was not included.

Chiroptera (Bats). Bat remains are unusual in non-cave sites. A humerus of a large bat, based solely on size, likely represents either the pallid bat (Antrozous pallidus) or the big brown bat (Eptesicus fuscus), both species that might be expected to roost in abandoned buildings.

Canis familiaris (Domestic Dog). Numerous dog remains were recovered. Many of these were nearly complete skeletons, indicating burials. A rather large number were puppies, although adults and old adults also were present.

Canis lupus (Gray Wolf). Unlike the domestic dog, the wolf is scantily represented, and identification in most cases is a judgment call based on general size. However, the identification of at least one element (fragment of right dentary with badly preserved P_4 and M_1, catalogue no. P3721) does seem soundly based in that the carnassial tooth is notably larger than that of a domestic dog.

Urocyon cinereoargenteus (Gray Fox). Gray fox skull material is moderately common. This is a fox of low and mid elevations, occupying ecological zones from the desert to the ponderosa pine forest. In desert and grassland situations, the gray fox tends to stick to rough terrain but spreads more widely where vegetation allows ample cover. It is probably most common in piñon-juniper woodlands in the Picuris area. The gray fox probably was taken for its pelt, which, among some pueblo peoples, is used ceremonially.

Vulpes vulpes (Red Fox). One lower jaw was identified. This fox tends, in the Southwest, to be an inhabitant of high elevations, from the mixed coniferous forest zone and upward.

Ursus americanus (Black Bear). Black bear remains are the most common carnivore elements recovered in excavations at Picuris. Most material consists of toe bones, though other elements (humerus, scapula, etc.) also are represented. In general, several to many toe bones occurred together in one of two patterns. In some cases, only third (terminal) phalanges were present. These are the bearers of the claws in life, and the most likely explanation is that the remains of bear claw necklaces are represented. In other cases, the terminal phalanges were associated with second (middle) phalanges. In skinning out the feet of bears, these are the phalanges that are most likely to remain with the pelt—they have little flesh to cause problems and they are extremely difficult to extract. Cut marks are present on many of the second phalanges.

Ursus cf. arctos (Grizzly Bear). Two elements (a distal humerus and a proximal ulna) are of such large size as to suggest the grizzly bear, but material is insufficient for us to be sure.

Mustela frenata (Long-tailed Weasel). Several complete skulls have been recovered. As a generalization, it would be expected that this small carnivore was taken for ceremonial use rather than for food or

clothing. The completeness of the skulls (unusual for small mammals of any type) suggests that the skulls were retained in the skins until the latter reached a condition calling for discarding. Long-tailed weasels occur throughout the area today.

Taxidea taxus (Badger). Badger remains are uncommon, indicating that no special efforts were made to obtain this large member of the weasel family. Badgers would be expected throughout the area.

Mephitis mephitis (Striped Skunk). In most of the region today, this is the most commonly encountered member of the weasel family. Its rarity in the archaeological material suggests that it was not hunted deliberately but perhaps was killed when it blundered into the pueblo.

Felis sylvestris (Domestic Cat). Also known under the earlier-accepted names of Felis catus and Felis domesticus, the domestic cat shows up sparingly in the Picuris material. One specimen, a skull with lower jaws and three cervical vertebrae, likely represents an individual discarded or interred with flesh still present.

Felis concolor (Mountain Lion). Mountain lions range throughout the region. They are represented by several elements of the forelimb and by terminal phalanges. Four terminal phalanges were recovered from the same place, a subfloor cache, and presumably represent a set that was kept together in some sort of perishable container.

Lynx rufus (Bobcat). Several elements of bobcat, including several lower jaws, were identified. Bobcats are common throughout the area today. The use of these, like the other recovered wild carnivores, is speculative. Usage as food items seems unlikely, whereas usage of parts of carnivores by modern Pueblo peoples during ceremonial events suggests a similar usage in the past.

Equus asinus (Burro). A few recovered bones are easily assigned to E. asinus, nearly duplicating modern material from northern Mexico.

Equus caballus (Domestic Horse). A gap of some 10,000 years separates the presence of several species of native North American horses from Equus caballus and Equus asinus, introduced from the Old World by Europeans. Occurrence of domestic horse at Picuris following Spanish contact is not surprising. The general impression from the recovered material is of horses of approximately "cow pony" size. However, this material, like that of other domestic animals from Picuris, has not received critical study.

Sus scrofa (Pig). Domestic pigs were introduced by the Spanish. The small number of recoveries suggests that they never gained popularity at Picuris during the time periods represented.

Cervus elaphus (Elk, Wapiti). Although elk should have been available at higher altitudes, there is no evidence that they were systematically hunted. They are rare in the recovered material.

Odocoileus (Deer). Although most remains cannot be identified with certainty to species, almost certainly all represent the mule deer (O. hemionus). Unlike remains of their relative, Cervus, remains of deer are common and generally represent just below 30 percent of the recovered NISP (Figure 7.3). The high percentage of deer remains strongly indicates deliberate hunting effort and the importance of deer in the food economy of the site throughout the time span. Mule deer occur throughout the area at all elevations.

Antilocapra americana (Pronghorn). Pronghorn generally are animals of open plains. However, this fleet artiodactyl will enter into broken country and into vegetation zones as high as the piñon-juniper zone. At no time were pronghorns

insignificant (though sinking to 3.7 percent of the identified fauna during the Talpa phase), but their importance increased from the Talpa phase on, reaching nearly 20 percent of the fauna during the Trampas phase. This increase follows a general trend of increasing utilization of hoofed animals from the Vadito through Trampas phases.

Bos bison/Bos taurus (Bison, Cattle). Bison and cattle are now considered to belong to the same genus. As noted above, the two are difficult to tell apart on many bony elements. As can be seen in Figure 7.3, Bos is a significant resource in post-Vadito time. Although the degree to which the plains to the east were utilized is of considerable interest, the faunal evidence of usage depends strictly on the chronology—no B. bison element has been definitely identified on strictly morphological grounds.

Ovis/Capra (Sheep/Goat). Domestic sheep and goats are difficult to identify to genus on fragmentary material and are lumped together here. Apparently these animals were adopted only after A.D. 1600, and rapidly became a significant resource.

Ovis canadensis (Bighorn Sheep). Although sporadically present, bighorn sheep were never common (MNI of 1 each in the Talpa and Vadito phases, 2 in the Trampas phase). Today, bighorn sheep occur almost exclusively in northern New Mexico at high elevations. Their recent occurrence, however, in such areas as the malpais near Grants suggests that bighorn sheep may have occupied lower elevations with particularly rough topography during earlier time periods.

Sciuridae (Squirrel Family). Squirrels are widespread in the Southwest and generally are thought of as falling into two major groups, the tree squirrels and the ground squirrels (which include the prairie dogs). Both groups may be utilized for food. Most of the identifications of squirrels are to the family level only, due to the fragmentary nature of most limb bones.

Cynomys gunnisoni (Gunnison's Prairie Dog). Unlike the black-tailed prairie dog (C. ludovicianus) of the plains, Gunnison's prairie dog inhabits smaller towns and is not restricted to large, open grasslands. Although a somewhat open area is required, the size may be relatively small and include scattered bushes or woodland trees. The animal may occur anywhere from Upper Sonoran grasslands to grassy meadows above 10,000 feet. Bailey (1931) noted that Navajos apparently utilized them heavily for food.

Marmota flaviventris (Yellow-bellied Marmot). A single individual of marmot was identified. Marmots in the Southwest generally are considered creatures of very high altitudes. Harris (1970) pointed out that southwestern marmots currently are limited to highlands because of the necessity for green fodder throughout the nonhibernatory period, and only highland areas receive sufficient winter-spring precipitation for green fodder to survive the southwestern spring drought period. In special cases, however, irrigation or other water sources may allow the marmot's descent to as low as around 6,000 feet. The chances are that the identified individual represents Picuris activity in the high mountain area.

Sciurus aberti (Abert's Squirrel). The Abert, or tassel-eared, squirrel is closely tied to ponderosa pine forest. Its occurrence can be taken as indicating hunting in that ecological zone.

Spermophilus lateralis (Golden-mantled Ground Squirrel). This relatively high-elevation ground squirrel generally ranges in open areas from ponderosa pine forest and upwards through mixed coniferous forest.

Tamias cf. quadrivittatus (Colorado Chipmunk). This is the common chipmunk

in the area, and identification is based on the fact that the recovered material is larger than that of the higher-elevation least chipmunk (Tamias minimus).

Tamiasciurus hudsonicus (Red Squirrel). Red squirrels are high-elevation animals, being closely associated with spruce-fir forest. Presence is an excellent indicator of Picuris' utilization of highland areas.

Thomomys bottae (Botta's Pocket Gopher). This burrowing animal is the pocket gopher species presently expected to occur at Picuris. Thomomys talpoides (northern pocket gopher) occurs at higher elevations of the region but has not been found in this sample of Picuris faunal remains. In light of the number of animals in the sample that come from surrounding highlands, it is likely that all pocket gopher remains are intrusive rather than remnants of food items—otherwise, the northern pocket gopher should show up, at least sparsely, in the sample.

Dipodomys ordii (Ord's Kangaroo Rat). Ord's kangaroo rat is an animal of relatively low elevations in the Southwest, rarely occurring as high as piñon-juniper woodland. Since it is a burrowing rodent, natural occurrence is likely.

Perognathus cf. flavescens (Plains Pocket Mouse). Two species of small pocket mice should occur within the general area of Picuris at present. The plains pocket mouse tends to be limited to areas of sandy substrate in the region, whereas the slightly smaller silky pocket mouse is less limited by soil type. Natural occurrence of the pocket mouse, like the kangaroo rat, would be expected at the site.

Castor canadensis (Beaver). Beavers were widespread along waterways in the Southwest until widespread trapping in the 19th and early 20th centuries drastically decreased their numbers. Use for pelts and food would be likely.

Neotoma (Woodrats). A number of species of woodrats occur in the Southwest, with, not uncommonly, two species within relatively close habitats. The white-throated woodrat (Neotoma albigula) extends from desert into piñon -juniper woodland and, occasionally, into lower Transition Zone habitats. The Mexican woodrat (Neotoma mexicana) occurs at higher elevations and extends down into piñon -juniper habitats in some areas. Both species may be present in the faunal material, but identifications are not certain. Both species could have been used for food.

Onychomys leucogaster (Northern Grasshopper Mouse); Peromyscus sp. (White-footed Mouse); Reithrodontomys (Harvest Mouse). These small mice are nearly ubiquitous in the region and are expected to end up in archaeological contexts regardless of usage.

Microtus cf longicaudus (Long-tailed Vole). In northern New Mexico, voles occur in grassy areas from piñon-juniper woodland to above timberline and, where permanent sedge beds occur near rivers or springs, into lower elevations.

Ondatra zibethicus (Muskrat). The semiaquatic muskrat occurs throughout the region in areas of permanent water. Not likely to occur naturally among the faunal remains, muskrats likely were taken for pelts and possibly for food.

Mus musculus (House Mouse). House mice were introduced into North America by Europeans and so are a marker of postcontact contexts. They seldom are found far from human settlements and, once introduced, live quite comfortably with humans.

Erethizon dorsatum (Porcupine). Porcupines occur throughout the Southwest, from low desert to high mountains. Because they are easily hunted, porcupines are often considered as a source of emergency food by present-day woodsmen. Use of

porcupine quills for decorative purposes is widespread among Native American groups.

Lepus sp. (Jackrabbit). Three species of jackrabbits occur in northern New Mexico. The relatively small snowshoe hare (L. americanus) occurs at high elevations in coniferous forest; it is difficult to distinguish from cottontail rabbits on fragmentary remains and is unidentified from the site. The white-tailed jackrabbit (L. townsendii) enters the Rio Grande valley in the vicinity of Taos and also is known from very high open country in the San Juan Mountains to the north. It is difficult to separate from the black-tailed jackrabbit (L. californicus), which is the common jackrabbit at elevations up into ponderosa pine forests. Likely the last species is represented at Picuris, but the presence of white-tailed jack rabbit cannot be ruled out.

Sylvilagus audubonii (Desert Cottontail); Sylvilagus nuttallii (Nuttall's Cottontail). Both species of cottontail are identified at Picuris. The desert cottontail occupies lowlands, up into sparse piñon-juniper woodland; Nuttall's cottontail occupies heavier vegetation in piñon-juniper woodland and up into higher-zone vegetation. At various places in northern New Mexico and Colorado, the two species occur together but are segregated in habitat. The presence of both species could indicate hunting occurred at both lower and higher elevations, or hunters frequented those ecotonal areas where both species were present.

Mammuthus (Mammoth). The occurrence of this Pleistocene period mammal, long extinct in the Southwest, was unexpected. The only reasonable explanations are that excavated materials included undisturbed, fossiliferous alluvial fill or that the prehistoric Picuries uncovered the fossil during the earlier construction of adobe structures.

Table 7.1: Total Taxa Identified from the Picuris Excavations

Taxon	*Common Name*
Unionidae	Freshwater Clam
Osteichthyes	Bony Fishes
Anura	Frogs and Toads
? Bufo	Common Toad
Terrapene cf. ornatus	Ornate Box Turtle
Homo sapiens	Human
Chiroptera	Bats
Canis familiaris	Domestic Dog
Canis lupus	Gray Wolf
Urocyon cinereoargenteus	Gray Fox
Vulpes vulpes	Red Fox
Ursus americanus	Black Bear
Ursus cf. arctos	Grizzly Bear
Mustela frenata	Long-tailed Weasel
Taxidea taxus	Badger
Mephitis mephitis	Striped Skunk
Felis sylvestris	Domestic Cat

Felis concolor	Mountain Lion
Lynx rufus	Bobcat
Equus asinus	Burro
Equus caballus	Domestic Horse
Sus scrofa	Domestic Pig
Cervus elaphus	Wapiti (Elk)
Odocoileus hemionus	Mule Deer
Antilocapra americana	Pronghorn
Bos bison (chronological grounds only)	Bison
Bos taurus	Domestic Cattle
Capra hircus	Domestic Goat
Ovis aries	Domestic Sheep
Ovis canadensis	Bighorn Sheep
Cynomys gunnisoni	Gunnison's Prairie Dog
Cynomys ludovicianus	Black-tailed Prairie Dog
Marmota flaviventris	Yellow-bellied Marmot
Sciurus aberti	Abert's Squirrel
Spermophilus lateralis	Golden-mantled Ground Squirrel
Spermophilus variegatus	Rock Squirrel
Tamias cf. quadrivittatus	Colorado Chipmunk
Tamiasciurus hudsonicus	Red Squirrel
Thomomys bottae	Botta's Pocket Gopher
Dipodomys ordii	Ord's Kangaroo Rat
Perognathus cf. flavescens	Plains Pocket Mouse
Castor canadensis	Beaver
Neotoma albigula	White-throated Woodrat
Neotoma cf. mexicana	Mexican Woodrat
Onychomys leucogaster	Northern Grasshopper Mouse
Peromyscus	White-footed Mouse
Reithrodontomys	Harvest Mouse
Microtus cf. longicaudus	Long-tailed Vole
Ondatra zibethicus	Muskrat
Mus musculus	House Mouse
Erethizon dorsatum	Porcupine
Lepus	JackRabbit
Sylvilagus audubonii	Desert Cottontail
Sylvilagus nuttallii	Nuttall's Cottontail
Mammuthus	Mammoth

Table 7.2: Taxa Recovered from Chronological Contexts

Numbers represent minimum numbers of individuals; numbers in parentheses are queried identifications. Categories are mutually exclusive.

Taxon	***Common Name***	***Archaeological Phase***					
		Taos	Santa Fe	Talpa	Vadito	San Lazaro	Trampas
Turtle	Turtle						1
Homo sapiens	Human	2		3	8 (2)	2	1
Carnivora	Carnivore				(1)		
Canidae	Dog, Coyote, Fox, and Wolf						
Canis	Dog, Coyote, and Wolf		(1)		4	1	6 (1)
Urocyon/Vulpes	Fox				(1)		
Ursus	Bear				1		2
Ursus americanus	Black Bear						1
Mustela frenata	Long-tailed Weasel				3		1
Lynx rufus	Bobcat			1		3	
Equus	Horse						3
Sus scrofa	Domestic Pig				1		1
Cervidae	Deer and Wapiti			1			
Cervus elaphus	Wapiti				1		
Odocoileus	Deer	8	14	28	64 (1)	17 (1)	55 (1)
Antilocapra americana	Pronghorn	3	3	3	23	8 (1)	38 (1)
Bos bison/Bos taurus	Bison/Cattle	1	2	9 (1)	10	8	33
Ovis/Capra	Sheep/Goat			1			14 (1)
Ovis canadensis	Bighorn Sheep			1	1		2 (1)

Taxon	*Common Name*	*Archaeological Phase*					
		Taos	Santa Fe	Talpa	Vadito	San Lazaro	Trampas
Rodentia	Rodent			5	1	1	1
Sciuridae	Squirrel and Relatives	1	1	5	20	4	2 (1)
Cynomys gunnisoni	Gunnison's Prairie Dog	1				1	1
Marmota flaviventris	Yellow-bellied Marmot				1		
Sciurus aberti	Abert's Squirrel		1	1	3 (1)		2
Spermophilus lateralis	Golden-mantled Ground Squirrel			1			
Spermophilus variegatus	Rock Squirrel		1	1	1		
Tamiasciurus hudsonicus	Red Squirrel				2		
Thomomys	Western Pocket Gopher				4	1	
Thomomys bottae	Botta's Pocket Gopher			1	9	4	3
Castor canadensis	Beaver				1		
Muridae	Mouse and Rat		1				
Neotoma	Woodrat				2 (1)	1	1
Neotoma cf. mexicana	Mexican Woodrat						(1)
Onychomys leucogaster	Northern Grasshopper Mouse			(1)	(1)		
Peromyscus	White-footed Mouse		2	(1)			

Taxon	*Common Name*	*Archaeological Phase*					
		Taos	Santa Fe	Talpa	Vadito	San Lazaro	Trampas
Erethizon dorsatum	Porcupine			2	3		(1)
Lagomorpha	Rabbit and Hare					1	
Lepus	Jackrabbit	4	4 (1)	3	16		3
Sylvilagus	Cottontail	8	13	14	54	7	16
Sylvilagus audubonii	Desert Cottontail	1	3	1	4	1	3 (1)
Sylvilagus nuttallii	Nuttall's Cottontail	1	1		7	1	2

Endnotes

The avifauna from Picuris were initially identified by Lyndon Hargrave and were subsequently reexamined by Steven Emslie, who ultimately published on the Picuris avifaunal materials (Emslie1981).

Chapter Eight : Evidence of Prehistoric Farming in the Vicinity of Picuris Pueblo

Richard B. Woodbury

Along the permanent streams flowing westward to the Rio Grande from the Sangre de Cristo Mountains, small-scale irrigation is practiced today wherever broad flat bottomlands and adequate water supplies permit. Large areas surrounding the towns of Chamisal, Rio Lucio, Picuris, Peñasco, and Vadito are now under cultivation, so that any direct evidence of farming along these streams by the prehistoric groups occupying the region in the past has either been destroyed or is now impossible to distinguish from the farming activities of the last few centuries. Between the perennial streams are boulder-strewn slopes and ridges, most of them heavily grown with piñon, juniper, and sometimes ponderosa pine; these areas are hunted today for deer and smaller game and show no signs of recent farming. But two areas examined closely during the Picuris archaeological project appear to have been used extensively in the past for small fields or garden plots, although today the soil is discouragingly thin and stony (Figure 8.1).

In July 1963 an area (comprising localities 1, 2, and 3) was examined adjacent to the airstrip that is located north of New Mexico State Highway 75 (Embudo to Vadito and Rio Pueblo), near the west end of the settlement of Peñasco and south-southeast of Picuris. The ground is nearly level or gently sloping to the south and west; very little grass or other ground cover occurs among the closely spaced piñon and juniper. The sandy, reddish soil is strewn thickly with waterworn pebbles, cobbles, and boulders from a few centimeters to about 50 cm in largest diameter.

Locality 1

Locality 1 (Figure 8.1) slopes gently to the west, crossed by at least 14 north-south, parallel lines of boulders. Each row is 1.0 to 1.5 m wide and is at a higher elevation than the one adjacent on the west. Some boulder lines have larger boulders at the upper, eastern edge and smaller below; others show no such separation. Each boulder line ends at a small, intermittent drainage channel on the south. The northern part of the locality has fewer boulders, and the lines are thus less conspicuous, finally disappearing entirely. Between the rows of boulders are strips of "cleared" land, 1.5 to 2.0 m wide, so that about 60 percent of the area was free of all but the smallest stones and 40 percent was boulder-covered. Between the rows, occasional lines of boulders run east-west, suggesting an intermittently spaced grid pattern. These cross rows seem to be about 5 or 6 m apart but are too few for confident generalization as to their purpose. To the east and northeast the land rises a little more steeply and then drops away to the next main drainage, so that no great amount of surface runoff could have been available.

Locality 2

Locality 2 (Figure 8.2) is large, of ill-defined limits, lying on both sides of the airstrip and probably partly destroyed by it, with many traces of boulder lines forming a large grid. The lines are usually a single boulder wide; the major axes of the grid are oriented approximately northwest-southeast and northeast-southwest. The boulder alignments are similar to those in Locality 1 and probably served much the same

Figure 8.1: Cobble-lined Terraces in Locality 1 Near Picuris Pueblo

purposes: trapping and retaining moisture for agricultural purposes.

Locality 3

Locality 3 lies close to and northeast of Highway 75, opposite the beginning of Highway 76 where the road west from Peñasco turns southwest to Trampas and Truchas. There is an extensive area of undefined limits with numerous traces of boulder lines about 1 m wide, forming approximate squares about 5 m on a side. This grid does not seem to be closely oriented to the slope of the land or to the drainage located to the north and west. As in other localities, where stone was abundant on the surface, the grid is clearly observable, and each boulder line contrasts with the bare soil adjacent to it. In places where stone was scarcer, the distinction is less marked and the lines become obscure or disappear entirely. My impression, which cannot be dignified as inference or even hypothesis, is that stone was habitually removed from land

Figure 8.2. Cobble-lined Terraces and Stone Grids, Locality 2, near Picuris Pueblo

under cultivation, but only to a convenient place a couple of steps away. Combined with this practice were attempts to prevent erosion and rapid runoff, efforts carried out with greatly varying degrees of skill and regularity. At some points the boulder lines appear to continue the pattern merely to give an effect of repetition or continuity, whereas at other points the arrangement seems entirely practical.

Locality 4

In September 1963 an additional area near Localities 1, 2, and 3 was examined, consisting of two prominent ridges running northwest-southeast, about 2.4 km directly south of Picuris. The northerly ends of the ridges are close to the south side of the road to Truchas, about 0.8 km and 1.2 km, respectively, west of Highway 75. The ridge to the northeast has no farming evidence on

either slope or on its narrow top. Its sides were probably too steep and the top too rocky to sustain any significant amount of crop plants, even with soil- and moisture-control devices. The ridge is heavily grown over with piñon and juniper.

The second ridge is similar but broader and a little less steep. The southwest-facing slope has no traces of having been used for farming, perhaps because its greater exposure to the sun made it too hot and dry in contrast to the top and the northeast face, which had farming remains at four localities. Locality 4, on the northeast-facing slope of the ridge, near its southeast end, includes 40 terraces, the highest near the top of the slope and the lowest near the bottom, so that virtually the entire slope was utilized. Each terrace consists of a sloping zone of boulders from 1 to 2 m wide and running for 10 to 15 m along parallel to the contour of the slope. Each of these boulder terraces supports a level area from 2 to 5 m wide, the surface of which is covered with gravel and small stones no more than 4 or 5 cm in diameter; a few boulders occur, but it appears that nearly all had been concentrated in the adjacent zones.

The accumulated boulders cannot be regarded as a wall, since they are merely grouped on the ground. They have, however, caused soil to accumulate upslope from them, creating a terraced or stepped surface on what was presumably once a fairly uniform slope. These terraces were built on a part of the slope that is now heavily grown with piñon, juniper, and ponderosa pine, the last being scarce or absent on most of this ridge. This suggests, as does the topography itself, that this location is better watered than the rest of the ridge. The northeastern exposure was perhaps also a factor in selection, since winter snow would melt here more slowly than on the other side of the ridge and since summer sunshine and associated evaporation would be less intense than with a southwestern exposure.

Locality 5

Locality 5 is also on the northeast-facing side of the ridge, and is very similar to Locality 4. Only 11 terraces could be found in this group, however. Present-day tree growth is less heavy, with no ponderosa pine.

Locality 6

Locality 6, on the northeast-facing slope, is similar to the two preceding localities. We counted 14 terraces here. Because underbrush and annuals are scanty on the slopes of ridges such as this, we believe that we found, with considerable accuracy, the extent of the terraces of Localities 4, 5, and 6. Trees prevent more than a small part of a group being seen at once; one end of a terrace is rarely visible from the other end, even when just a few paces away. But once identified, a group of terraces can generally be followed to its termination, except where destroyed by subsequent road building or other modern activities or where the surface scatter of boulders becomes too scanty and the "boulder zones" or boundaries between cleared areas are reduced to single lines of small boulders.

Locality 7

Locality 7, on the top of the ridge, near the northwest end, is an area of about 0.2 hectares, with scattered piñon and juniper, on which there are poorly preserved lines of boulders, possibly forming a grid pattern originally. Since soil is scant and moisture least on the ridge top, compared with the slopes, it is uncertain whether this was actually a farming area with

stones marking boundaries of plots or whether the pattern of stones had some quite different function. However, absence of soil today need not indicate its absence in the past; the last few centuries have seen heavy overgrazing and timber cutting, which can cause rapid and complete erosion of thin soils in exposed positions such as this ridge top. Therefore, the most reasonable interpretation of this locality is that it was a group of small farming plots, used similarly to the narrow strips of land on the slope below.

Chronological Evidence

Sherds occur in small numbers throughout the area of Localities 1, 2, and 3, almost entirely of Taos Black-on-white pottery. This pottery type dates primarily to the time period A.D. 1100–1250, with the possibility of manufacture being 50 years earlier and later than this estimated span (see chapter 4, this volume). There is, unfortunately, no way to positively associate this pottery with the farming activities believed to have been carried out here, since pithouse remains also occur on these slopes. It is highly improbable that a settled, farming occupation existed here earlier than the pithouse occupation, but it is possible that the terraces and farming plots are of later date than the pithouses. Therefore, the most cautious conclusion to suggest is that farming on the hilly slopes of this area, with simple terraces and boulder lines, may have begun as early as the 12th century but cannot positively be dated to any particular time from then to the last few centuries.

With less certainty, we can suggest that the growth in population that is reflected in the 14th- and 15th-century expansion of Picuris Pueblo may have made essential the exploitation of new farmlands. This increasing intensification in the use of upland areas for farming is consistent with what Anscheutz (1994) argues occurred during and after the 14th century along the Rio Grande valley and its major tributaries. These terraces and plots, then, might represent the time period just before the acquisition of metal tools from the Spanish made it more practical to clear and irrigate large sections of bottomlands. The present denuded condition of these slopes, with little soil and very sparse cover of small plants, was undoubtedly conditioned by overgrazing by livestock during the last century or so and should not mislead us into thinking of these localities as wholly lacking in agricultural potential.

Functional Inferences

The question should, of course, be asked whether these accumulations of boulders are indeed evidence of farming or actually served some other purpose. The evidence is partly negative: they do not appear to be houses, shrines, assembly places, fortifications, or other structures that we can reasonably conclude the prehistoric Native American occupants of the region might have built. But there is also positive evidence: comparable field systems have been found at many localities in the Southwest, with farming always the most reasonable explanation for their presence (see Woodbury 1961b: 8–10, 41) and in a few places, particularly among the Hopi of northeastern Arizona, such field systems have continued to the present (Hack 1942).

Extensive research into the creation and use of prehistoric farming landscapes in the northern Rio Grande has documented a fascinating array of rock and soil features designed to conserve water, warmth, and soil—the three

elements that determine the success or failure of agricultural pursuits in the arid Southwest. The recognition of prehistoric agricultural features began with Bandelier's (1890–92:2:41–57) discussion of boulder-bordered garden plots in the Rio Chama valley. As described for the Picuris localities, the Chama field sites were composed of stone-lined plots, some cleared of rock and others covered with gravels. Subsequent field research has substantiated the prehistoric use of cobbles, gravel mulches, terracing, water-diversion dams, reservoirs, and stone-lined canals along the Rio Grande and its upland tributaries (Anscheutz 1994, 1993; Anscheutz and Maxwell 1987; Bugé 1984; Fiero 1978; Gauthier, Prince, and Mathien 1978; Greiser, Greiser, and Putnam 1992; Lange 1981; Lightfoot 1993; Moore 1981; Snead 1993; Wills, Baker, and Baker 1990; Woosley 1980; Wozniak 1992). Cordell, Earls, and Binford (1984:237) summarize data for upland agricultural features in the Rio Grande region, including the Picuris field information. Their lists of feature location and variability are ample evidence of the importance and extent of agricultural features in the higher elevations of the northern Rio Grande.

Anscheutz (1994) has provided a succinct overview of prehistoric Pueblo techniques for harvesting and conserving precipitation, warmth, and soil in the Rio Grande region. Though the agricultural features found in the Picuris area do not constitute live water irrigation (the diversion of water from perennial watercourses), they do comprise the remains of features designed to enhance what Anscheutz (1994:9) calls "runoff farming." The features near Picuris include proper terraces, check dams, and gravel-mulch gardens. Each of these feature types confers one or more benefits that enhance the chances of producing a viable agricultural crop. It is clear that the prehistoric agriculturalists fully appreciated these benefits, building combinations of the features across the landscape depending on whether they needed to enhance their harvest of moisture, soil, or warmth or a combination of these three essential components.

For example, Anscheutz (1994:10) points out that contour terraces function most effectively to conserve runoff moisture and slow the erosion of soil. It is logical, then, that the prehistoric terraces in all of the localities are on slopes that today exhibit thin soils. Although one might argue that thin soils attest to the ineffectiveness of the terraces in holding the soils in place, we must realize that overgrazing and deforestation in the vicinity have played a major role in the erosion of these surfaces. But more to the point, terraces were built to conserve those soils put at risk by any human alteration of the landscape, meaning those soils on steeper slopes. Given the geomorphological processes that invariably deposit thicker soils in the valley bottoms and strip soil from the ridge crests and slopes, the prehistoric Picuries ensured longer use lives for their ridge-top and ridge-slope fields by constructing check dams and terraces.

As Anscheutz and others have pointed out, the addition of cross-walls between boulder lines and terraces helps decrease the amount of soil movement within the garden complexes themselves. Thus, the presence of gridded areas in some of the localities attests to the need to control water and soil movement on a very small spatial scale. This brand of "micro-farming" is a strategy well suited to the Southwest, since it allows food producers to exploit even the smallest soil

and water concentrations created by the locally complex physiography.

In addition to boulder borders and terraces, gravels were also applied to certain field surfaces, particularly in Locality 4. Gravel mulching provides a number of benefits to agricultural fields, including the dampening (literally) of evaporation rates and the conservation of heat (Anscheutz 1994; Moore 1981). The gravels keep moisture in the soil for longer periods of time. The heat that collects in the rock during the day keeps the garden plots warmer during the chilly summer evenings, helping to decrease the effects of cold-air drainage (Adams 1979) and the possibility of killing frosts. Thus, gravels were placed on those fields that required higher and more-consistent levels of moisture and heat, but in a selective fashion, since not all the bordered fields in the Picuris area show gravel-mulched surfaces.

Cumulatively, the evidence is convincing that these lines of boulders were designed to aid prehistoric farming through the retention of water, warmth, and soil. Woosley (1980) has proposed that these same features might have been used to divert water away from habitation areas as well. In addition, they served the purpose for which many New England stone walls were built—to clear away enough of the larger boulders to make farming in the intervening areas easier. And of course, farming with a digging stick instead of a plow makes small plots or long, narrow strips just as useful as larger fields.

Based on these findings and other summaries (Cordell, Earls, and Binford 1984:237), the total acreage of these hillside farming plots was significant, with many of the farming features spread out over plots spanning several square kilometers. Other field areas surely lie undiscovered among the piñon and juniper. Certainly the agricultural potential of the area did not rest only in these upland field locations. Other locations that today lie in areas of irrigation extend for six to eight kilometers along the Rio Pueblo tributary that flows past Peñasco and Rio Lucio. We do not know and should not assume, however, that these bottomlands were all farmed in prehistoric times, since the lack of iron and steel tools would have made it extremely difficult to clear any heavy growth of willow, grasses, or other moisture-loving plants that today make untended spots along the streams into miniature jungles. In addition, the valley bottom environs are the most susceptible to frost damage in the late spring and early fall, both critical growing times for agricultural plants. The drier slopes could have been partly cleared for farming by simply girdling the trees, breaking off the smaller branches when they died, and rearranging the larger stones and boulders. If soil and moisture were sufficient for crops, even small plots could have been successfully tilled with no tool more elaborate than a wooden digging stick.

Endnotes

The fieldwork reported here was undertaken at the invitation of Herbert Dick; his cooperation in the field and his many helpful suggestions are much appreciated. The work was supported in part by National Science Foundation Grant G22262 and was part of a larger program of research on prehistoric water-control and water-management systems for agriculture. In the field I was assisted by Nathalie S. Woodbury, who found many of the features and helped with the process of recording their nature and extent.

Chapter Nine: Kiva Murals and Iconography at Picuris Pueblo

Helen K. Crotty

Kiva murals found in several of the subterranean structures at Picuris are among the least-known aspects of the archaeological discoveries made at the pueblo by Herbert Dick. Before his death, Dick gave several public talks in which he described the murals, but never published any photos or extensive descriptions of the mural motifs (Martha Dick, pers. comm. 1995). This chapter marks the first time the murals have been described in print. Michael Adler asked several tribal members whether they would be interested in contributing any insights on the murals, but he did not find any interested in doing so. The paintings are used here with the permission of the Picuris people.

The murals are the most complete set of painted figures found in an ancestral Rio Grande Pueblo context north of the site of Kuaua, near Bernalillo, New Mexico. Dick ensured that photos were taken and scale drawings were made of most of the painted motifs. Unfortunately, the murals were not preserved, since the friable plaster onto which the murals had been painted either flaked off or was removed in the process of looking for earlier painted designs that had been covered by replastering episodes in the kiva. It is not known how much of the kiva mural art was intact at the time the kivas were backfilled after the excavations had been completed at Picuris.[1]

The murals of Picuris, like the kivas in which they were painted, exhibit distinctive features that remained virtually unchanged over a remarkably long time span. As discussed in chapter 4 of this volume, the earliest of the rooms in which murals were recorded, Kivas sub-A and B, may date from the 14th century, with Kiva sub-A perhaps constructed even earlier. Kiva C was probably filled in the late 17th century, Kiva D at the same time or perhaps a little later, and Kiva A in the 19th century. Two of nine additional kivas encountered during salvage operations in 1965 bore evidence of painted plaster (Dick 1965b). Since it was not possible to record these paintings, they will not be discussed further here. In any case, the mural art recorded at Picuris apparently extends over a longer period than is known for any other southwestern site. For at least five centuries, a very limited array of motifs—terraced pyramids, lightning bolts, birds, and rainbows—appears in all of the recovered murals, with a few additional images in some of the kivas. All the motifs are relatively common in ancestral and historic Pueblo art, but the particular way in which they are executed at Picuris renders them unlike their counterparts elsewhere.

In the following pages, mural art in the Southwest is briefly outlined, and certain stylistic features that the Picuris paintings share with other ancestral and historic Pueblo paintings are noted. The iconography, or imagery, of Picuris is then examined in the order of the frequency of the various motifs. Each motif is considered first as it appears at Picuris and then as it may be found in the mural art of other prehistoric or historic sites or, when appropriate, on ritual objects or in rock art. Finally, the possible ceremonial significance of the murals is suggested, and the place of the Picuris paintings in the history of southwestern mural art is evaluated.

Kiva Mural Art in the Southwest

Murals have been observed in southwestern kivas dating as early as the 10th century at Alkali Ridge, Utah (Brew 1946), and into the 20th century at several Pueblo locations (for a review of the distribution of kiva murals, see Smith 1952b:55–103; Crotty 1990; Brody 1991). Reportedly, they are still painted today at some pueblos. The earliest examples usually employed geometric motifs similar to those found on contemporaneous painted pottery, although simple life forms were occasionally represented. When life forms were portrayed in these early murals, they were small in scale and were casually placed on the walls, without visible regard to a compositional scheme (Smith 1952b:55–68, figure 7). Around the beginning of the Pueblo IV period (ca. A.D. 1300–1600), representational art gained wider acceptance among ancestral Pueblo peoples, and life forms were increasingly depicted on pottery and, in enlarged scale, on rock surfaces and on the interior walls of kivas and ceremonial rooms. Kiva mural art reached a peak in development during the Pueblo IV period, when large complex scenes featuring elaborately detailed human and animal figures were depicted in carefully organized and framed compositions. Kiva art of the historic period is poorly known.[2]

The best-known mural sites of the Pueblo IV period are Awatovi and Kawaika'a (collectively known as the Jeddito sites) in the Hopi area of northeastern Arizona (Smith 1952b), and Kuaua, Pottery Mound, and Las Humanas (the last also known as Gran Quivira) in central New Mexico (Dutton 1963; Hibben 1975; Peckham 1981) (Figure 9.1). Portrayals at these sites include a variety of human figures engaged in ritual activities, as well as animals or composite creatures that may illustrate mythic beings. Although certain themes or motifs often dominate the imagery of individual mural sites, the iconography is generally far more diverse and represented in a greater number of paintings than is the case at Picuris. At most of the better-known sites, kiva walls had been replastered many times. For example, 100 or more layers are reported in three of the painted kivas at Pottery Mound (Hibben 1975:table 3), 100 or more in Room 218 at Awatovi (Smith 1952b:table 1), and 87 layers in Kiva III at Kuaua (Dutton 1963:207–208). Not all of these plaster layers bore evidence of paint, however. For each of the three much-replastered Pottery Mound kivas, painted layers numbered 6 or less; of the 100+ at Awatovi, 27 were painted; and of 87 at Kuaua, 17 were painted. In contrast, for the Picuris kivas where murals were recovered, only a single plaster layer was recorded for Kivas sub-A (Figure 9.2), B (Figure 9.3), and C (Figure 9.4); Kiva A (Figure 9.2) had three layers of plaster, all painted, and Kiva D (Figure 9.5) had one unpainted layer over its painted layer. Among the kivas tested during the Picuris salvage excavations, Kivas H and L each had two unpainted plaster layers, Kiva K showed some red paint in the second of three plaster layers, and Kiva N, which could be only superficially examined, had four or five layers of painted plaster (Dick 1965b:109–110, 120). No plaster remained in the rest.

Ancestral Pueblo Stylistic Features and the Picuris Murals

In style as well as imagery, the Picuris paintings exhibit an idiosyncratic conservatism unknown at most of the Pueblo IV sites where murals have been found. Although an acquaintance with the artistic traditions of other ancestral Pueblo muralists is evident in certain stylistic qualities, the Picuris painters generally follow an independent path. One stylistic feature of Pueblo III murals, particularly those of the

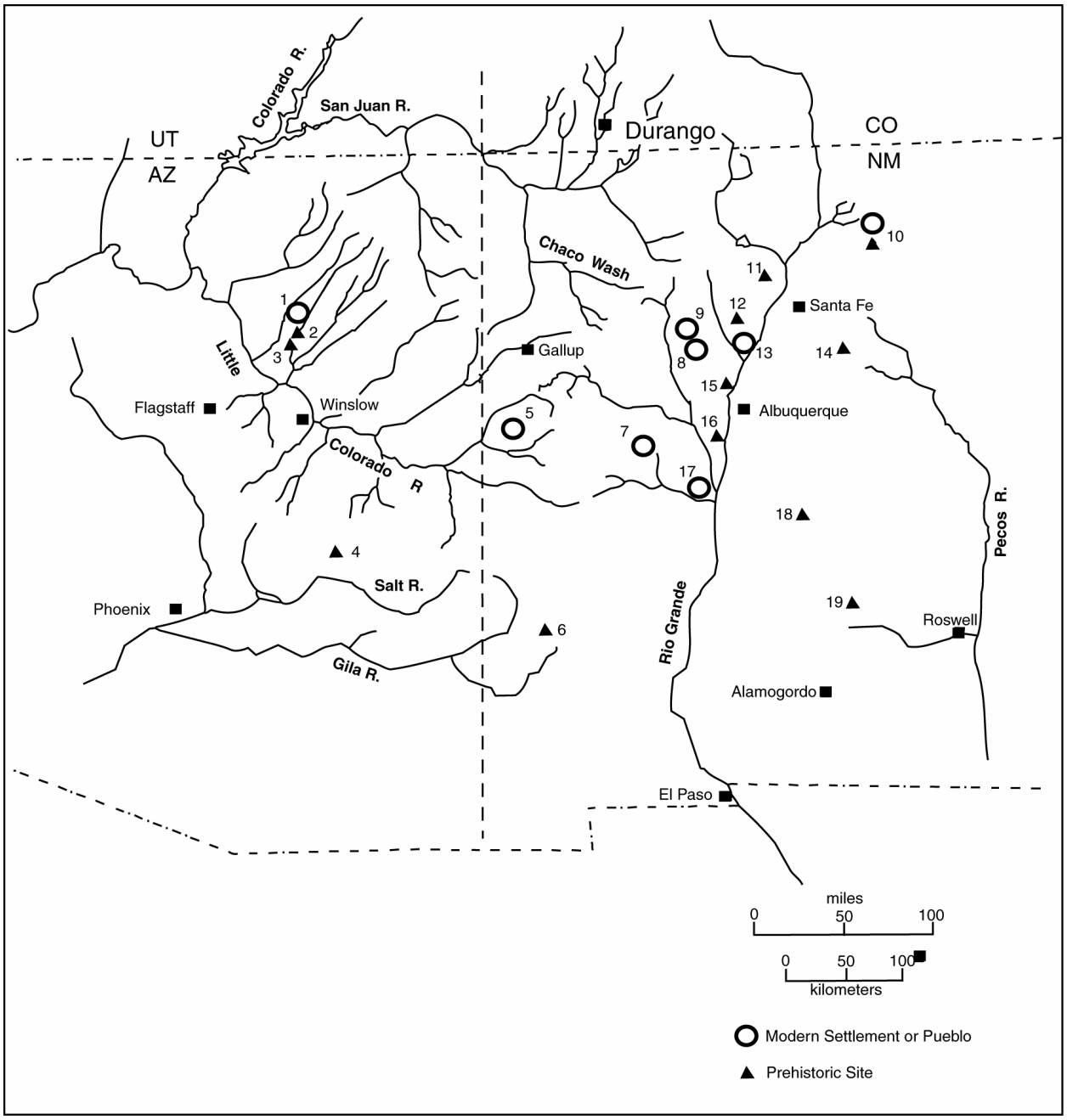

Figure 9.1. Map of the Southwest, Showing Places Mentioned in the Text (1) Walpi; (2) Awatovi; (3) Kawaika'a; (4) Canyon Creek Ruin; (5) Zuni Pueblo; (6) Gila Cliff Dwelling; (7) Acoma; (8) Jemez Pueblo; (9) Zia Pueblo; (10) Picuris Pueblo; (11) Frijoles Canyon; (12) Pueblo del Encierro; (13) Cochiti; (14) Pecos Pueblo; (15) Kuaua; (16) Isleta; (17) Pottery Mound; (18) Las Humanas; (19) Three Rivers Petroglyphs

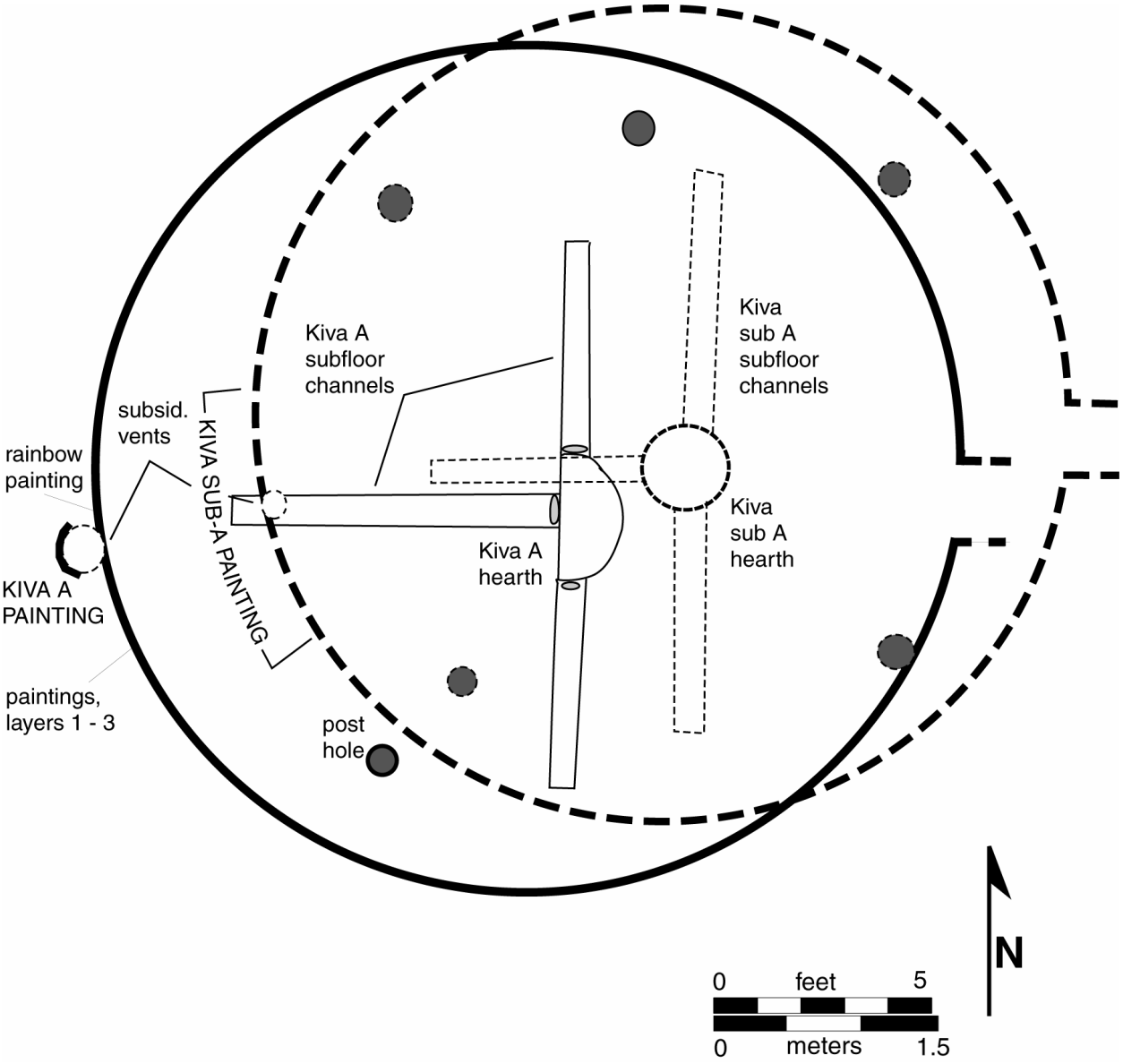

Figure 9.2. Kiva A and Kiva Sub-A. Kiva A was Built Over Kiva Sub-A. Locations of Murals Indicated on the Map.

Mesa Verde region, is the dado, a broad band of color, usually reddish, extending two or more feet upward from the floor. Geometric decorative elements, such as triangles, often extend above the dado into the lighter-colored wall above. Starting around A.D. 1400 at Awatovi and Pottery Mound, a narrow band painted a short distance above floor level came to be used both as a lower frame and as a ground line for the imagery. This band was later much elaborated, especially in the Jeddito murals, but it is not always present at Kuaua. At Picuris, there is no indication of a dado in the imagery arranged with any apparent regard for a consistent ground line, which

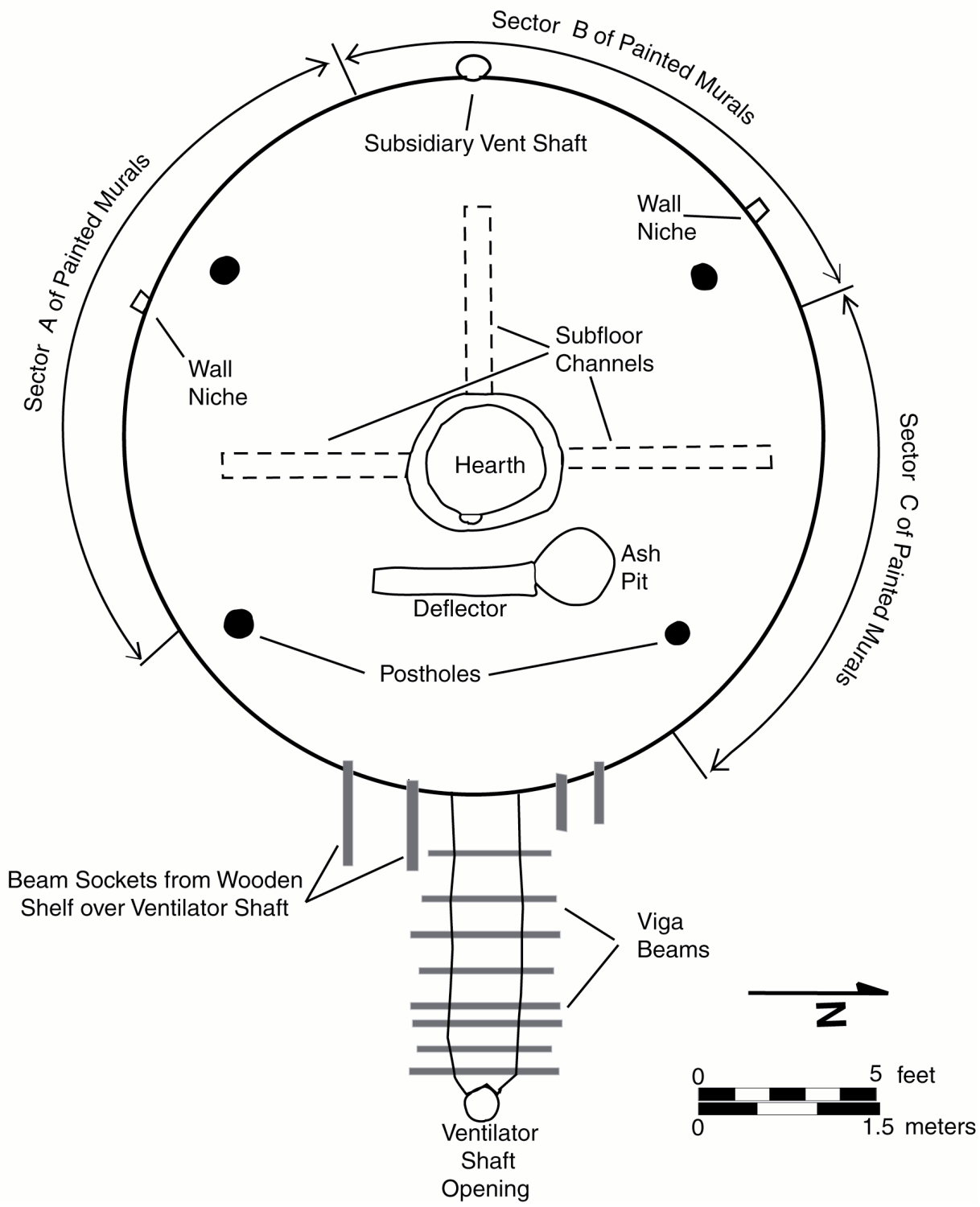

Figure 9.3. Map of Kiva B. Areas of Mural Paintings Indicated on the Map.

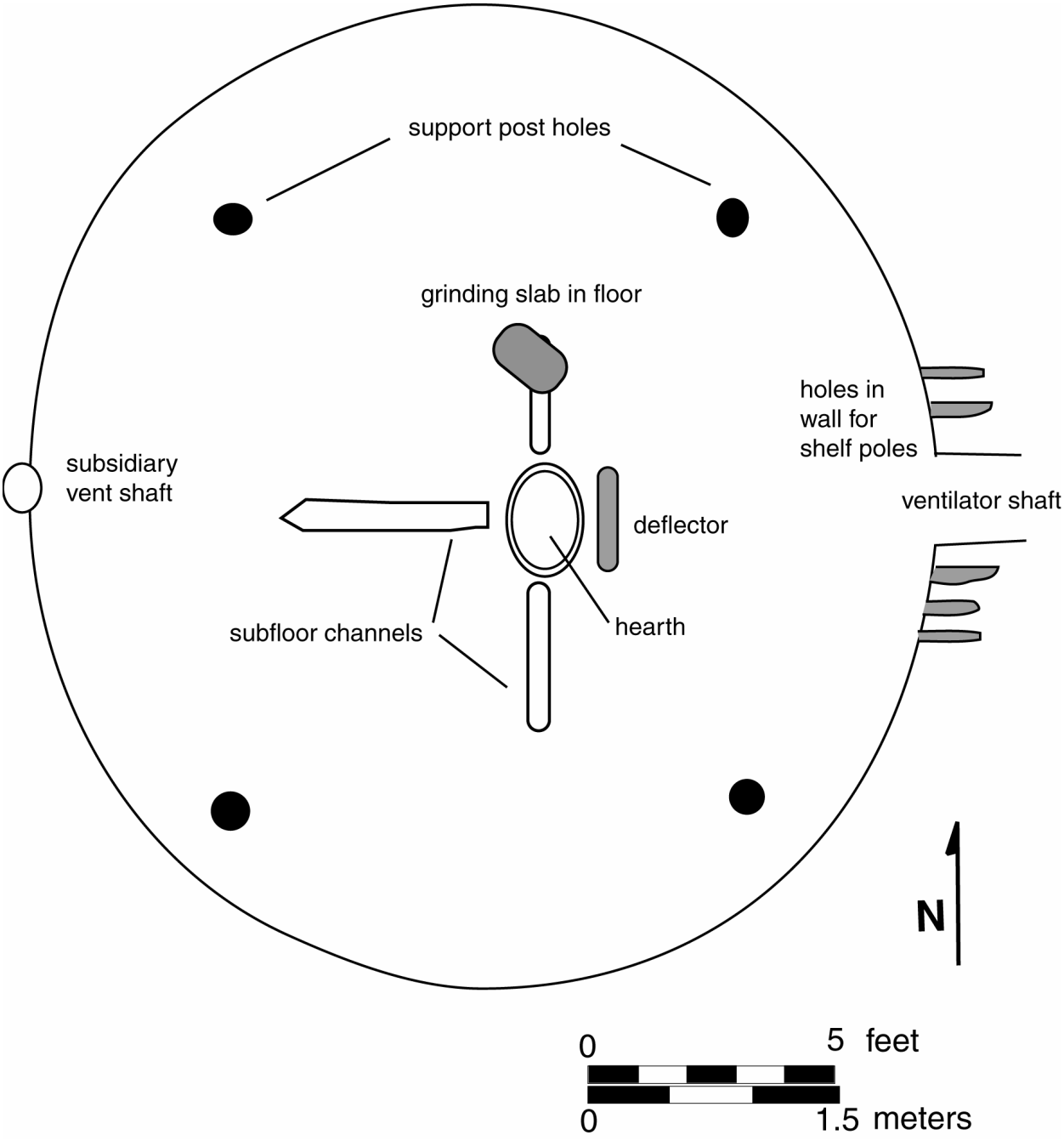

Figure 9.4. Map of Kiva C. Mural Locations Cover Entire Inside Wall Space.

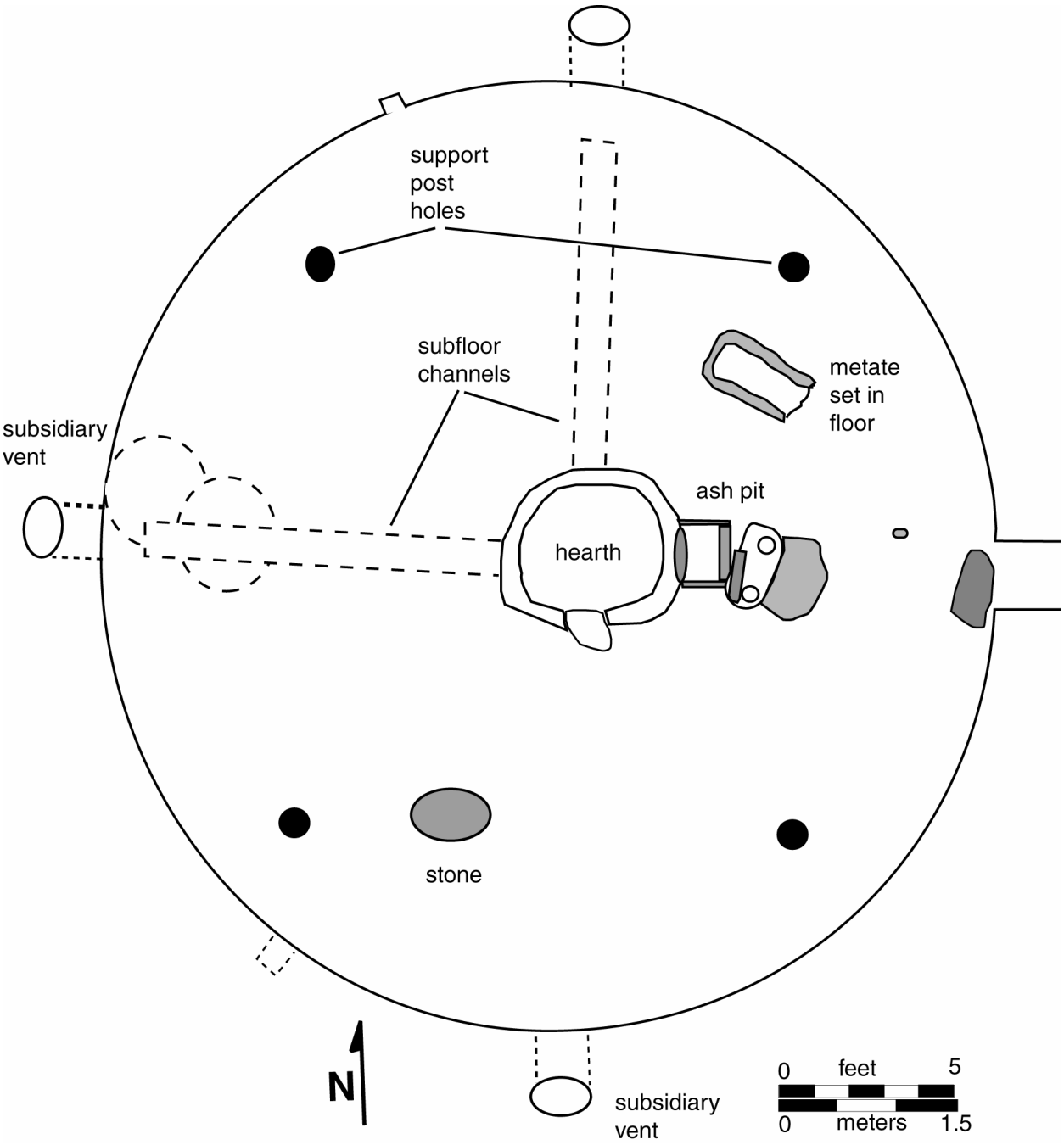

Figure 9.5. Map of Kiva D. Mural Locations Not Indicated On Original Maps

suggests that it dates to the late 14th or early 15th century. Other stylistic features of this painting to be discussed below support this temporal assessment. The fragments recovered from Kiva A do not include a dado (Figure 9.7), as might be expected in a kiva dating from the historic period, but dadoes are definitely present in Kivas B and C. In Kiva B, which was probably in use in the late 1400s to early 1500s, a 6-in band of light gray is noted near the bottom of the wall (Figure 9.8). In Kiva C, which may have been occupied contemporaneously with the painted kivas of Kuaua, the dado consists of a 3-in black band placed 4 inches above the floor (Figure 9.9). Though the Picuris dadoes are somewhat narrower and closer to the floor than the average dado at other Pueblo IV sites, they are within the range recorded elsewhere. No dado is evident in the painting from Kiva D, but the motifs are arranged at a relatively consistent distance above the floor level (Figure 9.10), as is the case in some of the late Kuaua murals.

The murals of Kivas B and C are unusual in the presence of a secondary colored band that serves as a background for the imagery. In Kiva C, a 27-in band of light blue served as a background for the lower portion of the imagery, with tan plaster above. In Kiva B, there was a third colored band: white paint over the gray dado reached to a height of 27 in above the floor; above that was a 22-in black band ending a little over 48 in above the floor, and above the black band was tan plaster. The use of a banded background appears to be unique to Picuris. Also apparently unique is the white background setting off the bird standing on the left rainbow in the mural from Kiva sub-A. Although white, black, or colored paint was sometimes applied to a predetermined portion of the wall to serve as the background for murals at the Jeddito, Pottery Mound, and Las Humanas sites, these colored backgrounds normally extended to the full height of the composition.

A second characteristic of most ancestral Pueblo murals is the use of contrasting outlines around flat-color areas, although this stylistic feature is usually absent at Las Humanas. Contrasting outlines are found in the Picuris murals, but not on all the motifs. They are particularly noticeable in delineating the terraced pyramids, although sometimes missing on the top step and often lacking between the interior colored rectangles. They are employed occasionally on the shafts of lightning bolts in Kivas B and A, and are generally lacking in the depictions of birds, rainbows, and corn plants in all the kivas.

A third characteristic of ancestral Pueblo mural art is the symmetry employed in the composition. The type of symmetry varies among the sites: mirror symmetry around a central focus is usually favored in the Rio Grande pueblos of Pottery Mound and Kuaua, whereas serial repetition of the figures is preferred in the Jeddito paintings and is always employed at Picuris. Serial repetition is also characteristic of most ancestral Pueblo pottery. In the Jeddito region, where kivas are all rectangular, the painting on a single wall is often dominated by a central frontal human figure. Accompanying figures rendered in profile on either side normally face toward the viewer's left rather than toward the center. At Pottery Mound and Kuaua, figures and motifs are usually organized in mirror symmetry centered on a niche in the wall opposite the ventilator and sometimes at the ventilator. In the historic murals of the Rio Grande and Zuni areas, mirror symmetry replaces the dado as the organizing principle of the composition (e.g., Cushing 1979: figures 11, 20; Goldfrank 1962:number 63;

Reagan 1914, 1922; Smith 1952:figure 36d; Stevenson 1904:plate 108) and it is sometimes used at Hopi, also (e.g., Stephen 1969:146 [orig. 1936]). Mirror symmetry in composition is noticeably absent, however, in the murals of Picuris.

Although the opening of the subsidiary ventilator in the west wall of the Picuris kivas is emphasized by specialized imagery—rainbows and corn plants—the icons vary somewhat and may be placed asymmetrically. In addition, bird depictions in profile all face toward the viewer's left around the kiva wall, as do the tips of the lightning bolts. The movement in the Picuris paintings is thus always from right to left, or counterclockwise. Since the participants in most Pueblo rituals also follow a counterclockwise direction, the preference for leftward-moving serial repetition in the murals of the Picuris and Jeddito kivas may reflect similar ceremonial practices rather than artistic influences. The left-facing positioning of the Picuris images is more consistent than is the case with the Jeddito murals, many of which include figures that face toward the viewer's right.

On balance, the murals of Picuris exhibit selected features of the ancestral Pueblo mural tradition while maintaining a distinctive style. The dado appears to be used to organize the composition in Kivas B and C, but it was not used in Kiva sub-A and probably not in Kivas A and D. A secondary or tertiary band of background color above the dado is not known elsewhere. The outlining of color areas, noticeable at most ancestral Pueblo sites, seems to have been reserved at Picuris largely for delineation of the pyramids. The serial repetition employed is characteristic of ancestral Pueblo pottery decoration, and the leftward movement is generally observed in Pueblo ritual. No mirror symmetry is recorded in Picuris paintings.

A stylistic convention in the representation of birds that is typical of ancestral Pueblo mural art at all the other sites appears at Picuris only in Kiva sub-A. It will be discussed in the section on bird depictions below.

Picuris Iconography

Terraced Pyramids

Strictly speaking, a pyramid is a three-dimensional form, but I will use the term terraced pyramid to refer to a common prehistoric and historic Pueblo art motif that is sometimes also called a "cloud terrace" or "cloud altar." The motif probably originated in plain-weave basketry and textile decoration, where the substitution of a contrasting element for a graduated number of square units in successive rows produces a stepped equilateral triangular form with a truncated flat top. Vertical bisection of this motif results in two right-angled stepped triangles, which I shall refer to here as terraced triangles. Terraced triangles are more common in ancestral Pueblo basketry, textile, and pottery decoration than are terraced pyramids.

Terraced pyramids are recorded in all the Picuris kivas from which murals were recovered, and unlike terraced pyramids in other kiva mural art, they are colorfully decorated within and are often asymmetrical in outline. The polychrome rectilinear forms of the interior decoration are usually asymmetrically arranged, and some are decorated with small disks or nucleated disks in a contrasting color. No disks appear on the pyramids of Kiva sub-A, and only one appears in Kiva B; a single red disk on a complex rectilinear form near the base of an elaborately decorated pyramid (Figure 9.8). In Kiva C, two of the pyramids have pairs of disks: on one, the disks are solid gray and are placed just below the top steps of the pyramid; and on the other, nucleated disks that resemble eyes are placed lower, near the center of the pyramid (Figure 9.9). In Kiva

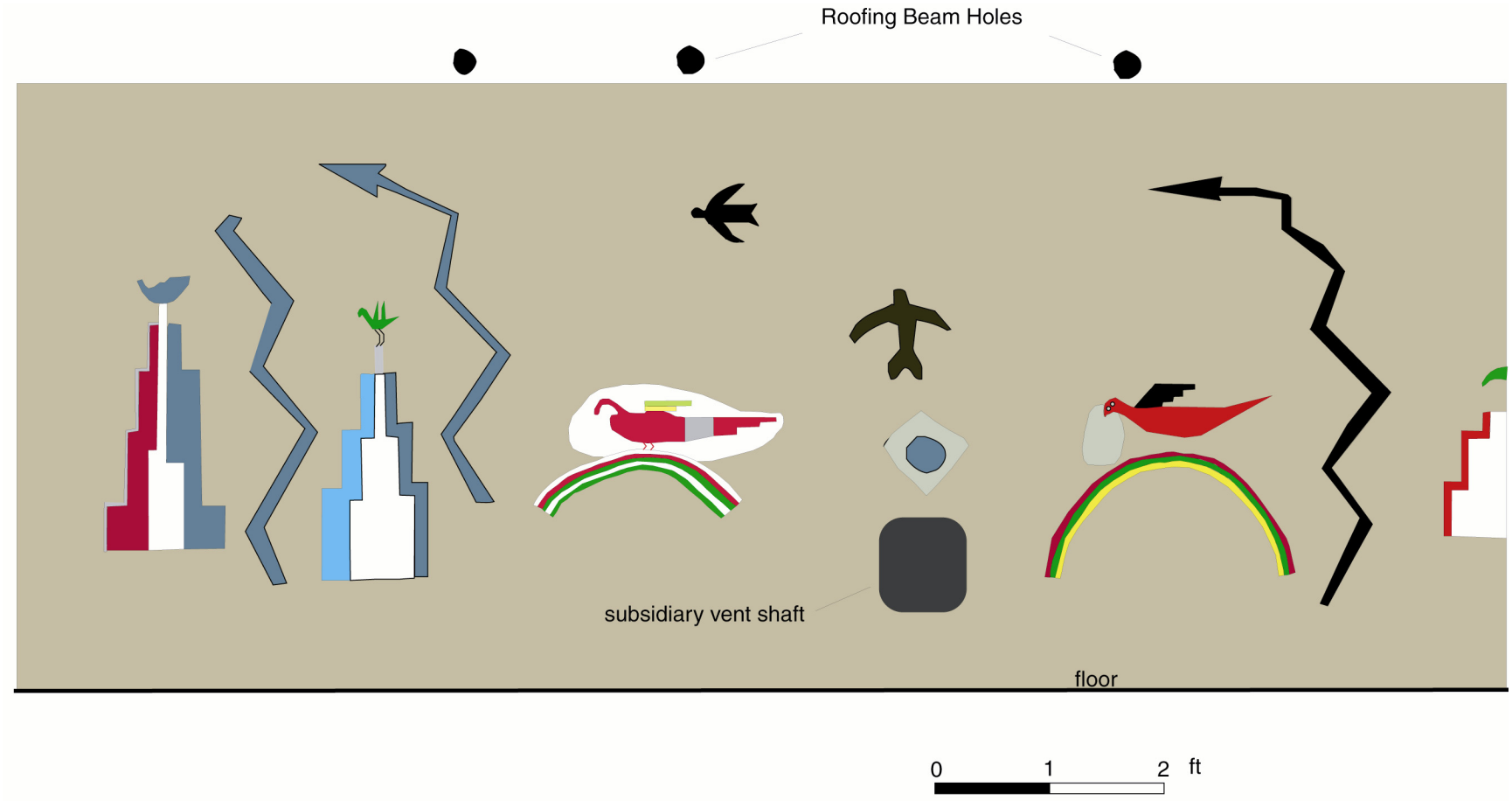

Figure 9.6: Kiva sub-A murals, Picuris

D, a pair of black disks is placed below the first step, and another closer to the base of the pyramid (Figure 9.10). Field drawings do not depict disks on the pyramids in Kiva sub-A (Figure 9.6). No disks are recorded on the fragmentary remains of terraced pyramids in the murals of Kiva A (Figure 9.7).

The asymmetry of the outline and the complexity of the interior polychrome decorations are somewhat less pronounced in Kivas sub-A and B than in Kiva C. Most of the pyramids of Kivas sub-A and B have a narrow longitudinal rectangle, white or black, at the center of the pyramid. Although this arrangement is retained in some of the pyramids of Kiva C, it is elaborated or interrupted in others. It appears that a trend toward asymmetry in the treatment of the terraced pyramid motif at Picuris peaked in the murals of Kiva C. If so, this might reflect a taste for asymmetry that spread across the Pueblo world between the 14th and 17th centuries, most notably in the widely traded Sikyatki wares from the Jeddito and Hopi areas. Sherds of Sikyatki Polychrome and other western Pueblo pottery types were found during the excavations at Picuris (see chapter 4 of this volume).

Monochrome terraced pyramids with symmetrical outlines are an important element in many prehistoric murals, and they are virtually ubiquitous in the ceremonial art of modern Pueblos. Simple terraced pyramids were the sole decorative element above a very wide dado in a 14th-century ceremonial room at Canyon Creek, Arizona, which is located southwest of ancestral Pueblo territory in what may have been a mixed Mogollon-Anasazi occupation with influences from the Hohokam (Haury 1934:48, 152–155, plate 33). Outlined but unpainted symmetrical pyramids are given a position of importance in the early murals of Awatovi and Pottery Mound (e.g., Smith 1952b:figures 65c, 70a; Hibben 1975:figures 1, 37). At Las Humanas, white pyramids are used in compositions on a black ground in a ceremonial room dating to the late 17th century (Peckham 1981:figures 43, 50). At Kuaua, simple monochrome pyramids often frame the niche (e.g., Dutton 1963:plates 16, 22). In other Kuaua murals, white semicircles placed on the steps of black-painted pyramids suggest thunderheads, an impression reinforced by the addition of black drops below the base of the terrace to indicate rain. In historic Hopi murals, the rectilinear terraced pyramid is usually replaced by pyramidal forms made up of stacked semicircles, with black vertical dashes below the base making the allusion to rain clouds (e.g., Stephen 1969:figures 118, 144–145, plates 5–7 [orig. 1936]). Though the stacked semicircular forms are preferred in the decoration of historic ceremonial objects at Hopi, the rectilinear terraced pyramids are more common at Zuni and in historic Rio Grande villages (Smith 1952b:table 7). Rectilinear terraced pyramids are especially numerous on the Zuni carved wooden altar furnishings illustrated by Stevenson (1904:plates 58, 59, 104, 116, 122, 125, 126, 127). Nowhere but at Picuris, however, are the interiors of the terraced forms decorated with polychrome rectangles or with disks or pairs of disks, and nowhere else do the pyramids appear to be deliberately asymmetrical.

Although the asymmetrical terraced pyramids of the Picuris paintings have no counterpart in the murals of other Pueblos, similar forms occur in the decoration of several miniature canteen-like ceremonial vessels found in caches from Picuris, as Wolfman and Dick (see chapter 5 of this volume) point out. Four of the five Trampas Black-on-white (ca. A.D. 1500–1650) pots found in a subfloor cache in Feature 6 have irregular terraced pyramids as their main

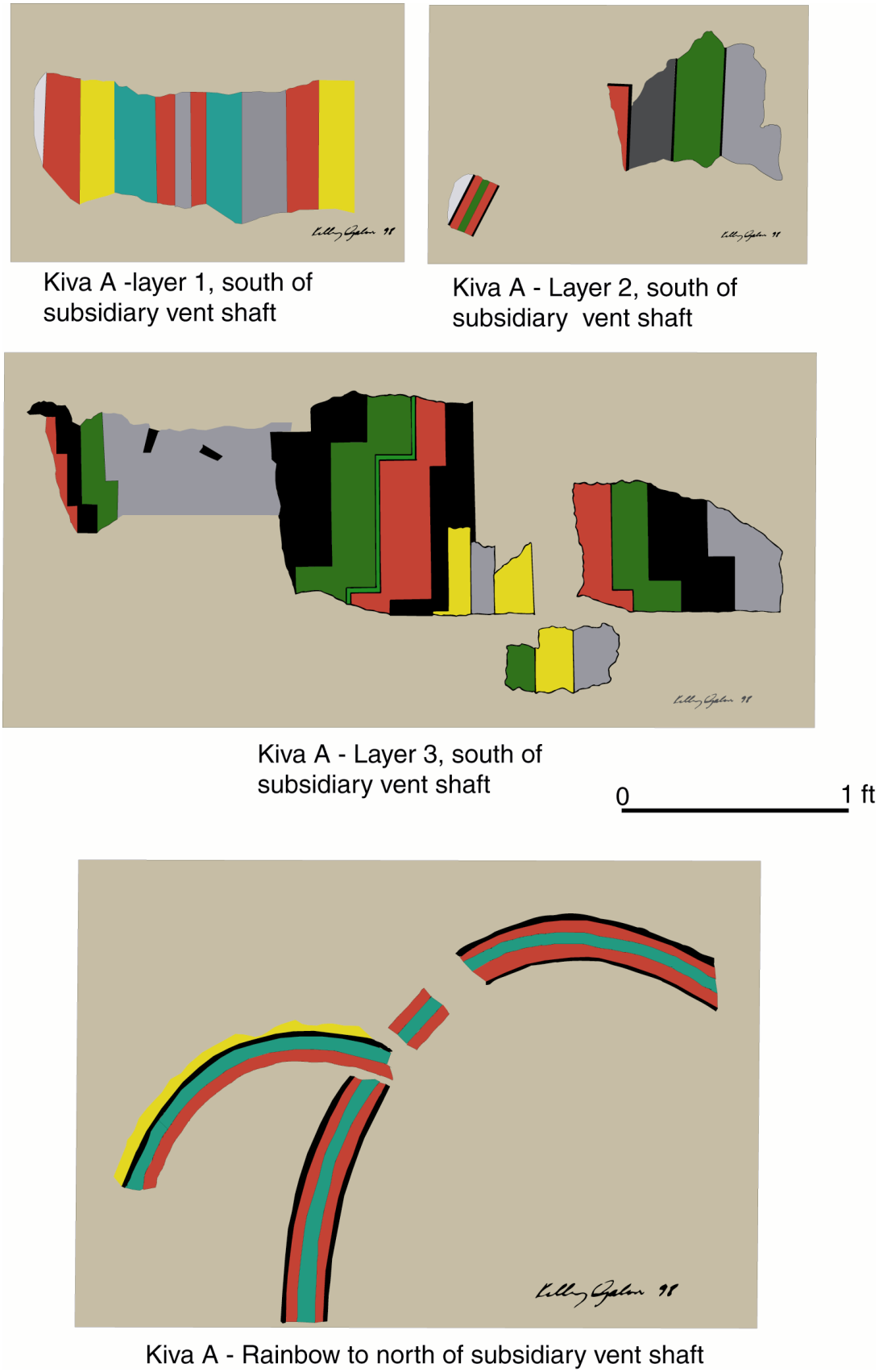

Figure 9.7. Murals from Kiva A, Picuris (drawn by Deborah Kelley)

decoration (Figures 5.7 - 5.8). In each case, the pyramids rest on a baseline or baseband, and on two of the pots, lightning shafts emerge from the pyramids themselves or from the baseline between them, just as they do in the murals. Arrow-point tips very similar to those on the lightning bolts in the Kiva B murals occur on Pot 7, but the lightning shafts on Pot 6 lack this detail (Figure 5.8). The pyramids of Pot 7 are apparently rendered in deliberately asymmetrical outline, in contrast to the more symmetrical inverted one-step terraced pyramids placed below two of the lightning bolts. An inverted pyramid is also found on Pot 4 (Figure 5.8). The images on this pot are somewhat irregular, as the steps of the terraced pyramids are undercut rather than right-angled. The presence of a narrow longitudinal rectangle at their centers, however, indicates an affiliation with the terraced pyramids of the murals. The pyramids of Pot 1 are somewhat more regular in outline, but their tall, narrow top step recalls the central longitudinal rectangle of the terraced pyramids of Kiva B.

Two irregular terraced pyramid designs resting on a baseband and a possibly related motif are found on ceremonial vessels of similar size and shape recovered from various caches at Pecos (Kidder 1936:278, figures 241d, 242b, 239c, d, 242c, 243 f, i*)*. The terraced pyramid design occurs on one canteen with a gray slip and glaze decoration and on another identified by Kidder as "Biscuit A?" The possibly related motif consists of two stepped triangles resting on a baseband, with their terraced sides turned outward and their backs separated by an open space. If a line were drawn across the tops, they would form a terraced pyramid with a longitudinal rectangle at the center. The upper step of each of the triangles is long and narrow, as are the tops of the pyramids in Pot 1 from the Picuris cache. The miniature canteens with the paired stepped triangle decoration were among a number of such vessels recovered from Pecos. Like those from Picuris, they are equipped with a pair of tiny handles or other devices at the neck to hold a cord; some are undecorated, whereas others are decorated with other motifs. The Pecos canteens were recovered from post-Spanish deposits. Kidder (1936:286) notes that the pottery types "run practically the entire gamut of Pecos wares from Black-on-white to Glaze V," suggesting they may have been carefully preserved heirlooms.

The paired terraced triangle design apparently does not occur on early black-on-white types from Pecos, but is rather common on glaze wares. Most of these are described as having a light or a gray slip with glazed decoration; one has a red slip with a glazed decoration. Although it is tempting to see the Picuris terraced pyramids as derived from an earlier paired triangle motif, there is no evidence to support this notion. On the contrary, it appears that the terraced triangles in the murals of Kiva sub-A and B predate those of the Picuris ceremonial jars and probably the paired terraced triangle motif of the Pecos jars as well.

One Vadito Black-on-white miniature canteen recovered from the subfloor of Kiva A had terraced pyramid decoration of a different sort. This consisted of an outlined band of opposed upright and inverted terraced pyramids relatively regular in form but with rather tall and narrow steps at the apex. The design is reminiscent of mural decoration recovered from Long House in Frijoles Canyon in that the opposing pyramids are spaced so that a negative white zigzag line is formed between them (Rohn 1989:36). In the Long House mural, all the pyramids are solidly painted, whereas in the Picuris jar decoration, two of the inverted pyramids were left unpainted, and the negative zigzag is indicated only by their outlines. The opposed terraced pyramids design is not

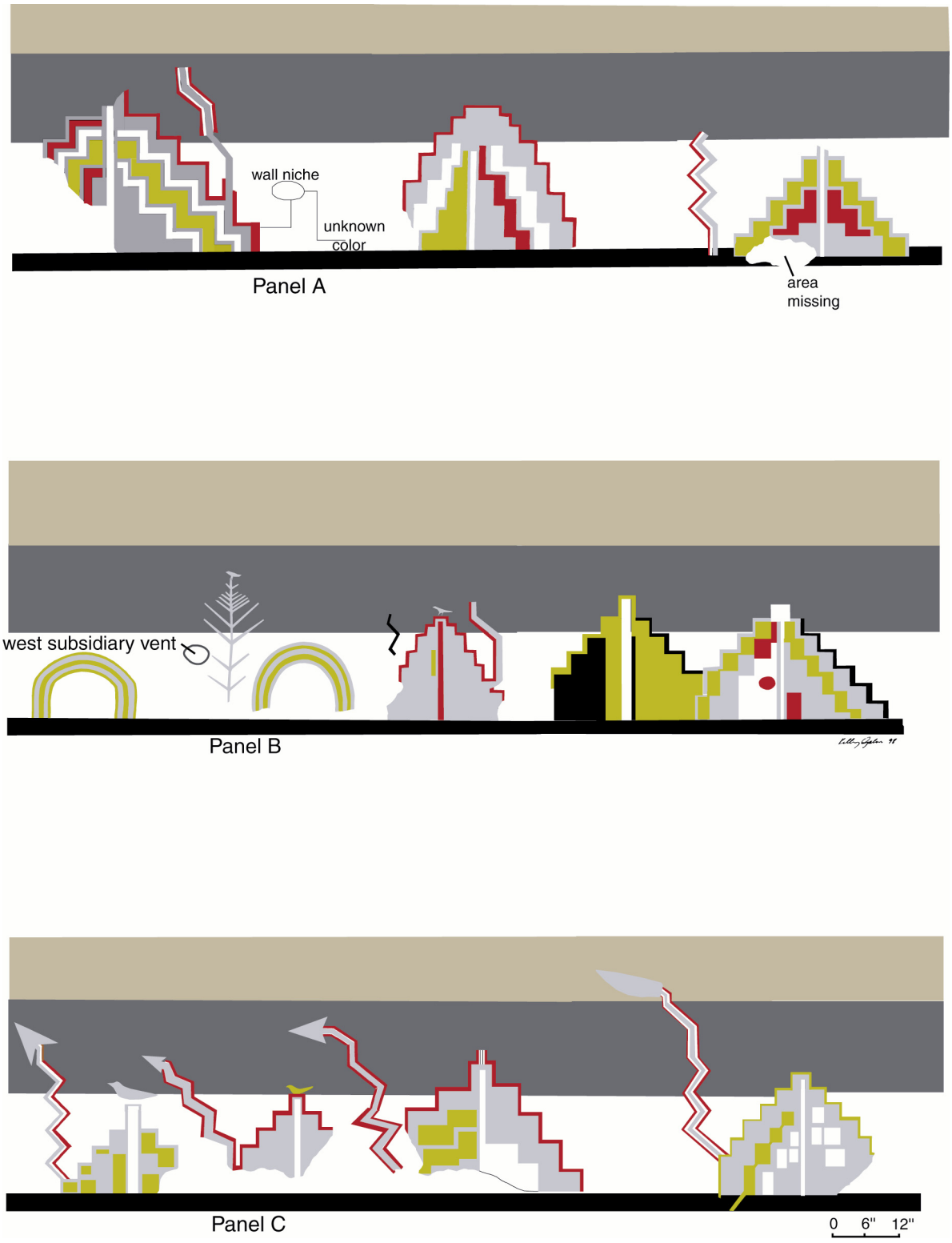

Figure 9.8. Murals from Kiva B, Picuris (Drawn by Deborah Kelley)

known to be used on other ceremonial objects at Picuris, but the negative zigzag elements are reminiscent of the lightning bolts depicted in the murals.

Miniature canteens are known from other prehistoric and historic Pueblo contexts. Several such vessels, including 11th-century examples from the Chaco region and the Mimbres Mogollon, are illustrated by Peckham (1991:figures 18, 145), who refers to them as "medicine jars." None of these canteens, however, bear an encircling band that serves as a baseline for terraced pyramids or paired terraced triangles. Nor could I find this specific type of decoration on any vessels in the collections of the Museum of New Mexico Laboratory of Anthropology or in the Maxwell Museum, although terraced pyramids occur in other configurations on a few vessels, and although paired terraced triangles, usually inverted and dependent from a line near the rim, occur somewhat more frequently, especially on what appear to be ceremonial vessels. In ancestral Pueblo ceremonial pottery, the terraced pyramids motif resting on a dado-like band is recorded only at Picuris and Pecos, with a related motif found at Pecos and, occasionally, elsewhere in the Southwest.

Lightning Bolts

Like the terraced pyramids, depictions of lightning bolts are distinctive at Picuris, where they occur frequently in the murals and are also seen in the decoration of some of the ceremonial vessels. The paintings of Kiva sub-A include three examples of lightning bolts, two of which are blue-gray, with the third painted black (Figure 9.6). All three arise vertically from a point near the base of a neighboring motif but not at a uniform distance above the floor level. Two have arrow-point heads painted the same color as the shaft. It cannot be determined from the drawing whether the lack of a head on the third might have been deliberate or due to plaster loss. The shafts of lightning in Kiva B are more elaborate, consisting of bands of red and gray, or of red, gray, and white tipped with angular gray arrow points and arising from the terraced pyramids or from the baseband (Figure 9.8). In Kiva C, the lightning is all black, and the points have slightly convex edges (Figure 9.9)., unlike the straight-sided points of Kivas sub-A and B. In addition, some of the lightning bolts in Kiva C extend horizontally, independent of the pyramids or baseband, and at least one ends in a crescent-like form. Notes on the field sketches from Kiva D suggest that lightning may have been represented, but no lightning is shown in the drawings (Figure 9.10). Field notes for Kiva A mention diagonal black lines which were probably part of a lightning design in the earliest layer (Figure 9.7). The second layer had diagonal lines colored black, red, and green, and a lightning device with a gray head and a shaft banded with red, white, and gray. Lightning is not mentioned for the top layer, although vertical lines of white, red, yellow, and gray are noted.

Lightning bolts are represented in the Jeddito, Kuaua, and Pottery Mound murals, where they take somewhat different forms. Polychrome banded lightning bolts are represented in the Jeddito kivas, but these lack arrow points at their tips and appear to drop from above to end in the baseband or in some object on the baseband (Smith 1952b:249, figures 60a-b, 62a, 68a, 76a, 77a, 79a-b). At Pottery Mound and Kuaua, lightning shafts are represented as crossed slats, similar to the crossed-stick lightning frames used in historic Pueblo ceremonies. The lightning, however, is much larger in proportion to the human figures at Pottery Mound than it is at Kuaua (cf. Hibben1975:figures 12, 45, 61; Dutton1963:plates 16, 22). The Pottery Mound lightning slats may be painted a

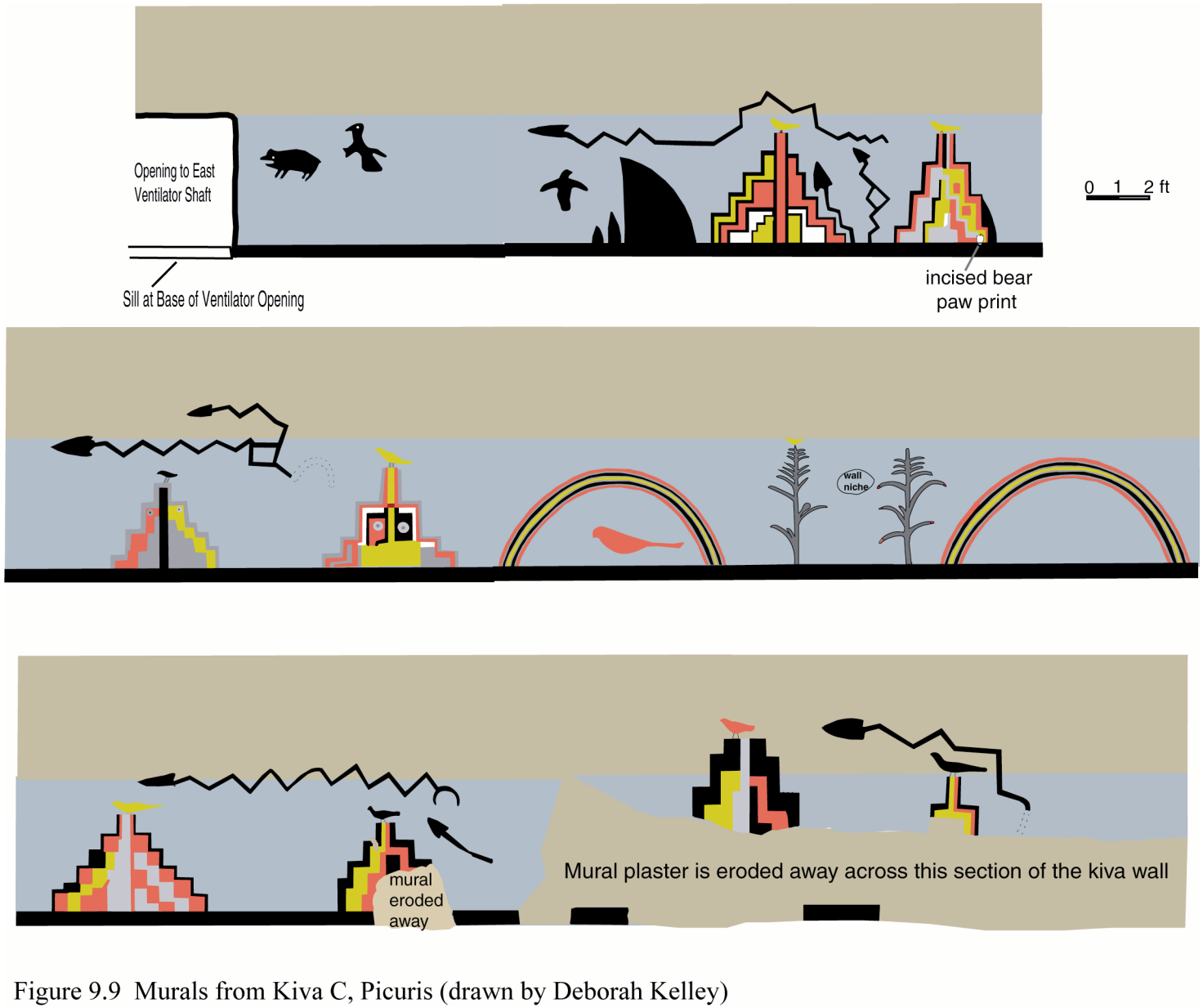

Figure 9.9 Murals from Kiva C, Picuris (drawn by Deborah Kelley)

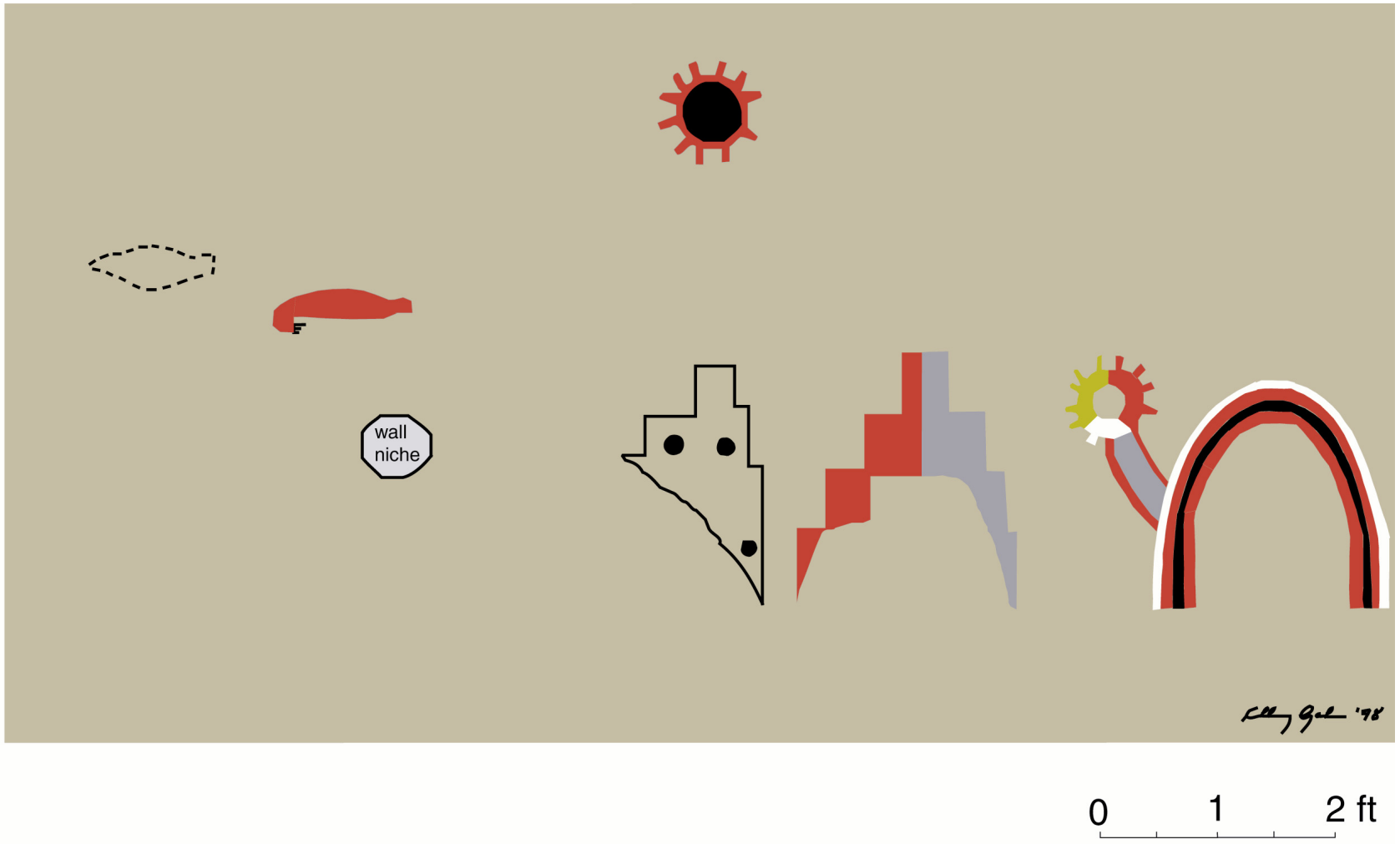

Figure 9.10: Mural from Kiva D, Picuris (drawn by Deborah Kelley)

solid red, white, or yellow, with a contrasting tip, but they lack arrow points. Kuaua lightning comes in a variety of solid colors, often tipped with arrow points of a contrasting color (Dutton 1963:144). The lightning bolts may be associated with terraced pyramids as at Picuris, but at Kuaua the lightning bolts are relatively much smaller in proportion to the terraces.

Lightning bolts are also represented in historic murals from Isleta, Jemez, and the Hopi villages. These depictions differ from one another and from those at Picuris. In the ceremonial room of the Laguna Fathers at Isleta, two vertical bolts have pointed heads, but the zigzag shafts are thin and end in a series of short diagonal branches suggesting the fletching of an arrow (Parsons 1932:plate 17). In paintings from Jemez kivas, an early mural published by Simpson (1850:plate 9; see also Brody 1991:plate 36) shows a thin-shafted horizontal bolt with an arrow-pointed head accompanying a rainbow depiction. A later version published by Reagan (1914, 1922:plates 6, 7) shows four pairs of lightning bolts, one of which has arrow-point heads resembling those of Picuris, but the others have the heads of horned serpents. In both early and later versions, the lightning bolts emanate horizontally from cloudlike forms arranged along the sides of the painting. In the kiva murals of historic Hopi villages, lightning is most often depicted with a short crossbar forming an inverted T at the tip, as it often was in the prehistoric Jeddito paintings (cf. Bourke 1884:plate 23; Stephen 1969:figures 145, 146, plates 5–7 [orig. 1936]; Smith 1952b:figures 76a, 77a). In one example from the Chief kiva at Walpi, however, stemless arrow points form the heads of the bolts (Stephen 1969:figure 144 [orig. 1936]). The lightning in historic Hopi paintings may emanate from cloud representations or from the hand or the shoulder of an anthropomorphic figure.

Historic carved wood slat altar furnishings from Hopi, Zuni, Zia, and Jemez show vertical zigzag or wavy lightning bolts. At Hopi, they have the crossbar tips seen in the Jeddito murals (Fewkes 1897:figures 43, 44). At Zuni, an ambiguity exists between lightning and serpent forms, as it does in the Jemez murals. In several altars illustrated by Stevenson (1904:plates 58, 59, 116, 122, 125, 127), either lightning bolts or snakes are suggested by serpentine vertical forms with arrow-point heads in some, whereas in others, a similar shape with a rounded head is clearly decorated with snake markings. In a Zia altar illustrated by Stevenson (1894:plates 14, 15), the central figure is decorated with a vertical zigzag lightning bolt with an arrow-point tip; two side figures are vertical serpentine forms with arrow-pointed tips and anthropomorphic facial features—two dots for eyes and one for the mouth. In two altars from Jemez illustrated by Parsons (1925:plate 7), arrow-point-headed lightning bolts alternate with anthropomorphic figures wearing headdresses composed of two facing terraced triangles.

Although lightning bolts appear on some of the Picuris ceremonial vessels discussed earlier, they are not seen on the miniature canteens from Pecos. The motif does appear, however, on other ceremonial objects from Pecos. A fragment of a glaze-ware ceremonial prayer-meal bowl "of uncertain date" is described as exhibiting

lightning bolts with arrow-point heads associated with terraced pyramids on its exterior (Kidder 1936:274, figure 236). The arrow-point lightning bolt also appears on a few of the several hundred burnt-clay pipes recovered from various contexts at Pecos. On some it is carved in relief and exhibits a heavy shaft; on others it is incised, and the shaft is a thin line (Kidder 1932:figures 143a-e, g, 144e, l, l48k, n, 151e, 139, 146l, 147g-h, 149l and 155). Some of the carved pipes also include representations of horned serpents in a similarly vertical position (Kidder 1932:figures 143c-e, g),[3] indicating an association at Pecos between lightning bolts and horned serpents or snakes, as noted at Jemez and Zuni but not evident at Picuris. Picuris lightning bolts always have arrow points tipping a thick, angular shaft and are unlike lightning representations elsewhere.

Birds

It is in the rendering of birds that the Kiva sub-A mural (Figure 9.6) differs most from those of the other Picuris kivas. In this early painting we can see the influences of ancestral Pueblo artistic tradition a conventionalized treatment that was to be reflected in the later Picuris murals. The two red birds perched over rainbows exhibit single upraised wings that are typical of bird portrayals in the Jeddito, Pottery Mound, Kuaua, and Las Humanas murals. The bird over the south rainbow is highly stylized, its upraised wing consisting of two straight lines that form a terraced triangle, and its three-stepped tail forms another. A lighter band of color marks the lower body and upper tail. The head and beak are a single crook-like line. Two fine angled lines indicate its legs, but no feet are shown. The bird over the north rainbow is less stylized; the leading edge of its black wing angles up from its neck, with rectilinear steps on the opposite side suggesting feathers. The pointed tail juts upward from the horizontal lines of the body, and the beak appears short and small, superimposed over an oblong area of gray. No lines suggesting legs or feet are visible, but there is space for legs between the bird's body and the rainbow. The legs or feet are visible, but there is space for legs between the bird's body and the rainbow. The most interesting feature of this bird are the two eyes shown on the left side of its head. Two-eyed profile views of birds and mammals are rare in Native North American art, but they appear in the decoration of Fourmile Polychrome pottery (A.D. 1325-1400) and Awatovi murals from the early and intermediate occupations (ca. A.D. 1350-1500), which were clearly influenced by the Fourmile style.

The little green bird resting atop a terraced pyramid to the left of the panel (Figure 9.7) shows two upraised pointed wings, an innovative and more naturalistic pose that has to my knowledge no counterpart in ancestral Pueblo art and one that does not reappear in the murals at Picuris. The other bird portrayals in the mural are less aberrant. Near the center are two frontal views of flying birds. One is poised over the subsidiary vent shaft in ascending vertical flight, and the other flies laterally toward the left. Their sickle-shaped wings and forked tails suggest swifts or swallows, and similar representations are to be found in a 15th-century kiva at Kawaika'a, in two 15th-century kivas at Pottery Mound, and in three kiva murals at Kuaua. Similar representations also occur in Mimbres Classic Black-on-white pottery decoration. A single swallow-like bird in ascending vertical flight is found in Kiva C at Picuris. Fragments above terraced pyramids at the far left and right of the panel suggest representations of birds similar to those found in the same location in other Picuris murals, although it is possible that the innovative rendering of the green bird was repeated in Kiva sub-A.

Nearly all of the birds depicted in Kivas B, C, and D are apparently realistic representations of songbird types shown in profile with no indications of wings, either raised or folded. They are painted yellow, gray, red, or black, with yellow and gray predominating. The silhouettes vary as if the artists had definite species in mind, although they may not be recognizable to us. Most of the birds are perched on the tops of terraced pyramids, two standing on corn plants, and one is placed inside a rainbow. Although depictions of legs are sometimes missing, space is left between the body of the bird and the perch on which it rests. The feet are not indicated in any of the Picuris bird portrayals. Exceptions to the perched bird depictions besides those already noted for Kiva sub-A and C include possible avian forms in Kivas C and D. Located just east of the swallow-like bird in Kiva c is a form composed of the head of a bird with a thick curved beak like that of a raven and what may be a wedge-shaped tail, but lacking a body or clearly delineated wing (Figure 9.8). Near the north vent or niche of Kiva D is a problematic red figure labeled "bird" in the field drawings. It has a bird's head, but its body ends in a bulbous form that curves back under the belly (Figure 9.10). The latter two figures have no counterparts in Pueblo IV murals from other sites.

Bird depictions occur frequently in the murals of ancestral Pueblo sites; indeed, birds are the most numerous life form after anthropomorphs (Crotty 1995:table B.4). Highly stylized birds predominate in the Jeddito and Pottery Mound paintings, although other, more naturalistic, birds are also depicted. In the earliest paintings at the latter sites, the stylized birds lack legs, and their breasts touch the corner of a square or the step of a terraced pyramid (e.g., Smith 1952b:figures 70a; Hibben 1975:figure 70; Crotty 1995:figure 38). With a single exception found in a 14th-century kiva at Awatovi, birds shown in profile in a standing or perched position are invariably portrayed with one upraised wing, like the two stylized birds from Kiva sub-A (Figure 9.6). I have suggested elsewhere (Crotty 1995:138–139) that the legless birds of the 15th-century murals were probably derived from a motif common in late Pueblo III–early Pueblo IV period pottery decoration, a motif that Smith (1971:152–153) calls the "bird-perch." These birds, often identified as "parrots," were created by the addition of a crook-like line to suggest a head and beak and one or two lines to suggest tail feathers at the corners of an inverted equilateral triangle added to each of the exterior corners of a square. This can be seen in several Jeddito Black-on-orange (A.D. 1250-1350) sherds and a Tusayan Black-on-white (A.D. 1125-1300) bowl recovered from the early occupation of Awatovi (Figure 9.11). The purely geometric square-and-triangle motif (Figure 9.11d) has a long history in ancestral Pueblo pottery decoration, but the addition of crooks and tail feathers first occurs in the late Pueblo III period. None of the "bird-perch" birds in pottery decoration exhibit an upraised wing. That feature seems to have been introduced into mural art in the late 1300s, possibly through Fourmile Polychrome ceramics, and ultimately derived from classic Mimbres pottery decoration, where it is frequently employed in bird depictions.

The highly stylized avian forms of the Pottery Mound and the Jeddito murals, forms that are also referred to in the literature as "parrots," are an exception to a general trend toward increasing naturalism in the Pueblo IV murals. Even these birds become somewhat more naturalistic, however, sometime in the 15th century, when the bodies are rounded and legs and feet are added so that they appear to stand upright on their perches rather than resting awkwardly on their breasts (e.g., Hibben

1975:figure 18; Smith 1952b: figure 52a; Crotty 1995:141, 222). Another convention appearing in the stylized "parrot" depictions of the Jeddito and Pottery Mound murals some time after A.D. 1400 is a light-colored band around the lower body and upper tail, such as was noted in the bird over the south rainbow in Kiva sub-A. This is characteristic of the markings of immature golden eagles and some hawks, but not of scarlet macaws, suggesting that the artists were more familiar with local raptors than with exotic species imported from Mexico.

It can now be seen that the stylized bird standing on the south rainbow in Kiva sub-A is a combination of several conventions found in ancestral Pueblo arts traditions. It has the crook head and beak of the "bird-perch" motif from Pueblo III-IV pottery, the upraised wing of the Fourmile Polychrome style, and the light band around the lower body that appears elsewhere in mural art after A.D. 1400. The rounding of the body and the addition of legs partakes of the greater naturalism of post-A.D. 1400 artistic traditions. In unpublished notes, both Dick and Wolfman (Dick, Wolfman, Schaafsma, and Wolfman n.d.) compare this bird to a Jeddito example illustrated by Smith (1952: figures 12h and 43b). That bird is in one of the 14th-century kivas at Awatovi and is painted in the Fourmile Polychrome style, with a two-eyed profile and a geometric body. Its head, neck, and upper body are suggested by a red- and black-banded S-curve; its upraised wing is an elongated terraced triangle with the forward edge curved, and straight lines are used to suggest its lower body and tail. The comparison is apt, and the two-eyed profile of the bird standing over the north rainbow reinforces the attribution of Fourmile style influence. Both of the Picuris birds, however, are far more naturalistic than the early Awatovi bird. The two Picuris birds demonstrate that the artists who painted the Kiva sub-A murals were aware of the artistic traditions of the Western Pueblos, but they traditions obviously did not influence later muralists at Picuris. There are no more stylized "parrots" or birds with upraised wings.

At Las Humanas and Kuaua, the stylized “parrots” are also absent. Birds of various species are portrayed fairly naturalistically in profile views, but the upraised wing is retained except for one mural from the 15th-century Kiva N at Las Humanas. Here a group of three birds is depicted in flight (Peckham 1981:fiche A-8, Crotty 1995:figure 33). All three appear to be songbirds. They face toward the left and are painted mostly black but with markings in other colors. Two of them exhibit upraised wings, and two have short, footless legs projecting downward. The lead bird has legs indicated but the upraised wing is lacking, and this bird, therefore, at least superficially resembles the Picuris bird depictions.

Another convention appears in the stylized "parrot" depictions of the Jeddito and Pottery Mound murals some time after A.D. 1400, namely the use of a light-colored band around the lower body and upper tail, such as was noted in the bird over the south rainbow in Kiva sub-A. This is characteristic of the markings of immature golden eagles and some hawks, but not of scarlet macaws, suggesting that the artists were more familiar with local raptors that with exotic species imported from Mexico.

In the Kuaua murals—which probably date from the 16th or 17th century (Crotty 1995:62–64), about a century later than Dutton (1963) suggests—the characteristic markings of various species are often recognizable. Apparently legless birds are portrayed with their breasts resting on the corner of a lower step of a cloud terrace in an early Kuaua mural (Dutton 1963:figure 81), but only the absence of legs

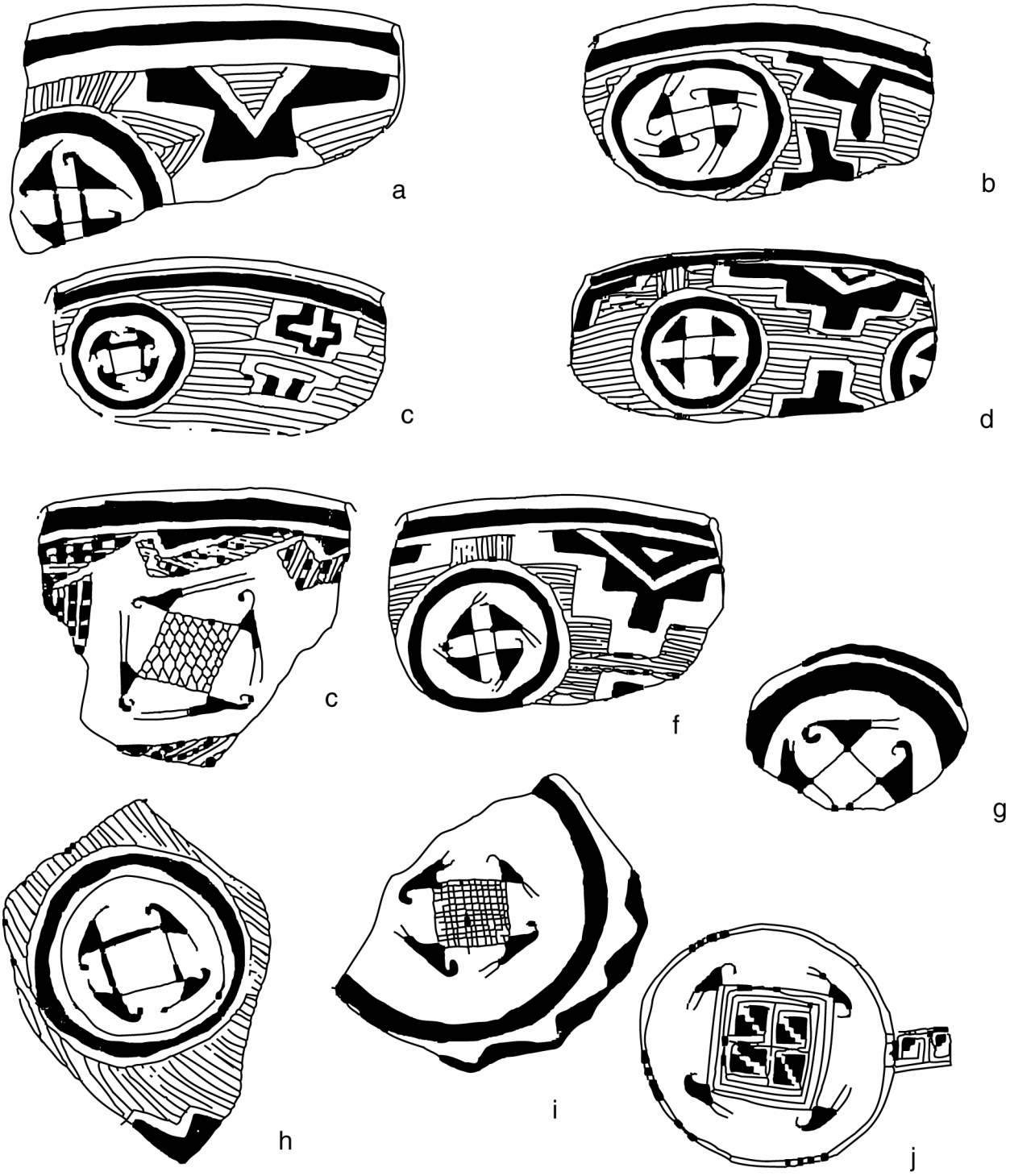

Figure 9.11. Bird Perch Motifs on Pottery From Awatovi (from Smith 1971: figure 207 and 134a, redrawn by Deborah Kelley).

and the positioning resemble the "parrots" of the early Jeddito and Pottery Mound murals. The detailed black-and-white markings indicate that both birds are magpies, although one was identified by Dutton's consultant as a roadrunner (Dutton 1963:90). Black swallow-like birds shown in flight like those depicted in Kivas sub-A and C occur in three murals at Kuaua (e.g., Dutton 1963: figures 45, 69, 86). As noted above, the swallow-like birds in flight are also found in 15th-century kivas a Kawaika'a and Pottery Mound, and they may derive from classic Mimbres pottery decoration. At Kawaika'a, the birds are in lateral flight, but in one Pottery Mound mural (Hibben 1975: figure 61), two swallow-like birds are seen in ascending vertical flight like those in Kivas sub-A and C.

With minor exceptions at Awatovi and Las Humanas, standing or perched birds portrayed in prehistoric Jeddito and Rio Grande murals are always shown with an upraised wing, a convention that the Picuris muralists acknowledged only partially in the Kiva sub-A murals and then rejected. The conventionalized rendering of the flying swallow-like birds, on the other hand, was retained. This motif may be earlier in Kiva sub-A at Picuris than at Pottery Mound or Kawaika'a, while the Kiva C example is possibly contemporaneous with those of Kuaua. The three birds associated with the rainbows in Kivas sub-A and C have sometimes been identified as parrots or scarlet macaws, but the only characteristics that any of them share with one another or with scarlet macaws are their relatively large size and red color. The bird over the sound rainbow in Kiva sub-A, as noted, has the lighter-colored band around its lower body that appears on the highly stylized "parrot" depictions in the Jeddito and Pottery Mound murals. This marking, however, is more reminiscent of raptors than it is macaws. The other two birds lack both the massive bill of the parrot family and the conventionalized lighter body band near the tail.

Birds atop Terraced Pyramids

As noted in the previous section, many bird figures are perched on the top of terraced pyramids. Because this particular icon is rare in the prehistoric Southwest, it is considered as a unit in this section for purposes of comparison. Simple birds, colored gray, yellow, red, or black, and with varying silhouettes, stand on the tops of all the terraced pyramids of Kivas sub-A and C, about half of those recovered from Kivas B, and at least one from Kiva D. Although birds may be posed on the steps of terraced pyramids in prehistoric mural art at other sites, they do not stand on the top. Birds standing atop pyramids do occur, if seldom, in earlier rock art of the Mogollon area, and they are somewhat more common in historic murals from Zuni and Hopi and in historic Zuni slat altars.

The rock art example that most closely resembles the Picuris icon is a red pictograph from the upper Gila River drainage in what is now Gila Cliff Dwellings National Monument in southwestern New Mexico. Although the dating of rock art remains problematical, the pictograph was probably made by the occupants of the nearby cliff dwellings, which date to the late 1200s (Bradford 1992:74, 179, figures 33, 34). The painting consists of three—perhaps originally four—terraced pyramids, which are topped with birds that face toward the viewer's right. The

birds are identical: a relatively large head with a heavy, almost ducklike beak; no wings indicated on the body; three short lines at the tail; and legs without visible feet. No particular species identification comes readily to mind. A surprising feature of the pictograph is the red band that runs below and connects the pyramids, serving as a baseline for the composition. A dado or baseline is unusual for rock art of any period, and narrow dadoes of this type are not known to occur in mural art before about A.D. 1400. The dado in the pictograph may be related to ceramic decoration, where lines may set off an encircling band design, but its actual origins are obscure.

The Gila pictograph is sufficiently different stylistically from the Picuris paintings—in the general shape of the birds, the presence of separate tail feathers, the direction in which the birds face, and the regularity of the pyramids—to argue against direct Mogollon influence on the Picuris muralists. Indeed, the similarities may be purely coincidental. It is not unlikely, however, that both the pictograph and the murals express an ideology that was widespread in the Pueblo world by the 1300s.

A petroglyph panel from the Three Rivers Recreation Area in the Tularosa Basin of south-central New Mexico combines the bird-on-terraced-pyramid motif with a corn plant in what may be a more explicit expression of the same ideology (Schaafsma 1980: figure 189a). The petroglyph, which differs stylistically from both the Gila and the Picuris examples, was probably made by occupants of a nearby Jornada Mogollon village dated between A.D. 1100 and 1400. The bird displays a rectangular head with no defined beak, a large upraised wing, a short banded tail, and a single leg and foot. It stands on a terraced pyramid embellished with vertical lines on the steps and below the base. Within the pyramid, a semicircle bisected by a zigzag line, perhaps signifying a rainbow and lightning, is centered on the baseline. Joined to the base of the pyramid and centered on the lightning is the flowering tassel of the corn plant, which is shown with three ripening ears along a zigzag stalk. It seems reasonable to interpret the petroglyph panel as a literal prayer for rain to ensure a bountiful harvest of corn or other blessings. The bird in the petroglyph resembles neither the Gila pictograph nor the Picuris examples, and like the others, is not readily identifiable.

Turning to historic mural art, we find a painting in a ceremonial room used by the Macaw clan at Zuni. The mural, photographed by A. C. Vroman in 1897, shows birds in association with terraced pyramids, although not all the birds stand on the tops of the pyramids (see Webb and Weinstein 1987:figure 100; Brody 1991:figure 112).[4] The mural was painted in two registers on the upper walls of the room, and the pyramids of both registers rest on a wide band that serves as a baseline. On the upper register, large birds, apparently ducks, stand on the baseband between the pyramids, the tops of which reach to the ceiling. Large ducklike birds also stand on the baseband between pyramids on the lower register, but smaller birds, apparently jays, can be seen on the uppermost step or on the tops of the pyramids. The composition is organized in mirror symmetry, with all the birds facing toward a central image on the end wall. On the lower register the focal point consists of a central pyramid with

two facing jays perched on its topmost steps. Directly above them in the upper register, another pair of jays, facing but asymmetrically placed, appear to be building a nest in a leafy bush or treetop. Fructification seems to be a theme. Although Webb and Weinstein (1987:124) state that the room is decorated with "emblems of the macaw clan," the meticulously delineated markings of the larger birds—dark heads, white neck rings, white wing bars, and upcurled central tail feathers—are those of male mallard ducks.[5] The identifying marks of the smaller birds—crests and black-barred wings and tails—indicate Steller's Jays. Both wing tips are visible on most birds, but no birds display the upraised wing convention of Pueblo IV period art.

At Hopi, rectilinear terraced pyramids occur in only one of several historic murals. The painting from the center of the south wall of the Nashabki, or Middle Kiva, at Walpi shows birds atop rectilinear terraced pyramids said to represent clouds (Stephen 1969:figure 146 [orig. 1936]). The composition, like that of the Zuni mural, is organized in mirror symmetry and includes two registers. In each register the terraced pyramids are arranged in pairs along a dotted or barred band. Similar bands appear in Zuni wooden tablet altars, where they denote the "house of the clouds" (Stevenson 1904:246, 432). White lightning ending in a crossbar tip emanates from the outer side of each of the upper pyramids. Below the "house of the clouds" band in the upper register are three smaller inverted terraced pyramids with bird and butterfly figures hanging from them, and below the lower band are vertical black lines signifying rain (Stephen 1969:figure 146 [orig. 1936]). Between each pair of upright pyramids is a "tree" consisting of a central stem and a series of upward-angling lines ending in dots, or knobs. Slender birds with medium-length tails are perched on the top of each of the upright pyramids and appear to peck at the knobs. The upper two birds have tapered beaks and a single pointed wingtip indicated. The lower two are less carefully drawn, but each appears to have a partially raised wing. All are shown with a suggestion of a crest and with legs but no feet indicated. Stephen describes one of the upper birds as a woodpecker painted in streaks of yellow, blue, and red; the other is identified simply as a red bird. The lower birds were apparently colored black and gray and exhibit somewhat dissimilar forms, but they are identified by Stephen as jays (Smith 1952b:98–99).

In other historic Hopi murals, clouds are represented by stacked semicircles. On the north wall of the Middle Kiva at Walpi, a kilted anthropomorphic figure holds aloft a cloud composed of three tiers of semicircles of various colors, with falling rain lines below. Lightning ending in a crossbar tip emanates from the outer edges. Perched on the upper level of the cloud terrace is a bird that Stephen (1969:figure 145 [orig. 1936]) identifies as a snipe, although the relatively short beak and the markings are more characteristic of a killdeer. It is painted white with black streaks and has a long neck with a dark ring, an upraised wing, a fan tail, and long legs. In a mural from the north wall of the Chief kiva at Walpi, an unidentified bird with a thin, straight bill, upraised wing, and short tail and short legs stands near the top of a cloud terrace composed of three heaped semicircles with lightning and rain symbols (Stephen 1969:figure 144

[orig. 1936]). Beneath the cloud is a sunflower plant apparently growing from the floor. A mural from the Young Corn Mound Kiva at Sichomovi shows the usual multicolored cloud with lightning and rain. Above it stands an unidentified and rather stylized bird with a thick curved bill, a short upcurved tail, and an upraised wing (Stephen 1969:figure 126 [orig. 1936]). Bourke (1884:plate 24) illustrates a painting from an unidentified Hopi kiva. In this mural, a central kilted anthropomorphic figure appears beneath one simple cloud terrace composed of a row of three semicircles. Below the figure are two more cloud terraces. The upper one consists of five heaped semicircles, on one of which a slender bird with a thin bill, an upraised wing, and a fan tail is perched. The final example, a historic photograph of a mural from the Lallaconte Kiva at Walpi, shows a frontal bird atop a three-tiered cloud that has falling rain below and emanates lighting (see Brody 1991:figure 94). Beside the cloud is a corn plant, and beside that is the large striped figure of a sacred clown. The latter painting is the only instance in which a thick-billed possible raptor or macaw is depicted frontally atop a cloud terrace.

Birds resting atop rectilinear terraced pyramids also occur on some of the wooden-slat altar furnishings from Zuni illustrated by Stevenson (1904:plates 58, 116). In the ceremonial rooms of the Eagle Down and Great Fire fraternities, the terraced pyramid headdress of each of the anthropomorphic "lightning makers" at the four corners of the altar is surmounted by a bird. In the altar of the Eagle Down society, the birds are painted white, and they have short thin beaks, upcurving ducklike tails, short legs, and wings indicated by a single line on the body. Stevenson (1904:245–246) does not discuss the white birds in her discussion of the various parts of the altar, and they remain unidentified. In the altar of the Great Fire society, the birds perched atop the terraced pyramid headdresses have black heads with heavy pointed bills, and their upper bodies are black with white underparts (Stevenson 1904:plate 116). Although Stevenson does not identify the black-and-white birds in this altar either, her discussion of the ceremonial room of the Galaxy society includes an identification of what appear to be identical birds sitting on semicircular clouds on a decorated bar placed above the altar as "the bird of the Zenith, purple martin" (Stevenson 1904:432, plate 104). This identification is not further elaborated in Stevenson's 1904 publication, but in a later paper, Stevenson (1915:89), describing plumes used on prayer sticks, mentions the "spokesmen" of the lightning makers, the "rain bringing" birds of the six directions, and lists a variety of birds, including the purple martin of the zenith.

In summary, the icon of a bird perched atop a terraced pyramid is the most frequently depicted image in the Picuris paintings, but it is otherwise absent in prehistoric mural art, although it is seen in stylistically different prehistoric rock art from the Mogollon area of New Mexico. At Picuris, it appears that the muralists deliberately represented birds of different species, whereas in the prehistoric and historic examples discussed from other sites, the birds may be of the same type. There is no consistency in the species of birds depicted from place to place, but with the single exception noted above, no images appear to be representations of

macaws or raptors—birds that are frequently represented, if in other contexts, in prehistoric murals elsewhere. Identifiable birds in the historic ceremonial art of Zuni and Hopi include mallards, Steller's jays, and purple martins at Zuni and possible Steller's jays and a snipe or killdeer at Hopi. The appearance of the bird-atop-terraced-pyramid icon at locations widely separated in both space and time suggests a shared religious concept. The Zuni identification of birds of various species as spokesmen of the lightning makers and bringers of rain might well extend in a general way to the representations of the birds atop terraced pyramids. Certainly such an interpretation would be in keeping with the iconography of Picuris.

Rainbows

In the Picuris paintings, rainbows appear only near the subsidiary ventilator on the west wall opposite the main ventilator. The rainbows are paired, one on either side of the subsidiary vent in Kivas sub-A, B, C, and D. In Kiva sub-A, the rainbows are asymmetrical; the one on the south side has bands of white, red, green, yellow, and green in a shallow arc placed on a level with the top of the subsidiary vent shaft. The rainbow on the north has red, green, and yellow bands in a semicircular arc beginning at about the midpoint of the shaft opening (Figure 9.6). In Kiva A, plaster was found only on the west wall, but that wall had been replastered and painted three times (Figure 9.7). On each layer, a rainbow was found just north of the subsidiary ventilator. On the earliest layer, the rainbow consists of a narrow black border above and below framing three wider bands of red, green, and red; the second layer has bands of yellow, black, green, and red; and the final layer is like the first. The rainbows of the first and the final layers are approximately in the same position; that on the middle layer is lower and offset a bit toward the south. In Kiva B, the south rainbow is angled at the sides rather than curved, and a single corn plant with a bird perched on top is placed between the subsidiary ventilator and the north rainbow (Figure 9.8). The south rainbow was painted in alternating bands of yellow and gray, with a color reversal in the north rainbow. In Kiva C, corn plants flank the subsidiary ventilator, with similar rainbows of red, gray, black, gray, yellow, gray, black, gray, and red next to the corn plants on either side (Figure 9.9). The corn plants are absent in Kiva D, and the rainbows consist of bands of white, red, black, and red (Figure 9.10).

The wall opposite the ventilator is normally the focus of the ancestral Pueblo murals, as it is in historic kivas in both Hopi and the Rio Grande pueblos. A wall niche, if present, is often located at the center of this wall. The positioning of the rainbows and the corn plants, therefore, suggests an analogous significance for that location in the Picuris kivas.

Representations of isolated rainbows are not common in ancestral Pueblo murals or in historic paintings elsewhere. A few relatively naturalistic depictions occur in the Jeddito and Pottery Mound kivas, but they appear as part of a more complex composition involving other figures and objects (e.g., Crotty 1995:figure 22; Hibben 1975:figure 24: Smith 1952b:figure 88a). Naturalistic depictions of rainbows are absent at the other prehistoric sites.

Rainbow depictions are not reported in the historic murals of Hopi, but they are seen in Zuni ceremonial art and in the murals of the Rio Grande pueblos of Cochiti, Isleta, and Jemez. Two examples from Zuni show the rainbow in an anthropomorphized form, with head, arms, and legs at the ends of the flattened arc, as in Navajo dry paintings (sandpaintings). One is found on the Eagle Down society altar illustrated by Stevenson (1904:246, plate 58). The other, from a mural, rests on the terraced triangle headdress of a winged anthropomorphic figure identified by Cushing (1979:figure 11) as the God of War and by Stevenson (1904:246) as "the being with wings and tail of knives." In the Turquoise Kiva at Cochiti, a rainbow takes on the solidity of an architectural form: sacred clowns climb and perch on it in a drawing published by Lange (1959:figure 2). Mural decoration of the ceremonial room of the Laguna Fathers at Isleta has been published in two different versions. Parsons (1932:plate 17) illustrates a sketch in which a rainbow appears to be the focus of the composition. Goldfrank (1962:Painting 63) illustrates a more formal painting of the same theme by "The Artist of Isleta." The rainbow is again the focus, and like the rainbow from Cochiti, it is imbued with solid, architectural qualities. Here the rainbow serves to support a rampant lion on the left and a standing bear on the right. Several murals from Jemez depict a rainbow joining a pair of facing terraced triangles. In the earlier painting published by Simpson (1850:plate 9; Brody 1991:plate 36), two such images are shown in adjoining panels of a single mural. Each rainbow is decorated with white feathers above, three on one panel and two on the other; a wavy blue stalk with leaves like those of a corn plant emerges from one of the terraced triangles in each panel. A single bolt of lightning with an arrow-point head appears in one of the panels. In the later murals published by Reagan (1914, 1922:plates 6, 7), the rainbow-and-facing-terraced-triangle motif in one painting is flanked by four pairs of horizontal lightning bolts, the upper pair having arrow-point heads and the lower three ending in serpent heads. In a second painting, sun, moon, and stars flank the central image, and a single pair of serpent-headed lightning bolts appears below. The same rainbow-and-facing-terraced-triangles motif, with the addition of an inverted triangle at the base that converts it to a mask-like shape, appears twice on an embroidered mantle worn in Kachina ceremonies at Acoma. Stirling (1942:plate 12) describes the slightly altered motifs as "unfinished (no eyes) katsina masks.". Although the Picuris depictions of isolated rainbows apparently have no counterpart in prehistoric mural art, the rainbows in the historic Isleta and Cochiti murals seem to serve as a central focus in a similar way, and rainbows associated with terraced triangles are clearly an important icon at Jemez.

Corn (Maize) Plants

Somewhat stylized corn plants are depicted on the west wall nearest the subsidiary ventilator, or niche, in Kivas B and C but were apparently not represented in the other Picuris kivas. In Kiva B, a single gray-colored plant with a gray bird at the top is shown immediately north of the vent (Figure 9.8). This plant is so stylized as to make identification tentative, but the addition of a few more realistic details to a pair of similar depictions in Kiva C suggests

that a corn plant is represented in the analogous location in Kiva B. In the Kiva C painting, a yellow bird is shown at the top of the gray-painted plant immediately south of the vent (Figure 9.9).

Corn plants are more realistically depicted in the prehistoric Jeddito, Pottery Mound, and Kuaua murals (e.g., Smith 1952b:figures 64d, 79a; Hibben 1975:figures 38, 99; Dutton 1963:plate 14), and a single stylized example occurs in the 15th-century Kiva N at Las Humanas (Peckham 1981:figure 21). None of these depictions appear to be associated with rainbows, nor are the plants located near the niches.

A corn plant with three ripening ears was noted in a petroglyph from Three Rivers. In this instance the plant is located directly below a terraced triangle containing presumed symbols of a rainbow and lightning and topped by a bird.

Corn plants are not known to be represented in the historic paintings of Zuni and Hopi, but they do appear at Cochiti and Isleta and possibly at Jemez, where they are associated with rainbows. Corn plants flank the rainbow in the Cochiti painting (Lange 1959:figure 2), and a single plant appears beside the rainbow that is the focus of the Isleta composition from the Laguna Fathers ceremonial room illustrated by Parsons (1932:plate 17). In the sketch, additional corn plants are depicted singly on the other three walls. In the more formal version of the composition by "The Artist of Isleta" (Goldfrank 1962:Painting 63), corn plants are visible on two side walls but are not directly beside the central rainbow. In the earlier version of the Jemez rainbow-and-terraced-triangle icon, as noted, a single plant with cornlike leaves emerges from a terraced triangle in each of the panels (Simpson 1850:plate 9; Brody 1991:plate 36). As with the rainbow depictions, the closest resemblance to the portrayal of corn plants in the Picuris murals occurs not in prehistoric paintings but in 20th-century examples from Cochiti and Isleta.

"Suns"

Two 6-in pronged circles found on the western wall of Kiva D are identified by Dick as possible "sun designs." These are the only such depictions recorded at Picuris. Both "suns" are located to the south of the subsidiary ventilator, and both are essentially concentric circles with prongs radiating from the outer ring, like teeth on a gear, but the "suns" are treated somewhat differently (Figure 9.10). The image nearest the rainbows has an unpainted center surrounded by a ring composed of three segments, painted white, yellow, and red, respectively, from which black prongs of the same colors and black radiate. The two lower prongs extend to frame a curving gray band that reaches to the rim of the south rainbow, located below and slightly to the west. The other "sun" image consists of a black inner disk with a red outer ring and red prongs of more or less equal length. It is placed higher on the wall, directly above the second terraced pyramid south of the ventilator.

Sun symbols are identified in the murals of several prehistoric sites. In the kivas of Awatovi, Kawaika-a, and Pottery Mound, the sun is apparently represented by "sun shields," large disks decorated on their perimeters by long, radiating feathers—usually eagle-tail feathers—alternating with red lines and often surrounded by a spatter of red paint (Crotty 1995:238–242; Hibben 1975:figure 32; Smith 1952b:240–242).

Most are undecorated, but some are marked with concentric circles, and a few are elaborately painted, but not with the suggestion of facial features seen in historic murals. None of these shields appear to be associated with a rainbow or with a terraced pyramid. Disks composed of concentric circles and lacking radial feathers or prongs have been identified as possible sun images at two other prehistoric mural sites. At Kuaua, a single small (6.5 in) disk located on the north wall of Kiva III was identified by Dutton's Zuni consultant as the sun, or sunshine (Dutton 1963:51, figure 100). It is composed of a greenish-black center and concentric rings of adobe, yellow-orange, and black and does not appear to be related to any nearby imagery. At Pueblo del Encierro, located on the Rio Grande near the present Cochiti Pueblo, a series of paintings was recovered from the area of the ventilator on the east wall of a kiva dated from the mid-1400s to the early 1500s (Schaafsma 1965). The decoration on several layers consists of large (ca. 22-in) disks composed of concentric rings and arranged in pairs with slightly different color combinations on either side of the ventilator. The disks north of the ventilator have yellow centers with a whitish or unpainted outer ring; those to the south have whitish or unpainted centers with a yellow-orange outer ring. Black outlines frame the color areas on all the disks, and in some instances, other colors were added. A short red fringe embellishes the periphery of two of the disks, and two are accompanied by fragmentary designs that Schaafsma (1965:11) identifies as animals with a heart line. The rest lack exterior embellishment or associated images. Schaafsma (1965:10, 14) suggests that they might represent sun shields or possibly paired symbols of the sun and the moon.

Representations of the sun, sometimes paired with the moon, appear in historic ceremonial art from Zuni and Hopi and also from Acoma, Jemez, and Isleta. At each village, the celestial bodies are depicted somewhat differently. At Zuni, both the sun and the moon are represented in most of the tablet altars and ceiling bars discussed previously and in mural art as well. The sun is usually painted blue-green, the color of the firmament (Stevenson 1904:24, 246); the face of the moon is yellow. Both the sun and the moon are given simple faces composed of three dots for eyes and mouth, and the faces are encircled by the barred black and white band that symbolizes the "house of the clouds" at Zuni (Stevenson 1904:246). In a mural from the ceremonial room of the Sword Swallower society, the images are elaborated by a yellow outer ring that is encircled in turn by concentric rings of blue-green, red, and black suggesting a rainbow band (Stevenson 1904:454, plate 108). Short prongs of the same three colors emerge at the four compass points, or poles. The only rainbow that Stevenson associates with the celestial bodies at Zuni is found on the tablet altar of the Eagle Down society: here, the moon surmounts the arc of an anthropomorphized rainbow (Stevenson 1904:246, plate 58). Cushing (1979:figure 11) illustrates a Zuni mural in which a large sun disk superimposes a water serpent. The disk is again ringed by a barred black-and-white band, but the face is more stylized. The upper third is bisected into two quadrants of different colors, each framed by a narrow band, and the lower part has

paired horizontal lines indicating the two eyes and the mouth.

A mural from the ceremonial room of the Warrior Society at Walpi features depictions of the predator animals of the four directions. Accompanying one of the animals is a representation of the sun, which seems to have varied somewhat though time, as reported by various visitors. Mindeleff (1891:131) describes it as a large disk. Stephen (1969:figure 64a [orig. 1936]) illustrates a crudely drawn disk with a stylized face vaguely similar to that of the Zuni mural described above. A single line marks the upper third, the eyes are short lines, the mouth is a single line, and an angular U-shaped line suggests a nose. Pairs of lines, apparently feathers, appear in a V shape at the four poles, with crosshatched lines between the poles. Fewkes (1902:plate 22; 1924:figure 2) illustrates a more refined version of the same mural. The sun differs from that of Stephen's drawing chiefly in that it has been turned on its side and radiating feathers between those at the poles replace the hatched lines.

At Acoma, figures of the sun and the moon are used in dry painting or on kiva walls. The face of the sun is red "because the Sun is male and the giver of strong light"; the face of the moon is yellow "because the Moon is female and the light is pale" (Stirling 1942:121, plate 11). Both disks have stylized faces composed of narrow isosceles triangles placed horizontally for eyes and a small square for a mouth, and the foreheads are decorated with a squarish figure said to represent a squash blossom. Two concentric rings, the outer one pronged at the poles, encircle the central disks. The inner ring is green on both, the outer ring of the sun is orange with orange prongs to "represent beams of light," and the outer ring of the moon is red with red prongs at the poles to represent "the ring around the moon."

Kivas at Jemez were visited by outsiders several times between 1849 and 1940 (Simpson 1850; Mallery 1881; Bourke [in Bloom 1938]; Reagan 1914, 1922; Ellis 1952; for a complete review, see Smith 1952a:85–87). From the descriptions and the illustrations, the mural decoration appears to have changed little over time. All the visitors mention representations of the sun and the moon. The illustrations that accompany Simpson's report show the sun and the moon as blank disks without facial features (Simpson 1850:plates 8, 11; see also Brody 1991:figures 3, 110). Each has a contrasting outer ring and exterior decoration at the four poles. The decoration on one consists of pairs of feathers in a V shape with a pointed object between; on the other are single rhomboidal forms, resembling arrow points or darts. Similar disks reproduced by Reagan (1914, 1922:plates 1, 2; 7; see also Brody 1991:figure 115) show the sun and the moon with facial features consisting either of almond-shaped eyes, eyebrows and nose indicated by a single curving and dipping line, and an upturned arc as the mouth or of two triangles for eyes and a narrow rectangle for the mouth. All have an outer ring indicated and exterior decoration consisting either of arrow points or rhomboids on those disks identified by Reagan as sun representations and paired feathers in a V shape on those identified as the moon. Additionally, the outer ring of two of Reagan's sun figures has a scalloped edge. The exterior decoration of the disks identified as the moon at Jemez is similar to that of the sun in the Hopi paintings, a reminder that signs and

symbols identified in the ethnographic literature for one Pueblo group may not apply to the arts of other groups or to the prehistoric past.

Representations of the sun in the ceremonial room of the Laguna Fathers at Isleta are associated with the rainbow image that is the focal point of the decoration. In the sketch illustrated by Parsons (1932:plate 17), it is a simple disk with radiating lines all around its edge. It is centered above the rainbow, and a crescent-shaped moon appears to the right of the rainbow. In the painting illustrated by Goldfrank (1962:painting 63), the sun is given simple facial features, composed of short upward curving arcs to represent eyes and mouth, and the rays are focused at the four poles. The sun is placed to the left of the rainbow, and at the right is another disk with similar rays enclosing a four-pointed star.

In summary, the two circular "sun" images from Picuris differ in their interior coloration. Like disk-shaped objects interpreted as celestial bodies in other prehistoric murals, they lack facial features, which appear to be a relatively late development in the ethnological record of historic sites. Rays or some sort of radiating exterior decoration occur at Picuris, in the Jeddito area, and at Pottery Mound but are absent at other prehistoric sites. Among the prehistoric sites, paired disks presumably representing celestial bodies occur only at Picuris and Pueblo del Encierro. In the historic murals, exterior embellishment is usually present, but it was noted that the paired, V-shaped feathers that identify the moon at Jemez appear in Hopi representations of the sun. Despite this caveat, it is likely that the pronged disks from Picuris do represent celestial bodies, perhaps the sun with the dark center and the moon with the lighter one, as in Zuni and Acoma ceremonial art. Parsons (1939b:962) notes the relative importance of the moon in the northeastern pueblos. The style and the placement of the Picuris disks, however, are quite different from that seen in prehistoric and historic murals elsewhere.

Quadrupeds

The only quadruped recorded in the Picuris murals is a figure from Kiva C. Painted entirely in black, it has a long snout and an open mouth with no teeth indicated, short pointed ears, a thick body, and a stubby tail (Figure 9.9). It is placed just south of the east ventilator shaft. No markings are indicated, and the legs in the field drawing end in short lines that may indicate the remains of either claws or hoofs. Dick's notes indicate that the animal was "interpreted as a badger."

Various quadrupeds are represented with varying degrees of verisimilitude in prehistoric and historic Pueblo mural art and in rock art. In many cases, the identification of the animal remains uncertain or vague (see Smith 1952b:200–212). Although bears are not reported in prehistoric murals, a badger may be depicted at Kawaika-a (Smith 1952b:207, 209, figure 62a). Badgers as well as bears are depicted in historic Zuni ceremonial art, where they are among the prey animals of the six directions. Both may be seen in the mural from the ceremonial room of the Sword Swallower society (Stevenson 1904:445, plate 108). In the ceremonial room of the Cimex society, a bear is represented on the bar above the altar, and bears of the four regions are depicted in a dry painting on the floor

before the altar (Stevenson 1904:550, plate 126). At Hopi, the bear is among the four predatory animals associated with the directions. It is pictured on the wall of the ceremonial room of the Warrior society at Walpi (Fewkes 1902:plate 22; Fewkes 1924:figure 2; Stephen 1969:figure 64b [orig. 1936]), although the animal identified as a bear in Stephen's sketch would be difficult to recognize as such without the caption. Both a bear and a badger are identified by Parsons (1932:plate 17) in the sketch of the Laguna Fathers ceremonial room at Isleta. In this drawing, as Smith (1952b:209, *n.* 367) observes, the badger is "a very indeterminate likeness." A similar animal appears in an analogous position in the painting reproduced by Goldfrank (1962:painting 63). In this painting, the bear stands erect, resting against the right side of the rainbow, and a bear skin hangs from a central post, suggesting an especially strong ritual association with the bear in that room.

The Picuris quadruped, with its short tail and relatively long legs, might well represent a bear rather than a badger. Dick and Wolfman (chapter 5 of this volume) mention that bear claws and bear phalanges and toe bones were found on the floor of Kiva D and that crude, unfired clay figurines identified by the Picuries as bears were found with a ceremonial vessel in the subfloor cache in Kiva A. Parsons (1939b:189-190) notes that the bear is the particular patron of the curing societies of the eastern pueblos and Zuni, and that the badger is the curer animal of the Hopi.

Unidentified Geometric Forms

Apparently complete images that could not be identified are found in Kivas sub-A and C. The oblong area of gray behind the head of the bird standing over the north rainbow in Kiva sub-A that was mentioned earlier is unexplained, as is a gray diamond with the central blue disk directly above the subsidiary ventilator shaft (Figure 9.6). Their placement in the most important area of the kiva, however, suggests that they had special significance for the muralists. The unidentified images from Kiva C are located on the southeast wall, just left of the easternmost terraced pyramids. The group, all painted black, consists of two cone-shaped objects with slightly rounded tips, one of them more elongated than the other, and next to them something that looks like the upper-right quadrant of a circle (Figure 9.9). In the absence of any visual or ethnographic clues as to what they might represent, they remain an enigma.

One unidentified image from Kiva A is a fragment from the final layer; it consists of a series of vertical bands painted white, red, yellow, blue-green, and gray (Figure 9.7). The absence of terracing in either the outline or the interior suggests that this is not the base of a terraced pyramid, although this remains a possibility. If indeed the fragment is part of a different image, it, together with the geometric forms of Kiva sub-A, the "suns" from Kiva B, and the curious black shapes from Kiva C constitute the only deviations from the virtually uniform imagery—terraced pyramids, lightning bolts, standing profiled birds, flying swallow-like birds, rainbows, and corn plants—preserved in the Picuris kivas.

Ceremonial Significance of the Picuris Murals

The quintessential Picuris icon is the multicolored terraced pyramid with a bird standing on its top and lightning emanating from it or beside it. This

image does not appear in its entirety elsewhere in prehistoric art, but similar, if stylistically different, imagery does occur fairly frequently in historic Zuni slat altars and Hopi kiva murals. In unpublished notes, Dick and Wolfman note that terraced pyramids were interpreted by the Picuries as clouds. Terraced pyramids are said to represent cumulous clouds at Zuni (Stevenson 1904:245), and Stephen (1969:figure 146 [orig.1936]) describes the paired terraced pyramids of a mural from the Middle Kiva at Walpi as "cloud altars." The more usual form of representing clouds at Hopi is a pyramidal mass of multicolored semicircles. These, like the multicolored pyramids of Picuris, emit lightning. Below them a fringe of vertical black lines represents falling rain, a detail that is similar in concept to the dotted areas below the largest terraced pyramids at Kuaua but that is entirely absent at Picuris. Many of the Hopi clouds have birds perched at the top, and, as noted earlier, these seem to vary in shape and color. At least one of them is identified by Stephen (1969:figure 146 [orig. 1936]) as a snipe—a wading bird that has a long, slender bill, that frequents marshy areas and pools, and that is an important water symbol at Hopi. Its Hopi name, Patsro, literally translated means "water bird" (Tyler 1991:123). There seems to be little doubt that to modern Pueblos, terraced pyramids or heaped semicircles represent the summer thunderheads that bring much-needed rain to the crops, whatever else these images may also symbolize. Young (1988:105–106) observed of symbolic associations at Zuni: "ritual symbols…are frequently multivalent or multireferential, standing both for themselves and something else at the same time, yet all of the meanings are bound together." For example, terraced pyramids might also represent mountains, which may be shrouded with clouds during thunderstorms.

I have suggested that the birds perched on top of the clouds at Picuris and Hopi seem to represent something analogous to the Zuni concept of birds of various species as spokesmen of the lightning makers and as rain-bringing birds of the six directions. Lists of birds whose feathers or skins are ritually associated with the directions vary somewhat among pueblos and among the reports of ethnographers (see Tyler 1991:table 2) [6]. The plumage of most of these birds matches that of the colors associated with specific directions among the western pueblos. Among the birds listed are long-tailed (yellow-breasted) chat, oriole, western tanager, flycatchers, and warblers for yellow plumage; various blue jays or bluebirds for blue; macaw, cardinal, red-shafted flicker, or robin for red; spurred (rufous-sided) towhee or magpie for white; purple martin, hepatic tanager, painted bunting, and lark bunting for all colors; and crow or blackbird for black. With the exception of the macaw for red in several pueblos, the birds are of songbird size and shape. Many are identifiable in other prehistoric and historic murals, and they are among the bird species recognized at the various pueblos. Perhaps some of them are represented at Picuris. It should be noted, however, that according to Parsons (1939b:957), color-direction symbolism "appears to be slight or non-existent" in the northeastern pueblos, and that for Isleta and Taos, there are five directions rather than six.

At least 10 birds, all differing in color and silhouette, are depicted in the Kiva C mural—8 of them atop the

pyramids, 1 atop a corn plant, and 1 inside a rainbow. In Kiva B, at least 4 birds are depicted, 3 atop pyramids and 1 atop a corn plant. The panel recovered from Kiva sub-A includes 5 complete birds, 2 flying, 2 perched on rainbows, 1 atop a pyramid, and an amorphous shape and a fragment presumed to represent birds atop two more pyramids. At least one bird atop a pyramid appears in Kiva D. Regardless of the form of directional symbolism at Picuris, it seems likely that the birds are in some way associated with the bringing of rain.

Although the bird-atop-a-terraced-pyramid icon is not recorded in early ancestral Pueblo mural art, a pictograph with the same elements over a continuous baseline was noted in the upper Gila River region in Mogollon territory. Because of stylistic differences, it appears that the similar icons may reflect similar ideologies rather than direct contact between the two areas. The presence of a baseline in the pictograph suggests that the motif may have been derived from pottery decoration. Similar dadoes, or continuous baselines, are used in the terraced-pyramid and terraced-triangle decoration of miniature canteens, known as medicine jars, of unknown date that were found in caches at Picuris and Pecos. Sets of vessels of this type have been found at other ancestral Pueblo sites and were apparently still in use at Jemez and elsewhere in the early 20th century. Parsons (1925:121) refers to "ritual miniature canteens" used to fetch water from "ceremonial springs to pour into the medicine bowl or onto the field of a society chief." She reports that she brought one back from Cochiti to Jemez and was told by her Jemez consultants that "such old *wabobo*' (cloud, canteen) were used on altars" (Parsons 1925:121). The icon of terraced pyramids over a baseline even without the birds thus seems to have ritual significance of considerable time depth at Picuris. Similar vessels, though apparently lacking that particular decoration, were being used as sacred water containers in eastern Pueblo ceremonies into the 20th century and presumably still are.

Other consistent imagery in the Picuris murals includes rainbows and corn plants, with birds perched on some corn plants. Rainbows in association with corn plants were also depicted in modern murals from Cochiti and Isleta. These images suggest the rain-bringing summer thunderstorms that ensure the success of the corn crop. Metaphorically, an abundant harvest of the basic subsistence food refers as well to the increase and general well-being of the people.

The "suns," or possibly the sun and the moon, of Kiva D may reflect the relative importance of the moon in the northeastern pueblos. "Sun," as Parsons (1939b:962–963) notes, "is everywhere of paramount importance, but Moon…has more distinction in the pantheon of the Northeast than in that of the West. Moon changes sex, and Moon Old Man (Taos, Isleta, Jemez, Tewa) is more of a personage than Moon in the role of Sun's younger sister (Zuni)." The sun was represented by a single image in the prehistoric murals of Awatovi, Kawaika'a, Pottery Mound, and Kuaua, but paired disks appear at Pueblo del Encierro as well as at Picuris. Paired disks representing the sun and the moon appear also in the historic ceremonial art of Jemez, Zuni, and Acoma, but not of Hopi.

The only quadruped in the Picuris murals is Kiva C animal identified as a badger, which is perhaps

more likely a bear. Parsons (1939b:189) notes that the bear is the particular patron of curing societies in several of the eastern pueblos as well as at Zuni, but she does not include the Tiwa-speaking pueblos in her list. She notes, however, that bear paws lie on the altars of these societies, where they are drawn on by the doctors or shamans, who are called bears. The presence of bear claws, phalanges, and toe bones in Kiva D suggests a similar practice in that kiva. Clay figurines identified by Picuris Indians as bears were found in a subfloor cache in Kiva A, suggesting an association with bears there as well. It is possible that the depiction of a bear (if it is a bear) in Kiva C is related to the observances of a curing society. The badger is also associated with curing societies, particularly at Hopi.

The Place of Picuris in the History of Southwestern Mural Art

The imagery portrayed in the murals of Picuris is always markedly different in style from that found in other prehistoric and historic Pueblo murals, and it seems to have developed independently. Among the typical ancestral Pueblo stylistic features that can be found in some form at Picuris are the use of a dado, outlining of color areas, and symmetry in the form of serial repetition. Conspicuously absent at Picuris, except in Kiva sub-A, is the conventionalized depiction of profile birds with an upraised wing, a motif that occurs at all the other prehistoric sites where birds are portrayed. The outlining of color areas, a characteristic of the paintings at other prehistoric sites, is used only selectively at Picuris, mostly to outline the pyramids. Serial repetition of design elements, which is typical of ancestral Pueblo pottery decoration, is rigidly observed in the murals of Picuris and is found to a lesser extent in the Jeddito area. In contrast, the prehistoric murals in other Eastern Pueblo sites exhibit a preference for mirror symmetry around a central focus. This tendency apparently increased through time, and mirror symmetry replaces the dado as the organizing principle of the composition in most historic murals. The fragmentary remains of the later Picuris kivas (A and D), however, offer no evidence of the use of mirror symmetry.

The terraced pyramids of Picuris are strikingly different from renderings of similar forms elsewhere in prehistoric and historic mural art in the Southwest and, to my knowledge, in any of the other arts as well. The asymmetry of the outlines, as noted, can be found in some of the Picuris miniature canteens, but the multicolored rectangles of the interior decoration seem to be unique. In the arts, the only source of inspiration that comes readily to mind is basketry or textile weaving, but asymmetrical pyramidal forms do not appear to have been a common design element in prehistoric basketry or textiles that have been preserved (e.g., Tanner 1976).

The conservative Picuris iconography is already expressed in the mural from Kiva sub-A, but the painting differs stylistically from those of the other kivas. These differences, which are most marked in the treatment of the two birds over the rainbows, offer some insights into the chronology of the Picuris kivas as well as into the influences that contributed to the development of ancestral pueblo mural art after A.D. 1300. According to Dick and Wolfman (chapter 5 of this volume), the pottery recovered from the fill of Kiva sub-A indicates that it was filled in

the 14th or 15th century, although other evidence suggests it might have been built near the beginning of the occupation of the area around A.D. 1250, and Kiva B is thought to have been built in the mid-14th century and filled about 100 years later. Although the kivas may have been built as early as Dick and Wolfman suggest, the murals appear on stylistic grounds to be later. I would suggest that the painting in Kiva sub-A was made around A.D. 1400 and that in Kiva B sometime later, perhaps not long before it was filled. The majority of ancestral Pueblo kiva paintings dating prior to the 1350s consist of geometric motifs similar to those found in contemporary textile and pottery decoration or portray crude animal figures like those found in rock art (Crotty 1995:43-44). The earliest of the Awatovi murals are believed to date around A.D. 1350 (Smith 1952):317-318), and they exhibit many features of the Fourmile Polychrome style (A.D. 1325-1400), including life forms created by adapting geometric shapes—as in the use of a stepped triangle to represent an upraised wing—and two-eyed profiles. Depiction of two-eyed profile animals continues in the murals of the intermediate occupation of Awatovi until fairly late in the 15th century (Crotty 1995:133-134). As noted previously, the upraised stepped triangle wings of both birds and the two-eyed profile of the bird over the north rainbow in Kiva sub-A show that the muralists were aware of the Fourmile style. The combination of stylistic conventions evident on the bird above the south rainbow demonstrates an acquaintance with other developments in ancestral Pueblo pottery decoration and mural art, some of which become evident elsewhere only after A.D. 1400.

The greater naturalism of the silhouettes of these two birds, and the more life-like pose of the little green bird with two upraised wings, exemplify a generalized trend in the Pueblo world away from decoration based on geometric motifs and toward pictorial depictions. This trend began in the late 1200s and is seen in the tinkering with geometric forms in the "bird perch" motif and the Fourmile pottery decoration of the 1300s. By the early 15th century, life forms are more realistically portrayed, although certain conventionalized motifs remain. At Picuris, birds with upraised wings and highly stylized bird with lighter bands around their lower bodies disappear after Kiva A, despite their persistence elsewhere. Geometric forms, nevertheless, are never entirely abandoned in Pueblo art, as we see in the various types of terraced pyramids that apparently symbolize clouds at Picuris and elsewhere, both in prehistoric and historic kivas. The Picuris terraced pyramids are unique in their asymmetry, their colorful decoration, and their longevity; yet there are subtle changes through time. The increasing asymmetry of outline and complexity of interior elaboration in Kivas B and C may reflect a preference for asymmetrical decoration that spread throughout the Pueblo world between the 14th and 17th centuries, particularly in the widely-traded Sikyatki wares produced by Jeddito and Hopi potters. The fragmentary remains of pyramids from Kivas D and A appear simple and more symmetrical, as might be expected of later Pueblo art.

Despite their rejection of conventions that were popular elsewhere, the Picuris muralists were not oblivious to changes in artistic traditions. The addition of the "suns" to the

iconography of Kiva D may indicate an increasing interest in representation of heavenly bodies that is apparent in many historic kiva paintings, possibly reflecting new emphases in the underlying ideology.

Unfortunately, little remains of the paintings of Kiva A, which was presumably occupied sometime before the mid-19th century. The last of the early historic murals for which we have visual evidence are Kuaua, dating to the early 1600s, Awatovi, with murals from about 1630, Las Humanas murals dating to 1672, and early 19th-century murals from Jemez. Kiva A is thus the only kiva occupied during the eighteenth or early nineteenth century for which we have any drawings (Figure 9.7). All that can be told from the remaining fragments is that rainbows and terraced pyramids were definitely part of the iconography, and probably lightning as well. The fragment of vertical bars is apparently a new element for which there is no counterpart in prehistoric or historic mural art.

The 14th- and early 15th-century murals of Awatovi, Kawaika'a, and Pottery Mound contain a few simple monochrome terraced pyramids, but emphasize mountain lions, shields, and warriors, suggesting a strong preoccupation with warfare (Crotty 1995:143–153). No such emphasis on the warfare theme is visible in the Picuris murals. Masked Katsina dancers are portrayed in the early 15th-century murals of Awatovi and Pottery Mound and in the 16th- and 17th-century paintings of Kuaua and Las Humanas. Anthropomorphic figures are absent in the all of the kivas at Picuris. Although mural art in the Pueblo IV period has often been associated with the purported introduction of Katsina ceremonialism from Mexico into the ancestral Pueblo world after A.D. 1300 (Crotty 1995:5–6), masked Katsina dancing, so far as is known, was never a part of ceremonial observances at Picuris (Parsons 1939b:958). The Picuris paintings, then, would seem to be evidence that mural art developed independently of masked Katsina ritual, at least at that pueblo. And though the mural art of Picuris has little in common with ancestral Pueblo mural art or with Mogollon examples of similar iconography, it does seem to express the summer rain prayers that are a major part of the Katsina rituals of modern Pueblos.

Although its constituent motifs can be found in other prehistoric murals, the Picuris bird-on-terraced-pyramid icon is not seen elsewhere until historic times, where it is found in the western pueblos. Rainbows serving as the focus of the mural composition are also absent in ancestral Pueblo arts but are reported in historic Rio Grande murals. Thus the basic iconography of the Picuris murals, dating back to the 1400s, was eventually adopted by modern Pueblos both in the west and in the east. We cannot be certain whether this was the result of relatively recent direct borrowing or was the expression of similar religious concepts. It is clear that the Picuris iconography reflects deeply held religious concepts that were, and still are, widespread in the Pueblo world.[7]

Endnotes

[1] The author worked from field notes and drawings in completing this chapter, but did not personally observe the murals prior to the backfilling of the kivas.

[2] Although kiva mural art may have declined in the postcontact period, ambitious mural projects in other spaces have been successfully executed by 20th-century Pueblo artists. Alex Seotewa's ongoing decoration of the restored mission church of Our Lady of Guadalupe at Zuni is but one example.

[3] The decoration of the miniature Biscuit-ware canteen with the terraced pyramid design from Pecos also includes horned serpents, a stylized butterfly, and lizardlike figures (Kidder 1936: figures 242b, 246b).

[4] Examination of a copy photo (Negative #V-869, Seaver center for Western Research, Natural History Museum of Los Angeles County) shows details not entirely visible in the published illustrations

[5] Bird identifications in this and other sections are based on Peterson (1961).

6 Tyler (1991) cites Dorsey and Voth (1901), Stephen (1969 [orig. 1936]), Stevenson (1894, 1915), Voth (1901), and White (1962), as his sources

[7] I am deeply grateful to Deborah Kelley for her cheerful, untiring, and undercompensated translation of field drawings of the murals into color-coded illustrations for this chapter, a job that constantly expanded as the decision was made to include all the drawings. Thanks too go to Mike Adler for his patience and for his diligence in searching for drawings, notes, and photographs of the paintings. As ever, I am grateful for the assistance of Laura Holt, librarian extraordinaire of the Museum of New Mexico Laboratory of Anthropology, who is always ready to go the extra mile in supplying references and suggesting sources. My thanks also go to Louise Stiver of the Museum of New Mexico Laboratory of Anthropology Collections staff, and to Marian Rodee, of the Maxwell Museum of Anthropology, University of New Mexico, for facilitating access to the collections of ancestral Pueblo ceramics in their respective institutions. I also appreciate the helpfulness of John M. Cahoon, Collections Manager, Seaver Center for Western Research, Natural History Museum of Los Angeles County, in answering my questions and providing a copy of the Vroman photograph of the ceremonial room of the Macaw clan at Zuni. Finally, I want to acknowledge the steadfast support and encouragement of my husband, Jay Crotty.

Chapter Ten : Picuris' Place in the Pueblo World

Michael A. Adler

A consistent theme throughout this volume has been the place of Picuris Pueblo in the prehistoric and historic Pueblo world. Given the diversity in the archaeology and ethnology of the Pueblo world, it is probably more accurate to state that there have been, and still are, many Pueblo worlds. Similarly, Picuris Pueblo has taken many forms throughout it long occupation. At a basic level, Picuris has always been a pueblo, a community defined by its massed architecture, ceramic traditions, agricultural subsistence base, and worldview. Simultaneously, Picuris and its sister settlements in the Taos area have been geographically isolated and, in many respects, culturally unique compared with the rest of the Pueblo world(s).

This chapter reviews and discusses the unique aspects of Picuris prehistory but also highlights the significant similarities between Picuris and other southwestern regional occupations. In the end, Picuris fits the mold of most archaeological sites in the world in that it exhibits the simultaneous presence of both shared and unique characteristics on the local and regional levels. In fact, the very definition of an archaeological "culture" depends on how archaeologists variously lump together the similarities and how they pigeonhole the differences exhibited by classes of material culture. Over the past millennium, the people of Picuris have been part of, as well as apart from, the larger Pueblo world. Archaeology provides unique windows through which we can better appreciate this lengthy occupation on the northeastern fringe of the Pueblo world.

Why Excavate Picuris? Herbert Dick's Archaeological Research Justifications and Goals

During the five years of excavation at Picuris in the first half of the 1960s, the primary aims of the research reflected the changing times in the field of archaeology. The 1960s were alive with vocal debate over the methods, aims, and theories that guided archaeological research in the Americas. Members of the "old guard," often characterized as trait-list compilers and cultural chronologists, were under fire from younger scholars including Walter Taylor, Lewis Binford, and Stuart Struever, who, as the vanguard of the "New Archaeology," saw the traditional approaches to prehistory as static and nonexplanatory. Their focus on deductive reasoning, hypothesis testing, and scientific explanation sought to make archaeology into a discipline that could explain the processes of culture change and diversity rather than simply describe the material signatures of that change.

Herbert Dick was familiar with both these worlds. Trained at Harvard by J. O. Brew, Halam Movius, and Ernest Hooten, he completed a relatively "traditional" culture-historical program of study. At the same time, Dick was also acquainted with Walter Taylor, a fellow Harvard student who completed his doctorate several years after Dick received his doctorate. Taylor was an outspoken critic of the culture-historical approach to prehistory, and he summarized the shortcomings of the discipline in the published form of his doctoral dissertation (1983 [original, 1948]). Dick's own doctoral research had a significant impact on the ideas

regarding the antiquity of maize in North America. His excavations at Bat Cave (Dick 1965a) established very early dates for the advent of agriculture in the Southwest, allowing significant revisions to theories of agricultural origins (Haury 1962).[1] Dick's training included a mastery of material analysis and chronology building, both hallmarks of "traditional" archaeology, as well as an appreciation of explanatory approaches using hypothesis-testing and statistical quantification.

In keeping with the hybrid nature of his academic background, Dick brought a multidisciplinary approach to his study of Picuris Pueblo. Just as Gordon Willey and his colleagues had done in the famed Virú Valley project (Willey 1953, 1974), Dick assembled a group of scholars to tackle a wide range of research topics.[2] These included Donald Brown (Picuris ethnology), Lyndon Hargrave (avian remains), Thomas Harlan (dendrochronology), Arthur Harris (nonavian faunal remains), John Krenetsky (ethnobotany and plant use), James Schoenwetter (palynology), Albert Schroeder (history of Picuris), George Trager (linguistics), and Richard and Nathalie Woodbury (prehistoric agriculture). Dick not only directed excavations but also was in charge of the ceramic analysis. Daniel Wolfman and Curtis Schaafsma worked as field supervisors during excavations and as lab supervisors during the winter, with Wolfman overseeing excavations between 1962 and 1964, and Schaafsma supervising in 1964. Marianne Wolfman directed the artifact laboratory in 1962 and in 1964–5.

In his initial National Science Foundation grant proposal, Herbert Dick outlined several major research questions that he hoped to answer through extensive excavation at Picuris. First, Dick proposed tackling the perennial problem of tracing population migration and the divergence of linguistic groups in the northern Rio Grande by associating various artifact types and styles to known descendant populations (with distinctive languages) spread throughout the region. Like others who had worked on this problem (Mera 1935, Hawley 1937b, Reed 1949, Hawley 1950, Wendorf 1953 and 1954, Wendorf and Reed 1955), Dick believed the key to this puzzle lay in our ability to follow architectural and pottery styles from the historic Pueblos back to ancestral Pueblo groups spread across the northern Southwest. Each style cluster was thought to represent an archaeological Pueblo "culture" traceable through time and space. Language was simply an additional but archaeologically unrecoverable trait associated with these definable clusters of material culture. In a related fashion, the religious beliefs, social structures, and political organizations of these same groups could also be traced back in time through the same archaeological linkages outlined above.

Second, Dick proposed to refine the culture-historical framework, both chronologically and areally, for the late prehistoric and historic occupation of northern New Mexico. Culture history had been the primary focus of American archaeology for the first half of the 20th century. Despite the "new archaeologists" and their criticism that culture-historical archaeology provided a static, stage-based perspective on prehistoric cultural dynamics, Dick stressed the need for basic chronology building in this part of the Southwest, particularly in this portion of the northern Southwest where so little excavation had been completed and published before 1960. In the grant, Dick requested support to link the chronological data recovered from tree rings, archaeomagnetic dating, and C^{14} dating to the large sample of ceramic types and architectural features that Dick expected to encounter at Picuris, given its long occupation (Dick 1961).

Third, Dick outlined the need to investigate the archaeological indicators of cultural isolation during the prehistoric and historic periods at Picuris. Following on the heels of Wendorf (1954) and Reed (Wendorf and Reed 1955), Dick characterized the prehistory of the Taos region as having included little contact between the local populations and other prehistoric Puebloan groups to the south and west. His culture history recognized a distinctive northern Rio Grande culture that he believed to have been architecturally and artifactually unique beginning as early as A.D. 900–1000. Cultural isolation resulted in the development of unique traits such as center basin storage, subfloor channels in kiva floors, and local variations of widespread, well-known ceramic types through time. Dick broke from the traditional perspectives on the area, however, in arguing that prior syntheses, particularly that of Wendorf and Reed (1955), required revision due to the lack of attention paid to the extensive Valdez phase population in the area during the second half of the Developmental period.

A great deal was accomplished at Picuris, so much so that Dick and others took years to synthesize the data and write preliminary drafts of many manuscripts. It is impossible to compile and present all the ideas, hunches, descriptions, and conclusions that can be found in the manuscripts and the field notes in the Picuris files. Eminently clear from the chapters in this volume, however, are the significant strides made in both "traditional" and "new" archaeological perspectives at Picuris. Below I elaborate on various research questions Dick proposed nearly 40 years ago, as well as provide more recently developed perspectives on the contributions to knowledge provided by the work at Picuris.[3]

Archaeology and the Languages of Prehistory

The search for the origins of the major Puebloan language groups was a perennial research topic in the Southwest throughout the first half of the 20th century. When Dick, Wolfman, Schaafsma, and Wolfman (n.d.) completed their "Introduction to Picuris Prehistory," parts of which are included in this volume (see chapter 4), they proposed a revision of the then-current ideas about the languages of the ancestral Pueblo groups in the northern Southwest. Their goal was to trace the origins of the Keresan and Tanoan languages in the eastern Pueblo region.

As mentioned above, their assignment of language affiliation was based on the direct historical approach. Ethnicity and language of ancestral peoples were assigned to prehistoric settlements and regions based on the identification of material trait clusters in the archaeological record that could be traced back in time from modern material culture. Though fraught with problems, the assumption was the modern cultural classifications given by ethnologists and linguists had "ancestries" that could be traced back into the prehistoric record.

Like Reed (1949), Dick and others believed that "influences" from the western Pueblo region during the late 13th and early 14th centuries left archaeological signatures in the central portion of the northern Rio Grande Region, particularly north of Albuquerque. Indicators of western influence included stone masonry, rectangular kivas, glaze paint pottery, vertical occipital cranial deformation, extended inhumations, and spiral-grooved stone axes. The high quality of the earliest glaze paint pottery in the area was taken as an indication that migrants had brought the ceramic technology from east-central Arizona and west-central New Mexico. Dick and his colleagues argued, however, that these major

traits (and by association, the western migrants) never reached the Taos region.

Dick et al. (n.d.) agreed with Wendorf and Reed (1955:163) that starting at about A.D. 800–900 or perhaps earlier, the inhabitants of the Rio Grande valley north of Albuquerque were speaking a basal ancestral Tanoan language. Soon after, a group split off and went west up the Jemez River valley where they lived in relative isolation and evolved the Towa language. Dick and others thought it possible that ancestral Towa speakers split off somewhat earlier (Trager's hunch date: A.D. 500–750) and were isolated in the Gallina area (perhaps the Largo and Governador areas as well). The Towa groups later moved down to the Jemez River valley to found the Jemez pueblos, with some people eventually moving to Pecos.

Linguistic theories proposing that an undifferentiated ancestral Tiwa-Tewa language was spoken along the Northern Rio Grande valley well into the 14th century were consistent with the prevailing archaeological interpretations of the Taos area as a cultural isolate. Wendorf (1954) and Reed (Wendorf and Reed 1955) characterized the Taos area as isolated from the rest of the northern Rio Grande cultures (and languages) well into the 14th century. This perspective colored much of the subsequent interpretations of Picuris prehistory. As Dick et al. (n.d.) explained, though the Taos populations got the idea for received carbon paint pottery from groups in the Mesa Verde region, and large coursed-adobe pueblos from groups to south, these transfers occurred without any alterations in the ancestral Tiwa-Tewa language. It was not until after A.D. 1300 that Keresan speakers migrated into the northern Rio Grande region from the west, a move that Dick and others believe upset the prevailing linguistic patterns. According to Trager (1967), the Keresan incursion resulted in a mixture, or pidginization, of the ancestral Tiwa and Keresan languages. The Tewa language resulted from this Tiwa-Keresan hybrid. The Tiwa branch, of which there are northern and southern subgroups, remained isolated to the north, a linguistic remnant of the basal Tanoan language family believed to have been in the northern Rio Grande before the Keresan incursion during the 14th century. Dick and his colleagues concluded that excavations in the Taos region, and at Picuris in particular, showed no early western influence, arguing for an indigenous Tiwa occupation of the region from early on in the archaeological sequence.

As with all archaeolinguistic reconstructions, a linguistic "divergence" of two languages is assigned an estimated date based on the number of shared cognates and the rate of linguistic change applied. Trager estimated that the beginning of the pidginization that led to the Tewa language occurred between A.D. 1050–1150, earlier than the A.D. 1350 date that archaeologists assigned to the Keresan influx from the west. The temporal difference of 100–200 years did not bother Dick et al. (n.d.), but they did take issue with Davis' (1959:76) glottochronological estimates that placed the Tewa divergence even earlier. Through all of these archaeolinguistic interpretations, the northern Tiwa language spoken at Taos and Picuris is held to be long indigenous to the Taos area with little influence from other Rio Grande Pueblo languages except its southern Tiwa branch.

More recent research on both archaeolinguistics and prehistoric migrations complicates the conclusions reached by the researchers at Picuris. Of primary importance is the fact that after decades of research into population movement and abandonment, archaeologists are still not able to follow migrant populations across the southwestern landscape. The search for site unit intrusions has yielded precious few such examples. It is possible to identify large-scale regional abandonments (for example,

the abandonment of the northern San Juan drainage in about A.D. 1300) and significant population increases due to immigration (on the Pajarito Plateau and in the Chama drainage during the early 14th century). But as Cordell (1995) points out, immigrants were much more likely to have blended into indigenous communities during the immigration process than to have retained materials and behaviors that would have set them apart from their host population in a way that would be archaeologically recognizable. If we cannot chart the movements of cultural enclaves, we certainly cannot map the movement of languages used by these groups.

A second important consideration relates to the dynamics of culture contact and linguistic change. Archaeolinguistic reconstructions require similarities in the way two or more language systems will alter in a contact situation and also require relatively constant rates of change in terms of the addition and loss of linguistic elements through time and space. Language systems are necessarily very complex and flexible. There are no compelling reasons to believe that the linguistic change, for example, during the period of low population density in the Taos area during the 12th century, would have been similar to that during the period of population movement, immigration, and aggregation in the same area during the 14th century.

Finally, the dynamic situations within which cultural interaction between different language-using groups occurred also changed through time. Increasing interaction between Rio Grande Pueblo people and groups from the southern plains began largely during the 14th century, increasing in scope and intensity throughout the protohistoric and historic periods. These contacts probably had a marked effect on exchange relationships at Picuris and Taos, which, along with Pecos Pueblo, were the easternmost of the Pueblo communities during this time period. Long-term contact between the plains groups, Taos and Picuris is apparent in that both pueblos fled to the Cuartelejo area to live with the Jicarilla Apache during periods of Pueblo-Spanish conflict. Taos Pueblo occupants trekked to Cuartelejo, located in present-day west-central Kansas, in 1640, and their neighbors at Picuris used this same haven between 1696 and 1706 to escape Spanish retribution after a postrevolt rebellion. As Brown (chapter 3 of this volume) explains, these contacts and exchange relationships lasted well into the late 19th and early 20 centuries. The long-term contact between Picuris, Taos, Pecos, and Plains groups would have provided a different context for linguistic change than the contacts, for example, experienced by other Pueblo groups to the south and west during this same time period.

Refining Time and Space in the Taos Region

Taken as a whole, the archaeological excavations at Picuris have been effective in providing the means to refine the basic time-space systematics for the region, a primary focus of the "traditional archaeology" of the preceding decades. This is not to de-emphasize the contributions that the excavations and analyses have made, and will make, to our understanding of prehistoric social organization, community structure, or religious systems through time at Picuris. However, the basic descriptions of ceramic types from chronostratigraphic contexts remain a primary legacy of the Picuris excavations.

As described in chapter 4, tree-ring and stratigraphic data from Picuris, Pot Creek Pueblo, and other local sites, tied into the presence of well-dated extralocal ceramic types at these sites, have allowed Dick and others to refine chronological positions of both new and established ceramic types in

the northern Southwest. Picuris plays the central role, though, in that its very long occupation span allowed literally dozens of various ceramic types to be deposited in deep stratigraphic contexts. In addition to the identification of over 40 ceramic types at Picuris, Dick defined several new types of decorated and undecorated ceramic wares. Of particular import for the Taos area are his descriptions of the late prehistoric white wares (Vadito and Trampas Black-on-white) and the micaceous wares (Vadito and Peñasco Micaceous) that, by the historic period, had become the primary ware type made and utilized at both Taos and Picuris Pueblos.

The absolute dating of the extensive excavated contexts at Picuris was less successful largely due to the moderate-to-poor preservation of wood timbers at the site (see the appendix A). In nearly all the cases, however, the tree-ring dates substantiate the ceramic phase-based dating of stratigraphic and architectural contexts at Picuris. The earliest Valdez phase occupation at Picuris remains somewhat ambiguous in terms of absolute dates, but the presence of a single early pit structure and of large amounts of Taos Black-on-white ceramics testifies to the significant occupation of the site before the 13th century.

The investigation of architectural contexts dating between the mid-13th to mid-14th centuries at Picuris has also proven to substantiate contexts found so far at Pot Creek Pueblo, the only other large, roughly contemporaneous village excavated to date in the Taos region. Extensive excavations at Pot Creek Pueblo have placed the occupation of the village between A.D. 1260 and 1320 (Crown 1991; Adler 1993b, 1995a; Wetherington 1968). As at Picuris, Pot Creek Pueblo has only limited evidence of a Valdez phase occupation, with two excavated examples of early pit structures underlying the major adobe surface architectural blocks on the site (Wetherington 1968).

The main room complexes at Pot Creek Pueblo were composed of single- and multiple-story structures, with much shallower central basins compared with those constructed at Picuris after the middle of the 14th century (see chapter 4 of this volume). Despite the extensive excavations at Pot Creek Pueblo, however, a great deal of ambiguity remains regarding the standard developmental scheme proposed for Taos-area settlement layout during the 13th century. The current cultural chronologies depict settlement change in three "stages." The early reliance on pit structures ended in about A.D. 1200 with the move to small unit pueblos. The local system of small, dispersed pueblos was replaced with the construction of a few, large aggregated pueblos by the end of the 13th century (Crown 1991; Herold 1968; Woosley 1986). Recent and ongoing work by Boyer et al. (1994) indicates the simultaneous construction of pit structures, small pueblos, and even large aggregations of pit structures during the 12th and 13th centuries. That a highly diverse mix of architectural features and settlement patterns existed in the Taos area before, and even during, large-scale village aggregation should be of little surprise. The contemporaneous occupation of large and small settlements composed of a range of architectural styles has been reported in other parts of the Southwest during this same time span (Adler 1996).

It is the late prehistoric and historic contexts (A.D. 1440–1850) that make the Picuris excavations truly exceptional. Nearly thirty-five years after excavations ceased at Picuris, this remains the only project in the Taos region that intensively investigated archaeological contexts dating between the mid-14th and the mid-19th centuries. These five centuries were a time of massive change at Picuris and in the rest of the Southwest

(see chapter 3 of this volume; Schroeder 1974). Excavations at the East and West Big Houses of Picuris document the period during which the settlement reached its architectural and population maximum just before and immediately following European contact in the 16th century. Early Spanish accounts mention as many as 2,000–3,000 people living at or near Picuris (Schroeder 1974). Given the extent of the architecture, it is possible that as many as 600–1,000 rooms may have been constructed in the three major room-blocks. This estimate includes approximately 350–400 ground-floor rooms, 250–350 second-story rooms, and 50–250 rooms of three or more stories. Reports from Casteñeda mention as many as nine stories in the largest of the Picuris room-blocks, but it is more likely that the highest structures reached only five or six stories. The lower number of stories is based largely on the maximal size of the adobe structure at modern-day Taos Pueblo.

Village Formation and Aggregation in the Taos Region

Of all the changes experienced by the northern Rio Grande ancestral Pueblo people, population aggregation had the largest impact on today's archaeological record. The transition from small, dispersed pithouses and unit pueblos to large, aggregated villages is visible at a number of sites in the Taos area. Any attempt to explain the potential range of reasons for population aggregation in the Taos area would necessarily fill several chapters; thus this is a task that must await a future volume. However, it is possible to take a portion of this inquiry and argue that from a pan-Pueblo perspective, the results of population aggregation in the Taos area were not unique. Three primary examples of post-1250 aggregated villages exist: Pot Creek Pueblo, Cornfield Taos, and Picuris Pueblo. Architectural data exist for only two of the three: Picuris and Pot Creek Pueblos. Based on the excavated architecture, these two sites show increases in the size of residential architectural clusters through time. This is no surprise given that relatively permanent architecture is accretional through time. More significant, though, is that the scale of architectural additions does increase through time.

Kulisheck, Adler and Hufnagle (1994) documented changes in the size of residential units in the Taos area occupied between A.D. 1250 and 1550. Based on Crown and Kohler's (1994) use of architectural details from Pot Creek Pueblo, Kulisheck and others argued that residential units can be discerned from patterns of wall bonds and abutments. The assumption is that if a group of people built an architectural unit in a single construction event, that unit was probably utilized by that group as a functioning unit. Increases in both the number of rooms per suite and the average size of individual rooms are documented at Pot Creek Pueblo (Crown and Kohler 1994; Kulisheck, Adler, and Hufnagle 1994). One explanation for these increases is that the formation of more and larger extended families at the settlement through time required more rooms in each room suite.

The issue of chronological control is much more problematic at Picuris than at Pot Creek due to the fewer number of dendrochronological dates at Picuris, so comparisons of residential unit size and configuration can be only generally made. Dick and his colleagues were able to assign most of the construction at Picuris to the various temporal phases they defined, but it is not possible to determine decadal construction episodes. The majority of construction activity at Picuris appears to have taken place in the Vadito phase, after A.D. 1375, when the East and West Big Houses and the North House were constructed. As at Pot Creek, the size of residential units at Picuris can be explored by

examining the bonding and abutting relationships of walls within the room-blocks.

Like the construction at Pot Creek Pueblo during the Talpa phase, architectural growth at Picuris during the Vadito phase included large residential units with later rooms added on in an accretional fashion. Long contiguous walls in both the East and the West Big Houses indicate the construction of blocks of ground-floor rooms, often several at a time. Following the initial construction of these core areas, additional rooms were added at the margins. The North House, however, exhibits fewer areas of large-scale construction, with only one-, two-, and three-room units constructed at any one time. Dick assigned most of this structure to the Santa Fe and Talpa phases.

Based on the total number of rooms at Picuris, room suites average 2.3 rooms per suite when all architectural features are included. Even when each of the room-blocks is considered as a separate sample, the number of ground-floor rooms in each room suite still averages about 2 rooms.

Even though larger room-blocks were constructed as single contiguous units during the later prehistoric occupation at Picuris, the average room-suite size based on ground-floor rooms at Picuris does not exceed the sizes proposed by Crown and Kohler for the earlier occupation at Pot Creek Pueblo. In fact, the Picuris average (2.3 rooms per suite) falls below Crown and Kohler's (1994) average for room-suite size for the latest occupation of Pot Creek Pueblo in the early 1300s. Due to the large number of single rooms added on to the large room-blocks at Picuris, the median residential unit size at Picuris is still 2 rooms, whereas at Pot Creek Pueblo it is 3 rooms.

We must approach these results with a measure of caution, however, since these figures come from ground-floor room plans. The presence of multiple-story architecture was noted at Picuris, but in many cases the excavations were not sufficiently fine-grained to record the presence of upper-story features in the fill of the ground-floor rooms. The historic reports describing the pueblo as having been built five or more stories high means that many of the single-room suites reported here probably had two to three rooms stacked on top. This being the case, the number of multiroom room-suites would increase substantially were the evidence for the number of stories available.

The scale of the increase in the size of the largest residential units at Picuris is important, though, suggesting that future research should assess just what sorts of group(s) were constructing these large, single-event architectural features. The comparison of Pot Creek Pueblo and Picuris Pueblo shows that large, aggregated settlements remained in a single location for longer periods of time after the mid-14th century. Though tucked away in the farthest reaches of the northeastern margin of the ancestral Pueblo world, the Taos-region populations were not isolated from the major changes taking place across this realm in the late prehistoric and historic periods. The Taos-area populations were very much involved in regional change, including the movement into large-population aggregates, the creation of architectural spaces for the integration and differentiation of community members, and the variation in the size and composition of the residential units composing these large communities. Next I will look at a variety of evidence to assess the degree of isolation experienced by the local inhabitants through time.

Picuris and Regional Interaction: Indicators of Isolation and Integration

The question of how local populations became and remained isolated from outside influences, trade, and interaction formed the focus for much of the research at Picuris.

The isolationist perspective had a long history in the interpretations of Taos prehistory (Mera 1935; Jeançon 1929). At Picuris, Dick relied primarily on architectural and ceramic data to determine the settlement's degree of interaction with groups outside the Taos area.

Dick and his colleagues concluded that before about A.D. 1300, Taos-area populations were full-fledged participants in the culture pattern of the region. Picuris ceramic assemblages dating to this time period show both stylistic and compositional links to nonlocal sources, including what Dick proposed were large numbers of tuff-tempered Kwahe'e and Santa Fe sherds from vessels he believed to have been made in the Santa Fe area about A.D. 1150–1250. The presence of pit-structure domestic architecture lends proof to the existence of regional contacts, since similar (though earlier) structures are found throughout the northern Rio Grande region.

After A.D. 1300, however, the inhabitants of Picuris and other formative villages in the Taos area ceased contact with the rest of the region while the central and, to some extent, the southern portions of the region accepted traits from the west and evolved a new culture pattern (Dick et al., n.d.). The primary basis for this perspective was the perceived decrease in the amount of nonlocal ceramics at Picuris between A.D. 1300 and 1500. Dick expected the number of Glaze A, B, and C sherds to increase throughout these two centuries due to the popularity of these styles to the south during this same time period. Few glaze-ware sherds were recovered and the Black-on-white wares (Vadito and Trampas Black-on-white) continued to be made through time, indicating a measure of regional isolation.

Given the ubiquity of the glaze-ware types in the Santa Fe area and south, as well as in the regions between the Rio Grande and the Little Colorado area in Arizona, the dearth of glaze wares requires explanation. This is perhaps even more curious given the great extent of the Salado Polychrome ceramic tradition during this same time period. As summarized by Crown (1994), the Salado ceramic style was the most widespread decorative tradition in the Southwest. The lack of this ceramic tradition at Picuris does tend to argue for an insular ceramic tradition in the Taos area during the 14th and 15th centuries.

The evidence for regional isolation is not consistent, however, with nonceramic artifactual evidence from dated contexts at Picuris. A substantial amount of flaked lithic material was recovered and analyzed in association with the excavations at Picuris. Various local and nonlocal lithic debitage and tools were assigned to the various temporal periods, based on the associated ceramic assemblages and, in rare cases, on tree-ring dates. The two most easily identified nonlocal lithic types are chert and obsidian, the former attributed to the sources at Pedernal Mountain and the latter sourced to one of the major obsidian flows in the Jemez, Mount Taylor, or Pajarito area. Wolfman[4] tabulated large increases in the amounts of both Pedernal chert and nonlocal obsidian for the same time period during which Picuris was supposed to be the most isolated from contact with the rest of the Rio Grande region. Had the primary focus of analysis been on lithic sources and exchange, it is likely that Picuris would have been interpreted as an exchange center or hub of regional interaction during the 14th and 15th centuries rather than as a settlement isolated on the northeastern fringes of the Pueblo world.

The lithic and ceramic data are not necessarily contradictory. To argue this would require one to assume that all materials, artifacts, and technologies were equally susceptible to being exchanged through time and space. There is no reason

that the factors influencing the geographical scope and intensity of ceramic exchange must be homologous to the means through which lithic resources were exchanged. In fact, we have good evidence that regional systems of interaction, migration, and exchange changed dramatically across the Southwest during this same time period. One need only look at the increased evidence for exchange between the southern plains and the Rio Grande Pueblo groups during this time, or the spread of Salado Polychrome styles, to appreciate these changes.

At the most basic level, it is difficult to argue for the isolation of the Taos-area populations through time. The area does have physiographic barriers, including the Rio Grande gorge and the mountain ranges surrounding the area. But at the same time, there has never been any question as to whether the Taos settlements were anything other than ancestral Pueblo. This being the case, the question is not whether a certain set of communities became more "culturally isolated," but why certain material classes experienced shifts in the geographic scale over which they were exchanged. Though this is too broad a question to tackle here, the artifact analysis from Picuris holds promise in answering this and related questions, including the population size of the settlement through time.

The Artifactual Evidence for Regional Interaction and Subsistence Change at Picuris

In their original presentation of artifactual data from the salvage excavations at Picuris, Dick et al. (n.d.) proposed that changes in settlement population were a primary determinant of the changes in artifact classes through time. Based on a sample of 8,500 nonceramic artifacts and an equal number of fragments of unutilized lithic flakes, Dick et al. retrodicted population increases at Picuris during the Santa Fe, Vadito, and Trampas phases. A decline in population was proposed during the Talpa and San Lazaro phases. Though not substantiated through artifactual changes, ethnohistoric accounts (Schroeder 1966) recorded the abandonment of the pueblo for a short period in the Cuartelejo phase and a subsequent reoccupation during the Tewa phase. A relatively small population continued to occupy the pueblo from the Tewa phase until the present.

The Santa Fe phase (A.D. 1225–1300) was characterized by rapid growth in pueblo size, with occupation in Areas IX and VI. According to Dick, this was the greatest population percentage increase in the history of the pueblo. The lower-level room-block in Area IX and five feet of trash covering the south slope of Area VI date to this phase. The high density of artifacts per cubic foot of trash indicates a fairly intensive occupation as well.

The relative amounts of ground-stone and chipped-stone artifacts vary through time, leading Dick et al. (n.d.) to argue that the relative amounts of each indicated changes in the reliance on farming versus hunting, respectively. For example, the higher number of ground-stone artifacts relative to bone and chipped-stone artifacts during the Santa Fe phase was taken as an indication of greater reliance on plant processing. Their reasoning was that a greater reliance on agricultural products translates into more ground stone, whereas more chipped stone and bone would be the archaeological fallout from a more intensive hunting economy.

Dick and his colleagues interpret the relative changes in the amounts of ground-stone and chipped-stone artifacts during the Vadito phase as the result of a shift away from plant processing (i.e., agriculture) and an emphasis on foraging wild plants and animal products. If such a shift to a greater reliance on foraging took place during the

Vadito phase it would run counter to the increasing emphasis on agriculture documented elsewhere in the Pueblo world during the late prehistoric period (Adler 1996). There are potential problems with their argument since a number of assumptions must be accepted in order to support this assertion, and the lack of any single assumption invalidates the argument.

First, similar depositional contexts (middens) from each of the time periods must be sampled in a statistically representative fashion to allow such a comparison. Given that much of the data come from trenches running between room-blocks, all of which have different occupational histories, the potential for artifact mixture and resorting through time is high. Relatedly, there has to be a constant rate of artifact deposition across space at the site, requiring that the inhabitants disposed of flaked stone and ground stone in the same areas throughout the entire occupation of the site. Excavations document significant changes in room-block size, configuration, and use through time, casting doubt on the assumption of long-term consistency in artifact deposition behavior at the site.

Second, a large number of linking arguments must be mustered in order to equate lithic debitage amounts with hunting and to link ground-stone use solely with farming. To turn this argument on its head, the fact that ground stone was also used to process wild-plant products (Indian ricegrass, piñon nuts, etc.) at the site could be used to argue that decreasing ground-stone amounts were the result of less extensive use of wild-plant products. The analysis of the faunal remains from Picuris (see chapter 7 of this volume), though tentative given the sampling techniques employed, indicates that Picuris inhabitants relied on a relatively constant supply of deer, with a slight decrease in the dependence upon small game through time. After contact, the later addition of other artiodactyl species (goats and sheep in particular) and the increased utilization of antelope (probably as people used the horse to hunt on the plains to the east) augmented the reliance on meat as a primary part of the diet. The constancy of large mammals in the Picuris diet runs counter to many other cases in the Southwest in which the availability of large game dwindled as people moved into larger, aggregated villages (Spielmann 1991).

It is also important to realize that the artifact comparisons and interpretations are based on artifact counts. Validation of these trends necessitates the documentation of changes in artifact class weight through time, since changes in artifact count could be due to changes in artifact fragmentation and lithic-reduction strategies through time. It is entirely possible that a large number of small flaked-stone artifacts, representing a relatively small volume of stone, could have been deposited during later periods. A count-based analysis would show an increase in lithic-procurement strategies, whereas a weight-based analysis would indicate a decrease in this same class of behavior.

Third, the increase in lithic materials during the Vadito and San Lazaro phases is due in large part to the increased amounts of nonlocal lithics, primarily obsidian and Pedernal chert, between the 14th and 16th centuries. Rather than being the result of a change in subsistence practices, alterations in lithic-procurement and regional exchange behaviors may well have created the increased number of flaked-stone artifacts at Picuris. The simultaneous decrease in ground stone may simply be fortuitous or may due to a number of other factors not enumerated here.

Finally, the comparison of artifact densities through time as charted originally by Dan Wolfman lacked any consideration of phase duration. Though Wolfman was careful to standardize the artifact densities to reflect the actual volume of soil excavated

and assigned to each of the various time periods, the artifact counts must also be standardized to reflect the temporal span of each phase. Failure to do so would assume that a similar number of lithic flakes could have been deposited during a 50-year phase as during a 115-year phase. Standardizing the amounts to reflect phase length decreases the differences between the classes through time but still indicates the trends originally described by Dick and others. These trends remain intriguing, though probably not for the explanatory reasons originally proposed. All of the artifacts used in the original tabulation are still available for study and can still provide important insights into technological and systemic changes during the prehistoric occupation at Picuris. The best indicators of diet change include paleoethnobotanical and bone chemistry analyses, but given the unavailability of human remains at the site and given the unanalyzed macrobotanical samples, artifactual indicators of food processing still hold promise for understanding past subsistence strategies at Picuris.

Big Houses of Adobe: Surface Architecture at Picuris

The material class most evident, and still present in large quantities at Picuris, is the adobe architecture. The excavations at Picuris brought to light a range of architectural features rare, and at times unique, in the northern Rio Grande and the greater Southwest. As summarized above, room sizes at Picuris do not vary significantly from those at Pot Creek Pueblo but are much larger on average than those constructed at contemporaneous adobe and masonry pueblos farther south. During the excavation and the early write-up years, however, room characteristics were less of a research interest than was the question of where adobe architecture originated in the greater Southwest.

The question of adobe origins is linked to the wider archaeological inquiry into the "cultural lineage" of the Taos-area Pueblo people. Like language, architectural style and construction techniques are cultural characteristics that can indicate ethnic or social identity on a regional scale. As with their interest in archeolinguistics at Picuris, Dick and others assumed that architectural styles and technologies traced through time and space would document the movement of archaeological cultures.

Though the notion of archaeological cultures has been supplanted by concepts such as "adaptive systems" and "ethnic boundaries," it is clear that architecture informs on a number of cultural and environmental factors. In addition to providing simple shelter from the elements, architecture is a built environment that compartmentalizes human interaction, both enabling and constraining social relations. The technologies utilized to create these human built spaces are constrained not only by thermal efficiency and support strength but also by tradition and cultural identity (Rapoport 1969, 1990).

Wall-construction techniques form a basic component of architectural technology. Archaeologists have delineated two traditions of wall construction in the Southwest: masonry and adobe. Masonry architecture was very rarely used in the Taos area, setting the area apart from well-known masonry traditions of the Mesa Verde, Chaco, and Kayenta regions. The continued reliance on adobe in the Taos region, despite the hypothesized immigration of groups from the western masonry-using areas after A.D. 1300, continues to interest archaeologists, particularly since the Taos area contains relatively early examples of coursed adobe architecture.

The question of the origins of coursed adobe in the Taos region is complicated by the relatively poor chronological control

associated with the early pit structures occupied in the Taos area. Based on Boyer's (1994) recent review, coursed adobe walls are present in Taos-area subterranean pit structures by about A.D. 1100. Though the walls are built up against the earthen walls of excavated pits, the same stacked-course technology used in the later surface-room wall construction was also used to build these subterranean walls.

Earlier examples of coursed-adobe architecture are reported in the northern Southwest, but they are few in number. Just north of Santa Fe, Stubbs (1954) found scattered groups of houses, consisting of from 10 to 20 rooms each, around their associated kivas. Coursed-adobe surface rooms dating to the White Mound phase are also reported from the Red Mesa Valley (Gladwin 1945). This building style was also used during the Rosa phase in the Largo-Gallina-Governador area (Hall 1944:19; see Dittert, Hester, and Eddy 1961 for the dating of this phase).

Dick proposed a southern, rather than a northern, origin for the coursed adobe building technology, and others (Cameron 1998) tend to agree. Either before, or contemporaneous with the appearance of coursed adobe in the northern Rio Grande region, the trait was common to the south and west. The southern Rio Grande area, most specifically the Jornada Mogollon region and the Mimbres area both have evidence that coursed adobe appeared relatively early. Although the Jornada examples of adobe architecture come from small unit pueblos occupied during the first half of the 12th century (Lehmer 1948:89), the Mimbres adobe sites tend to be large aggregations occupied between about A.D. 1150–1200 (LeBlanc 1983). Dick targeted northern Mexico, specifically the area around Casas Grandes (Paquimé), as the ultimate source of this trait. This no longer makes chronological sense, however, since recent revisions in the chronology of Casas Grandes and its magnificent coursed-adobe structures now places the primary occupation between the late 13th and early 15th centuries (Dean and Ravesloot 1993). When Dick and his colleagues were excavating Picuris, Charles DiPeso had not yet summarized his findings but had told Dick, through personal communication, that the occupation at Casas Grandes started at about A.D. 1000.

In her recent treatment of the questions surrounding the origins and use of adobe architecture, Cathy Cameron (1998) makes the point that adobe use corresponds well with the geographic extent of both the Sonoran and the Chihuahuan Desert biomes. These two biomes cover much of the Hohokam and Mogollon culture areas that contain coursed-adobe architecture. The northernmost extent of the Chihuahua Desert follows the Rio Grande valley to just above Albuquerque, though this extension of the Chihuahuan Desert ends well south of Taos, the northernmost location of adobe pueblos in the Southwest.

Cameron notes that coursed-adobe architecture occurs across the Southwest primarily after A.D. 1150, and that in many places it rapidly replaced or was added to extant construction technologies. Although the distribution of adobe is roughly coterminous with the distribution of low-rainfall biomes, which are appropriate contexts for the long-term use of adobe construction, Cameron also raises the possibility that coursed-adobe architecture served as an "emblemic style" indicative of regional religious system(s), specifically the Katsina religious system, spreading across the Southwest between the 12th and 14th centuries,.

The possible link between adobe construction and southern origins of the Katsina religious system (see Schaafsma 1992 and Adams 1991 for differing interpretations on Katsina origins) has

significant implications for the interpretation of Taos-area prehistory. There is only very limited evidence for Katsina ceremonialism in the Taos area during the prehistoric period. Except for the well-publicized masked figure on a Talpa Black-on-white sherd recovered from Pot Creek Pueblo (Wetherington 1968), mask symbolism is rare in local ceramic decoration and rock art. Dick does not mention any mask motifs on ceramics from Picuris. In contrast to kiva paintings elsewhere (Hibben 1975; Smith 1952b), the many kiva mural motifs at Picuris reveal an absence of masked figures (see chapter 9 of this volume). If there is indeed a link between the spread of adobe architecture and the movement of religious ideas, people, emblemic styles, or a mix of these across the Southwest, the Taos area once again plays the role as an exception to the proposed pattern.

The Lessons of the Picuris Kivas

Turning to the topic of kivas at Picuris brings us once again to the question of just what to make of the regional congruities and dissimilarities in the construction and use of ritual space across the Pueblo Southwest. In this section I will first summarize the range of variability observed in kiva construction at Picuris and will then turn my focus to the abandonment of kivas at Picuris and at other settlements in the region. Mounting evidence from the Southwest and from other parts of the world indicates that modes of structure abandonment inform not only on structure use but also on the nature and temporal extent of settlement abandonment. Rather than rehashing the questions of how people used kivas and when kivas became kivas (see Adler 1993a; Lekson 1988; Smith 1952b; Cater and Chenault 1988), I argue that evidence of kiva abandonment can serve to support the current argument about the long duration of occupation at Picuris.

Before discussing kiva abandonment, I must note a few observations about kivas in the northern Rio Grande region. I have argued elsewhere (Adler 1993a) that the ceremonial and economic organization of Valdez phase populations was based on dispersed communities of multiple households. I infer the existence of dispersed communities both from the settlement data collected to date (Herold 1968; Woosley 1986) and from the economics of risk and sharing observed and described among modern and historic food-producing societies. Food-producing societies regularly create and recognize the multihousehold organizational entities that we call "communities" across the world. I have proposed that in the Taos area a select few pit structures within each dispersed community probably served as both an integrative facility (for ritual and group ceremony) and a domestic space. As yet, there is no evidence for specialized, community-wide ritual integrative facilities (i.e., great kivas) during the Valdez phase. This argument contrasts with interpretations that Valdez phase occupants of the region lacked a "common ceremonial complex or a common economic organization" (Wetherington 1968:80), based on the lack of obvious architectural features that would seem to have been built specifically for ritual use.

The degree of functional specialization associated with subterranean structures changed during the later time periods as Pueblo populations in the Taos area utilized more surface architecture for habitation and storage. This increasing specialization is reflected in the greater standardization of architectural form (and, presumably, function) in that class of features we call "kivas." Both large and small kivas are all the more recognizable during and after the 13th century due to the increasing use of surface rooms and the likelihood of the

increasingly specialized use of the kivas for ritual purposes.

As discussed (see chapter 4), kiva construction at Picuris dates between the late 13th century and the present, with the possibility that some of these subterranean spaces have been in use for several centuries. Smith (1952b) and others (e.g., Adler 1993a) have shown that there are no universal characteristics of kiva through time or space in the Southwest, except perhaps their proposed function as a ritual integrative space at least part of the time they are in use. Given the lack of "universals," there are undeniable similarities between the Picuris kivas and those found elsewhere in the Southwest. These similarities include subterranean construction, consistent directional orientation of the ventilator system (generally east in this region), the presence of sipapu and floor vaults in some of the structures, and centrally located hearth features.

The unique features of Picuris kivas, including floor channels and subsidiary ventilator systems that are rare outside the Taos and Pecos areas, are discussed in chapter 4. The ubiquity of ashpits in Taos-area kivas is not consistent in the sample of kivas from Picuris. The paintings on the walls of several kivas at Picuris (see chapter 9 of this volume) also set these kivas apart from most of the kivas investigated elsewhere in the Southwest.

Kivas and Structure Abandonment at Picuris

Just as important as what the Picuries did to construct their kivas is what they didn't do to most of the kivas after the structures were no longer in use. It is significant that nearly all the kivas excavated at Picuris show evidence of having been allowed to decompose in place after the use life of the structures had lapsed. This differs from the abandonment mode of many other southwestern kivas, which were burned or dismantled at the expiration of structural use life.

Burned pit structures are an archaeological treasure trove because of the potential for the preservation of organic remains and datable materials. The archaeological interpretations often given for the burning are that the fire was an accidental catastrophe or the result of conflict and warfare. Wilshusen (1986) has argued that the conflagrations that consumed pit structures in the Dolores area of southwestern Colorado during the 8th and 9th centuries were often set purposefully to destroy or decommission ritually significant spaces. More recently, Schlanger and Wilshusen (1993) have generalized these earlier observations into a "time-space" model for explaining modes of structure abandonment. Based on correlations between increases in the burning of structures and short-term periods of drought in the Dolores area, Schlanger and Wilshusen proposed that the burning abandonment mode is conditioned in large part by two variables: (1) the expected duration of human absence from the settlement; and (2) the distance between the abandoned site and the new residence.

This model builds on Stevenson's (1982) earlier work that predicts assemblage-abandonment modes given the variability in these same two factors. Schlanger and Wilshusen extend Stevenson's perspective to include prehistoric structures, arguing that pit structures were burned when inhabitants, faced with local drought conditions, anticipated moves of significant distances and/or lengthy duration. People burned their pit structures in association with site abandonment because they knew they would not be using them in the near future and they wanted the structures "deliberately closed" (Schlanger and Wilshusen 1993).

One of the weaknesses of the model is that it does not address, as Wilshusen did earlier, the fact that functionally different classes of architecture may also be

abandoned in different ways. Our challenge, then, is to assess whether different abandonment modes, and what sorts of modes, should be associated with functionally different architectural spaces. This requires the addition of a third dimension—structure function—to Schlanger and Wilshusen's "space-time" model. Based on data from Picuris and other settlements across the Southwest, kiva-abandonment modes inform on the nature of occupation and abandonment at the site and regional levels.

Kiva Abandonment in the Mesa Verde Region

Ten years of excavations at Sand Canyon Pueblo have yielded a large data set for assessing the abandonment behavior associated with the long-term abandonment of late-13th-century Mesa Verde ancestral Pueblo settlements (Bradley 1992). Sand Canyon Pueblo was occupied primarily between A.D. 1250–1290, and the site's final abandonment coincides with the widespread and final abandonment of the Four Corners region. To date, nearly 40 rooms and 19 kivas have been excavated or tested at Sand Canyon. None of the surface rooms were burned. In contrast, 15 of the 19 kivas were burned, and of the 4 unburned kivas, 1 had a fire that did not spread completely through the roofing timber (Bradley 1992). Schlanger and Wilshusen expect the burning of structures to accompany such an abandonment, an expectation borne out by the kivas but not by the more numerous surface structures on the site.

Insights are gained when we look at additional instances of abandonment associated with temporal spans and relocation distances different from those at Sand Canyon Pueblo. Recent work by Varien, Kuckelman, and Kleidon (1993) in small sites around Sand Canyon Pueblo investigates long-term site abandonment associated with short-distance moves. Test excavations in 13 small sites, each of which was occupied just before or during the occupation of Sand Canyon, provide data on 21 kivas with intact stratigraphic contexts. Of these, 15 kivas had been dismantled at site abandonment, with kiva roof beams removed as part of the salvage process. Of the remaining 6 kivas, 4 had been burned and had the larger beams salvaged, and only 2 had been burned with roofs intact. The two intact burned roofs probably date to the terminal abandonment of the region, whereas nearly all of the salvaged kivas antedate population aggregation at Sand Canyon Pueblo. Varien believes that many of these kiva roofs were salvaged to be incorporated into the kivas at Sand Canyon Pueblo, an interpretation supported by anomalous clusters of cutting dates in kiva roof timbers recovered at Sand Canyon Pueblo. Kivas were dismantled and moved, consistent with the expectations of the space-time model. Varien believes that most surface structures were abandoned without burning. Most of the kivas also were unburned possibly due to the fact that the immediate locality was not truly "abandoned," since the inhabitants of the former hamlet could monitor access to the "old homestead" through their continued use of the site, the agricultural fields, and the surrounding landscape.

Kiva Abandonment in the Northern Rio Grande Region

The patterns of structure abandonment in the Mesa Verde region do not appear to be regionally unique. Information on structure abandonment comes from both Pot Creek Pueblo and Picuris (Adler 1993a). Tree-ring cutting dates from across Pot Creek Pueblo indicate two periods of intense construction, one in the 1270s and another in the first decade of the 1300s. The latest cutting date of A.D. 1319 from the great kiva indicates site abandonment some time during the 1320s.

Small kivas are associated with excavated Room-blocks 2, 3, 5, and 6. Good evidence for burning is found in three of the kivas (Room-blocks 2, 5, and 6). Excavation notes on the Room-block 3 kiva from are not sufficiently detailed to assess abandonment mode. The kiva in Room-block 2 was burned, filled in, and subsequently covered over by later architecture. I have proposed elsewhere (Adler 1993a) that the site may have experienced a short-term abandonment during the latter 1290s and a subsequent reoccupation in A.D. 1300. The decommissioning of the Room-block 2 kiva may be associated with this short-term abandonment. The kivas in Room-blocks 5 and 6 appear to be associated with the final abandonment of the settlement.

In contrast to the abandoned sites of Pot Creek Pueblo and Sand Canyon Pueblo, Picuris Pueblo contains a nearly complete sample of unburned, abandoned kivas. Eleven kivas were unburned, and several of them appear to have had roofing timbers and support posts salvaged before abandonment. This pattern probably relates to the continued presence of the original inhabitants at Picuris, obviating the need to permanently destroy these integrative structures and seal them off from future access.

The single exception to the rule at Picuris is Kiva D. As described earlier (chapter 4), the people of Picuris referred to this burned kiva as the "Cochiti Witch Kiva." According to Picuris elders, the kiva had been constructed by a person or persons from Cochiti Pueblo (Wolfman 1962). Trouble within the community at Picuris led to the departure of the Cochiti person(s). Though it is not clear what conditions surrounded the parting of ways, the association of the structure with a “witch” suggests that that the visitor or visitors were forced out of the community due to witchcraft accusations.

The archaeological manifestations of this episode show that the abandonment of the structure was meant to ensure that no access was allowed in or out of the structure. Before the burning, all of the wall niches were filled with adobe, and the subsidiary ventilators were closed off with stone slabs. After the niches and subsidiary ventilators were sealed off, the entire kiva wall was given an extra coat of plaster, covering the kiva paintings, the plugged niches, and the subsidiary vents. Wolfman and Dick also note that the Kiva D floor contexts were nearly devoid of artifacts except for a pile of artifacts located under what had been the east shelf of the kiva (see chapter 4). As proposed above, this structure was destroyed to ensure that no one would be allowed access. It is not clear whether the destruction was initiated by someone from outside Picuris or whether the Picuries destroyed the kiva due to its association with witchcraft and antisocial behavior. The kiva’s significance rests in its differential treatment compared with the other kivas, which were not burned, but were either dismantled or left to fill in with natural sedimentation.

Given this admittedly small but carefully excavated sample, it is likely that different abandonment modes evident in functionally different classes of Pueblo structures may relate to the differences in the types of groups associated with the structure use. Whereas room-suite use in surface structures was likely organized around separate households, kivas served as the integrative focus of multiple households and, as such, were vested with group identity. Simple abandonment would leave the integrative spaces accessible to nonmembers, compromising the group's meaning and integrity. It is also possible that abandonment modes signal whether group integrity was intact at the time of the abandonment of the structure. Whatever the specific conditions, my point is that group-focused architecture and household-level

architecture may well have been treated differently at abandonment.

Thus, though Picuris kivas may have contained unique architectural features that set them apart from other functionally equivalent structures across the Southwest, the abandonment modes associated with the kivas are consistent with these admittedly limited regional data. If the patterns and rationales for the modes are generally accurate, kiva abandonment at Picuris also serves as additional evidence that settlement abandonment was rare or nonexistent over the past several centuries. Had abandonment been the rule, as it appears to have been across much of the Pueblo world during this same time span, we would expect more burned kivas among those excavated at Picuris. Additional unexcavated kivas exist at Picuris, leaving open the possibility that the excavated sample is not truly representative of the variability in abandonment mode at the site. It is likely that the unexcavated kivas will remain that way. Given that the relationship posited here between structure use and abandonment should hold true both in the Taos area and well outside its boundaries, significant data can still be brought to bear on this topic through future work outside of Picuris Pueblo.

Conclusions

Picuris Pueblo has been a unique part of the Pueblo world for nearly a millennium of human occupation, social changes, regional migrations, and environmental perturbations. Throughout generation after generation of occupation, the settlement has endured varying amounts of both cultural interaction and isolation. Today archaeologists measure these very real human conditions through, among other things, the identification of pottery sherds, interpretation of subfloor channels, and measurement of room sizes. Archaeology provides select perspectives into this very deep past, but it can provide only part of the story that is Picuris Pueblo.

One of the stories that archaeology tells is a familiar one to any individual who is part of a human community. Throughout the written and oral histories that recount the long occupation of Picuris Pueblo, the people of Picuris have been different from, as well as similar to, the people of other Pueblo communities. Picuris' place in the ancestral, historic, and modern Pueblo worlds depends on one's evidence and vantage point. When Herbert Dick began his work with the people of Picuris, he did so to provide as many vantage points as possible. Through years of excavation and analysis, he and his colleagues compiled one of the most comprehensive human-occupation records to ever be recovered in North America. By taking a multidisciplinary perspective, Dick ensured that we would broaden our understanding of Picuris beyond the adobe walls and broken pots.

The perspectives in this volume were compiled here to provide some of the story that can be told. Historical perspectives synthesized by Donald Nelson Brown (chapter 3) highlight the many changes the community has experienced over the past century, as well as the social structures on which the community still depends for its organizational coherence and cultural identity. Richard Mermejo's personal perspective reflects on what archaeology can teach an indigenous community about its past, as well as what archaeology must learn from indigenous communities to provide a truly human perspective on the past.

Clearly the archaeological data hold center stage in this volume, just as Herbert Dick intended. A great deal of archaeological information has been included in the volume, some of it from earlier, unpublished manuscripts and some of it recently compiled and synthesized. The information will, we hope, provide resources

for those interested in fathoming the human history of the Taos area and the place of Picuris in the larger Pueblo world.

The Picuris story also contains important lessons. Perhaps the most important lesson is that archaeological work becomes information only if all the stories are told in a readily accessible form. Herbert Dick was in the process of fulfilling this basic responsibility before his untimely death in 1992. It is hoped that the publication of these chapters will do justice to the monumental efforts that Herbert Dick, Dan Wolfman, Curtis Schaafsma, and the people of Picuris contributed to enhance the stories (histories, prehistories, and oral histories) of Picuris Pueblo.

Endnotes

[1] Dick's dates for early maize have been revised more recently by Wills (1988, 1990), who argues for a more recent introduction of maize into the Southwest.

[2] Willey's career on the Harvard faculty began after Dick had received his doctorate there.

[3] The structure of this chapter follows in large part the topics discussed by Dick, Wolfman, Schaafsma, and Wolfman in the concluding section of their unpublished manuscript "Introduction to Picuris Prehistory." Ideas proposed by Dick and others are addressed in the present chapter and are cited where appropriate. Significant portions of "Introduction to Picuris Prehistory" have been included in chapter 4 of this volume.

[4] Dan Wolfman analyzed the sample of nonceramic materials recovered from the salvage excavations in 1964, and tabulated frequency data for artifacts based on Dick's assignment of temporal phase to the various areas and levels. Many of these findings were included in the text of the "Introduction to Picuris Prehistory" manuscript.

References

Abel, Annie H.
1916 The journal of John Grenier. Old Santa Fe 3(11):189–243.

Aberle, S. D.
1948 The Pueblo Indians of New Mexico: Their Land, Economy, and Civil Organization, American Anthropological Association, Memoir Number 70. Washington, D.C.

Adams, E. Charles
1979 Cold air drainage and length of growing season on the Hopi Mesas area. Kiva 44:285–296.
1991 The Origin and Development of the Pueblo Katsina Cult. University of Arizona Press, Tucson.

Adams, E. Charles, Miriam T. Stark, and Deborah S. Dosh
1993 Ceramic distribution and exchange: Jeddito Yellow Ware and implications for social complexity. Journal of Field Archaeology 20:3–21.

Adams, Eleanor B., and Fray Angelico Chavez
1956 The Missions of New Mexico, 1776. University of New Mexico Press, Albuquerque.

Adler, Michael A.
1990 Communities of soil and stone: An archaeological investigation of population aggregation among the Mesa Verde region Anasazi, A.D. 900–1300. Unpublished Ph.D. dissertation, Department of Anthropology, University of Michigan.
1993a Collapsed kivas and resilient systems: Kiva abandonment in the Pueblo world. Paper presented at the 20th Annual Meeting of the American Anthropological Association, Washington, D.C.
1993b Excavations at Pot Creek Pueblo, 1993 field season. Ms. on file, Fort Burgwin Research Center, Ranchos de Taos, N.M.
1993c Why is a Kiva? Recent research into pit structure use and function in the northern Rio Grande, New Mexico. Journal of Anthropological Research 49:18–27.
1995a The abandoned pueblo: Report of archaeological excavations at Pot Creek Pueblo, 1995 field season. Ms. on file, Fort Burgwin Research Center, Ranchos de Taos, N.M.
1995b Excavations at Pot Creek Pueblo, 1994 field season. Ms. on file, Fort Burgwin Research Center, Ranchos de Taos, N.M.
in prep Final Report on Excavations at Pot Creek Pueblo. Ms. in possession of the author.

Adler, Michael A. (editor)
1996 The Prehistoric Pueblo World, A.D. 1150–1350. University of Arizona Press, Tucson.

Adler, Michael A. and Richard Wilshusen
1990 Large scale integrative facilities in tribal societies: Cross-cultural and southwestern U.S. examples. World Archaeology 22(2):133–146

Ahlstrom, Richard V. N., Carla R. Van West, and Jeffrey S. Dean
1995 Environmental and chronological factors in the Mesa Verde-Northern Rio Grande migration. Journal of Anthropological

Archaeology 14:125–142.
Allen, J. W., and C. H. McNutt
1955 A pithouse site near Santa Ana Pueblo, New Mexico. American Antiquity, 20(3):241–255.
Amsden, Charles A.
1931 The Black-on-white ware. In The Pottery of Pecos, Vol. I, by A.V. Kidder. Papers of the Phillips Academy Southwestern Expedition, No. 5. New Haven, Conn.
Annual Report of the Commissioner of Indian Affairs
1899 Report for the year 1899. Washington, D.C.
1900 Report for the year 1900. Washington, D.C.
Anscheutz, Kurt
1993 Saving a rainy day: The integration of diverse agricultural technologies to harvest and conserve water in the lower Rio Chama valley, New Mexico. In Proceedings of the New Mexico Archaeological Council Symposium: Recent Work, New Findings, and Traditional Practices in the Agriculture of the Northern Southwest, edited by H. Wolcott Toll. New Mexico Archaeological Council, Albuquerque.
1994 Floods, frosts, hot rocks, and systems of water management: Reconsidering Classic Period Anasazi agricultural practices in the northern Rio Grande. Paper presented at the 59th Annual Meeting of the Society for American Archaeology, Anaheim, Calif.
Anscheutz, Kurt, and Timothy Maxwell
1987 Agricultural intensification and diversification in the northern Rio Grande. Paper presented at the 52nd Annual Meeting of the Society for American Archaeology, Toronto.
Ascher, M., and R. Ascher
1963 Chronological ordering by computer. American Anthropologist 65(5):1045–1052.
Bailey, V.
1931 Mammals of New Mexico. North American Fauna 53:1–412.
Bandelier, A. F.
1890–92 Final Report of Investigations among the Indians of the Southwestern United States. Pts. 1 & 2. Papers of the Archaeological Institute of America, American Series. Cambridge, Mass.
Banks, R. C., R. W. McDiarmid, and A. L. Gardner
1987 Checklist of vertebrates of the United States, the U.S. territories, and Canada. U.S. Department of the Interior, Fish and Wildlife Service, Resource Publication 166:1–79.
Blinman, Eric
1993 Anasazi pottery: Evolution of a technology. Expedition 35(1):14–22.
Bloom, Lansing B.
1936 Bourke on the Southwest. New Mexico Historical Review 11(3):245–282.
1938 Bourke on the Southwest. New Mexico Historical Review 13:192–238.
Blumenschein, Helen
1956 Excavations in the Taos area, 1953–1955. El Palacio 63(2):53–56.
1958 Further excavations and surveys in the Taos area. El Palacio 65(3):107–111.
Bourke, John G.
1884 The Snake Dance of the Moquis

of Arizona: Being a Narrative of a Journey from Santa Fe, New Mexico, to the Villages of the Moqui Indians in Arizona. Scribner, New York. (Reprinted 1984, University of Arizona Press, Tucson.)

Boyer, Jeffrey L.
1994 Occupying the Taos Frontier: The Valdez Phase and Valdez-phase Sites. In Studying the Taos Frontier: The Pot Creek Data Recovery Project, 2 vol., edited by Jeffrey L. Boyer, James L. Moore, Daisy F. Levine, Linda Mick-O'Hara, and Mollie S. Toll. Archaeology Notes 68, Museum of New Mexico, pp. 379–424. Office of Archaeological Studies, Santa Fe.

Boyer, Jeffrey L., James L. Moore, Daisy F. Levine, Linda Mick-O'Hara, and Mollie S. Toll
1994 Studying the Taos Frontier: The Pot Creek Data Recovery Project. 2 vols. Archaeology Notes 68, Museum of New Mexico, Office of Archaeological Studies, Santa Fe.

Bradford, James E.
1992 Archeological Survey: Gila Cliff Dwellings National Monument. U. S. National Park Service Southwest Cultural Resources Center Professional Papers, No. 47. Santa Fe.

Bradley, Bruce A.
1987 Annual Report of Excavation at Sand Canyon Pueblo 5MT765, Montezuma County, Colorado, 1986 Field Season. Crow Canyon Archaeological Center, Cortez, Colo.
1989 Architectural petroglyphs at Sand Canyon Pueblo (5MT765), southwestern Colorado. Kiva 54(2):153–161.
1992 Excavations at Sand Canyon Pueblo. In The Sand Canyon Archaeological Project: A Progress Report, edited by William D. Lipe, pp. 79–98. Crow Canyon Archaeological Center Occasional Papers No. 2, Cortez, Colo.

Brew, John O.
1946 Archaeology of Alkali Ridge, Southeastern Utah. Papers of the Peabody Museum of American Archaeology and Ethnology, Harvard University, Vol. 21. Cambridge, Mass.

Brody, J. J.
1965 University of New Mexico summer field school excavations in Taos County. Paper presented at the 1965 Pecos Conference, Trinidad, Colo.
1991 Anasazi and Pueblo Painting. University of New Mexico Press, Albuquerque.

Brown, Donald Nelson
1967 The distribution of sound instruments in the prehistoric southwestern United States. Ethnomusicology 11(1):71–90.
1974 Social structure as reflected in architectural units at Picuris Pueblo. In The Human Mirror: Material and Spatial Images of Man, edited by Miles Richardson, pp. 317-338. Louisiana State University Press, Baton Rouge.
1979 Picuris Pueblo. In Handbook of North American Indians, Vol. 9, edited by Alfonso Ortiz, pp. 268–277. Smithsonian Institution Press, Washington, D.C.

Bugé, D. E.
1984 Prehistoric subsistence strategies in the Ojo Caliente Valley, New Mexico. In Prehistoric

Agricultural Strategies in the Southwest, edited by S. K. Fish and P. R. Fish, pp. 37–44. Anthropological Research Papers, 33. Arizona State University, Tempe.

Bunzel, Ruth L.
1932 Introduction to Zuñi Ceremonialism. 47th Annual Report of the Bureau of American Ethnology for the Years 1929–1930, pp. 467–544. Smithsonian Institution, Washington, D.C.

Cameron, Catherine
1998 Coursed adobe architecture, style, and social boundaries in the American Southwest. In The Archaeology of Social Boundaries, edited by Miriam T. Stark, pp. 183–207. Smithsonian Institution Press, Washington, D.C.

Carlson, R.
1961 White Mountain Redware: A stylistic tradition in the prehistoric pottery of east-central Arizona. Ph.D. dissertation, Department of Anthropology, University of Arizona, Tucson.
1964 Mimeographed notes distributed at the 1964 ceramic conference of the Museum of Northern Arizona, Flagstaff.
1970 White Mountain Redware: A Stylistic Tradition of East-Central Arizona and Western New Mexico. Anthropological Papers of the University of Arizona, 19. Tucson.

Cater, John, and Mark Chenault
1988 Kiva use reinterpreted. Southwestern Lore 54(3):19–32.

Chapin, Frederick H.
1988 Land of the Cliff Dwellers. University of Arizona Press, Tucson. (Originally published 1892, Appalachian Mountain Club, Boston.)

Cole, Sally J.
1990 Legacy on Stone. Johnson Books, Boulder, Colo.
1994 Roots of Anasazi and Pueblo Imagery in Basketmaker II Rock Art and Material Culture. Kiva 60(2):289–311.

Colton, H. C.
1956 Pottery Types of the Southwest. Museum of Northern Arizona Ceramic Series, No. 3C. Flagstaff.

Colton, H. C., and L. L. Hargrave
1937 Handbook of Northern Arizona Pottery Wares. Museum of Northern Arizona, Bulletin 11. Flagstaff.

Colton, Mary F.
1959 Hopi Kachina Dolls, with a Key to Their Identification. University of New Mexico Press, Albuquerque.

Cordell, Linda
1995 Tracing migration pathways from the receiving end. Journal of Anthropological Archaeology 14(2):203–211.

Cordell, Linda, Amy Earls, and Martha Binford
1984 Subsistence systems in the mountainous settings of the Rio Grande Valley. In Prehistoric Agricultural Strategies in the Southwest, edited by Suzanne Fish and Paul Fish, pp. 233–243. Arizona State University Research Papers, no. 33. Tempe.

Cosgrove, C. B.
1947 Caves of the Upper Gila and Hueco Areas in New Mexico and Texas. Peabody Museum, Harvard University, Cambridge, Mass.

Crawford, O. G. S.
1953 Archaeology in the Field. Phoenix House, London.
Creamer, Winifred
1993 The Architecture of Arroyo Hondo. Arroyo Hondo Research Series, no. 7. School of American Press, Santa Fe.
Crotty, Helen K.
1990 Formal qualities of the Jornada style and Pueblo IV Anasazi rock art: A comparison with implications for the origins of Pueblo ceremonialism. In American Indian Rock Art, Vol. 16, edited by Solveig Turpin, pp. 147–166. National Park Service, American Rock Art Research Association, and Texas Archaeological Research Laboratory, University of Texas, Austin.
1995 Anasazi mural art of the Pueblo IV Period, A.D. 1300–1600: Influences, selective adaptation, and cultural diversity in the prehistoric Southwest. Ph.D. dissertation, University of California, Los Angeles. (University Microfilms International, Ann Arbor, Mich.)
Crown, Patricia
1990 The chronology of the Taos area Anasazi. In Clues to the Past: Papers in Honor of William M. Sundt, edited by Meliha S. Duran and David T. Kirkpatrick. Papers of the Archaeological Society of New Mexico, No. 16. Albuquerque.
1991 Evaluating the construction sequence and population of Pot Creek Pueblo, northern New Mexico. American Antiquity 56(2):291–314
1994 Ceramics and Ideology: Salado Polychrome Pottery. University of New Mexico Press, Albuquerque.
Crown, Patricia, and Timothy Kohler
1994 Community dynamics, site structure, and aggregation in the northern Rio Grande. In The Ancient Southwestern Community: Models and Methods for the Study of Prehistoric Social Organization, edited by W. Wills and R. Leonard, pp. 103–118. University of New Mexico Press, Albuquerque.
Cushing, Frank H.
1901 Zuñi Folk Tales. G.P. Putnam's Sons, New York.
1979 My Adventures in Zuni. In Zuñi: Selected Writings of Frank Hamilton Cushing, pp. 46–134. University of Nebraska Press, Lincoln. (Originally published 1882–83, Century Illustrated Magazine 25:191–207, 500–511, and 26:28–47.)
Davenport, William
1959 Nonunilineal descent and descent groups. American Anthropologist, 61(4):557–572.
Davis, I.
1959 Linguistic clues to northern Rio Grande prehistory. El Palacio 66(3):73–85.
Dean, Jeffrey S., and John Ravesloot
1993 The chronology of cultural interaction in the Gran Chichimeca. In Culture and Contact: Charles C. Di Peso's Gran Chichimeca, edited by Anne I. Woosley and John C. Ravesloot, pp. 83–103. Amerind Foundation, Dragoon, N.M.
Densmore, Frances
1932 Yuman and Yaqui Music. Bureau of American Ethnology, Bulletin

110. Smithsonian Institution, Washington, D.C.
1938 Music of Santo Domingo Pueblo, New Mexico. Southwest Museum Papers, no. 12. Southwest Museum, Los Angeles.
1957 Music of Acoma, Isleta, Cochiti and Zuñi Pueblos. Bureau of American Ethnology, Bulletin 165. Smithsonian Institution, Washington, D.C.

Dick, Herbert W.
n.d. Preliminary report of excavations at Picuris Pueblo, summer 1961. Ms. on file, Fort Burgwin Research Center, Ranchos de Taos, N.M.
1958 A site survey analysis tabulation method (Using the Unisort Analysis Card Y9). Museum Bulletin 1, Trinidad State Junior College, Trinidad, Colo.
1961 Grant submitted to the National Science Foundation for excavation at Picuris. Ms. on file, Fort Burgwin Research Center, Ranchos de Taos, N.M.
1965a Bat Cave. Monographs of the School of American Research, 27. Santa Fe.
1965b Picuris Pueblo Excavations, November 1965, Submitted to USDI National Park Service, Contract No. DI 14-10-0333-1348. Fort Burgwin Research Center, Rancho de Taos, and Department of the Interior, National Park Service, Santa Fe. (Document No. PB177047, National Technical Information Service, Springfield, Va.)
1968 Six historic pottery types from Spanish sites in New Mexico. In Collected Papers in Honor of Lyndon Lane Hargrave, edited by Albert H. Schroeder, pp. 77–94. Papers of the Archaeological Society of New Mexico, 1. Museum of New Mexico Press, Santa Fe.
1990 Background information for the study of micaceous pottery. Handout at the Euro-American Ceramics Workshop, New Mexico Archaeological Council, Santa Fe.

Dick, Herbert W., Daniel Wolfman, Curtis Schaafsma, and Marianne L. Wolfman
n.d. Introduction to Picuris prehistory. Ms. on file, Fort Burgwin Research Center, Ranchos de Taos, N.M.

Dittert, A. E., Jr.
1959 Culture change in the Cebolleta Mesa Region, Central Western New Mexico. Ph.D. dissertation, University of Arizona, Tucson.

Dittert, A. E., Jr., J. J. Hester, and F. W. Eddy
1961 An Archaeological Survey of the Navajo Reservoir District, Northwestern New Mexico. Monograph of the School of American Research and the Museum of New Mexico, No. 23. Santa Fe.

Donaldson, Thomas
1893 Moqui Pueblo Indians of Arizona and Pueblo Indians of New Mexico. Extra Census Bulletin, 11th Census of the United States, U.S. Census Printing Office, Washington, D.C.

Dorsey, George A., and Henry R. Voth
1901 The Oraibi Soyal Ceremony. Field Museum of Natural History, Publication 55, Chicago.

Dozier, Edward P.
1960 The Pueblos of the South-Western United States. Journal of the Royal Anthropological Institute,

90(1):146–160.
1961 Rio Grande Pueblos. In Perspectives in American Indian Culture Change, edited by Edward H. Spicer. University of Chicago Press, Chicago.
Durkheim, Emile
1965 The Elementary Forms of the Religious Life. Free Press, New York. (Originally published 1915).
Dutton, B. P.
1963 Sun Fathers Way; the Kiva Murals of Kuaua. University of New Mexico Press, Albuquerque.
1964 Las Madres in the light of Anasazi migrations. American Antiquity 29(4):449–454.
Eggan, Fred
1950 Social Organization of the Western Pueblos. University of Chicago Press, Chicago.
Ellis, Florence H.
1952 Jemez kiva magic and its relation to features of prehistoric kivas. Southwestern Journal of Anthropology 8:147–163.
1964 Archaeological history of Nambe Pueblo, 14th century to the present. American Antiquity 30(1):34–42.
Ellis, FlorenceH., and J.J. Brody
1964 Ceramic stratigraphy and tribal history at Taos Pueblo. American Antiquity 29(3):316–327.
Emslie, Steven D.
1981 Birds and prehistoric agriculture: The New Mexican Pueblos. Human Ecology 9(3):305–329.
Fenenga, F., and T.S. Cummings
1956 LA 2569: Cerros Mojinos, a Late Pueblo II–Early Pueblo III village on the Rio Puerco near Los Lunas, New Mexico. In Pipeline Archaeology, edited by F. Wendorf, N. Fox, and O.L. Lewis. Published jointly by the Laboratory of Anthropology, Santa Fe, and the Museum of Northern Arizona, Flagstaff.
Fenton, William N.
1957 Factionalism at Taos Pueblo, New Mexico. Bureau of American Ethnology, Bulletin 164, Anthropological Paper No. 56. Washington, D.C.
Ferdon, E. N. and E. K. Reed
1950 A pit-house near Belen, New Mexico. El Palacio 55(2):40–41.
Fewkes, Jesse W.
1897 Tusayan Snake Ceremonies. Bureau of American Ethnology, 16th Annual Report, pp. 267–312. Washington, D.C. (Reprinted 1986, Awanyu Publishing, Albuquerque, N.M.)
1898 Archaeological Expedition to Arizona in 1895. Bureau of American Ethnology, 17th Annual Report for the Years 1895–1896. Washington, D.C.
1902 Hopi festivals. American Anthropologist, n.s., 4:482–511
1924 The Use of Idols in Hopi Worship. Smithsonian Institution, Annual Report for 1922, pp. 469–486. Washington, D.C.
1985 Hopi Kachinas. Dover Publications, New York. (Originally published 1903, Twenty-First Annual Report of the Bureau of American Ethnology to the Secretary of the Smithsonian Institution, 1899-1900, Washington, D.C.)
Fiero, K.
1978 Draft Final Report: Prehistoric Garden Plots Along the Lower Rio Chama Valley, Archaeological Investigations at Sites LA 11830, LA 11831, and LA 11832, Rio Arriba County,

New Mexico. Museum of New Mexico, Laboratory of Anthropology, Note 111e. Santa Fe.

Frigout, Arlette
1979 Hopi ceremonial organization. In Handbook of North American Indians, Vol. 9, edited by Alfonso Ortiz, pp. 564–576. Smithsonian Institution, Washington, D.C.

Gauthier, Rory, P. Prince, and F. Mathien
1978 An Archaeological Sample Survey of Proposed Timber Sale Areas on the Picuris Pueblo Reservation. Office of Contract Archaeology, University of New Mexico, Albuquerque.

Gilman, Patricia A.
1987 Architecture as artifact: Pit structures and pueblos in the American Southwest. American Antiquity 52(3):538–564.

Gladwin, H. S.
1945 The Chaco Branch: Excavations at White Mound and in the Red Mesa Valley. Medallion Papers, No. 33. Gila Pueblo, Globe, Ariz.

Glassow, Michael
1980 Prehistoric Agricultural Development in the Northern Southwest: A Study in Changing Patterns of Land Use. Anthropological Papers, No. 16. Ballena Press, Soccorro, N.M.

Goldfrank, Esther S. (editor)
1962 Isleta Paintings. Bureau of American Ethnology Bulletin 181. Washington, D.C.

Green, Ernestene
1976 Valdez Phase Occupation near Taos, New Mexico. Fort Burgwin Research Center, Report 10. Ranchos de Taos, N.M.

Green, R. C., M. A. Danfelser, and G. Vivian
1958 Interpretations of Bg 91: A specialized Largo-Gallina surface structure. El Palacio 65(2):41–60.

Greiser, Sally T., Weber T. Greiser, and D. Putnam
1992 Aboriginal Irrigation in the Taos Valley. Historical Research Associates. Missoula, Mont., prepared for U.S. Attorney's Office, Albuquerque.

Gunnerson, James H.
1969 Apache archaeology in northeastern New Mexico. American Antiquity 34(1):23–39.

Habichte-Mauche, Judith
1989 Notes on ceramic types in the northern Rio Grande and southern Plains regions. Ms. on file, Fort Burgwin Research Center, Ranchos de Taos, N.M.

Hack, John H.
1942 The Changing Physical Environment of the Hopi Indians of Arizona. Papers of the Peabody Museum of American Archaeology, Harvard University, Vol. 35. Cambridge, Mass.

Hall, E. T., Jr.
1944 Early Stockaded Settlements in the Governador, New Mexico. Columbia Studies in Archaeology and Ethnology, Vol. 2, Part 1. New York.

Hammond, G. P., and Agapito Rey
1929 The Espejo Expedition into New Mexico Made by Antonio de Espejo, 1582–1583. Quivira Society, Vol. 1. Los Angeles.
1953 Don Juan de Oñate: Colonizer of New Mexico, 1598–1628. University of New Mexico Press, Albuquerque.

Harlan, Thomas
1966 Dendrochronology of Picuris Pueblo. Ms. on file, Fort Burgwin Research Center, Ranchos de Taos, N.M.

Harrington, John Peabody
1909 Notes on the Piro language. American Anthropologist 11(4):563–594.
1916 The Ethnogeography of the Tewa Indians. Bureau of American Ethnology, 29th Annual Report. Washington, D.C.
Harris, Arthur H.
1963 Ecological Distribution of Some Vertebrates in the San Juan Basin, New Mexico. Museum of New Mexico, Papers in Anthropology, No. 8. Santa Fe.
1970 Past climate of the Navajo Reservoir District. American Antiquity 35:374–377.
1993 Wisconsinan pre-pleniglacial biotic change in southeastern New Mexico. Quaternary Research 40:127–133.
Haury, Emil W.
1934 The Canyon Creek Ruin and the Cliff Dwellings of the Sierra Ancha. Medallion Papers, No. 14. Gila Pueblo, Globe, Ariz.
1940 Excavations in the Forestdale Valley, East Central Arizona. Social Science Bulletin, No. 12. University of Arizona Press, Tucson.
1962 The Greater American Southwest. In Courses Toward Urban Life: Archeological Considerations of Some Cultural Alternatives, edited by Robert J. Braidwood and Gordon R. Willey. Viking Fund Publications in Anthropology, 32. New York.
1976 The Hohokam: Desert Farmers and Craftsmen. University of Arizona Press, Tucson.
Hawley (Ellis), Florence
1937a Field Manual of Prehistoric Southwestern Pottery Types. University of New Mexico Bulletin Anthropological Series, 1(4). Albuquerque
1937b Pueblo social organization as a lead to Pueblo history. American Anthropologist 39(3):504–522.
1950 Big kivas, little kivas, and moiety houses in historical reconstruction. Southwestern Journal of Anthropology 6(3):286–302.
1964 A Reconstruction of the Basic Jemez Pattern of Social Organization, with Comparisons to Other Tanoan Social Structures. University of New Mexico Publications in Anthropology, No. 11. Albuquerque.
Hayes, Kelley Ann
1991 Ceramics. In Homol'ovi II: Archaeology of an Ancestral Hopi Village, Arizona, edited by E. Charles Adams and Kelley Ann Hayes, pp. 23–47. Anthropological Papers of the University of Arizona, 55. Tucson.
Hedrick, Basil, J. Charles Kelley, and Carroll Riley (editors)
1974 The Mesoamerican Southwest. Southern Illinois University Press, Carbondale.
Hegmon, Michelle
1989 Social integration and architecture. In The Architecture of Social Integration in Prehistoric Pueblos, edited by W. D. Lipe and Michele Hegmon, pp. 5–14. Crow Canyon Archaeological Center, Cortez, Colo.
Hendron, J. W.
1940 Prehistory of El Rito de Los Frijoles, Bandelier National Monument. Southwestern Monuments Association, Technical Series, No. 1. Coolidge, Ariz.

Herold, Laurence
1968 An archaeological-geographical survey of the Rio Grande de Ranchos. In Papers on Taos Archaeology, edited by L. Herold and R. Luebben, pp. 9–44. Fort Burgwin Research Center, Publication 7. Ranchos de Taos, N.M.
Herold, Laurence, and Ralph Luebben (editors)
1968 Papers on Taos Archaeology. Fort Burgwin Research Center, Publication 7. Ranchos de Taos, N.M.
Herzog, George
1928 The Yuman musical style. Journal of American Folklore 41:183–231.
Hibben, Frank C.
1937 Excavation of the Riana Ruin and the Chama Valley Survey. University of New Mexico Bulletin, Anthropological Series, Vol. 2, No. 1. Albuquerque.
1966 A possible pyramidal structure and other Mexican influences at Pottery Mound, New Mexico. American Antiquity 31(4):522–529.
1975 Kiva Art of the Anasazi at Pottery Mound. KC Publications, Las Vegas, Nev. (Reprinted 1984).
Hill, David V.
1994 Appendix 3: Petrographic analysis of ceramics from near Fort Burgwin, New Mexico. In Studying the Taos Frontier: The Pot Creek Data Recovery Project, 2 vols., edited by Jeffrey Boyer et al., pp. 545–549. Archaeology Notes 68, Museum of New Mexico, Office of Archaeological Studies. Santa Fe.
Hill, Stephen W.
1995 Kokopelli Ceremonies. Kiva Publishing, Santa Fe.
Hodge, F.W.
1920 Hawikuh Bonework. Indian Notes and Monographs, Vol. 3. Museum of the American Indian, Heye Foundation, New York.
Hodge, F. W., G. P. Hammond, and A. Rey
1945 Fray Alonso de Benavides' Revised Memorial of 1634. Coronado Cuarto Centennial Publications, Vol. 4. Albuquerque.
Hunter-Anderson, Rosalind
1979 Explaining residential aggregation in the northern Rio Grande: A competition reduction model. In Adaptive Change in the Northern Rio Grande: Archaeological Investigations in Cochiti Reservoir, edited by Jan V. Biella and Richard C. Chapman, Vol. 4, pp. 169–175. Office of Contract Archaeology, Albuquerque, N.M.
Hurt, Wesley R., and Herbert W. Dick
1946 Spanish-American Pottery from New Mexico. El Palacio 53(10):280–288.
Indian Populations in the United States and Alaska, 1910
1915 Department of Commerce, Bureau of the Census, Washington, D.C.
Jeançon, J. A.
1923 Excavations in the Chama Valley, New Mexico. Bureau of American Ethnology, Bulletin 81. Washington, D.C.
1929 Archaeological investigations in the Taos Valley, New Mexico, during 1920. Smithsonian Misc. Collections 81(19):1–21.
Johnson, A. E.
1965 Current research: southwest. American Antiquity 30(3):371–374.

Judd, Neil M.
1954 The material culture of Pueblo Bonito. Smithsonian Misc. Collections 124:304–305.
Kelso, J., and G. Ewing
1962 Introduction to Physical Anthropology Laboratory Manual. University of Colorado, Boulder, Colo.
Kidder, Alfred V.
1915 Pottery of the Pajarito Plateau and of some adjacent regions in New Mexico. Memoirs of the American Anthropological Association 2:407–462.
1924 An Introduction to the Study of Southwestern Archeology, with a Preliminary Account of the Excavations at Pecos. Papers of the Phillips Academy Southwestern Expedition, No. 1. New Haven, Conn.
1931 The Pottery of Pecos, Vol. I. Papers of the Phillips Academy Southwestern Expedition, No. 5. New Haven, Conn.
1932 The Artifacts of Pecos. Papers of the Phillips Academy Southwestern Expedition, No. 6. New Haven, Conn.
1958 Pecos, New Mexico: Archaeological Notes. Papers of the Robert S. Peabody Foundation for Archaeology, No. 5. Andover, Mass.
Kidder, Alfred V. and Charles A. Amsden
1931 Dull paint wares. In The Pottery of Pecos, Vol. 1, edited by Alfred Vincent Kidder. Papers of the Phillips Academy Southwestern Expedition, No. 5. New Haven, Conn.
Kidder, Alfred V., and S. Guernsey
1919 Archaeological Explorations in Northeastern Arizona. Bureau of American Ethnology, Bulletin No. 65. Washington, D.C.
1921 Basketmaker Caves of Northeastern Arizona. Papers of the Peabody Museum of American Archaeology and Ethnology, Harvard University, Vol. 8. Cambridge, Mass.
Kidder, Alfred V., and Anna O. Shepard
1936 The Pottery of Pecos, Vol. 2: The Glaze-Paint, Culinary, and Other Wares. Papers of the Southwestern Expedition, No. 7. Yale University Press for the Phillips Academy. New Haven, Conn.
Kidder, M. A. and A.V. Kidder
1917 Notes on the Pottery of Pecos. American Anthropologist 19(3):325–360.
Kintigh, Keith W.
1985 Settlement, Subsistence, and Society in Late Zuni Prehistory. Anthropological Papers, No. 44. University of Arizona Press, Tucson.
Kluckhohn, Clyde
1939 The Excavations of Bc-51, Rooms and Kivas. Anthropological Series, Vol. 3. University of New Mexico, Albuquerque.
Krenetsky, J.C.
1966 Phytosociological study of the Picuris grant and ethnobotanical study of the Picuris Indians. Ms. on file, Fort Burgwin Research Center, Ranchos de Taos, N.M.
Kulisheck, Jeremy
n.d. A study of Jeddito Yellow Wares from Picuris Pueblo. Ms. in possession of the author, Santa Fe.
Kulisheck, Jeremy, Michael Adler, and John Hufnagle
1994 Diversity and continuity in Classic and Protohistoric villages of the Taos district. Paper

presented at the 59th annual meetings of the Society for American Archaeology, Anaheim, Calif.

Lambert, Marjorie F.
1954 Paa-ko: Archaeological Chronicle of an Indian Village in North-Central New Mexico, Parts I–V. Monograph of the School of American Research, No. 19. Santa Fe.
1957 A rare stone humpbacked figurine from Pecos Pueblo, New Mexico. El Palacio 64(3–4):93–108.
1967 A Kokopelli effigy pitcher from North Western New Mexico. American Antiquity 32:398–401.

Lange, Charles H.
1959 Cochiti: A New Mexico Pueblo, Past and Present. University of Texas Press, Austin. (Reprinted 1968, Southern Illinois University Press, Carbondale.)
1979 Santo Domingo Pueblo. In Handbook of North American Indians, Vol. 9, edited by Alfonso Ortiz, pp. 379–389. Smithsonian Institution, Washington, D.C.

Lange, Frederick, Nancy Mahaney, Joe Ben Wheat and Mark L. Chenault
1986 Yellow Jacket: A Four Corners Anasazi Ceremonial Center. Johnson Books, Boulder, Colo.

Lange, Richard W.
1981 A Prehistoric Garden Plot on the Rio Ojo Caliente, Rio Arriba County, New Mexico: Ojo Caliente Site 7, Features 1–2. School of American Research, Contract Archaeology Division, Report 065. Santa Fe.

Lasswell, Harold D.
1935 Collective Autism as a Consequence of Culture Contact: Notes on Religious Training and the Peyote Cult at Taos. Zeitschrift fur Sozialforschung, Jahrgany IV, Heft 2, pp. 232–247.

LeBlanc, Steven A.
1989 Cultural dynamics in the southern Mogollon area. In Dynamics of Southwest Prehistory, edited by Linda Cordell and George Gumerman, pp. 179–208. Smithsonian Institution Press, Washington, D.C.

Lehmer, Donald J.
1948 The Jornada Branch of the Mogollon. University of Arizona Bulletin, Vol. 19, No. 2, Social Science Bulletin No. 17. Tucson.

Lekson, Stephen
1988 The idea of the kiva in Anasazi archaeology. Kiva 53(3):213–234.
1996 Southwestern New Mexico and southeastern Arizona, A.D. 900 to 1300. In The Prehistoric Pueblo World, A.D. 1150–1350, edited by Michael Adler, pp. 170–176. University of Arizona Press, Tucson.

Lent, Stephen C.
1991 Kwahe'e Black-on-white and Taos Black-on-white: The H.P. Mera type sites. Pottery Southwest 18(3):7–9.

Levine, Daisy
1994 Ceramics. In Studying the Taos Frontier: The Pot Creek Data Recovery Project, 2 vols., edited by Jeffrey Boyer et al., pp. 339–378. Archaeology Notes 68, Museum of New Mexico, Office of Archaeological Studies. Santa Fe.

Lightfoot, D. R.
1993 The landscape context of Anasazi pebble-mulch fields in the Galisteo Basin, northern New Mexico. Geoarchaeology 8:349–370.

Lister, Robert H., and Florence C. Lister
1978 Anasazi Pottery. University of New Mexico Press, Albuquerque.
Locke, Raymond Friday
1976 The Book of the Navajo. Mankind Publishing, Los Angeles.
Loose, Ann A.
1974 Archaeological Excavation near Arroyo Hondo, Carson National Forest, New Mexico. Archaeological Report No. 4, USDA Forest Service, Southwestern Region. Albuquerque.
Mallery, Garrick
1881 Sign language among North American Indians compared with that among other peoples and deaf mutes. In Bureau of American Ethnology, First Annual Report, pp. 263–552. Washington, D.C.
Martin, Paul S., John B. Rinaldo, Elaine Bluhm, Hugh C. Cutler, and Roger Grange, Jr.
1952 Mogollon Cultural Continuity and Change: The Stratigraphic Analysis of Tularosa and Cordova Caves. Fieldiana, Vol. 40. Chicago Natural History Museum, Chicago.
Martineau, La Van
1973 The Rocks Begin to Speak. KC Publications, Las Vegas, Nev.
McNutt, C. H.
1959 Excavations and interpretations of early puebloan occupations at the Tesuque By-Pass Site and in the upper Rio Grande valley. Ph.D. dissertation, University of Michigan, Ann Arbor.
Meares, Richard
1954 The Bird Fancyer's Delight. Schott and Co., London. Originally published 1717, Richard Meares.)
Mera, Harry P.
1932 Wares Ancestral to Tewa Polychrome. Laboratory of Anthropology, Technical Series Bulletin, No. 4. Santa Fe.
1933 A Proposed Revision of the Rio Grande Glaze Paint Sequence. Laboratory of Anthropology, Technical Series Bulletin, No. 5. Santa Fe.
1934 A Survey of the Biscuit Ware Area in Northern New Mexico. Laboratory of Anthropology, Technical Series Bulletin, No. 6. Santa Fe.
1935 Ceramic Clues to the Prehistory of North-Central New Mexico. Laboratory of Anthropology, Technical Series Bulletin, No. 8. Santa Fe.
1939 Style Trends of Pueblo Pottery in the Rio Grande and Little Colorado Cultural Areas from the Sixteenth to the Nineteenth Century. Laboratory of Anthropology, Memoir, No. 3. Santa Fe.
1940 Population Changes in the Rio Grande Glaze Paint Area. Laboratory of Anthropology, Technical Series Bulletin, No. 9. Santa Fe.
Merriam, Alan P.
1964 The Anthropology of Music. Northwestern University Press, Evanston, Ill.
Mindeleff, Victor
1891 A Study of Pueblo Architecture in Tusayan and Cibola. In Eighth Annual Report of the Bureau of American Ethnology for the Years 1886–1887, pp. 3–228. U.S. Government Printing Office, Washington, D.C.

Montgomery, A.
1953 Pre-Cambrian Geology of the Picuris Range, North-Central New Mexico. Bulletin 30, State Bureau of Mines and Mineral Resources, New Mexico Institute of Mining and Technology. Socorro.
1963 The Source of fibrolite axes. El Palacio 70(1–2):34–48.
Moore, James
1981 Prehistoric soil and water conservation in the Middle Rio Puerco Valley. Master's thesis, University of New Mexico, Albuquerque.
Morenon, Pierre
n.d. Excavations at Sagebrush Pueblo. Ms. on file, Fort Burgwin Research Center, Ranchos de Taos, N.M.
Morris, Earl H.
1925 Exploring the canyon of death. National Geographic 49(30):263–300.
Morris, Earl H., and Robert F. Burgh
1954 Basketmaker II Sites near Durango, Colorado. Publication 604, Carnegie Institution of Washington, Washington, D.C.
Morris, Elizabeth Ann
1959 Basketmaker flutes from the Prayer Rock District, Arizona. American Antiquity 24(4):406–411.
1980 Basketmaker Caves in the Prayer Rock District, Northeastern Arizona. Anthropological Papers of the University of Arizona, No. 35. University of Arizona Press, Tucson.
Munsell Corporation
1945 Soil Color Chart. Baltimore.
Murdock, George Peter
1949 Social Structure. The Macmillan Company, New York.
Nelson, Nels C.
1914 Pueblo Ruins of the Galisteo Basin, New Mexico. Anthropological Papers of the American Museum of Natural History, Vol. 15, Part 1. New York.
Olson, A. P.
1962 A history of the phase concept in the Southwest. American Antiquity 27(4):457–472.
Ortiz, Alfonso
1965 Dual organization as an operational concept in the Pueblo Southwest. Ethnology 4(4):389–396.
Pancoast, Chalmers Lowell
1918 Last dance of Picuris. The American Museum Journal 18(4):308–311.
Parmentier, Richard J.
1979 The mythological triangle: Poseyemu, Montezuma, and Jesus in the Pueblos. In Handbook of North American Indians, Vol. 9, edited by Alfonso Ortiz, pp. 609–622. Smithsonian Institution, Washington, D.C.
Parsons, Elsie Clews
1925 The Pueblo of Jemez. Papers of the Phillips Academy Southwestern Expedition, No. 3. New Haven, Conn.
1929 The Social Organization of the Tewa of New Mexico. American Anthropological Association, Memoir No. 36. Menasha, Wisc.
1932 Isleta, New Mexico. Bureau of American Ethnology, Forty-Seventh Annual Report, pp. 193–466. Washington, D.C.
1936 Taos Pueblo. General Series in Anthropology, No. 2. George Banta Publishing Company, Menasha, Wisc.
1938 The hunchbacked flute player of

the Southwest. American Anthropologist 40:337–338.
1939a Picuris, New Mexico. American Anthropologist 41:206–222.
1939b Pueblo Indian Religion, 2 vols. University of Chicago Press, Chicago.
1994 Tewa Tales. University of Arizona Press, Tucson. (Originally published 1926, Memoirs of the American Folk-Lore Society, Vol. 19, New York.)
Patterson, Alex
1992 A Field Guide to Rock Art Symbols. Johnson Books, Boulder, Colo.
Patterson-Rudolph, Carol
1990 Petroglyphs and Pueblo Myths of the Rio Grande. Awanyu Publishing, Albuquerque.
Payne, Richard W.
1989 Indian flutes of the Southwest. Journal of the American Musical Instrument Society 15:5–31.
1991 Bone flutes of the Anasazi. Kiva 56(2):165–177.
Peabody, Charles
1917 A prehistoric wind-instrument From Pecos, New Mexico. American Anthropologist 19:30–33.
Peckham, Barbara A.
1981 Pueblo IV murals at Mound 7. In Contributions to Gran Quivira Archaeology, Gran Quivira National Monument, New Mexico, edited by Alden C. Hayes, pp. 15–38. Publications in Archaeology, No. 17, National Park Service. Washington, D.C.
Peckham, Stewart
1991 From This Earth: The Ancient Art of Pueblo Pottery. Museum of New Mexico Press, Santa Fe.
Peckham, Stewart, and Erik K. Reed
1963 Three sites near Ranchos de Taos, New Mexico. Highway Salvage Archaeology 4:1–29.
Pepper, George H.
1920 Pueblo Bonito. Anthropological Papers of the American Museum of Natural History, Vol. 27. New York.
Peterson, Roger Tory
1961 A Field Guide to Western Birds. Houghton Mifflin, Boston.
Post, Stephen
1995 Santa Fe Black-on-white: The Pottery of choice in the Santa Fe area during the Coalition and early Classic periods. Paper read at the City of Santa Fe Archaeological Symposium, October 1995.
Proctor, Rebecca
1993 Stylistic variation and change in prehistoric ceramics in the northern Rio Grande region of New Mexico. Ph.D. dissertation, Washington University, St. Louis.
Proctor-Weiss, Rebecca
1983 Northern Rio Grande painted pottery types: A reevaluation. Paper presented at the 48th Annual Meeting of the Society for American Archaeology, Pittsburgh.
Radcliffe-Brown, A. R.
1965 Structure and Function in Primitive Society. Free Press, New York.
Randel, Don (editor)
1986 The Harvard Dictionary of Music. Harvard University Press, Cambridge, Mass.
Rapoport, Amos
1969 House Form and Culture. Prentice-Hall, Englewood Cliffs.
1988 Levels of meaning in the built environment. In Cross-Cultural Perspectives in Nonverbal

Communication, edited by F. Poyatos, pp. 317–336. C. J. Hogrefe, Toronto.
1990 History and Precedence in Environmental Design. Plenum Press, New York.
Rappaport, Roy A.
1971 Ritual, sanctity and cybernetics. American Anthropologist 73:59–76.
Reagan, Albert B.
1914 Don Diego; or The Pueblo Uprising in 1680. A. Harrington Co., New York.
1922 Symbolical drawings by Jemez Pueblos. El Palacio 12(2):17–24
Reed, Erik K.
1948 The Western Pueblo archaeological complex. El Palacio 55:9–15.
1949 Sources of the upper Rio Grande Pueblo culture and population. El Palacio 56:163–184.
1955 Painted pottery and Zuni history. Southwestern Journal of Anthropology 11(2):178–193.
Riley, Carroll, and Basil C. Hedrick (editors)
1978 Across the Chichimec Sea: Papers in Honor of J. Charles Kelley. Southern Illinois University Press, Carbondale.
Roberts, Frank H. H., Jr.
1932 The Village of the Great Kivas on the Zuni Reservation. U.S. Bureau of American Ethnology, Bulletin 111. Smithsonian Institution, Washington, D.C.
Robinson, W.
1951 A Method for Chronological Ordering Archaeological Deposits. American Antiquity 16(4):293–300.
Robinson, William, and Richard L. Warren
1971 Tree Ring Dates from New Mexico C-D: Northern Rio Grande Area. Laboratory of Tree Ring Research, Tucson.
Rohn, Arthur H.
1989 Rock Art of Bandelier National Monument. University of New Mexico Press, Albuquerque.
Schaafsma, Curtis
n.d.a. The Hatch Site. Ms. on file in the Museum of New Mexico, Santa Fe.
n.d.b. Field notes of 1965 field season at Picuris Pueblo. Ms. on file, Fort Burgwin Research Center, Ranchos de Taos, N.M
Schaafsma, Curtis, Daniel Wolfman, and Marianne L. Wolfman
1966 Handbook of Codes and Statistical Methods for Use in Analyzing Archeological Sites with the Aid of a Computer. Adams State Series in Anthropology, No. 2. Alamosa, Colo.
Schaafsma, Polly
1965 Kiva murals from Pueblo del Encierro (LA 70). El Palacio 72(3):7–16.
1975 Rock Art in New Mexico. University of New Mexico Press, Albuquerque.
1980 Indian Rock Art of the Southwest. School of American Research, Santa Fe, and University of New Mexico Press, Albuquerque.
Schaafsma, Polly (editor)
1992 Kachinas in the Pueblo World. University of New Mexico Press, Albuquerque.
Schlanger, Sarah, and Richard Wilshusen
1993 Local abandonments and regional conditions in the North American Southwest. In Abandonment of Settlements and Regions: Ethnoarchaeological and Archaeological Approaches,

edited by Catherine Cameron and Steve Tomka, pp. 85–98. Cambridge University Press, Cambridge, England.

Schoenwetter, James
1966 Pollen studies at Picuris Pueblo. Ms. on file, Fort Burgwin Research Center, Ranchos de Taos, N.M.

Schroeder, Albert H.
1962 A re-analysis of the routes of Coronado and Oñate into the plains in 1541. Plains Anthropologist 7(15):2–23.
1963 The documents of the de Sosa expedition. Paper presented at the 1963 Pecos Conference.
1974 A Brief History of Picuris Pueblo: A Tiwa Indian Group in North Central New Mexico. Adams State College Series in Anthropology, No. 2. Alamosa, Colo.

Shapiro, Jason
1996 Fingerprints on the landscape: Space syntax analysis of Arroyo Hondo Pueblo. Ph.D. Dissertation, Pennsylvania State University, University Park.

Shepard, A.O.
1942 Rio Grande Glaze Paint Ware: A Study Illustrating the Place of Ceramic Technological Analysis in Archaeological Research. Contributions to American Anthropology and History, No. 39, Carnegie Institution of Washington, Publication 528, pp.129–262. Washington, D.C.

Siegel, Bernard J.
1959 Some structure implications for change in Pueblo and Spanish New Mexico. In Intermediate Societies, Social Mobility, and Communication, edited by Verne F. Ray, Proceedings of the 1959 Annual Spring Meeting of the American Ethnological Society. University of Washington, Seattle.

Simpson, James H.
1850 Journal of a Military Reconnaissance from Santa Fe, New Mexico, to the Navajo Country in 1849, by James H. Simpson, A.M., First Lieutenant Corps of Topographical Engineers. Senate Executive Document 64, 31st Cong., 1st sess., pp. 56–168. U.S. Government Printing Office, Washington, D.C. (Reprinted 1852, Lippincot, Grambo, and Co., Philadelphia.)

Skinner, S. Alan
1968 Two historic period sites in the El Rito valley, New Mexico. Plains Anthropologist 13:63–70.

Slifer, Dennis
1998 Signs of Life: Rock Art of the Upper Rio Grande. Ancient City Press, Santa Fe.

Slifer, Dennis, and James Duffield
1994 Kokopelli: Flute Player Images in Rock Art. Ancient City Press, Santa Fe.

Smiley, T. L.
1952 Four Late Prehistoric Kivas at Point of Pines, Arizona. University of Arizona Bulletin, 23(2), Social Science Bulletin No. 21. Tucson.

Smiley, T. L., S. A. Stubbs, and B. Bannister
1953 A Foundation for the Dating of Some Late Archaeological Sites in the Rio Grande Area, New Mexico, Based on Studies in Tree-ring Methods and Pottery Analyses. University of Arizona Bulletin, 24(3), Laboratory of Tree-Ring Research, Bulletin No. 6. Tucson.

Smith, Watson
1952a Excavations in the Big Hawk Valley. Museum of Northern Arizona Bulletin, No. 24. Flagstaff.
1952b Kiva Mural Decorations at Awatovi and Kawaika-a, with a Survey of Other Wall Paintings in the Pueblo Southwest. Papers of the Peabody Museum of American Archaeology and Ethnology, Harvard University, Vol. 37. Cambridge, Mass.
1971 Painted Ceramics of the Western Mound at Awatovi. Papers of the Peabody Museum of American Archaeology and Ethnology, Harvard University, Vol. 38. Cambridge, Mass.
Snead, James
1993 Of pumice and people: Anasazi agriculture and Jemez volcanism on the Caja del Rio, northwestern New Mexico. Paper presented at the Fifth Occasional Anasazi Symposium, San Juan College, Farmington, N.M.
Spielmann, Katherine
1991 Coercion or cooperation? Plains-Pueblo interaction in the Protohistoric period. In Farmers, Hunters, and Colonists: Interaction Between the Southwest and the Southern Plains, edited by K. Spielmann, pp. 36–50. University of Arizona Press, Tucson.
Spinden, Herbert Joseph
1933 Songs of the Tewa. Exposition of Indian Tribal Arts, New York.
Stephen, Alexander M.
1969 Hopi Journal of Alexander M. Stephen, Vol. 23, two parts, edited by Elsie Clews Parsons. AMS Press, New York. (Originally published 1936, Columbia University Press, New York.)
Stevenson, Marc G.
1982 Toward an understanding of site abandonment behavior: Evidence from historic mining camps in the southwest Yukon. Journal of Anthropological Archaeology 1:237–265.
Stevenson, Matilda C.
1894 The Sia. In Bureau of American Ethnology Eleventh Annual Report, pp. 3–157. Washington, D.C.
1904 The Zuni Indians, Their Mythology, Esoteric Fraternities, and Ceremonies. Bureau of American Ethnology, Twenty-Third Annual Report, 1901–1902. Washington, D.C.
1910 Reference in Administrative Report. Bureau of American Ethnology, Annual Report, No. 31. Washington, D.C.
1915 Ethnobotany of the Zuni Indians. In Bureau of American Ethnology, Thirtieth Annual Report, pp. 31–102. Washington, D.C.
Stirling, Matthew W.
1942 Origin Myth of Acoma and Other Records. Bureau of American Ethnology, Bulletin 135. Washington, D.C.
Stubbs, Stanley A.
1954 Summary report on an early pueblo site in the Tesuque valley, New Mexico. El Palacio 6(2):43–45.
Stubbs, Stanley A., and W. S. Stallings, Jr.
1953 The Excavation of Pindi Pueblo. Monograph of the Laboratory of Anthropology and the School of American Research, No. 18. Santa Fe.

Tanner, Clara Lee
1976 Prehistoric Southwestern Craft Arts. University of Arizona Press, Tucson.
Taylor, Walter W.
1948 A Study of Archaeology. Memoirs of the American Anthropological Association, Vol. 69. Menasha, Wisc.*
Trager, George L.
1943 The kinship and status terms of the Tiwa languages. American Anthropologist 45:557–571.
1967 The Tanoan settlement of the Rio Grande area: A possible chronology. In Studies in Southwestern Ethnolinguistics: Meaning and History in the Languages of the Southwest, edited by Dell Hymes and W. Bittle. Mouton and Co., The Hague.
Tyler, Hamilton A.
1991 Pueblo Birds and Myths. Northland Publishing, Flagstaff, Ariz. (Originally published 1979, University of Oklahoma Press, Norman.)
Underhill, Ruth M.
1956 The Navajos. University of Oklahoma Press, Norman.
Upham, Steadman
1982 Polities and Power: An Economic and Political History of the Western Pueblos. Academic Press, New York.
Upham, Steadman, Kent G. Lightfoot, and Gary M. Feinman
1981 Explaining socially determined ceramic distributions in the prehistoric Plateau Southwest. American Antiquity 46:822–833
Varien, Mark, Kristin Kuckelman, and James Kleidon
1993 The Site Testing Program. In The Sand Canyon Archaeological Project: A Progress Report, edited by William D. Lipe, pp. 45–67. Occasional Papers 2, Crow Canyon Archaeological Center. Cortez, Colo.
Vickery, Lucretia D.
1969 Excavations at TA-26, a small pueblo near Taos, New Mexico. Master's thesis, Wichita State University, Wichita, Kans.
Vivian, Gordon
1934 The excavation of Bandelier's Puaray. El Palacio 37:153–159.
Vivian, Gordon, and N. W. Clendenen
1965 The Denison site: Four pithouses near Isleta, New Mexico. El Palacio 72(2):5–26.
Vivian, Gordon, and Paul Reiter
1960 The Great Kivas of Chaco Canyon and Their Relationships. Monographs of the School of American Research and the Museum of New Mexico, No. 22. Santa Fe.
Voth, H. R.
1901 The Oraibi Powamu Ceremony. Field Columbian Museum Publication 61. Chicago.
Warren, A. Helene
1977 Appendix I: New dimensions in the study of prehistoric pottery. In Archaeological Investigations in Cochiti Reservoir, New Mexico, Volume 2: Excavation and Analysis, 1975 Season, edited by R. C. Chapman and J. V. Biella, pp. 362–374. Office of Contract Archaeology, University of New Mexico, Albuquerque.
Waters, Frank
1950 Masked Gods. Swallow Press/Ohio University Press, Athens.
1972 The Book of the Hopi. Penguin Books, New York.
Weaver, Donald E., Jr.

1984 Images on stone: The prehistoric rock art of the Colorado Plateau. Plateau 55(2).

Webb, William, and Robert A. Weinstein
1987 Dwellers at the Source: Southwestern Indian Photographs of A. C. Vroman 1895–1904. University of New Mexico Press, Albuquerque. (Originally published 1973, Grossman, New York.)

Wellmann, K. F.
1970 Kokopelli of Indian paleology: Hunchbacked rain priest, magician, and Don Juan of the Old Southwest. Journal of the American Medical Association 212:1678–82.

Wendorf, Fred
1953 Salvage Archaeology in the Chama Valley, New Mexico. Monograph of the School of American Research, No. 17. Santa Fe.
1954 A reconstruction of northern Rio Grande prehistory. American Anthropologist 56(2):200–227.
1956 A fragmentary pueblo near Corona, New Mexico. In Highway Salvage Archaeology, Vol. II, edited by Fred Wendorf. State Highway Department, Santa Fe.

Wendorf, Fred, and Eirk K. Reed
1955 An alternative reconstruction of northern Rio Grande prehistory. El Palacio 62(5–6):131–173.

Wetherington, Ronald K.
1964 Early occupations in the Taos District in the context of northern Rio Grande culture history. Ph.D. dissertation, University of Michigan, Ann Arbor.
1968 Excavations at Pot Creek Pueblo. Fort Burgwin Research Center, Publication 6. Ranchos de Taos, N.M.

White, Leslie
1962 The Pueblo of Sia, New Mexico. Bureau of American Ethnology, Bulletin No. 184. Washington, D. C.

Willey, Gordon R.
1953 Prehistoric Settlement Patterns in the Virú Valley, Peru. Bureau of American Ethnology, Bulletin 155, Washington, D.C.
1974 The Virú Valley Settlement Pattern Study. In Archaeological Researches in Retrospect, edited by Gordon R. Willey. Winthrop Publishers, Cambridge, Mass.

Wills, Wirt H.
1988 Early Prehistoric Agriculture in the American Southwest. School of American Research Press, Santa Fe.
1990 Cultivating Ideas: The Changing Intellectual History of the Introduction of Agriculture in the American Southwest. In Perspectives on Southwestern Prehistory, edited by Paul Minnis and Charles Redman, pp. 319–332. Westview Press, Boulder.

Wills, Wirt H., T. Baker, and L. Baker
1990 Aerial perspectives on prehistoric agricultural fields of the middle Rio Grande Valley, New Mexico. In Clues to the Past: Papers in Honor of William M. Sundt, edited by Meliha S. Duran and David T. Kirkpatrick, pp. 315–332. Papers of the Archaeological Society of New Mexico, No. 16. Albuquerque.

Wilshusen, Richard R.
1986 The relationship between abandonment mode and ritual use in Pueblo I Anasazi protokivas. Journal of Field Archaeology 13:245–54.

Wiseman, Regge N., and Bart Olinger
1991 Initial production of painted pottery in the Rio Grande: The perspective from LA 835, Pojoaque Grant site. In Puebloan Past and Present: Papers in Honor of Stewart Peckham, edited by Meliha Duran and David T. Kirkpatrick. Papers of the Archaeological Society of New Mexico, No. 17. Albuquerque.
Wolfman, Daniel
1962 Field notes of 1962 field season at Picuris Pueblo. Ms. on file, Fort Burgwin Research Center, Ranchos de Taos, N.M.
Wolfman, Daniel, Marianne L. Wolfman, and Herbert W. Dick
1965 Taos Phase Pithouse on Arroyo Seco, New Mexico. Adams State Series in Anthropology, No. 1. Alamosa, Colo.
Woodbury, Richard B.
1954 Prehistoric Stone Implements of Northeastern Arizona. Papers of the Peabody Museum of American Archaeology and Ethnology, Harvard University, Vol. 34. Cambridge, Mass.
1961a Climatic changes and prehistoric agriculture in the Southwestern United States. Annals of the New York Academy of Sciences, 95:705–709.
1961b Prehistoric Agriculture at Point of Pines, Arizona. Memoirs of the Society for American Archaeology, No. 17. Salt Lake City.
Woosley, Anne I.
1980 Agricultural diversity in the prehistoric Southwest. Kiva 45:317–335.
1986 Puebloan prehistory of the northern Rio Grande: Settlement, population, subsistence. Kiva 51:143–164.
Woosley, Anne I., and Bart Olinger
1990 Ethnicity and production of micaceous ware in the Taos valley. In Clues to the Past: Papers in Honor of William M. Sundt, edited by Meliha S. Duran and David T. Kirkpatrick. Papers of the Archaeological Society of New Mexico, No. 16. Albuquerque.
Wozniak, Frank
1992 Myth and propaganda: The story of irrigation in the middle Rio Grande Valley of New Mexico. Paper presented at the New Mexico Archaeological Council Symposium, Santa Fe.
Young, M. Jane
1988 Signs from the Ancestors: Zuni Cultural Symbolism and Perceptions of Rock Art. University of New Mexico Press, Albuquerque.

Appendix 1: Picuris Tree Ring Dates (from Harlan 1966)

123|6
124|
124|
126|
127|
128|
129|7
130|1
131|
132|
133|0
134|
135|33
136|
137|04
138|
139|3
140|56
141|012
142|7
143|3
144|60
145|01
146|001489
147|44444446
148|1
149|36
150|2568
151|35
152|469
153|001568
154|00
155|29
156|
157|
158|8
159|
160|

Other dates: 1768, 1788, 1887, 1920

Note: tree ring dates are listed by decade. Each numeral to the right indicates one tree ring date during that same year. Both cutting and non-cutting dates are included, with cutting dates underlined. The dates indicate the majority of preserved timbers at Picuris were cut during the 15th and 16th centuries.

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